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INSTITUTIONAL CONTEXT AND ENTREPRENEURIAL MOTIVATION: EVIDENCE FROM GLOBAL PANEL DATA

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Institutional Context and Entrepreneurial Motivation: Evidence from Global Panel Data

Abstract

Our primary objective is to test the relationship between the multi-faceted institutional context and the motivation to become an entrepreneur across time and across multiple nations. Specifically, we hypothesize that higher levels of economic freedom, political freedom, and globalization will be positively related to higher levels of entrepreneurial activity within a country. To test our hypotheses, we conducted OLS regression using data on 33 countries from 1999 to 2006 from the following sources: Global Entrepreneurship Monitor, the Index of Economic Freedom, the Freedom in the World Index, the Cingranelli-Richards Human Rights Dataset, the KOF Index of Globalization. Our results show a significant relationship between economic and political freedoms and entrepreneurial activity across many nations. Specifically, our findings lend support to the idea that motivation to become an entrepreneur is in part a rational, economic- and political-oriented decision-making process.

Keywords: entrepreneurial motivation, economic freedom, political freedom, institutional context

Introduction

Entrepreneurship is a critical mechanism for a nation's economic development through its impact on employment, competition, and innovation (Acs & Varga, 2005; Baumol, 2002; Schumpeter, 1934; Wong, Ho, & Autio, 2005). One's motivation to engage in entrepreneurial activity is heavily influenced by the institutional context in which they must make decisions, due in part to institutions being important drivers of economic transactions and behavior (Acs, Audretsch, & Evans, 1994; North, 1990, 2005). For our purposes, we conceptualize institutions as the economic, political, legal, and social organization of a society, and focus our analyses on the more tangible institutions within a society, such as regulations and legal origin (Acemoglu & Johnson, 2005; North, 1981). Much recent research has focused on understanding and creating institutional environments that are supportive of entrepreneurial activity (e.g., Acs & Szerb, 2007; Bowen & De Clercq, 2007; McMullen, Bagby, & Palich, 2008). Specifically, the work of Baumol (1990, 1993) and North (1990, 2005) has focused on this relationship between a nation's institutional environment and entrepreneurship within the nation. The work of Acemoglu and Johnson (2005) further focused on the role of institutions as determinants of economic and financial outcomes. In this paper, we use this body of theoretical work as a foundation upon which to investigate the relationship between institutional context and entrepreneurial motivation at the national level across 33 nations. Our main hypothesis is that a stronger institutional context will contribute to higher levels of entrepreneurial motivation. We use data from six international data sources from 1999 to 2006 to gather variables relevant to this analysis of the relationship between a nation's institutional environment and entrepreneurial motivation. Specifically, we include variables relating to the economic, legal, political, and globalization institutional contexts. We thus further our understanding of entrepreneurial activity using panel data analysis techniques across time.

The remainder of this manuscript proceeds as follows. We first develop hypotheses examining the relationship between facets of the economic, legal, political, and globalization institutional contexts and level of entrepreneurial activity in a nation. We then discuss our methods, our analysis. We next discuss our results, which provide some of the first empirical evidence regarding multiple institutional environments and entrepreneurship across multiple countries and

across time. We finally examine the implications and limitations of our study and the directions researchers might take in the future to build upon our results.

Theoretical Framework and Hypotheses

The Institutional Context of a Nation

In developing our hypotheses, we rely on the work of Baumol (1990, 1993, 2005), North (1990, 1994, 2005) and Acemoglu and Johnson (2005), who all explored the influence of the institutional environment on economic and/or entrepreneurial development. This body of theoretical literature offers insights into the process of entrepreneurial activity in differing institutional environments. Baumol's (1990) work focused on the allocation of entrepreneurial activities. He argued that a nation's institutional context influenced whether individuals allocated their resources toward productive (i.e., innovation) or unproductive (i.e., rent seeking) entrepreneurial activities. His work argues that the institutional structure of a nation is what provides the incentives for individuals to engage in different types of economic activity, such as new venture creation (1993). This leads to the idea that entrepreneurs' decisions and efforts (and thus their motivation) depend on the quality of a nation's economic, political, legal, and other institutions. For example, Baumol (1993) posited that productive entrepreneurship will be at low levels in a society with a weak institutional context, or where the economic, political and legal institutions are of low quality. North's (1990, 1994, 2005) model of institutional theory argues that entrepreneurs will adjust their motivations and activities depending on the opportunities and limitations offered through the institutional context of the nation. North (1990) differentiates between formal rules, such as those relating to the financial system and the regulatory system, and informal rules, such as those relating to cultural values and norms (i.e., trust and authority), present in the institutional context. He argues (2005) that these rules, which are determined by the institutional context, constrain human action and reduces uncertainty, thus providing the structure that will influence one's motivation to engage in entrepreneurial activity. An entrepreneur will thus weigh the incentives offered by their particular institutional environment in their decision to engage in entrepreneurial activity.

Acemoglu and Johnson (2005), building upon the work of North and other classic institutional research, make the key point that economic and political institutions coincide to impact economic development. They argue that property rights institutions, defined as those that offer individuals protection from government and elite expropriation, have a significant impact on the long-term economic growth, investment and financial development of a nation. Specifically, the argument is that nations where government and the elite face greater constraints (i.e., more regulation) will realize higher growth and investment rates and better economic fortitude and performance (e.g., Jones, 1981).

Acemoglu and Johnson (2005) further delineate the role of contracting institutions, defined as those institutions that support private contracts and thus regulate transactions between private parties, on a nation's economic growth, investment and financial development of a nation. They argue that these institutions, which can be represented by proxies such as the extent of legal formalism and procedural complexity within a nation, address the type of contracts that can be written and enforced and thus directly influence the efficiency of organizations within a nation (e.g., Hart, 1995; Williamson, 1975, 1985). They further argue for the more influential role of property rights institutions on economic outcomes of a nation. Contracting institutions, they posit, can be altered and circumvented through, for instance, changing contract terms. However, property rights institutions cannot be circumvented by individuals because these institutions

constrain those who control the state, and thus the regulations overseeing economic interactions (e.g., Acemoglu, 2003). Therefore, they argue, property rights institutions have a much great impact on the economic state and development of a nation.

These frameworks, and the empirical research they have spawned, show that the institutional fabric and structure of a nation (i.e., the social, cultural and political institutions – Polanyi, 1957) is an important determinant to entrepreneurial activity and productivity (e.g., Aidis, Estrin, & Mickiewicz, 2008; Bowen & De Clercq, 2007; Luthans & Ibrayeva, 2006; McMullen et al., 2008; Minniti, 2008; Parker, 2004; Sobel, 2008). None of these frameworks, however, provide much explicit guidance regarding specific facets of a nation's institutional context that should influence entrepreneurial activity. Collectively, these frameworks do generally refer to the economic, political, legal, technological, and human capital aspects of the institutional context. Therefore, we will focus on these dimensions in our hypotheses.

Economic Institutional Context and Entrepreneurial Activity

Economic freedom has been argued to have a positive impact on the cost of conducting business by decreasing the transaction cost on the entrepreneur (Schumpeter, 1942). Institutional environments differ across countries, and thus, have a differential effect on the economic structures of those countries (McMullen et al., 2008). Specifically, the embedded economic structure within a larger institutional structure that includes political, social, and legal structures is a main factor in determining the effectiveness of conducting and maintaining a successful business enterprise (Acemoglu & Johnson, 2005; Baumol, 1990; North, 2005). The broader institutional structure of a particular country includes all these sub-structures that are non-mutually exclusive; these sub-structures are interrelated and their effects should therefore not be studied in isolation. In developing our hypotheses relating to the economic institutional context, we build on and expand the work conducted by McMullen et al. (2008) to identify various facets of economic freedom and their relationship to total entrepreneurial activities (TEA). Using the Index of Economic Freedom (IEF), and in line with McMullen et al. (2008), we identify and define the following economic freedom dimensions: trade freedom, fiscal freedom, freedom from government, property rights, investment freedom, business freedom, freedom from corruption, and financial freedom.

Trade freedom. Trade freedom is defined as “the degree to which a nation's economy is free from governmental restrictions on the flow of foreign commerce” (McMullen et al., 2008: 880). Such restrictions include protectionist measures that a country may use to save its local businesses from foreign competitors. These measures run against free market measures that look at all businesses of all sizes as equal. Hence, a protectionist economy can be looked at as an economy that encourages local entrepreneurial activities as smaller and entrepreneurial businesses would be advantaged with less competition by foreign businesses. Therefore, we expect that:

Hypothesis 1: Higher levels of trade freedom will negatively affect TEA.

Fiscal freedom. Fiscal freedom can be defined as “the absence of burdensome tax rates and government expenditures as a portion of GDP” (McMullen et al., 2008: 880). Higher tax rates mean greater cost for a business that will likely detrimentally influence one's motivation to form a new business venture (Miller & Holmes, 2009). Kreft and Sobel (2005) argue that lower tax rates are necessary to encourage entrepreneurial activity, and Campbell and Rogers (2007) found a positive relationship between “takings and discriminatory taxation” and net business formation. Greater government expenditures will likely increase interest rates, which could discourage an individual who must borrow substantially to form a new venture (e.g., DiLorenzo, 2004). The entrepreneur, due to the small size of the business (i.e., liability of smallness), is more vulnerable to any increase in taxes or interest rate as they will bear a higher cost that could discourage them

from forming a new business venture. Stated differently, we conjecture that an institutional environment that demonstrates fiscal freedom will amplify one's motivation to engage in entrepreneurial activity. Stated formally:

Hypothesis 2: Higher levels of fiscal freedom will positively affect TEA.

Freedom from government. Freedom from government can be defined as “the absence of government intervention in the direct use of scarce resources for its own purposes (i.e. consumption, control over resources through ownership (i.e., production), and interference with capital allocation in the stock market” (McMullen et al., 2008: 881). A lower level of freedom of government can prevent entrepreneurs from taking advantage of new opportunities that would be better off should it be run by a private entity. An example of this is the nationalization of the oil industry in some countries that made the government the sole owner of this natural resource and no other business can enter this industry without the government permission, if possible at all. Such governmental intervention is expected to discourage entrepreneurs from taking part in the private sector due to the high level of uncertainty accompanied by a high cost of loss should the government increases the level of regulation in economic activities. Stated formally:

Hypothesis 3: Higher levels of freedom from government will be positively related to TEA.

Investment freedom. Investment freedom can be defined as “restrictions on (1) foreign ownership of business, (2) the industries and companies open to foreign investors, and (3) performance requirements on foreign companies” (McMullen et al., 2008: 882). This indicates that foreign individuals will not be treated in a similar manner as local individuals when it comes to certain industries that should encourage local entrepreneur to conduct businesses in areas of lower levels of competition, which are characterized with higher levels of certainty. Therefore, higher levels of preference of the local authorities for local individuals to conduct businesses in certain industries would positively encourage the entrepreneurial activities within the country as it more certain that foreign competition is less of a concern. Stated formally:

Hypothesis 4: Higher levels of investment freedom will be negatively related to TEA.

Property rights. Property rights can be defined as “the degree to which government creates the right to private property and enforces the laws written to protect those rights” (McMullen et al., 2008: 883). This type of rights is crucial for an economy to thrive as it is directly linked to higher income per capita, greater investment rates and higher credit availability to the private sector (Acemoglu & Johnson, 2005). Further, in a nation with greater property rights, businesses are more confident in investing in updating their assets and expanding in acquiring new ones (Miller & Holmes, 2009). Therefore, a country that provides and protect its citizens' and private entities' right of maintaining properties would increase the entrepreneur's confidence that his/her hard work is protected by the government and secure from unusual uncertainties such as nationalism or vandalism. Stated formally:

Hypothesis 5: Higher levels of protection of properties will be positively related to TEA.

Business freedom. Business freedom can be defined as “the ease or difficulty of opening and operating a business” (McMullen et al., 2008: 883). More restrictions and requirements that the government imposes would hinder entrepreneurial efforts to take advantage of business opportunities in a timely manner (Heckelman, 2000). These requirements can be looked at as ones that required on both, local and foreign entrepreneurs within the country. Another form of government requirements that might hinder business activities is the interference in the economy outputs such as imposing limits or quotas in some industries. Therefore, there would more opportunities that exist for governmental officials to show corrupting behaviors to ease those restrictions in exchange for favors or bribes. Stated formally:

Hypothesis 6: Higher levels of business freedom will be positively related to TEA.

Freedom from corruption. Freedom from corruption can be defined as the perception of legal, judicial, and administrative corruption in the business environment (de Haan & Sturn, 2000; McMullen et al., 2008). North (1986: 236) posited that “a well-specified legal system, an impartial judiciary, and a set of attitudes toward contracting and trading that encourage people to engage in [markets] at low cost” are critical to a country’s economic growth. Baumol (1990) also argued that a society without a strong enforceability of contracts was not conducive to engaging in entrepreneurial activities. Research shows that higher levels of corruption in a society are negatively associated with levels of innovation and economic growth and prosperity (e.g., Bowen & De Clercq, 2008; Cavusgil, Ghauri, & Agarwal, 2002; Dakhli & De Clercq, 2004). Existing literature further shows that the existence and enforcement of a commercial code and a functioning court system is essential for private business development (e.g., Estrin, Meyer, & Bytchkova, 2006; Peng, 2000). More frequent and larger governmental interventions in the market by increasing regulations and/or unpredictably changing commercial laws to tighten the entry to the market are factors that could increase the existence of a black market hence more chances for corruptive activities. Black markets and “unofficial” or informal economies have been a main driver to suppress economic freedom as the business person may not be able to conduct business with a higher level of certainty of the outcome of his/her efforts (Miller & Holmes, 2009; Johnson, Kaufmann, Shleifer, Goldman, & Weitzman, 1997; Webb, Tihanyi, Ireland, & Sirmon, 2009). Consistent with these observations, we conjecture that higher levels of perceived corruption should hinder economic activity (and thus entrepreneurial motivation) as laws and transactions will likely be enforced without consistency or transparency.

Hypothesis 7: Higher levels of freedom from corruption will be positively related to TEA.

Financial freedom. Financial freedom can be defined as the ease of accessibility to capital markets or any other sources of funding (McMullen et al., 2008). Whitley (1999) argued that a critical institutional structure influencing economic behavior is whether the capital or credit market is dominant. Entrepreneurs often face financial constraints in forming a new venture, in that they often must obtain significant external financing and often have inadequate collateral or track records (Arping, Loran, & Morrison, in press; Caputo & Dolinsky, 1998; Schumpeter, 1934; Wang, in press). Sources of funding for an entrepreneur looking to form a new venture can include banks or any other financial institution that provides capital and financial services. If the financial services sector within a country lacks governmental supervision in the sense that the government protects the rights of the lenders and the borrowers, the cost of financial transactions can be prohibitive on the borrower (i.e., the entrepreneur). Also, excessive regulations and protectionism of the financial services sector can increase the cost of capital due to the lack of competition as well as high levels of bureaucratic procedures to issue loans. Therefore, financial freedom plays a pivotal role in determining the overall cost to raise capital and conduct business. Consistent with these observations, we conjecture that the more accessible external funding is to an individual, the more motivated he/she will be to engage in entrepreneurial activity.

Hypothesis 8: High levels of financial freedom will be positively related to TEA.

Having used McMullen and colleagues’ (2008) framework to outline the influence of the economic environment on entrepreneurial motivation, we now expand upon this to focus on additional facets of the institutional environment that should influence entrepreneurial motivation.

Legal Institutional Context and Entrepreneurial Activity

Scholars have argued and found that the structure of a nation’s legal system influences the level and type of entrepreneurial activity engaged in within the particular nation (Acs & Szerb, 2007; Aidis et al., 2008; Dickson & Weaver, 2008; Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2002; Friedman, Johnson, Kaufman, & Zoido-Lobaton, 2000). For instance, North

(1986) argued that “a well-specified legal system, an impartial judiciary, and a set of attitudes toward contracting and trading” are critical determinants of a nation’s economic activity and growth. A nation’s legal system is what provides protection to individuals engaging in economic activity through the laws and regulations established and enforced within the context of the particular nation’s legal system (e.g., Botero, Djankov, La Porta, & Shleifer, 2004; Bowen & De Clercq, 2008; La Porta et al., 1997, 2008; Schumpeter, 1961).

A nation’s legal system can be classified in many different ways, but for the purposes of this study, we classify each nation based on whether their legal system is best represented by a common law or civil law system (see reviews by Mattei, 1994 and Smith & Ueda, 2006). A civil law legal system is one in which laws are written into some sort of collection, are codified, and are therefore not determined by judges (e.g., Glenn, 2007; Merryman, 2007). In this way, it is meant to provide a written account of the all the country’s laws which judges are charged to follow in all legal proceedings.

A common law legal system, on the other hand, is one in which laws are created by judges through their decisions in courts and is thus aimed at creating a comprehensive framework that identifies permissible and obligatory aspects of behavior (e.g., Glenn, 2007; Mezey, 1983); it can be formally defined as “the body of law derived from judicial decisions, rather than from statutes or constitution” (Garner, 2004: 293). As it is based on judicial decisions rather than more static statutes, a common law system is more flexible and adaptable than a civil law system as it emphasizes the continuity and transformation of legal principles as they are continuously applied to changing circumstances (Pejovich, 2008).

La Porta and colleagues (2008) found that nations with a civil law legal system provided less market-friendly regulation than nations with a common law legal system. More specifically, Djankov and colleagues (2003, 2008) found that civil law nations have slower and more complex judicial procedures and also have less restrictions on “self-dealing”, both of which should negatively influence an individual’s motivation to engage in entrepreneurial activity. This is in line with the argument made by North (1990) that “how effectively agreements are enforced is the single most important determinant of economic performance.” Consistent with these observations, we conjecture that a common law system will create a more flexible and market-friendly legal environment, and thus will lead to greater entrepreneurial activity.

Hypothesis 9: A common law system will be significantly different from a civil law system in predicting TEA.

Political Institutional Context and Entrepreneurial Activity

The next institutional context we investigate is a nation’s political context, which we operationalize as the extent of political rights, physical integrity, and empowerment rights. We now describe each of these facets.

Political rights, for this study, encompass the electoral process, the extent of political pluralism, and the functioning of government. These rights, which constrain government and elite expropriation, have been found to significantly impact the economic and financial strength and development of a nation (Acemoglu & Johnson, 2005). Further evidence suggests that political pluralism does influence the economic growth of a nation in the sense that the more accountable and transparent political institutions are, and the more participative citizens are, the better the economic and market-oriented results for a nation (Rodrik & Wacziarg, 2005). In the same vein, a competitive and fair electoral process helps to legitimize government and is an indication of political rights within a nation, and should enhance the economic growth and market orientation of a nation (Engerman & Sokoloff, 2008). The electoral process refers to the taking and counting of votes, and to the method by which an individual is elected to public office. If an electoral process

is in place, and is competitive and perceived as fair, it helps instill confidence in citizens in terms of governmental regulation and authority (Heard, 1976; Birch, 2008). Under these circumstances, where there is less risk of government intervention and expropriation, an individual wanting to engage in entrepreneurial activity would likely be more motivated to undertake the inherent risk of such activity (Acemoglu & Johnson, 2005; North, 2005). The last component of political rights, as operationalized in this study, is functioning of government. A nation with an effective government not only protects citizens and their rights, but also regulates many economic aspects, creates the infrastructure that attracts investors to utilize natural and human resources, combats corruption, and ensures property rights (Foxley 2009). Taken together, a nation that exhibits effective governance, has a credible electoral process, and a participatory type of government should be an attractive environment in which to engage in entrepreneurial activity. Thus,

Hypothesis 10: High levels of political rights will be positively related to TEA.

Citizens of a nation may or may not enjoy certain liberties. These represent fundamental individual rights, such as freedom of movement, speech, and religion that are protected by law against unwarranted influence from government or any other source. These rights, basically, protect individuals from the government of the nation in which they reside, in that they set limits on government so members of government cannot abuse the power bestowed upon them and unduly interfere in the lives and activities of citizens. Literature suggests that in nations in which citizens have these rights, economic growth and capital accumulation tend to be greater than in nations in which citizens do not have such rights (e.g., Barro, 1991; Ozler & Rodrik, 1992). Such a context would, according to Baumol (1990, 1993), provide incentive for individuals to engage in productive entrepreneurship. Thus, we conjecture that a nation which empowers its citizens with these types of rights will promote economic growth, which should encourage its citizens, and foreign investors, to engage in entrepreneurial activity. Conversely, nations in which individuals do not enjoy such rights, and are therefore subject to torture, political imprisonment, and other human rights violations, should show less entrepreneurial activity. Stated formally:

Hypothesis 11: High levels of physical integrity will be negatively related to TEA.

Hypothesis 12: High levels of empowerment rights will be positively related to TEA.

Globalization Institutional Context and Entrepreneurial Activity

Our last institutional context relates to the extent of globalization within a nation. We look at both political globalization (at the macro level) and social globalization (at the micro level). Political globalization can be defined as “an increasing trend toward multilateralism (in which the United Nations plays a key role), toward an emerging ‘transnational state apparatus,’ and toward the emergence of national and international nongovernmental organizations that act as watchdogs over governments and have increased their activities and influence” (Moghadam, 2005: 35). It is operationalized for the purposes of this study as the combination of the number of embassies and high commissions in a country, the number of international organizations to which a country is a member, and the number of UN peace missions a country has participated in. This thus represents the extent of a nation’s diplomatic relations. Research has found a strong link between variables relating to diplomatic relations and economic indicators (e.g., Baier & Bergstrand, 2007; Egger & Pfaffermayr, 2004; Wolf, 2005), showing that nations with stronger and wider diplomatic relations tend to exhibit better economic indicators. Thus, if a nation is very “politically globalized” (i.e., has many embassies and is a member of many international organizations), individuals wanting to engage in entrepreneurial activity will likely be doing so in a better economic climate than in less politically globalized nations. Therefore, because a politically globalized nation should provide better incentives for entrepreneurs (Baumol, 1993; North, 2005), we expect that:

Hypothesis 13: High levels of political globalization will be positively related to TEA.

Social globalization, in this study, is operationalized as personal contacts (direct interaction among people living in different countries), information flows (the number of internet users, cable telephones, number of radios, and international newspapers traded), and cultural proximity (imported and exported books – Kluver & Fu, 2004). Means of information and communication can be used to relay information about the economic climate and successes between individuals in different nations (Boockmann & Dreher, 2003). Such communication networks can help to lower cross-border transaction costs and thus promote economic integration and international trade (Mayer-Schöenberger & Hurley, 2000). In terms of empirical findings, Dreher and colleagues (2006, 2008) found using panel data for 123 countries from 1970 to 2000 that social globalization does significantly promote economic growth of the nation. Social globalization represents one example of the informal rules that constrain human action and reduce uncertainty, thus providing the structure that will influence one's motivation to engage in entrepreneurial activity (North, 2005). In a nation that is more "socially globalized", we argue that an entrepreneur should experience a better economic climate and less uncertainty, and thus be more motivated to engage in entrepreneurial activities. Thus, we expect

Hypothesis 14: High levels of social globalization will be positively related to TEA.

Methods

Sample and Analysis

Our sample covers the period from 1999 to 2006 for 33 countries. The dataset has been drawn from the following sources. The first is the Global Entrepreneurship Monitor (GEM) database, which includes data on entrepreneurs from 58 countries. The GEM dataset is developed and annually published by Babson College, London Business School, and the Kauffman Foundation (Reynolds, Bosma, Autio et al., 2005). Total entrepreneurial activity (TEA) is defined in this dataset as the percentage of the population aged 18 to 64 in a nation that is actively involved in forming a new business or owns/manages a business that has been in existence less than 42 months, and is given in a rate per 100 adults (Reynolds, et al. 2002).

Our second source is the Index of Economic Freedom (IEF) database includes data on more than 160 countries since 1995. The IEF dataset is developed and publically available from the Heritage Foundation and the *Wall Street Journal*. This index scores countries on the following ten categories: trade, fiscal, monetary, investment, financial, labor and business freedom, freedom from government, property rights, and freedom from corruption. Each of these freedoms is graded using a continuous scale of 0 to 100, with 100 indicating an environment most conducive to economic freedom (Miller & Holmes, 2009).

Third, Freedom House's Freedom in the World Index includes data on political rights and civil liberties for 193 countries. Freedom House's political rights index is made up of three subcategories: (1) political pluralism and participation (questions on the nature of participation in the political process by individuals and groups), (2) electoral process (questions capturing the existence and degree of freedom, fairness and honesty in elections), and (3) functioning of government (questions on the effectiveness of governance). Each country is assigned a numerical rating on a scale of 1 to 7 where 1 indicates the highest level of freedom/rights and 7 the lowest level of freedom/rights.

Fourth, the Cingranelli-Richards Human Rights Dataset (Cingranelli & Richards, 2008) contains data from 195 countries pertaining to government respect for human rights. We use the physical integrity index, which is an additive index composed of the torture, extrajudicial killing, political imprisonment, and disappearance human rights indicators. We also use the empowerment rights index, which is an additive index composed of freedom of movement, freedom of speech,

workers' rights, political participation, and freedom of religion indicators. Scores on these indices range from 0, indicating no government respect for these four rights, to 8, indicating full government respect for these four rights.

Fifth, the KOF Index of Globalization (Dreher, 2006; Dreher et al., 2008) measures the political, social, and economic dimensions of globalization across 158 countries. We focus on the political globalization and social globalization components. Their political globalization measure uses the number of embassies and high commissions in a country, the number of international organizations to which a country is a member, and the number of UN peace missions a country participated in as a proxy for the degree of political globalization of a nation (e.g., A.T. Kearney, 2001-2006). Personal contacts (direct interaction among people living in different countries), information flows (the number of internet users, cable televisions, number of radios, and international newspapers traded), and cultural proximity (imported and exported books – Kluver & Fu, 2004) are the categories which make up the social globalization index. Combining these data sources limits our analysis to 33 countries¹.

The dependent variable is the total entrepreneurial activity (TEA). As for the explanatory variables, the natural log of the GDP per capita was used as a proxy of the opportunity costs associated with self-employment as suggested by many in the entrepreneurship literature². As for the economic freedom factors, each is defined and explained in the previous section outlining the hypotheses. However, the IEF index weights each of these factors equally and scores them on a scale of 0 to 100, in which 100 indicates conditions most conducive. As for the data on corruption, the values were reversed such that lower corruption score indicates higher freedom from corruption. The question of whether to pool the data or not is an important one in dealing with panel data analysis (Baltagi, 2005). In fact, parameter instability is a common problem of model misspecification in econometrics. In other words, one may ask the following question: Does the same relationship hold over the whole sample period? Or is there something more specific about each year? To address the abovementioned questions, we performed a test of data poolability across time. The *F*-test of poolability (as suggested by Baltagi (2005)) was therefore performed with dummy variables to be created for each year (1999 is the base year). This test was performed across all models and we found no significant time-specific effect, so proceeded with OLS regression (see Table 2).

 Insert Tables 1 and 2 About Here

Additionally, we examined for heteroskedasticity as it often occurs when there is a large difference among the sizes of the observations. To test for heteroskedasticity in our model, we used the Breusch-Pagan Lagrange multiplier (LM) test for whether the estimated variance of the residuals are dependent on the values of the explanatory variables (Baltagi, 2005; Wooldridge, 2006). The null hypothesis ($\sigma^2_\mu = 0$) is rejected indicating that there is no heteroskedasticity since the result of the test (not shown for brevity) suggests that there are country-specific effects. Therefore, the level of analysis is country-year.

We also tested for autocorrelation, where the residual terms are serially correlated with each other (i.e., from one period to the next), thus violating a fundamental assumption of the regression

¹ Argentina, Australia, Belgium, Brazil, Canada, Croatia, Denmark, Ecuador, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Italy, Japan, Jordan, The Netherlands, New Zealand, Norway, Peru, Poland, Portugal, Singapore, Slovenia, South Africa, Spain, Sweden, Uganda, the United Kingdom, and the United States.

² Using either the GNI per capita or the growth in the GDP gives qualitatively similar results. .

analysis. To detect autocorrelation, we performed a Durbin-Watson statistic on each model shown in Table 2. We could not reject the null hypothesis of no autocorrelation. We also tested for multicollinearity, which refers to the case when at least two of the independent variables (or the linear combinations of the independent variables) are highly correlated. Looking at the correlation coefficients in Table 1, we can see very high correlations among some variables as some coefficients exceed an absolute value of 0.70. Additionally, as we examined all the variables proposed by McMullen et al. (2008), we were forced to eliminate four variables from as they show very high variance inflation factors (VIF) that well exceeded the rule of thumb of 10 suggested by Cohen, Cohen, West, and Aiken (2002). The four variables that we eliminated are business freedom, trade freedom, property rights, and freedom from corruption.

Results

One of the contributions of this paper is using panel data as it provides “more informative data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency” (Baltagi, 2005: 5). Table 1 shows the means, standard deviations and bivariate correlations of all variables. Table 2 shows the results of our models using the OLS regression. Because they contributed significantly to multicollinearity in the models measured by the variance inflation factors (VIF), trade freedom, property rights, business freedom, and freedom from corruption were eliminated from all analyses. Therefore, hypotheses 1, 5, 6 and 7 could not be tested. We did find several significant relationships relating to the economic environment. Contrary to expectations, we found a significant negative relationship between fiscal freedom and TEA, thus providing no support for hypothesis 2 ($\beta = -.08$, $p < .05$). As expected, there is a significant and positive relationship between freedom from government and TEA ($\beta = .09$, $p < .01$), thus supporting hypothesis 3 that less intervention from the government in the market can create a higher level of certainty in the market where the forces of the demand and supply mechanism can freely function. The results show also a significant and negative relationship between investment freedom and TEA ($\beta = -.10$, $p < .05$). This is in support of our hypothesis 4 such that more restrictions on the foreign investor in engaging in a more specific industries or specific requirements that are required only from foreign businesses (such as maintaining a specific level of capital or liquid assets during the fiscal year) can discourage foreign businesses from engaging in market transactions that can bring about higher cost. We also found a significant and positive relationship between financial freedom and TEA (H8) ($\beta = .07$, $p < .05$). This implies that the presence of an accessible, efficient capital market can help explain the increasing entrepreneurial activities such that a more efficient capital market means more liquid and less costly financing for the entrepreneur.

To look at the legal context, we tested hypothesis 9 using two strategies. First, we partitioned the sample into two subsamples based on the origin of the legal system (i.e., common vs. civil). The univariate statistics pertaining to the TEA as well as the factors affecting them appear in Table 1. The mean value of TEA is significantly higher across common law countries than across civil law countries. Also, across all the economic factors (except the monetary freedom variable) differences between the common law and civil law countries means are significantly different. These findings point to a preliminary indication of a significant difference in the economic environment between countries based on their legal system such that entrepreneurial activities as well as the supporting economic factors are significantly higher in countries that adopt a common legal system than in countries with a civil legal system.

To further test hypothesis 9, we ran the multivariate regression for each model in Table 2 for each sub-group of countries based on their legal system. We then tested the equality of regression coefficients for each pair of models using the chi-square Chow test. The results of this test are

shown at the bottom of Table 2. Chi-square values across all models are significant, indicating a significant difference between the two sub-groups of countries. This provides further support for hypothesis 9 such that the linear combination of the coefficients of the regressions are significantly different from each other and that common law countries show higher tendencies in protecting investors and their businesses.

In terms of other institutional contexts, we found two significant relationships. First, as expected, there is a significant positive relationship between empowerment rights and TEA, supporting hypothesis 12 ($\beta=.49, p < .05$). This implies that in nations that empower their citizens with basic rights, individuals are more likely to engage in entrepreneurial activities. Second, also as expected, we found a significant relationship between political globalization and TEA, thus supporting hypothesis 13 ($\beta=.05, p < .05$). This indicates that the more politically globalized a nation is, the more likely individuals are to engage in entrepreneurial activity, implying that having broader and stronger domestic relations might encourage entrepreneurship.

Robustness Checks

With panel data, the dependent variable may depend, in part, on its previous values (Baltagi, 2005). This case is more likely when we use independent variables of economic natures such as fiscal freedom and investment freedom as they dynamically interact with TEA, whereas other variables such as political freedom are less likely to interact dynamically with the dependent variable due to the nature of political and institutional reforms that are less dynamic (Dewatripont and Roland, 1992). Therefore, we ran Arellano-Bond dynamic panel-data estimation method for the same variables as in Model 1 of Table 2 with the dependent variable and all independent variables lagged for one year. The results are qualitatively similar with the exception that the lagged property rights variable significantly predicts TEA. The results appear in Table 2, Model 5.

Discussion

In this study, we have investigated whether various facets of a nation's institutional context influence the entrepreneurial motivation of its citizens. Our analysis both complements and extends prior research on the relationship between economic indicators and the motivation to become an entrepreneur (e.g., McMullen et al., 2008), and also incorporates research highlighting the importance of institutional contexts beyond the economic sphere (e.g., Acs & Varga, 2005; Bowen & De Clerq, 2008). Therefore, this study is the first to our knowledge to empirically test the relationship between the multi-faceted institutional context and the motivation to become an entrepreneur across time and across multiple nations.

Our findings regarding the economic context support prior research that has shown that economic freedom and entrepreneurial activity are related (e.g., McMullen et al., 2008). Specifically, our finding of a positive relationship between freedom from government and TEA supports the idea that less government intervention is beneficial to individual's considering engaging in entrepreneurial activities. Further, our finding of a negative relationship between investment freedom and TEA supports the idea that creating a disadvantageous position for foreign businesses through various restrictions is advantageous for local entrepreneurs. It is important to mention that the difference between this variable and the trade freedom variable is in the specificity of the investment freedom variable in identifying the industries that a foreign entity can enter in the first place and the additional requirements by the local government that the foreigner investor has to meet in order to establish a presence in the local market. Our finding of a positive relationship between financial freedom and TEA supports the idea that accessibility to a more efficient capital

market is beneficial to those wanting to become entrepreneurs. Last, our finding of a significant negative relationship between fiscal freedom and TEA was contrary to our expectations. This relationship might be a result of the high cost of initiating and maintaining business operations due to the lower quality of infrastructure and supporting services that would have been available had there been higher tax revenues for the government to provide such services. Therefore, due to the lack of quality infrastructure and other supporting services, the entrepreneur may be responsible for the majority of costs to offset this lack of a quality foundation for his/her business operations. These findings, overall, suggest that the motivation to become an entrepreneur is, in part, a rational, economic-oriented decision-making process. For instance, a rational decision maker wanting to start their own venture would be more confident in their probability for success in a country where government intervention is limited and where capital markets are more efficient and accessible.

Our findings relating to the non-economic institutional context provide further insight into entrepreneurial motivation. Specifically, our finding of a positive relationship between empowerment rights and TEA indicates that nations that protect their citizens from government by bestowing fundamental rights upon them may be more attractive to those wanting to become entrepreneurs (e.g., Baumol, 1993; Ozler & Rodrik, 1992). If individuals feel some uncertainty regarding whether the government can unduly interfere in their lives and abuse the power granted to it, they would find it more difficult to choose to take the risks inherent in entrepreneurial activity. Our finding of a positive relationship between political globalization and TEA suggests that stronger and wider diplomatic relations between nations can potentially enhance the entrepreneurial spirit of citizens. In nations that are more politically globalized, individuals should experience a better economic climate and should therefore find it easier to engage in entrepreneurial activities (e.g., Wolf, 2005). It could also be the case that this environment, through more and stronger ties to other nations, provides a better network of potential investors, consumers, and other necessary resources to nascent entrepreneurs.

Limitations and Future Research

This study highlights important dimensions of a nation's institutional context that influence an individual's motivation to engage in entrepreneurial activities. In this study, we did not capture the influence of every institutional context, and were limited in our operationalizations by available data. Given these constraints, we encourage future researchers to incorporate a broader spectrum of context variables. For instance, future research could expand on our findings by employing different operationalizations of the contexts used here and by adding additional contexts. Our study highlights the importance of internationalization (Hypotheses 14 and 15), so scholars could build upon this initial analysis to develop a more robust representation of internationalization within a nation. Additional research is also needed on additional contexts such as sociocultural institutions, or the influence of human development within a nation. Future research in this topic should also extend the time series in order to increase the number of observations (hence degrees of freedom), which will add more strength to our hypothesized findings. This would also allow a more robust investigation of how changes in institutional context influences entrepreneurship over time.

While our results offer important insight into the relationship of institutional context and entrepreneurial activity, our findings are subject to limitations that warrant discussion. First, research has shown that there is great explanatory power in studying such regional differences within a country (e.g., Iriyama, Li, & Madhavan, 2010). In this study, due to the nature of the available data, we do not address regional differences because the indices only provide data at a national level. Future research, however, could test the relationships between the institutional

environment and entrepreneurial activity at a regional level (e.g., Campbell & Rogers, 2007; Kreft & Sobel, 2005). Another fruitful avenue for future comparative research would be to make comparisons of the influence of institutional context on entrepreneurial activity, for instance, between developed and developing nations. Second, comparing entrepreneurship levels across countries is a difficult proposition since there is no universally agreed upon definition of entrepreneurship (e.g., Audretsch et al., 2007). However, using the GEM dataset is one means of addressing this concern (Reynolds et al., 2002).

Conclusion

In this paper, we examined the relationship between various institutional contexts and the level of entrepreneurial activity within a nation. This study is the first, to our knowledge, that employs panel data analysis techniques to examine the relationship between a broad range of institutional contexts and entrepreneurial activity across time. Our results show support for the idea that the economic, political, legal, and globalization institutional contexts of a nation are all important in shaping the entrepreneurial activities of a nation's citizens.

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Table 1

Descriptive Statistics and Correlation Matrix

P-values of the *t*-test for the difference between group means (i.e., Common (Com) vs. Civil (Civ) law countries) also are reported. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. N=231.

Variables	<i>Mean</i> (<i>Standard Div</i>)		<i>P</i> - value Diff	1	2	3	4	5	6	7	8	9	10	11	12
	Com	Civ													
1. Total Entrepreneurial Activities (TEA)	7.19 (.70)	5.03 (.44)	.00	1.00											
2. <i>ln</i> (GDP per capita) ³	9.54 (.11)	9.51 (.08)	.89	.07	1.00										
3. Fiscal freedom	59.22 (2.1)	48.25 (2.05)	.00	.15**	-.16***	1.00									
4. Freedom from government	57.47 (2.1)	33.88 (2.02)	.00	.20***	-.26***	.88***	1.00								
5. Property Rights	70.00 (2.1)	54.29 (2.40)	.00	.11*	.45***	.57***	.39***	1.00							
6. Investment freedom	63.00 (2.1)	53.21 (2.11)	.01	.08	.22***	.73***	.55***	.88***	1.00						
7. Financial freedom	68.00 (3.51)	49.62 (2.06)	.00	.18***	.22***	.70***	.53***	.86***	.88***	1.00					
8. Physical integrity	5.39 (.28)	6.48 (.12)	.00	-.01	.52***	-.32***	-.43***	.15**	-.01	.00	1.00				
9. Empowerment rights	7.33 (.38)	8.73 (.14)	.00	.11*	.42***	-.28***	.35***	.08	-.06	-.04	.64***	1.00			
10. Political globalization	67.28 (3.24)	80.54 (1.26)	.00	.15**	.29***	-.10	-.17***	.17***	.09	.14**	.56***	.56***	1.00		
11. Political rights	1.75 (.19)	1.47 (.07)	.10	.02	-.67***	.14**	.22***	-.27***	-.13**	-.14**	-.30***	-.50***	-.27***	1.00	
12. Social globalization	65.92 (3.17)	70.91 (1.16)	.07	.03	.63***	-.34***	-.47***	.26***	.06	.09	.78***	.58***	-.25***	-.27***	1.00
13. Legal origin				.14**	.02	.14**	.30***	.22***	.13**	.23***	-.32***	-.26***	-.32***	.08	-.10*
(Dummy: Common-law=1)															

³ Raw GDP per capita gives qualitatively similar results in terms of the difference between group means.

Table 2

The Effect of Economic Factors on Total Entrepreneurial Activities (TEA)

For models from 1 to 5, we use OLS regressions of the cross-section of 33 countries around the world for the period from 1999 and 2006. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. All models have been tested and, if applicable, adjusted for heteroskedasticity, and multicollinearity. For model 5, Arellano-Bond dynamic panel-data estimation method is used. The model is robust for autocorrelation and model overidentification using Arellano-Bond and Sargan tests, respectively.

OLS					Arellano-Bond dynamic panel- data estimation ⁴
Dependent Variable: Total Entrepreneurial Activities (TEA)					
	Coefficient (Robust Standard Error)				
Model	1	2	3	4	5
Intercept	5.952 (8.231)	4.397 (9.004)	2.413 (8.756)	6.019 (7.603)	46.553*** (17.190)
TEA					-0.279 (0.296)
<i>ln</i> (GDP per capita)	-0.069 (0.841)	-0.441 (0.793)	-0.121 (0.794)	-0.075 (0.776)	-3.804** (1.727)
Economic Freedom:					
Fiscal freedom	-0.052 (0.035)	-0.051 (0.035)	-0.047 (0.037)	-0.052 (0.035)	-0.058 (0.043)
Freedom from government	0.079*** (0.023)	0.091*** (0.024)	0.094*** (0.036)	0.079*** (0.023)	-0.073** (0.033)
Investment freedom	-0.093*** (0.036)	-0.089*** (0.038)	-0.092** (0.036)	-0.093*** (0.035)	-0.183*** (0.062)
Financial freedom	0.080** (0.035)	0.081** (0.036)	0.073** (0.034)	0.080** (0.035)	0.007 (0.062)
Property Rights	0.021 (0.053)	0.016 (0.054)	0.018 (0.052)	0.021 (0.052)	0.224*** (0.059)
Human Rights:					
Physical integrity		-0.048 (0.321)			
Empowerment rights		0.586*** (0.224)			
Globalization:					
Political globalization			0.040* (0.023)		
Social globalization			0.028 (0.022)		
Political Freedom:					
Political rights				-0.008 (0.367)	
Observations	231	231	231	231	198
<i>Wald χ^2</i>	N/A	N/A	N/A	N/A	37.22***
Adjusted R-squared	0.08	0.12	0.11	0.08	
<i>F</i> -test	4.79***	4.74***	4.63***	4.19***	
<i>χ^2(Chow-test)</i>					
Common vs. Civil	18.29***	18.60***	17.77**	15.76*	

⁴ All independent variables for the Model 5 are one-year lagged.

WHEN TO “PULL THE PLUG” AND WHEN TO “TAKE THE PLUNGE”: THE TIMING OF STRATEGIC DECISIONS TOWARDS NEW VENTURES

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WHEN TO “PULL THE PLUG” AND WHEN TO “TAKE THE PLUNGE”: THE TIMING OF STRATEGIC DECISIONS TOWARDS NEW VENTURES

ABSTRACT

Firms face opposing incentives regarding when to take strategic decisions towards their exploration ventures. On the one hand, postponing can reduce uncertainty, but on the other, moving quickly allows capitalizing on a potential competitive advantage. Drawing on theories of entrepreneurship and real options reasoning, we suggest that firms resolve the competing tensions for acceleration and deceleration through an assessment of their venture portfolio and environment. An empirical study of the timing of termination and exploitation decisions taken with regard to 3,272 exploration ventures in Australia’s mining industry over the years 2002–2011 provides an insight into the drivers of decision timing. We find that venture portfolio composition is an important driver of timing—but only with regard to exploitation decisions. Higher levels of market uncertainty increase the time to venture termination but not exploitation, and a positive market trajectory increases the time to venture termination, yet decreases the time to exploitation. Finally, we find support for interaction effects between the portfolio and market. The overall pattern of findings sheds new light on the tension between deceleration and acceleration in entrepreneurial strategic decision making and highlights the importance of distinguishing between the timing of different types of decisions.

INTRODUCTION

It is not uncommon for firms to explore a new venture under the belief that it will generate profits, only to find out later that while costs accumulated profits did not materialize. To manage the high level of uncertainty involved in this process, new ventures are generally designed as vehicles of exploration (Wu, 2012) that allow for a staged investment of resources, starting with small initial investments that can be scaled up or discontinued as uncertainty is resolved over time (Folta, 1998; Li and Chi, 2013). As such, new ventures provide firms a vehicle by which they can probe an uncertain future (Brown and Eisenhardt, 1997) without a full commitment to an irreversible course of action early (Folta, Johnson, and O’Brien, 2006). Our focus in the present paper is on the timing of strategic decisions that firms take towards their exploration ventures. Prior research has demonstrated a clear link between the timing of making decisions and performance (Baum and Wally, 2003; Eisenhardt, 1989; Kownatzki, Walter, Floyd and Lechner, forthcoming). The antecedents to the timing of decisions, however, are less understood and pose an interesting dilemma.

On the one hand, firms have an incentive to postpone and wait—to “keep options open” and defer irreversible decisions to later points in time when more information is available, and thus, uncertainty is reduced (Dixit and Pindyck, 1995; Mitchell, 1989; McGrath and Nerkar, 2004). Apart from potentially increasing the probability that the “right” action-path is chosen, waiting can serve to secure the commitment of the firm’s key stakeholders, increase the legitimacy of the action eventually chosen, and avoid escalating commitment to action-paths not fully thought through (McDonald and Siegel, 1984; Perlow, Okhuysen and Repenning, 2002). On the other hand, there is empirical research demonstrating that waiting can be costly—strenuous competition and ever more fast-paced environments dictate that those companies that take actions faster enjoy competitive advantages (Bourgeois and Eisenhardt, 1988; Kownatzki et al., forthcoming). Indeed, recognition of the costs of waiting is a cornerstone of the literature on decision speed (Baum and Wally, 2003; Eisenhardt, 1989) and first-mover advantages (Lieberman and Montgomery, 1988). There is empirical evidence, therefore, that a firm’s incentives to make a decision faster sometimes outweigh those to delay. How these incentives vary constitutes an interesting theoretical and empirical question.

By addressing this matter, our research aims to narrow the gap in our understanding of the timing of organizational actions, and particularly *when* events occur, which has received little research attention (Mitchell and James, 2001; Shipp and Jansen, 2011). We do so by an analysis of the timing of two specific strategic decisions towards new ventures: new venture *termination* and new venture *exploitation*. Specifically, we theorize how the timing of termination and exploitation (i.e., decisions which impact the venture) are influenced by (1) the composition of the owner's venture portfolio (i.e., firm level), (2) changes in relevant market conditions (i.e., industry level), and (3) cross-level interactions between the composition of the owner's venture portfolio and market conditions. We empirically test our model on a sample of 3,272 new exploration ventures in the Australian mining industry over the years 2002-2011. We chose this research setting because of the high importance placed on the timing of sequential resource investment decisions (see for example Dixit and Pindyck, 1994; McGrath, Ferrier and Mendelow, 2004). Exploratory mining ventures typically move through a stage-gate process, where the timing of the decision to terminate and the decision to exploit are critical.

Our empirical analysis will demonstrate that the exploratory composition of an owner's portfolio of ventures is an important driver of the timing of strategic decisions—but only with regard to venture exploitation. We also found that the environment has a strong main effect on decision timing. Higher levels of market uncertainty increase the time to venture termination (but not exploitation), and a positive market trajectory increases the time to venture termination, yet decreases the time to venture exploitation. Finally, we find support for interaction effects between the owner's portfolio composition and market conditions in explaining the timing of termination and exploitation.

These findings spawn a pattern of relationships that shed new light on the tension between deceleration and acceleration in strategic decision making—an issue where the literatures on real options reasoning (McDonald and Siegel, 1984; McGrath and Nerkar, 2004) and decision speed (Bourgeois and Eisenhardt, 1988; Kownatzki, Walter, Floyd and Lechner, forthcoming) offer contrasting perspectives. Particularly, our findings demonstrate the importance of distinguishing between different types of decisions when considering matters of timing. In addition, our findings offer some important insights to advance our understanding of “entrepreneurial opportunities” (Shane and Venkataraman, 2000; 2001), in particular with regard to the composition of the set of opportunities available to an actor, and its effects on the timing of his/her actions.

TIMING TERMINATION AND EXPLOITATION

Managing a portfolio of business ventures typically involves choices regarding the investment of organizational resources while being unsure about future performance outcomes (Bowman and Hurry, 1993). When such investments are irreversible—that is, they cannot be fully recovered without incurring a certain cost (Leiblein, 2003)—there is value in the preservation of choices: “meaning that a firm can take a variety of actions (scale up or down, abandon, change direction, or delay) when more information is available, rather than make a full commitment to a given path at the outset of the project or initiative” (McGrath et al., 2004: 87). Real options reasoning, which has its roots in the analysis of financial options but which has been extended into a more general framework of decision making under uncertainty (e.g. Bowman and Hurry, 1993; Kogut, 1991; McGrath, 1997, 1999), refers to these choices as options which create value by generating future decision rights (McGrath and Nerkar, 2004). Specifically, firms may use small initial investments to gain the strategic flexibility to defer irreversible decisions until uncertainty has subsided (Barnett, 2008).

Hence exploration ventures in areas as diverse as R&D for new pharmaceutical products or drilling for oil (Dixit, 1992; McGrath et al., 2004) mitigate uncertainty as they convey the right,

but not the obligation, for an organization to make further investments, defer such investments, or to terminate exploration at a time when critical information is revealed (McGrath and Nerkar, 2004). Small initial investments in new ventures limit the downside risk of exploration, and support experimentation and learning (Bowman and Hurry, 1993). Small investments, however, cannot generate a sufficient level of cash flow that is necessary for growth—these are the rewards that come from large subsequent investments in exploitation (Bowman and Hurry, 1993). Thus, exploration, exploitation and termination go hand in hand in effectively managing a portfolio of business ventures (McGrath, 1999).

What factors are likely to influence the timing of strategic actions in new ventures? In the sections that follow we theorize on the interplay of the firm's existing portfolio of ventures (McGrath, 1999) and prevailing market conditions (Bowman and Hurry, 1993) and how they influence the timing of new venture termination and exploitation.

Owner's Entrepreneurial Portfolio Composition

Because organizational decisions tend to be idiosyncratic (Cyert and March, 1963), termination and exploitation decisions depend on the subjective assessments of available alternatives. Hence, a firm may disband an exploration venture with a positive net present value if other activities appear even more lucrative or interesting (McGrath, 1999). When an organization has relatively more exploration ventures (as a share of its total portfolio), it has more alternatives from which to choose. Regardless of the inherent attractiveness of any specific exploration venture, if an organization is already engaged in the pursuit of other promising ventures, there may be a greater willingness to give up (i.e. terminate) any one specific venture compared to organizations with relatively fewer exploration ventures (McGrath and Nerkar, 2004). Hence we expect firms with a larger share of exploration ventures to terminate exploration ventures that do not show promise earlier.

Ceasing exploration by exploiting a venture is not merely the flip side of the same coin as ceasing exploration by terminating a venture; these decisions are different in other ways. First, the definitive sanctioning of an exploration venture to go operational is typically a more costly decision. Particularly in resource intensive industries like the mining or pharmaceutical industries, the exploitation decision typically involves hundreds of millions of dollars, many man hours, and complex coordination between production, human resource management, and finance. Second, exploitation is a long-term investment that is not easily reversed. For example, once an organization drills a well or constructs a new manufacturing facility, the set up costs cannot readily be recouped (Leiblein, 2003). As a consequence, it is likely that organizations are hesitant to exploit any exploration venture if better alternatives exist in their portfolio (McGrath and Nerkar, 2004). Therefore, when there are relatively more exploration ventures, organizations will be more inclined to delay exploitation of any one venture because such a delay provides more time for other ventures to reveal themselves as more promising. That is, the opportunity cost of delaying exploitation is less than the cost of potentially exploiting the wrong venture (Bowman and Hurry, 1993).

In sum, we expect a larger share of exploration projects in a portfolio to speed up the termination of less promising exploration ventures, yet to slow down the exploitation of those that do show potential. More formally, we propose the following baseline hypotheses:

Hypothesis 1a: A larger share of exploration projects in the owner's portfolio decreases the time to venture termination.

Hypothesis 1b: A larger share of exploration projects in the owner's portfolio increases the time to venture exploitation.

Market Conditions: Uncertainty and Trajectory

Organizations typically make option decisions in response to market signals (Bowman and Hurry, 1993; Kogut, 1991). We build on the seminal works of Aldrich (1979), Dess and Beard (1984) and Boyd (1990) on organizational task environments to distinguish two relevant external market conditions—market uncertainty and market trajectory—both of which have been shown to influence strategic investment choices (e.g., Sakhartov and Folta, forthcoming; Fisch and Ross, forthcoming).

Market Uncertainty. One important source of uncertainty is the inability to assign probabilities to future events (Milliken, 1987; Miller and Shamsie, 1999). Following Hoskisson and Busenitz (2001), we define market uncertainty as the degree of uncertainty about the future of a given market. When market conditions are more volatile, organizations stand more to gain by holding on to their options, delaying irreversible actions (Bowman and Hurry, 1993; Li and Chi, 2013). Conversely, under less market volatility, organizations stand to gain by striking their options (i.e., to stop deferring and making decisions) (Bowman and Hurry, 1993). This follows from the notion that volatility in the underlying asset increases upside potential if future conditions turn out favourable, while the potential costs to access this potential remains the same (Li and Chi, 2013; McGrath 1999). We hence expect that when firms are experiencing lower levels of market uncertainty, they are better able to judge the value of each exploration venture in their portfolio. This should lead to quicker termination and exploitation decisions. Conversely, when experiencing higher levels of market uncertainty they will strive to keep exploring, thereby reducing potential losses as much as possible by avoiding inadvertently exploiting or terminating the “wrong” ventures (Bowman and Hurry, 1993). The risk of terminating too soon is that a “gem” is discarded. The risk of exploiting too soon is that the market is not yet sufficiently ready or the viability of the venture is over-estimated (Perlow et al. 2002). Based on the above reasoning we offer:

Hypothesis 2a: Higher levels of market uncertainty increase the time to venture termination.

Hypothesis 2b: Higher levels of market uncertainty increase the time to venture exploitation.

Market Trajectory. At its core, market trajectory captures over time the price trend for the product or service with which a given exploration venture is concerned (Fisch and Ross, forthcoming). For example, if an exploration venture is concerned with developing a new gold deposit, as in our research setting, the trend in gold price is the relevant indicator of market trajectory. Whether a market trajectory is rising or falling provides an organizational decision maker with diverging incentives for the timing of option decisions (Bowman and Hurry, 1993). A positive market trajectory corresponds to a rising price, which indicates the market for a given venture is becoming increasingly more favorable. Thus, with a positive market trajectory it is likely that new venture termination will be delayed because delay provides time for the market potential (as represented by projecting from the current trajectory) sufficient for viability to be realized. A negative trajectory corresponds to a falling price, which indicates a trend towards an ever decreasing pay-off from the venture. Thus, with a negative market trajectory it is likely that new venture termination will be accelerated because delay only provides time for the market viability of the venture to worsen.

In terms of venture exploitation, organizations face a finite window of opportunity to manoeuvre—both internally (Tyre and Orlikowski 1994) and externally (Eisenhardt 1989). A rising demand indicates a given venture has more promise. A consequence of this increasing promise is that it is more likely to attract competitors’ attention (McGrath and Nerkar, 2004). The anticipation of an influx of competitors to a rising market speeds the decision to begin

exploitation (Mitchell, 1989). Therefore, a positive market trajectory indicates momentum—an opening window of opportunity—increasing the need for quick exploitation to avoid demoralized executives later mourning: “We missed the window” (Eisenhardt, 1989: p. 543). Based on the above reasoning, we offer the following:

Hypothesis 3a: A positive market trajectory increases the time to venture termination.

Hypothesis 3b: A positive market trajectory decreases the time to venture exploitation.

Portfolio-Market Interactions

Thus far we have discussed to what extent the timing of venture termination and venture exploitation is influenced by portfolio and market conditions independent of each other. We will now consider their joint effects.

We previously proposed that a larger share of exploration projects in the owner’s portfolio decreases the time to venture termination (H1a). However, the increased propensity to terminate a specific venture from a set of exploration ventures in the portfolio is likely to be magnified when there is less uncertainty surrounding the market viability of these projects. That is, organizations armed with more certain market information likely have more confidence to terminate ventures that do not show promise. In contrast, higher levels of market uncertainty raise additional doubt over whether it is prudent to terminate specific ventures due to having a large share of exploration venture in one’s portfolio.

When market uncertainty is high, delaying exploitation is unlikely to reveal the information needed for deciding which of the exploration ventures in the portfolio are better than the others—at least not sufficiently to offset the costs of further exploration. That is, when the information to be gained from delaying exploitation is highly uncertain, the hesitancy over which ventures to exploit is unlikely to be substantially reduced by the collection of additional uncertain information. Based on the above logic we offer the following:

Hypothesis 4a: A larger share of exploration projects in the owner’s portfolio decreases the time to venture termination but more so when market uncertainty is low than when it is high.

Hypothesis 4b: A larger share of exploration projects in the owner’s portfolio increases the time to venture exploitation but more so when market uncertainty is low than when it is high.

The greater willingness to terminate a venture earlier based on the exploratory composition of the portfolio (H1a) is likely magnified when the market trajectory for the focal venture is more negative. A more negative market trajectory for a focal venture provides a more negative assessment of its future viability. Especially when combined with a larger share of other competing exploration ventures in the owner’s portfolio, a negative market trajectory is likely to reduce the time for the focal venture to be terminated. In contrast, a more positive market trajectory for a focal venture tempers the propensity to terminate stemming from having a large share of exploration ventures.

Turning to venture exploitation, we previously argued that having a larger share of exploratory ventures increases the time to venture exploitation (H1b). We propose that this effect is magnified when the market trajectory is negative because a negative market trajectory is likely perceived as a threat. In the presence of a threat, non-routine actions (such as venture exploitation) are less likely than a continuation of the status quo (in this case, continued exploration) (see Staw, Sandelands and Dutton, 1981). Based on the above we offer our final hypothesis:

Hypothesis 5a: A larger share of exploration projects in the owner's portfolio decreases the time to venture termination but more so when the market trajectory is more negative than when it is more positive.

Hypothesis 5b: A larger share of exploration projects in the owner's portfolio increases the time to venture exploitation but more so when the market trajectory is more negative than when it is more positive.

RESEARCH METHOD

Our empirical study is based on an analysis of the timing of termination and exploitation decisions in a sample of 3,274 new exploration ventures started in the Australian mining industry over the years 2002-2011. The global mining industry is primarily concerned with three activities: exploration of minerals and hydrocarbons (oil and gas), extraction and trade of such resources, and the provision of a wide variety of services to firms engaged in these activities (Connor, 2010). The mining industry has steadily increased prominence on the world stage. In part this is a consequence of a gradual global restructuring process that has resulted in billions of people lifted to a middle-class standard of living and a related spark in demand for natural resources (Taylor, 2011). As a consequence, thirteen of the 50 largest companies in the world are involved with mining and oil (Dicken, 2011). In Australia, which constitutes the research setting of this project, the mining industry consistently contributes 7 to 8% to Australia's GDP and represents the primary export sector.

The timing of sequential resource investments is highly salient in the mining industry (Dixit and Pindyck, 1994; McGrath et al., 2004). Mining companies usually build a portfolio of exploration ventures, which move through a stage-gate process of development. Typically, exploration ventures are started with the purchase of land that, based on its location, could hold valuable deposits. There are three stages as part of this process: (1) *Prospecting*, which refers to seeking tenements and engaging in grassroots exploration or drilling; (2) *Studying* (referred to in the industry as the "advanced project stage") which means that data is being collected for preliminary reports on the feasibility of the mine site; and (3) *Mining* which refers to operations to extract resources for profit (Register of Australian Mining, 2012). The first two stages are *exploration* (prospecting and studying), whereas the final stage is *exploitation* (mine). One of the prime tasks of mining organizations is to successfully manage this stage gate process, which involves two major decisions—the decision to *terminate* an exploration venture (i.e., cease the prospecting or studying of a mine site) and the decision to begin exploitation (i.e., move from studying to mining the site). One of the executives we interviewed in the course of this research project told us: "these decisions are neither trivial nor simple. In fact, they are absolutely critical, make-or-break decisions for any mining company". Several of the mining companies we talked to mentioned that decisions to terminate or exploit ventures are made by top management in the (parent) organization based on considerable "what if" analyses and discussions.

Data Sources

We used several sources of data to test our hypotheses. First, we used the *Register of Australian Mining*, a comprehensive publicly available archive of reference books with annual data on all mining companies, deposits, and directors in the Australian mining industry. This database includes detailed data on: (1) all mines, development projects, and exploration prospects recorded in Australia, including their location, ownership, management, method of operation, mining plant and equipment, and editorial summary of recent activity and planned work programs; (2) all exploration and mining companies active in Australian mining, including their directors, major shareholders, profit and loss, asset and liability history, their Australian mineral interests, plus editorial comment on the mine companies' corporate and operational

achievements; and (3) a list of mining company directors, their areas of expertise and names of the companies with which they are associated. In digital form, the archive dates back to 2002. Having access to longitudinal data was crucial for our answering our research question as the passage of time plays a significant role in termination/exploitation decisions of options (McGrath and MacMillan, 2000).

The second source of data was the Bureau of Resources and Energy Economics (BREE), which provides publicly available monthly price data on a wide variety of resources that are traded on the open market (e.g., gold, nickel, uranium, copper, coal, iron ore, etc.). We linked each venture to their respective commodity price data and used these data for capturing market conditions (detailed below).

Finally, we interviewed a number of senior executives and consultants currently working in the Australian mining industry. These data provided us with a richer and deeper understanding of the industry setting.

Measures: Dependent Variable. Our dependent variable is *the number of years it takes a new exploration venture to reach a termination or exploitation decision*. Specifically, our data detail annually each venture's status (prospect, advanced project, or mine). We deem such repeated annual measures appropriate given the industry's tendency to make these decisions in annual reviews of their portfolios. We tracked the status of each venture through the years. Each new exploration venture starts out as a prospect (stage 1), and operations can in subsequent years either remain at the prospecting stage, advance to being an advanced project (stage 2), or be terminated (in which case operations are suspended and the project be removed from the company's portfolio). *The timing of termination* was captured as the time from when the exploration venture began (as a prospect) to the time it was terminated. *The timing of exploitation* was captured as the time from when the exploration venture began (as a prospect) to the time it was exploited (i.e., advances to the mine stage). Termination and exploitation are mutually exclusive decisions; each exploration venture faces the "competing risks" at any point in time of either being terminated or exploited. The baseline against which the two decisions are compared is "delay"—an observation that does not experience an event during the period and thereby continues exploration (prospecting or studying). Therefore, the dependent variable takes value 1 (termination) or 2 (exploitation), and the number of years it took to reach the respective outcome from the time the exploration venture was started.

Owner's Entrepreneurial Portfolio Composition. Go/no go decisions regarding mining ventures are typically made by top managers of parent organizations, not by site managers (i.e., not the venture manager). Owner's entrepreneurial portfolio composition is a time varying covariate that reflects the ratio of the total number of exploration ventures (prospects + advanced projects) to the total number of ventures (prospects + advanced projects + mines) in the owner's portfolio per year. In cases where an exploration venture has multiple owners, we used the mean portfolio composition across owners.

Market Uncertainty. We used commodity price data to construct the measures for market conditions—trajectory and uncertainty. For each of the 3,274 ventures in our data, we recorded the product with which the venture was concerned (e.g. "gold", "copper") and its years of operation. Market uncertainty is a time varying covariate that captures the variability in the commodity price trend (amplitude around trend) in the preceding 12 months for the commodity the focal exploration venture. The measure is based on Dess and Beard's (1984) and Boyd's (1990) measure of dynamism hence uses a moving window of the standard error of the coefficient (beta) of a regression of time against the commodity price for the monthly price data time series.

Market Trajectory. Market trajectory captures the commodity price trend (up or down) over the preceding 12 months for each venture, per year (cf. Fisch and Ross, forthcoming). This measure is based on Dess and Beard's (1984) and Boyd's (1990) measurement of "munificence", and concerns the coefficient (beta) of a regression of time against the commodity price divided by the mean of the commodity price over the same time period. Hence, the resulting market trajectory score for each venture is a time varying covariate based a moving window of the commodity price for the 12 months period.

Control Variables

Financial Capital. New business ventures rely heavily on the financial resources provided by the parent organization. Having more financial capital available offers greater leeway for exploration (Nohria and Gulati, 1996), especially for mining ventures which are extremely capital intensive. Hence we control for financial capital. Our measure is similar to George's (2005) measure of high discretionary slack and captures per year the financial assets (minus liabilities) held by the company that owns the venture (in \$Millions).

Venture Size. As larger ventures may attract more attention due to their prominence within a portfolio than smaller ventures, we control for venture size. We measure venture size as the total number of parent companies involved with the project per year.

Portfolio Size. A relevant consideration for a company making termination and exploitation decisions is the total size of their portfolio (McGrath and Nerkar, 2004). We measured portfolio size as the total number of projects held by the company owner(s), per year.

Product Scope. We control for the scope of the venture because scope has previously been linked to commercialization decisions (Shane, 2001). Product scope is a variable that takes value 0 when the venture is concerned with just one commodity (e.g., gold) and the value 1 when the venture concerns 2 (or more) commodities (e.g., gold and silver).

Skill Diversity. Previous studies have related human capital (Eisenhardt, 1989) and team skill diversity (Knokaert, Ucbasaran, Wright and Clarysse, 2011) to the speed of decision and market action. Hence it is important to control for the skill diversity of the group of people that is responsible for making termination and exploitation decisions. The variable skill diversity captures the number of unique skills present in the boards of the company owner(s) (e.g., "business administration"; "geology"; "human resources") per year.

Age. Learning tends to crowd out exploration (Levinthal and March, 1993). As a result, as firms get older they will typically explore less (Katila and Chen, 2008). Therefore, we control for the age (in years since founding) of the company/ies owning the focal venture. In case a venture has more than one owner, we use the mean age.

Analyses

For testing the hypotheses we use a competing risks event history approach (Allison, 1984). In event history analyses the dependent variables are the duration of time that units spend in a state before experiencing an event (Box-Steffensmeier and Jones, 2004).¹ In our application of event

¹ Event history analysis was originally developed in the life sciences where the event of interest is death of patients, and the duration to when this event occurs is referred to as survival time. Covariates can increase (life-saving surgery) or decrease (smoking) the time it takes the death event to occur, but death will occur sooner or later (Box-Steffensmeier and Jones, 2004). Examples of earlier studies in management that use event history include Schoonhoven et al. (1990) who analyzed the number of months it took new organizations to ship their first product for revenues and Iyer and Miller (2008) who examined the timing of acquisitions. Like these prior studies, our theory makes no assumptions on the form of the baseline hazard function (similar to the conventional Cox proportional hazards model).

history analysis, new exploration ventures enter the risk set when they are started. During their lifetime, they are “at risk” of experiencing one of two mutually exclusive events—termination or exploitation—which are modelled as competing events. As time would go to infinity, no exploration venture would permanently exist as an exploration venture without it at some point either being terminated or exploited. Cases that experience one of the two events beyond our window of observation are right-censored, a condition for which event history analysis is particularly well suited (Allison, 1984).

We ran Cox competing risks regressions through the `sterreg` module in Stata 12. Because we have repeated observations for all our explanatory variables, they were modelled as time varying covariates with a time lag of 1 year that increase, or decrease, the time it takes a new venture to experience termination or exploitation. We estimated robust standard errors through the Lin and Wei method, which we clustered by commodity identifier (e.g. gold, silver, copper) to account for the lack of independence within ventures concerned with the same commodity.

RESULTS

Table 1 reports pooled descriptive statistics and correlations. Correlations among the explanatory variables are generally small to moderate.

Table 2 presents the results of the Cox competing risks regressions of the timing of termination and exploitation decisions in new ventures. Estimates are presented for the pooled model (that pools the two strategic decisions termination and exploitation together) and separate models for each of termination and exploitation. Full data was obtained for a total of 3,272 new exploration ventures, comprising 6,655 venture-year observations. Of this sample, 1,660 reached a termination decision during the period of observation (outcome 1), 72 reached an exploitation decision (outcome 2), and 1,540 were censored (outcome 0). The mean duration projects remained in the database before reaching a final decision is 3.77 years, 33% of cases being in the dataset for 4 years or more. 67% of the ventures are operated by a single company owner, 33% constitute joint ventures between two or more owning companies.

 Insert Tables 1 and 2 about here

The estimates in Table 2 are non-exponentiated regression coefficients and are interpreted as follows. Positive coefficients indicate that the hazard rate of a case experiencing an event (termination or exploitation) is increasing with changes in the covariate. Hence a positive coefficient implies a *shorter* survival time (Box-Steffensmeier and Jones, 2004: p. 59). That is, positive coefficients indicate that an increase in the corresponding variable *decreases* the time it takes for an event to occur and therefore “speeds up” the occurrence of the event. Whereas, negative coefficients indicate that an increase in the corresponding variable *increases* the time it takes for an event to occur and therefore “slows down” the occurrence of the event (Box-Steffensmeier and Jones, 2004: 59). As previously mentioned, all our independent variables are time varying covariates and thus we investigate relative increases and decreases in the explanatory variables over time and their effects on the survival time until each event.

For both outcomes, Model 1 includes controls only, model 2 adds main effects for our independent variables, Model 3 and 4 add the portfolio-market interactions one by one, and Model 5 is the full model.

Before turning to the hypothesis tests, we note two more general observations. First, the pooled model reports non-significant effects for all but one of the hypothesised covariates. This indicates the importance of distinguishing different types of outcomes (termination and exploitation) for which the covariates often have opposite effects. Second, two of our control

variables (financial capital and skill diversity) turn out to have quite strong, mirroring effects on the timing of the termination and exploitation decision.

As a detailed discussion is beyond the scope of this short paper, we summarize the pattern of significant findings on our hypotheses (Table 2) as follows:

- the exploratory composition of an owner's portfolio of ventures is an important driver of the timing of strategic decisions—but only with regard to venture exploitation
- higher levels of market uncertainty increase the time to venture termination (but not exploitation)
- a positive market trajectory increases the time to venture termination, yet decreases the time to venture exploitation
- a larger share of exploration projects in the owner's portfolio decreases the time to venture termination but more so when the market trajectory is more positive than when it is more negative
- a larger share of exploration projects in the owner's portfolio increases the time to venture exploitation but more so when the market trajectory is more negative than when it is more positive. The interaction effects of portfolio composition and market uncertainty were not supported.

DISCUSSION

We found general support for a conceptual framework that proposes that the timing decisions towards new ventures is a result of competing tensions for acceleration and deceleration, the trade-off between which is resolved in situ based on the specific state of both the portfolio and the market in which a new venture is embedded. Taken together, our findings spawn a web of relationships that jointly increase our understanding of the complex trade-offs between acceleration and deceleration in timing strategic decisions. More specifically, we see theoretical implications in the area of real options reasoning, decision speed, and entrepreneurship.

The Trade-off between Acceleration and Deceleration in Timing Strategic Decisions

As mentioned, firms face competing incentives in deciding when to “pull the plug” and when to “take the plunge” towards their exploration ventures. On the one hand, real options reasoning emphasises the value of waiting when it comes to making irreversible decisions (Bowman and Hurry, 1993; Leiblein, 2003). Waiting—preserving choices and deferring irreversible actions until more information becomes available—increases the probability that the right action path is chosen, thereby limiting downside risk (McGrath and Nerkar, 2004). There is an interesting tension here to other literatures, particularly some of the strands in entrepreneurship research, which have suggested that those who are willing to bear uncertainty by *not* deferring judgement on a decision can reap rewards in the form of above normal profits (Knight, 1921). Those who act “entrepreneurially”, in fact, are often attributed with the willingness and ability to make important decisions early (Eisenhardt, 1989; McMullen and Shepherd, 2006), i.e., to be “ahead of the curve” by exercising judgement on decisions wrought with uncertainty. Indeed, scholars have embraced the position that hesitancy, indecisiveness, and procrastination result in missed opportunities as they are typically fleeting (Brown and Eisenhardt, 1997; Casson, 1982). Hence this research suggests that under some conditions, decision makers take a leap of faith and act even when one cannot possibly yet foresee the consequences (i.e., at a time when uncertainty has not been resolved). The resulting tension is thus one between the risk of making an error of commission (taking action early but finding out it was the wrong one) and an error of omission (deferring action but regretting it later as the passed-over hunch was correct and more benefit was reaped had the action been taken earlier) (see McMullen and Shepherd, 2006).

Our findings shed some new light on this issue by demonstrating that in practice, decision makers resolve the trade-off between these competing incentives on a case by case basis in response to two important factors: the alternative investments available in the owner's portfolio, and the market in which the decision is made. This has two important implications. First, incentives toward delay and speed are not universal, but firm and market specific. This adds to our understanding of the strategic nuances of enacting real options reasoning and the notion of "fit". That is, to understand the "why" of the timing of actions critical to real options reasoning, we must consider the "who" (i.e., the composition of the owner's portfolio) and the "when" (i.e., based on the nature of the market). Second, when we assume firms act in their own best interest, the benefits of speed (e.g. Baum and Wally, 2003; Eisenhardt, 1989) appear to be particular to certain types of decisions and certain types of situations only. More specifically, it is important to distinguish between the timing of two distinct decisions—termination and exploitation, which provides an opportunity to reconcile, in part, the debate between the need for speed (Baum and Wally, 2003; Eisenhardt, 1989) and the need for delay to reduce uncertainty (McGrath, 1999). Therefore, when considering the notion of speed, our findings suggest it is important to be specific about the speed of what—speed of termination and/or speed of exploitation—because the speed of these strategic actions do not necessarily go hand in hand. We also find that not distinguishing these different types of decisions (as in our pooled model) severely obfuscates findings.

The Entrepreneurial "Opportunity" Construct

Although we did not use the rapidly growing literature on "entrepreneurial opportunities" as the main framing of our study, our research makes an important contribution to that stream of research in the area of entrepreneurship. Shane and Venkataraman (2000, 2001) introduced the notion of the "entrepreneurship nexus", i.e., that the interplay between the actor and the "opportunity" is crucial to the understanding of entrepreneurial endeavours. However, despite thousands of references to Shane and Venkataraman's (2000) original article and widespread general sympathy for the nexus notion, disappointingly little progress has been made on conceptualizing and operationalizing characteristics of "opportunities" as well as on theorizing and testing their effects (Arend, forthcoming; Shane, 2012). If we regard portfolio composition as an actor characteristic (reflecting strategy) and market conditions as attributes of the "opportunity" our study adds to the very small number of studies (Barreto, 2012; Bradley, McMullen, Artz, and Simiyu, 2012; Dencker, Gruber, and Shah, 2009) which achieve the nexus ideal of theorizing and testing effects of the actor, the "opportunity" and their interaction. In particular, we point to an empirical context which, like Barreto (2012), comes close to capturing the notion of "objective opportunity" as originally conceived by Shane and Venkataraman (2000). We also offer two measurable "opportunity characteristics"—market uncertainty and market trajectory—which should generalize to a range other empirical contexts. Further, we theorize and find support for "actor-opportunity" interactions, lending overall support to the "entrepreneurship nexus" framework.

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FIGURES AND TABLES

TABLE 1
Descriptive Statistics and Pairwise Correlations^{ab}

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9
1. Financial Capital ^b	4.94	.99	-								
2. Venture Size ^b	.26	.39	.13	-							
3. Portfolio Size	11.43	35.01	.08	.10	-						
4. Product Scope	.09	.29	-.06	.01	.01	-					
5. Skill Diversity	.26	.30	-.06	.28	-.17	.01	-				
6. Age	6.60	7.83	.16	.08	.03	.02	-.01	-			
7. Owner's Entrepreneurial Portfolio Composition	.85	.20	-.27	-.09	-.35	.03	.35	-.22	-		
8. Market Uncertainty	-.05	1.44	-.04	-.02	.00	-.06	-.00	.01	-.01	-	
9. Market Trajectory	1.08	4.06	.01	-.01	-.00	-.01	.04	.04	.00	.16	-

^a n = 3,272 new exploration ventures over the period 2002-2011 (6,655 venture-year observations). Correlations greater than | .03 | are significant at $p < .05$.

^b Log-transformed

TABLE 2
Cox Competing Risks Regression of the Timing of Strategic Actions in New Business Ventures^{ab}

	<i>Pooled Model</i>	<i>Termination</i>					<i>Exploitation</i>				
	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Financial Capital	-.02[†] (.01)	-.05* (.02)	-.06** (.02)	-.06** (.02)	-.06** (.02)	-.06** (.02)	.42*** (.06)	.45*** (.07)	.45*** (.07)	.45*** (.07)	.45*** (.07)
Venture Size	.00 (.09)	.10 (.09)	.13 (.09)	.13 (.09)	.13 (.09)	.13 (.09)	-2.19*** (.58)	-2.44*** (.63)	-2.45*** (.63)	-2.44*** (.64)	-2.44*** (.63)
Portfolio Size	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	.00 (.00)	-.04* (.02)	-.08*** (.02)	-.08*** (.02)	-.09*** (.02)	-.09*** (.02)
Product Scope	-.09 (.09)	-.12* (.05)	-.10 (.07)	-.10 (.07)	-.10 (.07)	-.09 (.07)	.10 (.39)	.19 (.44)	.19 (.44)	.19 (.44)	.19 (.44)
Skill Diversity	-.29*** (.09)	-.48*** (.05)	-.50*** (.09)	-.50*** (.09)	-.49*** (.10)	-.49*** (.10)	1.22** (.39)	1.56*** (.37)	1.56*** (.37)	1.52*** (.37)	1.52*** (.37)
Age	.00 (.00)	.00* (.00)	-.00 (.00)	-.00 (.00)	-.00 (.00)	-.00 (.00)	.03* (.01)	.01 (.01)	.01 (.01)	.01 (.01)	.01 (.01)
O. Ent. Port. Comp. (OEPC)	-.04 (.11)		.07 (.09)	.07 (.09)	.08 (.12)	.09 (.12)		-3.17*** (.28)	-3.24*** (.30)	-3.51*** (.33)	-3.53*** (.32)
Market Uncertainty (MU)	-.04 (.04)		-.02* (.01)	-.03 (.03)	-.02* (.01)	-.05 (.04)		.12 (.15)	-.15 (.42)	.12 (.16)	.03 (.38)
Market Trajectory (MT)	-.00 (.02)		-.04* (.02)	-.04* (.02)	.00 (.02)	.00 (.02)		.06* (.03)	.06[†] (.03)	-.11 (.10)	-.10 (.09)
OEPC X Market Uncertainty	.04 (.06)			.02 (.04)		.04 (.05)			.37 (.77)		.12 (.65)
OEPC X Market Trajectory	-.04* (.02)				-.04** (.02)	-.04** (.01)				.21* (.10)	.20* (.10)
Log pseudolikelihood	-12804		-12286	-12286	-12285	-12284		-517	-516	-515	-515

^a N = 6,655 venture-year observations on 3,272 new ventures. Number of cases that experiences each event: termination: N=1,660; exploitation: N=72; censored: N=1,540.

^b Estimates are regression coefficients (not hazard ratios); robust standard errors (clustered by commodity) in parentheses.

[†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

IDENTIFYING THE MOTIVATIONS OF STUDENTS IN UNDERGRADUATE ENTREPRENEURSHIP CLASSES

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ABSTRACT

Motivation is seen as a crucial element in the success of any learning activity. This is particularly the case in entrepreneurship education, where students need to be motivated and engaged so that they can best learn how to deal with the complexities and ambiguities of new venture creation. It is largely presumed that the purpose of entrepreneurship education is to equip and encourage students to engage in entrepreneurial activities. Only limited research has been carried out to explore the motivations of students for starting an entrepreneurship course. This grounded research used concept mapping to identify the reasons why undergraduate students enrol in elective/optional entrepreneurship foundation courses (their motivations). This research identified themes of motivations across six separate deliveries of such courses that were primarily extrinsic and utilitarian. Results have value in enabling educators to fine-tune course content and delivery to meet student enrolment motivations. The results also suggest areas for further research.

INTRODUCTION

Motivation is seen as a crucial element in the success of any learning activity (Cole, Feild & Harris 2004). This is particularly the case in entrepreneurship education, where students need to be motivated and engaged so that they can best learn how to deal with the complexities and ambiguities of new venture creation (Biggs 2003).

There is a generally held view that the role of entrepreneurship educators is to “facilitate the development of cognitive and entrepreneurial attitudes and behaviours associated with new venture creation” (Barbosa, Kickul & Smith 2008, p.412), with the eventual aim that students should have the capabilities and desire to engage in entrepreneurial activities. This has led to the exploration of student-related aspects such as entrepreneurial intentions, entrepreneurial attitudes, and entrepreneurial self-efficacy. There have been fewer studies exploring what students think of entrepreneurship courses. A study of UK students found that they expected “that entrepreneurship education would facilitate a career path (and related lifestyle) in entrepreneurship. Students expected to learn ‘about’ as well as ‘for’ entrepreneurship and also gain first hand knowledge and experience in a variety of interrelated activities that would be relevant for starting, and in due course managing, their own businesses” (Matlay 2009, p.364). In particular, there are few studies that specifically address the motivations that students have for commencing studies in entrepreneurship. Students in Tanzania, Africa (in a situation of necessity entrepreneurship), were found to have as primary motivations to have control over their own lives and to supplement their incomes (Olomi & Sinyamule 2009). In comparison, a European study found that a strong motivation among students was their desire to implement their own new business idea (Kailer 2009).

The field of learning motivation has attracted a great deal of interest, and a number of instruments have been developed to measure student motivation, drawing on different theories of motivation. A number of studies draw on the Deci and Ryan (1985) self-determination theory that identifies amotivation, extrinsic motivation and intrinsic motivation categories. Research has shown that student motivations differ from one discipline to another (Breen & Lindsay 2002), and that affective and intrinsic motivations were the most important

elements. There has, however, been limited investigation of student motivations to enrol in entrepreneurship courses, especially at the individual classroom level.

It is important for the educator to understand why students have enrolled in their particular class, so that they can identify appropriate ways to engage their students in the most appropriate way to meet course and learning objectives. Identifying these student motivations at the level of a particular class is a challenge. Although a number of learning motivation measures have been developed, these require large numbers of respondents (i.e. large classes) for validity, and it may not be possible to process the results within the timeframe that the course is delivered (especially for intensive-delivery courses). In addition, these instruments measure pre-determined aspects of motivation that may or may not be appropriate or relevant for a particular class or group of students.

This paper describes an exploratory grounded qualitative study that implements the concept mapping research method to explore the enrolment motivations of undergraduate students starting an elective/optional entrepreneurship foundation course. This approach allows the educator to identify the reasons why that specific group of students enrolled in the course. Overall, it was found that extrinsic and utilitarian motivations were the most frequently mentioned in the Australian classes that were the subject of this study, and that the results differed from those for the UK class. The results provide important insights into the motivations of these particular students, and provide valuable and practical information for educators to ensure that course design and delivery addresses these motivations, as an important aspect of managing student expectations. The results suggest further research directions, and provide the basis for further study.

THEORETICAL FOUNDATIONS

Entrepreneurship education

Entrepreneurship has been demonstrated to be linked to regional economic development (OECD 2003). Governments in many countries have encouraged the development and delivery of education programs to support and encourage individuals for self-employment. Entrepreneurship education, therefore, is an important growth area internationally, with a corresponding growth in the number of chairs of entrepreneurship (Gibb 2002), and proliferation of entrepreneurship courses.

Entrepreneurship education is typically defined as “about developing attitudes, behaviours and capacities at the individual level. It is also about the application of those skills and attitudes that can take many forms during an individual’s career” (Wilson 2008, p.127). This reflects a general view that entrepreneurship courses should aim to develop the particular skills, capabilities, or attributes that are identified as characteristics of successful entrepreneurs. For example, Schumpeter (1934) stated that successful entrepreneurs should be innovative, creative and risk-taking and be prepared to engage in “creative destruction” to build new ventures that would displace existing industries. Kirzner (1979) proposed that opportunity identification in a changing business environment was the critical element in entrepreneurship, and so opportunity recognition was identified as an important requirement for success. Research into entrepreneurial practice has identified numerous other elements that are considered to be characteristic of the entrepreneurial process, and should be included in entrepreneurship courses.

Different aims of entrepreneurial education can be distinguished. For example, Jamieson (1984) divided entrepreneurial education into three purposes or categories; education *about*, education *for*, and education *in* enterprise. Each purpose has a strong influence on teaching methods and content. For example, education *about* can be described as giving students an understanding of the nature of entrepreneurship and the entrepreneurial process, while education *for* can be described as preparing students to start their own business, and education *in* can be described as hands-on training for entrepreneurs in their own business (Taatala 2010, p.51).

In summary, there is a generally held view that the role of entrepreneurship educators is to “facilitate the development of cognitive and entrepreneurial attitudes and behaviours associated with new venture creation” (Barbosa, Kickul & Smith 2008, p.412), with the eventual aim that students should have the capabilities and desire to engage in entrepreneurial activities. This has led to the exploration of student-related aspects such as entrepreneurial intentions, entrepreneurial attitudes, and entrepreneurial self-efficacy.

A number of studies have been carried out to explore the entrepreneurial intentions of students (Nabi, Holden & Walsmsley 2010), where it was found that a minority of entrepreneurship students had the intention to start a business, and an important concern is to find ways to foster these entrepreneurial intentions. Similarly, studies have been carried out to explore the relationship between student attitudes towards entrepreneurial education and resulting business start-up (Lena & Poh-Kam 2003). Researchers have also explored the importance of self-efficacy in developing entrepreneurial intentions and actions (Boyd & Vozikis 1994), and examined the use of student intentions and self-efficacy as indicators of the effectiveness of entrepreneurship education. Research in Portugal identified general dimensions of motivations and entrepreneurial intentions of entrepreneurship students (Raposo, do Paço & Ferreira 2008). A recent meta-analysis of the outcomes of entrepreneurship education adopted the same perspective and found a significant relationship between entrepreneurship education and training and entrepreneurship outcomes in the form of starting and growing a new business (Martin, BC, McNally & Kay 2013).

There have been fewer studies exploring what students think of entrepreneurship courses. A study of UK students, viewed as stakeholders in entrepreneurship education, found that they expected “that entrepreneurship education would facilitate a career path (and related lifestyle) in entrepreneurship. Students expected to learn ‘about’ as well as ‘for’ entrepreneurship and also gain first hand knowledge and experience in a variety of interrelated activities that would be relevant for starting, and in due course managing, their own businesses” (Matlay 2009, p.364). A study of higher education students in the European Union indicated that universities should “foster innovation and an entrepreneurial mindset among students” (Rae 2010, p.600). A study of a placement-style entrepreneurship course found that student motivations to undertake such a course included to develop networks, to explore a possible career path, and to test their knowledge, besides to be involved with a large host corporation (Gilbert 2010, p.95). Other researchers have suggested that it is important to assess student perceptions of entrepreneurship courses and suggest that “attendance rates, participation and student motivation are the classical criteria for measuring satisfaction” (Fayolle, Gailly & Lassas-Clerc 2006, p.704).

Internationally, Global Entrepreneurship Monitor reports have for many years identified that entrepreneurship in developed countries is opportunity-driven, whereas in developing countries entrepreneurship is driven by necessity to earn a living (GEM 2004), which

indicates very different motivations for exploring entrepreneurial possibilities. Nevertheless, there are few studies that specifically address the motivations that students have for undertaking studies in entrepreneurship. Students in Tanzania, Africa (in a situation of necessity entrepreneurship), were found to have as primary motivations to have control over their own lives and to supplement their incomes (Olomi & Sinyamule 2009). In comparison, a European study found that a strong motivation among students was their desire to implement their own new business idea (Kailer 2009). A study in Finland specifically addressed student motivation for studying entrepreneurship (Hytti et al. 2010). This research used an instrument developed for measuring motivation to learn foreign languages, and found that intrinsic motivation had a negative effect on learning outcomes, while extrinsic motivation had a positive one.

Learning motivations

Motivation in a learning environment can be described as the “energy and drive to learn, work hard, and achieve” (Martin, AJ 2001, p.1). Individuals vary in their level of motivation, as well as in the orientation of that motivation. The Self-Determination Theory (Ryan & Deci 2000) distinguishes between intrinsic motivation (wishing to do something because it is inherently enjoyable or interesting) and extrinsic motivation (wishing to do something because it leads to a particular externally-defined outcome that has instrumental value), and amotivation (absence of motivation). In education, intrinsic motivation has been regarded as particularly desirable, and the Cognitive Evaluation Theory (Deci & Ryan 1985) was developed to specify social and environmental factors that either facilitate or undermine intrinsic motivation. In particular, activities such as well-designed challenges, feedback, and positive evaluations are found to facilitate intrinsic motivation, and that these need to be associated with a feeling of competence, and a sense of autonomy on the part of the learner. Extrinsically motivated behaviours can be considered to vary in the degree to which they can be controlled or influenced by the individual, and can be regarded as providing a continuum between completely externally determined, through to internalised acceptance of external requirements (Ryan & Deci 2000).

Researchers have investigated the influence of motivations to study on the experiences of students in higher education. For example, Kong, Wong and Lam (2003) suggest that the cognitive, behavioural and emotional engagement of mathematics students with their studies is frequently determined by their motivation to study. The centrality of motivation to the experience of psychology students has also been investigated in the wider context of the meaning of education to those students (Henderson-King & Smith 2006).

This field of study has attracted a great deal of interest, and a number of instruments have been developed to measure student motivation. The Academic Motivation Scale (Vallerand et al. 1992) is a seven-factor measure that builds on the Deci and Ryan (1985) self-determination theory, and participants were students entering university. These factors included amotivation, extrinsic motivation (external regulation consisting of rewards or punishments, introjected regulation relying on approval from self or others, and identified regulation with internalised goals), and intrinsic motivation (knowledge, accomplishment, and stimulation). Martin (2001, 2003) drew on a range of theories to develop and validate for secondary school students a 9-factor motivation scale consisting of factors encouraging motivation (self-belief, the learning focus, the perceived value of education, persistence, planning and monitoring, and the management of study) and factors discouraging motivation (self-handicapping, avoidance of failure, uncertain control over activities, and anxiety).

Pintrich et al. (1993) drew on a social-cognitive model of motivation that proposes expectancy, value and affect components to develop a motivation scale consisting of six factors (intrinsic goal orientation, extrinsic goal orientation, the perceived value of the task, perceived control over their learning, self-efficacy regarding learning and performance, and test anxiety). The motivational subscales showed significant correlations with student final grades across a wide range of disciplines, except for extrinsic goal orientation (Pintrich et al. 1993, p.810).

Research has shown that student motivations differ from one discipline to another (Breen & Lindsay 2002), and that affective and intrinsic motivations were the most important elements. In another study, psychology students broadly identified factors such as helping others, understanding behaviour and understanding mental health as key motivators for engaging in that discipline (Stewart et al. 2005). Adcroft (2010) used the Pintrich et al. scale (1993) to investigate the intrinsic and extrinsic motivations of management students, and found that there were no significant differences in extrinsic motivation between students in different degree programs, although students in specialist degrees showed higher levels of intrinsic motivation compared with students studying for a general degree. In a study of mathematics students, it was found that Contextual Motivation Theory was an appropriate framework for understanding the complexities of student motivations. This study found important factors were intrinsic motivations, such as desire for knowledge and meaning, and social-personal extrinsic motivations, in the form of helping others and building shared meaning (Walter & Hart 2009). A study of the achievement motivations of management students using a Survey of Attitudes Towards Statistics measure found differences between course groups of students on the four dimensions of affect, cognitive competence, value and difficulty (Tempelaar et al. 2007).

A meta-analysis of training motivation research (Colquitt, LePine & Noe 2000) provides a useful summary of antecedents to learning motivation (including conscientiousness, cognitive ability and locus of control), and identifies the influences of mediating factors such as self-efficacy and relevance of outcomes.

In summary, the study of learning motivations has attracted a great deal of interest on account of the recognised importance of motivations as a crucial element in the success of any learning activity (Cole, Feild & Harris 2004). There has, however, been limited investigation of student motivations to undertake entrepreneurship education, especially at the individual classroom level.

The research questions

This research seeks to understand what motivates students to enrol in an entrepreneurship course, so that by understanding their motivations, educators can be more effective in achieving the learning objectives for the course. This research responds to the proposition that entrepreneurship educators “need to better understand students’ journeys so that they can better develop learning environments within which the students’ personal development can be advanced” (Jones 2010, p.500).

The research questions in this exploratory study were: (1) what are the motivations of undergraduate entrepreneurship students in a particular class, and (2) are the motivations the same for different deliveries of the same or similar course?

RESEARCH METHOD

Participants in this study were undergraduate university students in five separate deliveries of an entrepreneurship foundation course in Australia, and one in the UK. These are elective/optional courses taken by students from across the university and from a wide range of study programs/degrees. Australian courses are taught in intensive mode (over three weeks) delivered in the summer and winter school, and in the mid-semester breaks, whereas the UK course was delivered over a semester.

Although a number of scales have been developed to measure student learning motivations, the research aim was to investigate motivations at the classroom level with relatively small numbers of students (e.g. between 37 and 69 in the entrepreneurship classes in this research). These numbers preclude the use of questionnaires. In addition, these courses are delivered in an intensive mode and an important aim was to produce useful and relevant results within that timeframe. More importantly, in order to understand the motivations of students in a particular class, it was necessary to use a grounded theory approach (Glaser & Strauss 1967; Charmaz 2006) to arrive at results using an inductive, rather than a deductive (questionnaire survey) research method.

Data was collected using the “minute paper” method (Angelo & Cross 1993; Stead 2005). Within the first few minutes of the start of each course delivery, students were each given a blank sheet of paper and were asked to write one or two reasons why they had enrolled in the course, and to not include any identifying information. Sheets of paper with these unprompted student statements were collected in a manner to ensure voluntary and anonymous participation. Each Australian class was taught by the same educator using the same teaching approach, and this person carried out data collection in the same way. Data for the UK class was collected in the same manner. All data was analysed by the same researcher.

Statements for each class were analysed separately in an inductive approach, using the concept mapping method (Borgatti, Everett & Freeman 2002; Kane & Trochim 2007; Borgatti, Everett & Johnson 2013). The concept mapping method was selected because it is appropriate for addressing the research questions in this study. It is a rigorous mixed-method approach that combines qualitative interpretation with qualitative analysis, and is particularly suited for analysing data in the form of short statements (as in this case). The output consists of maps showing links between the statements and clusters or themes of similar statements. Themes can be explored at different levels of detail, and this allows great scope in interpreting and understanding the construct being investigated. The nature of the graphical output helps to identify relationships between the underlying themes represented by the clusters of similar statements. Importantly, the process of implementing concept mapping as described (below) provides an audit trail that records each step of analysis. This allows analysis to be assessed and critiqued, and also allows collaborative analysis. Although the maps produced in this process depend on the keywords in each statement that are identified and linked, another researcher should arrive at the same results using the same keywords; this allows verification and replication.

Concept mapping was implemented in the following manner. The raw data (qualitative statements) were entered verbatim into an Excel spreadsheet. One of the researchers coded the datasets separately by identifying similarities between statements in each dataset. This was a systematic coding process with each similarity recorded, and was done as objectively

as possible, without interpreting the statements. Similarity relationships were entered into the UCINET6 social network analysis software (Borgatti, Everett & Freeman 2002). The software produced a three-dimensional map showing the relationships between the statements in the dataset. Using Girvan-Newman subgroup analysis (Girvan & Newman 2002), the number of clusters was varied between two and 11, and the researchers collaboratively evaluated each set of clusters. They determined that, in each case, 6 to 11 clusters appeared to represent an optimal solution of “saturation”, when additional clusters did not add to the overall analysis. The data elements (statements) in the Excel spreadsheet were grouped together, using the clusters as a guide. Two researchers collaboratively checked these groups of statements for homogeneity, and items that did not “fit” had their coding changed. The cluster maps were re-drawn following changes in coding.

The researchers interpreted the themes from the elements in each cluster to arrive at names or labels for each theme. This was carried out by referring to the original statements that were grouped as described above to arrive at an inductive interpretation. This analysis was carried out separately for each of the datasets. Besides providing opportunities for collaboration and verification, this method as described can be carried out relatively quickly. This allowed the results for each class to be reported to students in the final session of the intensive course to provide feedback, and to allow the educator to explain how the design and delivery of the course responded to the motivations of students in that particular class.

A meta-analysis of the sets of results was carried out using the approach described by Hoon (2013), with concept mapping used as the method for identifying the pattern of themes across the results for the Australian classes.

RESULTS AND IMPLICATIONS

Each of the classes included students from a large number of different study programs (degrees), and a significant proportion of international students, as shown in Table 1.

Table 1: Profile of participants in each of the entrepreneurship classes

Class	Aus 1	Aus 2	Aus 3	Aus 4	Aus 5	UK
Number of students enrolled	37	36	43	45	36	69
Programs of study (degrees) represented	16	17	15	18	16	7
Females	41%	28%	47%	33%	47%	55%
International students	54%	30%	44%	33%	61%	22%
Participants in study	36	36	39	44	31	69
Numbers of qualitative statements/data elements included in the concept mapping analysis	76	68	82	68	48	143

Data analysis for these classes produced separate maps showing the clusters or themes describing student motivations. Figure 1 shows the “optimal” number of clusters (11) for one of the datasets. In this Figure, the nodes represent each data element, and these are shown as a projection of a three-dimensional map where the lines between each data element are the same length. The circular shapes were applied by the researchers to highlight the clusters created by the mapping process, and the labels are the names that the researchers gave to each cluster. These labels are the “themes” describing student motivations in these classes.

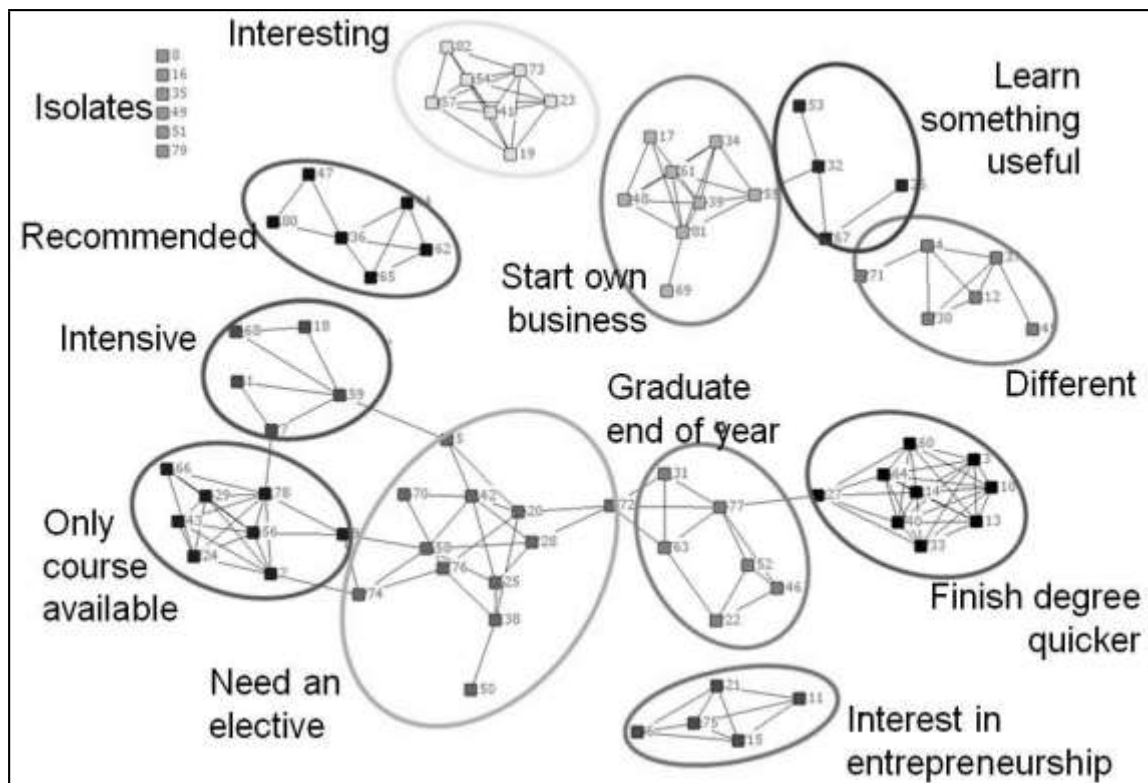


Figure 1: Cluster map for one of the datasets (Class 3)

Research question 1: These clusters can be described as themes or dimensions of motivations with descriptors shown in Table 2. These are shown separately for each class, and are ranked in order of decreasing frequency of statements making up each theme or dimension. This ranking suggests importance, but does not necessarily provide a measure of importance.

Table 2: Themes of motivation identified for each of the entrepreneurship classes

Aus 1	Aus 2	Aus 3	Aus 4	Aus 5	UK Class
To complete my degree	Intensive course to finish degree more quickly	Need an elective course	Elective to finish my degree	A course to complete my degree/an elective	Learn about business
Adds to my degree	Learn about entrepreneurship	Finish degree quicker	To learn about entrepreneurship	Course is quick and convenient	Gain entrepreneurial skills
Learn about entrepreneurship	Course sounded interesting	The only course available to me	To learn more about business	Want to know how to run the business	Learn start-up successes and failures
I'm interested in entrepreneurship	Learn how to start a business	Know how to start my own business	An interesting course	Recommended by friend	Course looked interesting
Course sounded interesting	Learn about business	Sounds interesting	To learn how to be an entrepreneur	Sounds interesting	Already have my own business
Sounds useful for the future	Needed an elective	Graduate at end of year	Help me decide my career	Relevant to my degree	Improve my CV
Learn about business	Summer school course	To study something different			Compulsory
An elective	Good to have teamwork	Recommended			

Short course	Learn to do a feasibility study	Intensive course is over quickly			
Semester break course					
Learn about marketing					

Research question 2: There are similarities between the labels or themes for these classes (Table 2), but they are not identical. This result suggests that there is only “moderate” consistency between the Australian classes, and that the motivations of students in the same course differed from one class to the next. There appear to be significant differences between the results for the Australian classes (in general) and for the UK class.

In an attempt to better understand possible commonalities between the results for these classes, a meta-analysis of these themes was carried out for the Australian classes, with the results shown in Table 3. (The meta-analysis was restricted to the Australian classes on account of the qualitative difference between the Australian results and the results for the single UK class.) These are presented in decreasing order of the number of times they are mentioned in this analysis, and are compared with significant studies in the learning motivation literature. This Table, for the purpose of completion, includes all of the factors identified in each of the three comparison studies.

Table 3: Comparison of meta-analysis findings (Australian classes) with the literature

Themes derived from the meta-analysis of results for the Australian classes in this research	Comparison with the taxonomy of human motivation (Ryan & Deci 2000, p.61)	Comparison with motivation factors identified by Breen and Lindsay (2002, pp.708-709)	Comparison with the Martin (2003, p.90) motivation factors
An intensive elective to complete my degree quickly	Extrinsic: external regulation requiring compliance	Strategic study goal	Study management Planning and monitoring
Something interesting and useful to study	Intrinsic: inherent satisfaction	Future career goal Strategic study goal	Value of education Learning focus
Learn about entrepreneurship	Intrinsic: inherent satisfaction	Analytic academic goal	Learning focus
Learn about business	Intrinsic: inherent satisfaction	Analytic academic goal	Learning focus
	Extrinsic: introjection, or focus on approval from self or others Extrinsic: Identification, or self endorsement of goals Extrinsic: Goals are internalised	Competitive achievement goal Social information goal Self-esteem goal	Persistence
	Amotivation		Self-handicapping Avoidance of failure Uncertain control of activities Anxiety

Discussion

The results in Table 2 show a difference between the overall Australian results and those for the UK class. In particular, the motivations for the UK class were almost entirely intrinsic,

and this could be attributed to the course being part of a management study stream that most students were required to complete. Only a small number of these students were taking this course as an elective/option course. The difference in results between the Australian and UK classes supports the proposition that context plays a role in forming motivations (Cordova & Lepper 1996).

The results in Table 3 for the aggregated Australian classes show that the most frequently-mentioned motivation theme can be identified as extrinsic, and this is aligned with a strategic study goal and management of a study program. This suggests that this theme (that was the most frequently mentioned for each of the Australian classes) reflects a very utilitarian approach to these courses by the Australian groups of students. This does not appear to be an encouraging outcome, given that motivation is seen to be critical in the success of any learning activity because it influences the “decision-making processes determining the direction, focus and level of effort individuals will apply to learning activity” (Cole, Feild & Harris 2004, p.67). In addition “positive connotations are often thought to be associated with intrinsic motivation and negative connotations with extrinsic motivation”, although the same authors suggest that partitioning motivation in this way with these connotations “may foster inadequate and potentially erroneous views of ... choices by learners in classrooms” (Walter & Hart 2009, p.162). In effect, Ryan and Deci (2000, p.61) identify different types of extrinsic motivation in their taxonomy of human motivation to reflect their differing degrees of influence, as listed in Table 3, although they identify “external regulation” as being the closest to “amotivation”, on their continuum of motivations.

The other motivations emerging from the meta-analysis in this research are intrinsic. This suggests that a number of students in these classes selected these elective courses because they considered that they were interesting and useful, and that they would gain some knowledge about entrepreneurship and about business in general. This suggests that students in these classes were primarily interested in learning *about* entrepreneurship and the entrepreneurial process, rather than learning what is necessary to start their own business (Taatila 2010).

As these are elective/optional courses that students were not required to take for their programs of study, it is understandable that there were no statements that could be taken as expressions of amotivation (complete lack of motivation), or of the factors discouraging motivation (Martin, AJ 2003).

Contributions

This research contributes to the motivations literature by demonstrating that different groups of students taking the same course have different enrolment motivations, as suggested by Adcroft (2010), and suggests that context is an aspect that needs to be taken into account (Cordova & Lepper 1996). It also reveals some underlying common motivations across groups that might be generalisable to courses in entrepreneurship. In addition, this research describes a method that gives entrepreneurship educators a tool for identifying motivations, and provides information for adjusting teaching methods, delivery and content to improve engagement with a specific group of students, with the aim of enhancing learning outcomes.

Practical implications

This research has considerable practical implications for the educator. The results indicate that, in the Australian classes, student motivations appear to be largely extrinsic and utilitarian. With this knowledge, the educator has modified the content of the course so that

the content is more easily accessible to students with extrinsic motivations, who come from a wide range of study programs where they have not studied any management-oriented courses. The educator has redesigned the course so that students are provided with a single business idea that forms a topic for the lecture and discussion sessions. This business idea is generally a very innovative technology product that is new to the local market, and so has inherent novelty value that appeals to students. This has become an important way to engage this disparate group of students by giving the course a focus. This approach ensures that all students are properly prepared to address the challenge of finding ways to introduce this novel business idea to the local market. In addition, the major project assessment has been changed so that students, working in teams, prepare a feasibility plan or business case to launch the product into the market. This report is simpler to prepare than the conventional business plan that is the usual student output in this type of course. Further, the educator has introduced the Team-Based Learning method of instruction and has found that this is a valuable way to engage these disparate groups of students with their utilitarian motivations.

The research also suggests the importance of context in influencing student enrolment motivations, as indicated by the qualitative difference between the results for the Australian and UK classes

This research describes the implementation of a very quick, simple and practical method of data collection (the minute paper), and the use of a relatively quick and robust method for grounded qualitative data analysis (concept mapping). This process is used in each delivery of these classes. In particular, the results indicate that one class cannot necessarily be treated in the same way as the next. This process gives the educator accurate information about the motivations of the students in the particular class in a way that allows course delivery to be fine-tuned in order to address these motivations, even when the course is delivered over only three weeks.

The educator also has information from preceding course deliveries, and is able to anticipate the themes that are revealed in the meta-analysis of the findings, as shown above. In addition, results for a particular class are presented to students in the final review session (together with an explanation of the research method), and this allows the educator to explain how course design and delivery meets their particular set of motivations. This information provides an important input that is used to help to manage student expectations in these classes.

Limitations

This exploratory study is limited by the small number of classes included in this study. This will be addressed by carrying out the same exercise for each future course delivery.

Further research

The results provide the basis for further research and analysis. In particular, data collection for more recent classes has been designed to make it possible to explore possible influences of gender, and type of student (international or local). Further, the concept mapping analysis identifies links between these clusters or themes that suggest relationships between the clusters. These relationships can be explored in the context of the motivation literature to help to clarify dependencies between themes, and could be used for theory-building. It would be beneficial to design the research to link individual expressions of motivation to learning outcomes in the form of student grades in order to explore relationships between motivations and learning outcomes. In addition, the influence of learning contexts on student motivations

is an aspect to be explored. This research can also provide the basis for the development of a scale for measuring student motivations at the level of classroom.

CONCLUSIONS

Motivation is seen to be very important in the success of any learning activity, and is particularly important in entrepreneurship education. There has not, however, been a great deal of attention given to identifying the reasons why students enrol in entrepreneurship courses (their motivations). One possible reason for this gap in the literature is the lack of availability of research methods that are relatively quick and easy to implement at the classroom level, particularly with small classes where the implementation of survey questionnaires is not likely to provide useful or reliable results.

This exploratory study implemented concept mapping as an appropriate grounded qualitative research method to identify the themes of enrolment motivation for separate classes of students taking a similar undergraduate elective/optional entrepreneurship foundation course. This study identified a combination of explicit (externally directed) and implicit (internally directed) motivations for students to enrol in these classes, with explicit or utilitarian motivations such as “an elective to complete my degree more quickly” being the most frequently mentioned. The motivations differed significantly from one class to the next, and from one country to the next, which means that each student group had a slightly different set of enrolment motivations, and attributed different importance to these motivations. This means in turn that one class cannot necessarily be treated in the same way as the next.

This research contributes to the literature by supporting the proposition that student enrolment motivation varies from one class to another. It also contributes by demonstrating concept mapping as a method for carrying out grounded research that yields insightful results at the classroom level. Results have demonstrated practical value in enabling the educator to manage course delivery to take into account the enrolment motivations of students in the particular class as a step in managing student expectations.

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EXPLORING KNOWLEDGE ACQUISITION FROM THIRD PARTIES FOR SME INTERNATIONALISATION

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Exploring Knowledge Acquisition from Third Parties for SME Internationalisation

ABSTRACT

This study investigates the importance of direct, indirect and serendipitous roles of third parties in knowledge acquisition in the networking for internationalisation processes of three different firm types in the Natural Health Products (dietary supplement) industry in Canada. Case studies, developed primarily through semi-structured interviews, were conducted with nine international new venture SMEs, including two regulatory service consultancies, two combination firms that acted as both ingredient suppliers and contract manufacturers, and five manufacturers with their own brands. These firms extensively utilised third parties to gain technical, market, internationalisation, and direct and indirect experiential knowledge which contributed significantly to their ability to internationalise rapidly using all network-related internationalisation theories and frameworks simultaneously. Prior ties, multicultural hires and their unique use of multicultural networks allowed these firms to: accelerate the time required to accumulate knowledge and experiences and to access and deepen market penetration; overcome psychic distance, risk, and constrained resource obstacles; affect foreign market selection; locate resources; and leapfrog internationalisation stages. Strong and weak ties involving third parties permitted these firms to develop competitive advantage and overcome the ‘liability of outsidership’ in foreign markets.

INTRODUCTION

Internationalisation is a learning-intensive process where a firm’s ability to acquire and integrate domestic and foreign knowledge facilitates internationalisation (Johanson & Vahlne, 2003, 2009) and is critical to a multi-country firm’s development and performance (Zahra et al, 2000; Eriksson et al, 1997; Forsgren, 2002; Prashantham & Young, 2011). Business networks are of critical importance to firms (Forsgren & Johanson, 1992) and essential to the internationalisation (Johanson & Vahlne, 2009, 2011) of born-global and international new venture firms (Sharma & Blomstermo, 2003; Loane et al, 2004). Network literature on internationalisation has focused on how firms acquire resources and gain knowledge about foreign markets (Gilmore et al, 2006); how personal relationships influence internationalisation (Ellis, 2000); the effects of firm relations; or the influence of international experience and three types of knowledge in networks (Hohenthal et al, 2013). ‘Insidership’ in networks has been shown to be necessary for internationalisation but the liability of ‘outsidership’ or a firm’s inability to form network relationships can also prevent it, so distinctions between market entry and expansion in internationalisation may be less relevant than ‘insidership’ and ‘outsidership’ in foreign market entry (Johanson & Vahlne, 2009, 2011).

The research presented here examines empirical evidence from nine case studies of Canadian Natural Health Products (NHP) i.e. dietary supplement industry, international new venture SMEs. It revealed that these firms extensively used third parties such as government bodies, trade associations, government advisors, consultants and immigrant networks to play important roles in the knowledge acquisition process for internationalisation directly, indirectly and serendipitously. Strong and weak ties (Granovetter, 1973) involving these third parties allowed these SMEs to develop competitive advantage and overcome the ‘liability of outsidership’ (Johanson & Vahlne, 2011).

This paper is structured as follows: first, we review the learning and networking for internationalisation literature related to this study and propose several questions arising from our analysis of the literature; then provide an overview of the sector focus of the study,

outline the data collection methods, and finally, discuss the results and implications of the study.

LITERATURE REVIEW

Learning for Internationalisation

Researchers increasingly agree on the importance of knowledge management and learning to the achievement of competitive advantage and the long-term strategic success of firms. Internationalisation is an intensive learning process (Johanson & Vahlne, 2009) where the ability to acquire and integrate domestic and foreign knowledge is critical to a multi-country firm's development and performance (Zahra et al, 2000). It also represents "*a learning capability that firms need for successful entry into successive new markets*" (Fletcher et al, 2013 p: 47) as this firm-specific knowledge must be internally integrated and with the firm's other resources to be useful (Prashantham, & Young, 2011; Johanson & Vahlne, 2009). The greater the number of interfaces for learning i.e. products, people with different backgrounds and competencies, production facilities and the like, the greater the learning that occurs at both the individual and the firm levels (Håkansson et al, 1999). Managers must, therefore, make choices about who to learn from and what form of learning should take place.

Internationalisation knowledge is defined as "*the procedures and routines of how to learn in local markets*" or "*experiential knowledge about internationalisation in general*" (Blomstermo et al, 2004 p: 358). Firms require a wide network of relationships to internationalise and although firm decision-makers play key roles in pursuing opportunities in networks (Chetty & Blankenburg Holm, 2000), opportunities are created by network contacts and not necessarily by strategic decisions of managers (Coviello & Munro, 1995). Learning in initial foreign markets aids market development and entry into other markets (Johanson & Vahlne, 2003) by introducing new network relationships; increasing the firm's ability to coordinate and manage these relationships and routines (Blomstermo et al, 2004); and in building new networks (Loane & Bell, 2006).

Networks are defined in three different ways in the internationalisation literature: first, as used in this study, as an interrelated system of actors including customers, suppliers, competitors, public and private support agencies, family and friends; secondly as social or business, personal, and formal or informal business partners; and finally, on the basis of network structure which keeps the network together (Hohenthal et al, 2013). Most network studies have viewed networks as an independent variable where the creation or recognition of an opportunity to internationalise is an outcome of the firm's involvement in a network, i.e. the network is separate from the firm and acts as the basis for the firm to expand internationally. Several studies have shown that opportunities can also be located outside networks and arise as an outcome of discovery or serendipity where strategies, decisions or plans fail to provide an explanation (Harris & Wheeler, 2005). In networks, learning is affected by two factors: a) the characteristics of the parties in the relationship, their commitment to that relationship and their competencies in teaching and learning, and b) the type of relationship between the parties that has nothing to do with learning, e.g. age, products, duration and content (Håkansson et al, 1999). Trade shows have been shown to be important information platforms which contribute to the establishment and enhancement of a network infrastructure and knowledge hub for internationalising firms (Evers & Knight, 2008). Unfortunately, little is known about how managers actually find, develop and utilise network relationships or what value they offer in the process (Sigfusson & Harris, 2012; Loane & Bell, 2006) or about knowledge management in the export strategies of firms (Villar et al, 2013).

While information sharing requires only weak tie relationships (Granovetter, 1973), finding, recognising and sharing entrepreneurial opportunities requires much stronger ties (Welch & Luostarinen, 1993). By assembling many weak ties that focus on learning exchange from the beginning (Sharma & Blomstermo, 2003) or forming strong ties with parties that are deeply embedded in network relationships (cognitively, culturally, structurally or politically) in one or more of the countries entrepreneurs wish to enter (Sigfusson & Harris, 2012), entrepreneurs can aid their early internationalisation process. Some of these relationships may be of greater value than others depending on the situation and needs of the entrepreneurial firm involved (Yli-Renko et al, 2002).

Strong and weak ties (Granovetter, 1973) contribute to the competitive advantage of firms since the characters of network relationships arise as a consequence of the interaction strategies of the parties (Cunningham & Homse, 1982) and can be conditioned by relationships with third parties (Håkansson & Snehota, 2006). Competitive advantages of individual firms and their ability to internationalise may also be dependent upon whether entrepreneurs are 'insiders' or 'outsiders' in networks, as networks can provide accumulated experience, resources and knowledge needed for internationalisation (Johanson & Vahlne, 2009).

Existing relationships can sometimes represent the most valuable assets for internationalising firms (Harris & Wheeler, 2005) by reactively and proactively acting as introducers to valuable internationally-embedded partners (Freeman et al, 2010) or providing advice and support in the internationalisation process (Harris & Wheeler, 2005). These 'introducers' may be located in the entrepreneurs' own countries (with access to foreign markets); can include a foreign market presence; or have an important reputation that can signal a relationship to others and which may be critical to market entry (Sharma & Blomstermo, 2003). When the provision of assistance includes such things as: negotiating, persuading, influencing, or providing marketing capabilities, these activities require higher levels of trust and motivation and, therefore, stronger relationships as well as in-country linkages to people, firms and institutions which may make the provision of assistance more effective (Sigfusson & Harris, 2012).

This information led us to propose the following questions: what role do third parties play in the acquisition of knowledge in the internationalisation of firms? Does the position of these third parties inside or outside networks affect the internationalisation of the firms involved? and how do these third parties influence the competitive advantage firms in international markets?

Types of Internationalisation Knowledge

With the huge diversity of institutional environments globally, entrepreneurs must possess and leverage information-based, intangible resources needed to internationalise including: institutional knowledge such as knowledge of laws and regulations (Eriksson et al, 1997); knowledge of local conditions and opportunities (Chetty & Blankenburg Holm, 2000; Schweizer et al, 2010); business knowledge of resources, capabilities and market behaviour of suppliers, competitors and customers (Blomstermo et al, 2004); and of local relationships which may provide 'home court' advantages to local firms (Dunning, 2001).

Fletcher et al (2013 p: 51) divided internationalisation knowledge into three types of knowledge and defined each as:

- "a) market entry knowledge - how to develop market entry strategies and implement those decisions*
- b) localization knowledge - how to source, evaluate and develop competitive and collaborative strategies and implement them in new markets and*

- c) *international enterprise knowledge - how to source, evaluate and implement internal structures and procedures which can be used to respond to international challenges and enhance business performance.”*

Market knowledge is tacit, and country and market-specific, albeit not firm-specific, so the main source of this knowledge is the firm's own operations (Johanson & Vahlne, 2011).

Localisation knowledge and assistance requires deeper, tacit-based or experiential knowledge since it involves learning how to accomplish things such as locating and evaluating partners, distributors, and suppliers (Freeman et al, 2006; Johanson & Vahlne, 2003); developing viable entry strategies in local markets in order to make internationalisation decisions (Fletcher et al, 2013); and sustaining competitive positions in new territories (Prashantham & Young, 2011). These actions require greater commitment to action and, therefore, stronger relationships with network partners (Freeman & Cavusgil, 2007; Freeman et al, 2006).

International enterprise knowledge is defined as the knowledge needed *“to source and evaluate information about international challenges; different ways in which international firms can be structured and managed; and how to implement internal structures and procedures for international business performance”* (Fletcher et al, 2013, p: 51). Firms must learn to convert experiential knowledge into objective, explicit knowledge and coordinate it with other resources which they can embed in new and existing structures and procedures (Blomstermo et al, 2004) and share amongst their international operations (Karlsen et al, 2003) to gain competitive advantage (Chen et al, 2008). While networks provide both, technical and market information, network partnerships have: *“neither sufficient knowledge of the firm's capabilities and resources, nor the time or interaction with the firm to provide internationalisation knowledge”* (Fletcher & Harris, 2012 p: 632).

Learning theory suggests that firms learn best *“when new knowledge is related to prior knowledge and when it devotes significant intensity of effort in processing new external knowledge”* (Sapienza et al, 2005 p: 6). Firms may acquire knowledge directly through experience (Huber, 1991) resulting from either intentional or unintentional actions arising from learning gained from previous outcomes that they then apply to current decisions (Fletcher & Harris, 2012). This provides opportunities for firms to acquire, integrate, and utilise the knowledge they gain about foreign markets and operations (Johanson & Vahlne, 2003, 2009) during the internationalisation process. Experiential knowledge plays an important role in market selection, and method of entry (Casillas et al, 2009) so firms must actively integrate this knowledge quickly along with additional knowledge provided by individuals, firms and networks if internationalisation is to be rapid (Casillas et al, 2009) since the speed at which knowledge is accumulated and learning occurs, is dependent upon how individuals, firms and networks share their knowledge with one another (Prashantham & Young, 2011). Entrepreneurs acquire foreign market-entry knowledge innovatively and proactively by pursuing international opportunities rather than passively accumulating experience (Zhou, 2007) and in doing so, develop skills and abilities and aid strategic market entry decisions by allowing them to search for information; identify and evaluate markets; potential partners and opportunities; and manage customs and foreign exchange processes (Prashantham & Young, 2011). Direct, experiential knowledge necessitates that participants be more embedded and have deeper, more extensive in-country experience (Sigfusson & Harris, 2012). Internal experiential knowledge can be sourced internally from managers, staff, and systems and may sometimes be lost in a firm's organisational memory i.e. the firm *“does not know what they know”* (Huber, 1991 p: 100). This information needs to be codified and recorded in information systems so that it can be retrieved and distributed (Prashantham & Young, 2011; Huber, 1991) through effective formal and informal communication linkages and within intra-firm and inter-personal networks to improve (Karlsen et al, 2003).

Firms may also indirectly gain access to the knowledge of other firms through business relationships; by watching other firms and acting in similar ways; by acquiring other organisations or hiring people with the necessary knowledge so they do not necessarily have to have the same experiential learning (Levitt & March, 1988) and from other commercial or government sources (Leonidou & Adams-Florou, 1999; Fletcher & Harris, 2012); or by utilising specialist groups such as export intermediaries (Peng & Ilinitich, 1998) to act as external sources of knowledge. Grafting avoids the slow process of learning from one's own experience and allows the firm to internationalise more rapidly by focusing its efforts on integrating personnel and the knowledge into the business (Barkema & Vermeulen, 1998). Fletcher & Harris (2012) found that recruitment was a source of both market and technological knowledge but typically not internationalisation knowledge, given that people with internationalisation knowledge are rare; and that government advisors and consultants were also sources of internationalisation knowledge. These external sources have been shown to be particularly important for innovation and exploratory learning (Huber, 1991).

Indirect or second-hand experience is knowledge which has not been directly learned, but rather, gained through observation (Huber, 1991) in networks, licensing, strategic alliances, or via corporate intelligence that can be used to overcome the liability of foreignness (Schewns & Kabst, 2009) or stimulate rapid and early internationalisation (Forsgren, 2002). Firms may mimic the activities of others who have successfully entered particular foreign markets (Forsgren, 2002). Firms may also search externally for knowledge in publications or other objective sources of information; scan their external environment for new information (Chetty & Blankenburg Holm, 2000; Forsgren, 2002; Huber, 1991); conduct their own market research; or take education and trainings to secure information from others (Leonidou & Katsikeas, 1996) in an effort to problem-solve or enhance strategic effectiveness (Chandler & Lyon, 2009).

Obviously, different types of knowledge and learning in networking are essential for internationalisation including market entry, localisation, international enterprise, direct and indirect experiences, and grafting. This research will attempt to establish what specific types of knowledge and learning were provided by third parties in the unique institutional environment of Canada and sector focus of Natural Health Products

Sector Focus

A lack of research exists on the internationalisation practises of SMEs in particular economic sectors (Zahra, 2004). The Canadian government identified knowledge-based bio- industries, and health and life science SME exports as rapidly growing priority sectors important for economic competitiveness (DFAIT, 2011). Within this category, natural health products (NHPs), i.e. the dietary supplement industry, are regulated there as non-prescription, over-the-counter drugs. Internationally, this market is valued at \$68 billion US (Anon, 2007). In Canada it is valued at \$3 billion and employs over 25,000 people in 10,800 businesses (75% Canadian and 25% foreign owned), 95% of which are privately held entrepreneurial firms, and the largest being a medium-sized enterprise with 350 employees (CHFA, 2011). The NHP industry was, therefore selected as the research subject given a lack of prior research on the sector and anecdotal evidence that suggested that these firms were heavily engaged in international markets.

Between 2004 and 2010 Canada introduced a unique new regulatory system that defines NHPs as over-the-counter products, non-prescription as drugs (Nestmann et al, 2006 p: 52). The range of over 72,000 Canadian products including vitamins and minerals, herbal remedies, homeopathic medicines, traditional medicines such as Chinese and aboriginal medicines, probiotics, amino acids, essential fatty acids and other products (Health Canada (HC), 2011) are legally called NHPs. In other international jurisdictions, these products are

called food or dietary supplements and controlled under highly differentiated regulatory systems for foods, drugs, traditional medicines, herbal medicines or a combination of one or more sets of those regulations.

Implementation of World Trade Organization (WTO) rules has led to a significant reduction in tariff barriers and a sharp rise in the use of non-tariff barriers (Eliason, 2006), including import quotas, special licenses or standards, technical barriers to trade, sanitary and phytosanitary measures, and rules of origin. WTO also expressly permits some non-tariff trade barriers such as when they are deemed necessary to protect health, safety, sanitation or depletable natural resources, as may be the cases in some pharmaceuticals (Eliason, 2006).

“Governments closely supervise virtually all aspects of (drug) development, testing, production and marketing but many also regulate their pricing and distribution... drug regulation was virtually synonymous with national sovereignty. Firms were required to conduct separate tests, submit separate applications, and meet distinctive criteria to enter each national market (Vogel, 1998, p: 1).”

As a result, no two international markets have the same regulations or requirements of NHPs for allowable content, regulatory submissions, approval, labeling, advertising, scientific claims, clinical support, pre-market approval, manufacturing site licenses, etc. Compliance for internationalisation can, therefore, be a very expensive, highly protracted process which requires extensive knowledge acquisition for SMEs to be successful. Thus, this paper explores, for the first time the patterns and pace of knowledge acquisition for internationalisation from third parties of Canadian NHP SME networks.

RESEARCH METHOD

The multiple case study method allows for the in-depth investigation and understanding of real life complex phenomena and processes that occur when SMEs internationalise; allows and extends this experience to learning from previous research; and provides a vehicle through which several qualitative methods or sources of evidence can be combined (Yin, 2009). The findings reported here were derived from nine case studies using evidence collected and developed through semi-structured interviews conducted with Canadian NHP SMEs.

Firms were initially drawn from the supplier membership directory of the Canadian Health Food Association (CHFA), the largest trade association representing the interests of this sector in Canada. Firms were then reselected based on their ability to meet the Canadian definition for SMEs; were based in one of two large NHP industry clusters in Toronto or Vancouver's greater metropolitan areas; and in each case, had already internationalised. A minimum export ratio/sales turnover was not specified in an effort to obtain a range of firms exhibiting varying degrees of internationalisation. The firms selected were all independent, and not subsidiaries of larger domestic or international companies, in an effort to avoid the effects of potential resource and cultural influences on decision-making.

Participating firms were then sub-divided into three firm sub-types and the cases selected based on being the two largest of five regulatory service consultancies (RSCs), (firms A and B), serving the industry; the two largest of seven combined ingredient supplier and contract manufacturer firms (ISCM), (firms C and D); and three of five of the largest manufacturing firms with their own brands (MFB), (firms E, F, G), and two of the smallest (firms H and I). Combined, each set of firms represented more than 75% of the sales of each firm type. Small firms which had internationalised were not available in the RSC or ISCM firm types. Responses were used to identify similarities and differences that existed among firms, firm subtypes, and the industry. A firm founder, or member of each firm's senior management

team, who was known to one of the researchers¹, was interviewed for 45-90 minutes either in person in Toronto, or using Skype internet telephone service if located in Vancouver. All interviews were transcribed and the resulting text coded to identify key themes.

In addition to a review of SME and internationalisation literature, a small number of private, CHFA-initiated economic studies and leading trade publications were used to gather data and develop context and background on the industry's business environment. A Delphi panel consisting of three industry and academic experts was utilised to review the findings and their interpretation, and agreed with the conclusions of the study.

FINDINGS AND DISCUSSION

Knowledge is an important component of organisational success in health-sciences-based and drug-regulated industries and in internationalisation. Educational level, work experience, and backgrounds are also important indicators of company actions, especially where only a few people dominate organizations (Loane et al, 2004). In this study, entrepreneurs established eight of the nine firms based on prior experience in the NHP or drug industry, NHP-specific, or academically-related knowledge. The remaining firm (H) was established by a son with a strong academic business background and his father with an extensive unrelated export experience and a personal health condition mitigated by the firm's NHP products.

All Canadian NHP firms and firm types in this study, were previously shown to use all three networking for internationalisation theories and methods simultaneously including: Johanson & Mattsson's (1988) network theory, Johanson & Vahlne's (2003; 2009) updated Uppsala Model, and the resource-based perspective on network theory (Ruzzier et al, 2006) (Bell & Cooper, 2012). All nine knowledge-based NHP SMEs rapidly internationalized to many countries and continents. They fit the definition of international new venture firms (Oviatt & McDougall, 2005) with only one firm (G) requiring more than two years to internationalise but in which case, once it did so, it rapidly increased its export markets. RSCs internationalised and entered a total of over 20 markets. ISCMs internationalised from inception to between 40 and 50 different markets and MFBs to between two and 20 different markets.

Market Entry Knowledge

Market entry knowledge is that internationalisation knowledge needed to develop market entry strategies and implement those decisions (Fletcher et al, 2013). All of the NHP SMEs were members of the Canadian Health Food Association (CHFA), the largest domestic network representing the NHP industry. Through their attendance at CHFA's combination meetings, educational programmes and trade shows, firms extended their networks to include ever increasing numbers of international members and visitors attending these events. These events acted as knowledge hubs, places where they located many international opportunities, and contributed to the establishment and enhancement of a network infrastructure for these rapidly internationalising firms. Later, the firms also attended the largest industry trade shows and conferences in the USA and in other export markets. There, they continued to develop new networks, penetrated and extended existing foreign networks, located additional opportunities and as their international experience grew, learned to manage and maintain existing networks. Through these networks all of the firms directly or indirectly learned many important and useful things about foreign markets including: how to locate and select potential partners, distributors and suppliers; potential market entry strategies; reasons for the

¹ The lead author is a former President of the CHFA, who has represented the association's interests both domestically and internationally and is therefore well known within the industry.

success and failure of competitive firms in foreign markets; ways to overcome psychic distance; important shipping, currency and other important exporting learning; and how to follow-the-leaders into foreign markets such as the USA, Mexico, Korea, Hong Kong, China, etc. In several instances, where MFB firms had non-competitive products, these firms worked together, or in the case of RSCs and ISCMs, they went along with their clients to simultaneously enter the same foreign markets by sharing knowledge, network connections, transportation, distribution and marketing channels and in doing so, learned together, from one another, and about one another.

CHFA members whom they had known previously and new members of their international networks acted as ‘introducers’ to customers, important foreign government officials, distribution and marketing channels in foreign markets in line with Sharma and Blomstermo (2003). Without these introducers, the firms would either not have met these individuals, or it would have taken much longer than it did to locate them on their own.

Canada’s multicultural environment also created extensive and significant external export motivation for all three NHP firm types (RSC, ICSM and MFB) by identifying numerous new business opportunities and export markets through immigrants’ diasporas, networks or family connections in their home countries. Often this international knowledge and experience was also by grafted through recruitment into these firms. These individuals and groups sought out MFB firms, in particular, with successful Canadian brands and products with high regulatory standards for quality and safety, and then carried them to foreign markets, distributors and agents, where, given their use of insiders in pre-established networks in those countries, the MFB firms quickly became successful. Using the immigrants’ knowledge of languages, foreign cultures, business practises and their links to local distributors, marketing channels and suppliers, the Canadian companies literally leap-frogged psychic distance, market entry and localisation knowledge obstacles that normally affect SMEs internationally. Many of these immigrants, given Canada’s unique immigration policies, were also highly educated and had extensive, high quality regulatory and other networks made up of their families or university educated peers which significantly aided this process. Without these introducers, the NHP firms would likely not have met these individuals, and it would have taken much longer than it did for these firms to learn what was required to enter these markets sooner on their own, if they did at all. It also aided all three firm types to more quickly overcome the liability of foreignness by allowing them to rapidly become ‘insiders’ in these local networks in foreign markets initially vicariously and later by building trust with local partners in those markets.

All three firm types found that regulatory models and knowledge were virtually “*synonymous with national sovereignty*” (Vogel, 1998, p: 1) and that literally every product entering every new market required extensive modifications including reformulation, dosages, testing, health claims, clinical evidence, and lengthy pre-market approval application processes for import. These regulatory and technical changes required extensive new product innovation and involved very lengthy time delays, often years. Regulatory knowledge and product adaptation for every market, therefore, became major financial, time, and knowledge internationalisation obstacles for all the three NHP SME firm types. Knowing this, each firm learned to begin this process well in advance of actual market entry and to leverage all its network resources to minimise risk in developing appropriate products and applications which would be approved quickly rather than risk rejection or additional delays in bringing the products to market.

The NHP firms also found that not only did every market have its own extensive and unique codified regulatory knowledge, but that the interpretation of this knowledge was both specific to the market and tacit in nature. All three firm types chose a variety of routes to access regulatory knowledge including: a) directly by submitting regulatory applications for

products and learning from experience, although this was the least preferred method; b) attending regulatory workshops in-market and at international trade show events where they were able to ask questions directly related to their products and meet experts in regulatory knowledge from other markets; c) indirectly by networking with local competitors, manufacturers, and members of trade associations (local and international); d) grafting knowledge either by hiring staff with training and experience in these models or obtaining the consulting services of foreign regulatory consultants. All three firm types, but particularly RSCs, given the nature of their consulting services, developed absorptive capacity for regulatory information by building on both pre-existing experience, and new knowledge which enabled them to reduce the risk of entering foreign markets.

Despite the wide variety of SME export promotion programmes available from the Canadian government only three MFBs (F, H and I) utilised them. One ISCM (C) and two MFBs (E and F) participated in Department of Foreign Affairs and International Trade (DFAIT) led trade missions that allowed them to join NHP industry networks in Hong Kong, China and Taiwan. All three firms, utilised government market research information and in- country Canadian embassy or consular staff, or trade consultants to arrange meetings with foreign buyers. These introductions allowed the firms to gain important indirect market knowledge and locate distributors, other resources and experience which aided their internationalisation processes. Other firms did not use these services because the process was too complicated; it failed to provide a value versus time benefit; or because DFAIT had provided funding to CHFA for industry-specific trade missions to six countries (USA, Mexico, China, Taiwan, Japan and Thailand) which they saw as more valuable than generic trade missions. These CHFA led industry-specific trade missions provided important country- specific market orientations, introductions to local senior industry association staff and members, important distributors, marketing and distribution channels in these markets that would have otherwise taken lengthy time periods to achieve on their own.

Whereas previously the firms may have encountered structural holes in their network connections to these countries, their use of trade missions generated weak ties that each firm was later able and used to locate other resources, become rapidly more embedded in each country and strengthen later. As a result, each firm rapidly developed extensive and indirect market knowledge and significantly shortened the cycle of establishing network relationships in the countries where these trade missions were taken. Firms (A, B, D, F, G and H), that participated in CHFA led trade missions to Mexico, Hong Kong, China and the USA or whose executives or owners held leadership roles within domestic or international trade associations acted as ‘multipliers’ or ‘introducers’ to other association members, distribution and marketing channels, government officials, etc. in these new markets and to the networks in other countries. Later, all firms began connecting international networks between countries (Johanson & Mattsson, 1988).

During these trade missions, several of the national trade associations from these countries developed Memorandums of Understanding and Cooperation with CHFA which further allowed its member firms to rapidly gain market, technical and regulatory knowledge and know-how and as well as to increase trust and embed these firms more rapidly in these new markets. It also aided all three firm types to overcome more quickly the liability of foreignness by allowing them to becoming ‘insiders’ more rapidly in these local networks in foreign markets.

Localisation Knowledge

Localisation knowledge requires greater commitment to action, stronger relationships (Freeman & Cavusgil, 2007; Freeman et al, 2006) with network partners and deeper, tacit- based or experiential knowledge since it involves learning how to accomplish things such as

locating and evaluating partners, distributors, and suppliers (Freeman et al, 2006; Johanson & Vahlne, 2003); developing viable entry strategies in local markets in order to make internationalisation decisions (Fletcher et al, 2013); and sustaining competitive positions in new territories (Prashantham & Young, 2011).

Over time, as RSCs' experience and knowledge grew, their weak ties with clients and government regulatory staffs became stronger, trust increased and the firms became more embedded in local industry, regulatory and knowledge-based networks in each of the countries they entered. As trust increased, these relationships became more structured (e.g. their client's agency-of-record) and the firms more committed to foreign markets, consistent with Bradley, et al, (2006). RSCs' desire for new business growth and positive internationalisation learning experiences also motivated them to investigate new markets where they marketed their academic backgrounds or experience; Canadian NHPR knowledge; absorptive capacity for the regulatory environment; internationalisation knowledge; and range of services for foreign firms in specific and non-specific markets through international trade shows.

Through the use of networks ISCMs learned about international suppliers and technical standards for ingredients, and were also able to locate and source better quality, lower-priced and unique ingredient products to enhance their competitive advantage. As their absorptive capacity for those products and standards grew, so did demand for their products and their competitive advantages. ISCMs also quickly learned to service the regulatory needs of their contract manufacturing customers entering the USA and later other markets. New customers began to seek out their expertise in creating formulations which complied with the regulatory needs of specific foreign markets and as their technical knowledge and absorptive capacity for product development, innovation, production and marketing grew, their competitive advantages also increased. As their experiential knowledge grew, ISCMs provided products for those additional markets where they learned about foreign customs, currencies, regulatory requirements and shipping. Motivated internally by increasing reputations and competitive advantages for quality products and services, ISCMs, internationalisation knowledge RSC firms, marketed their products and services at domestic and international trade shows where they found increased opportunities and continued to enlarge their networks as they opened additional markets.

International Enterprise Knowledge

International enterprise knowledge is "*that information needed on how to structure, manage and evaluate international operations, respond to international challenges and enhance (the firm's) business performance*" (Fletcher et al, 2013, p: 51). The data indicate that it was only after NHP firms connected networks and increased commitment to internationalisation that they entered into strategic alliances, contractual arrangements and FDI consistent with Granovetter's (1973) findings on strong and weak ties and how firms progress, through proactive action on their part from weak ties to stronger ties over time.

Unfortunately, as the number of new markets RSCs entered increased, their ability to absorb the extent of the new regulatory knowledge required for every new country meant they lacked competitive advantage compared to competitors already in those markets. As RSCs' knowledge and understanding of the regulatory complexity of markets grew and their understanding of the infinite extent of this market entry obstacle, they chose, based on learning, to create new business networks, form strategic alliances, and develop mutual referral systems with competitive RSCs in foreign markets. Both the Canadian firms and their foreign RSC partners benefitted, as a result, from additional new business opportunities, larger foreign markets, increased growth, and reduced risk of entering each other's markets.

ISCM firms increased their commitment and deepened export relationships by developing business networks, strategic alliances and contractual relationships with their trusted USA counterparts in an effort to increase the sale of competitively-priced goods to USA customers. Firm C established strategic alliances with Mexican firm owners who they had met through social networks in Canada, prior to start-up, and planned to make additional FDIs into existing contract partners in both markets as trust and familiarity increased while Firm D made an FDI later to purchase its USA strategic alliance partner. ISCMs indicated that by networking with government officials, they also learned to leverage the North American Free Trade Agreement to benefit each of their firms.

After using distributors, brokers or agents and familiar practises to enter export markets initially, all ISCMs and MFBs learned to form specialised internal 'international' departments to support market expansion, developed new criteria based on their direct experiential knowledge to evaluate markets and to pre-qualify new distributors and agents, and, later, used strategic alliances, FDI and international trade consultants to increase penetration of their existing export markets and locate new markets. Firm D, the largest in the Canadian industry, indicated that it formed a strategic alliance with a larger, global pharmaceutical firm to allow it to learn new systems and gain international experience by extending its product reach and profile, and gaining insights into unfamiliar markets while also generate new business opportunities confirming Cooper (2001).

In summary, it appeared that extensive use of multicultural and trade networks, participation in trade missions, and the formation of Memorandums of Understanding between CHFA and foreign trade associations, allowed the Canadian NHP SMEs to undertake significant domestic and international learning efforts from a variety of third parties which contributed significantly to their early and rapid entries into foreign markets.

CONCLUSIONS

The study confirmed many traditional findings, challenged or extended others and made several unique contributions. It also generated research findings for the first time on the previously unstudied NHP industry, and the knowledge acquisition for internationalisation processes of knowledge-based service, combination and manufacturing SMEs in Canada. While the conclusions may appear to be limited by the small sample size, the nine firms interviewed represent an average of over 75% of sales of each firm type selected, and are therefore, representative of both individual firm types and the Canadian NHP industry.

Different sources and types of knowledge were found to be valuable including market and internationalisation knowledge confirming Eriksson et al, (1997); know-how in countries new to the firm including how to accomplish things such as locating and evaluating partners, distributors and suppliers (Fletcher & Harris, 2012; Freeman et al, 2006; Johanson & Vahlne, 2003); provision of assistance by third parties; experiential, grafted knowledge obtained through recruitment, and technical knowledge (Fletcher & Harris, 2012). This study however found for the first time, that regulatory-specific knowledge was also essential to enter new markets given the nature of the products involved and in line with Vogel's, (1998, p: 1) findings that drug regulatory models are "*synonymous with national sovereignty*". This study found that network partnerships of these firms gained both sufficient knowledge of the firm's capabilities and resources, and had the time and interaction with the firm to provide internationalisation knowledge thereby contradicting Fletcher & Harris, (2012).

The study also confirmed that among the third parties that may provide assistance and act as external sources of knowledge were export intermediaries (Peng & Ilinitich, 1998) and other commercial or government sources (Leonidou & Adams-Florou, 1998). In a significant departure from the literature, however, the NHP firms were shown to utilise extensively trade and multi-cultural networks in Canada uniquely to: a) accelerate the time required to

accumulate knowledge and experiences and access and deepen market penetration, b) overcome psychic distance, risk, and constrained resource obstacles, c) affect foreign market selection, d) locate resources, e) leapfrog internationalisation stages; and f) overcome the liability of foreignness; and g) aid the firms to rapidly become insiders in foreign networks. Grafting knowledge through recruitment of multicultural immigrants in Canada helped some firms avoid the slow process of learning and allowed these firms to internationalise more rapidly by focusing their efforts on integrating personnel and knowledge gained in networks. This was also a significant departure from Fletcher & Harris' (2012) findings that recruitment was a source of both market and technological knowledge, but typically not internationalisation knowledge, given that people with internationalisation knowledge are rare. In this instance, multicultural networks were extensive sources of internationalisation knowledge including market, localisation, and international enterprise types. External sources of knowledge were obviously particularly important for innovation and exploratory learning in accordance with Huber (1991).

Loane & Bell's (2006) work, that networking played a role in the rapid internationalisation of technology firms in Canada appears to be consistent with results of this study in the NHP sector. The data confirmed previous results that the rate of internationalisation increased by building network relationships in new markets, connecting to existing networks in other countries, and allowing trust and commitment to build prior to increasing investment in them consistent with Johanson & Vahlne, 2003, 2009.

Weak ties that grew into stronger ties (Granovetter, 1973) and bridged structural holes provided competitive advantages confirming Burt (1992). Exchanges within networks allowed these firms to acquire privileged knowledge about their relationship partners, their resources, needs, capabilities, strategies and other relationships that aided them to become successful internationalisers confirming (Johanson & Vahlne, (2009). It was apparent that networking became more crucial when firms were active in several countries (Forsgren, 2002) but that relationship maintenance and management was an important skill for small firms to learn to manage especially where resources were limited confirming Cooper (2001) and in successful internationalisation confirming Johanson & Vahlne (2009).

This study added to literature on how managers actually find, develop and utilise network relationships and what value they offer in the process as called for by Sigfusson & Harris, (2012); Chetty & Blankenburg Holm, (2000); Loane & Bell, (2006). Additional research is needed on the internationalisation methods of the NHP industry; how those firms learn; and the choices they make in the process in other international markets. Given the success of industry-specific trade missions in creating a wealth of initial opportunities to establish networks prior to market entry, other governments may wish to consider devoting resources to similar industry-specific networking programmes in future. Combined, all these additional research efforts would help to provide a multidimensional and complementary base of academic literature about this rapidly growing industry, and its business needs.

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LACK OF HR PRACTICES IN ENTREPRENEURIAL FIRMS: REASONS AND IMPLICATIONS

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Lack of HR Practices in Entrepreneurial Firms: Reasons and Implications

Introduction: the problem space

A firm's greatest asset and one that shapes its fortunes is its human resource, and organisational readiness for growth is understood as the availability of the appropriate human resources. Lengnick-Hall and Lengnick-Hall (1988) posit that demand for skilled employees is driven by the organisation's competitive strategy, which in turn is affected by organizational readiness. In other words, business strategy and HR strategy must be in a symbiotic reciprocal relationship for growth to happen (Lengnick-Hal & Lengnick-Hal, 1988) and that HRM be viewed as an integral part of firm strategy for competitive advantage (Narasimha, 2000). With regard to small entrepreneurial firms, studies have shown HRM and SHRM practices to relate positively to performance (Chandler & McEvoy, 2000; Hayton, 2003; Sels *et al.*, 2006). Arguably, then, if businesses are to develop with the appropriate skills and nimbleness with regard to dominant logic as they grow, they must focus on this symbiosis early and craft HR policies and practices deliberately before they are shaped by default that stunt growth.

On the other hand, entrepreneurship research has generally found informality to be a major characteristic of small firm management and working (Chaston, 1997; Gibb, 197; Pfeffer, 1994; Storey, 1994), and this informality in approach extends to HRM/HRD practices. The informal approach, rather than formal programmes, has also been suggested as being more suitable for small firms (Hill & Stewart, 1999). However, Hayton (2003) cautions against accepting the lack of formalised HRM approach in small firms "as inevitable or unconditional good" (Hayton, 2003: 375). Nooteboone (1993) opines that small firms lack sophisticated HR practices not because formal programmes are less suitable for them but because they lack the resources to implement such programmes. Informality and lack of sophistication has mainly been attributed to the cost of instituting formal policies and practices but also the absence of knowledge or expertise in small firms of instituting good HR practices (McPherson, 1995; Sels *et al.*, 2006). It may, however be argued that, with several small firms in the manufacturing and technology sectors capable of establishing six sigma or ISO standards and other stringent sector specific international standards particularly in order to supply to large firms, lack of expertise in formalising HR practices or the knowledge and ability to procure that expertise may not be the reason for keeping it informal. While this gives an oblique support to the cost related reasons, it is worthwhile to explore other reasons. Hill and Stewart (1999), in a small sample study, report a wide variation among small firms in establishing formal HR practices. That reasons other than costs may be at play here is also suggested by various studies that report a high level of variability among small firms in the degree of formalisation of HR practices and policies. From a Strategic HRM perspective, Lengnick-Hall and Lengnick-Hall (1988) propose a reciprocal inter-dependence between growth orientation and HRM development mentioned earlier.

Thus the resource based view (RBV) in conjunction with transaction cost economics (TCE) that emphasizes the small firm's inability to institute formal HR practices due to lack of affordability does not explain the variability among small firms on this dimension. An institutional theory perspective of the firm's need to conform to external stakeholder expectations, ie, of governments, trade unions where the relationships are contract driven, or professional trade bodies or certification agencies, also does not explain the variability as Kok and Uhlaner (2001) and Paauwe (1998) posit, with Kok & Ulhaner's study showing

more of the variability linked to RBV-TCE explanations than to institutional theory explanations. Further Paauwe (1998) proposes a combination of various aspects of the different approaches to explain the variability and posits that the choice of HRM policies and practices would depend on the constraints (of resources vis-à-vis cost) as also on the values, expectations and goals of stakeholders. Thus only partial explanations of the variability of HR formalization in small firms seem to emerge from the literature.

This study: exploring alternate explanation

This paper examines the entrepreneur rather than the environment to understand the variability better since variability exists between different firms even in the same institutional and external environment and with similar resource constraints. It therefore attempts to find out from the entrepreneurs themselves who run small firms as to the reason for the variability in the degree of HR policies and practices among their firms. It is proposed that the factors that may be most gainfully explored are those that are directly associated with the entrepreneur or with characteristics of the firm designed and run by the entrepreneur. Therefore, the correlation of different levels of HR practices with the qualification and experience of the entrepreneur, as also the technology levels that operate in the firm are examined. An important further exploration of an alternate hypothesis is undertaken. Borrowing from psychology literature, an established scale called the Ryff Scale of wellbeing (Ryff, 1989, 1996; Ryff & Singer, 2003) is used to get the entrepreneurs' responses in order to gauge their standing with and concern for stakeholders particularly internal employee stakeholders. The rationale for using the Ryff scale is taken from the psychology literature on well-being and is elaborated below.

The well-being literature has its genesis in the important shift in the discipline of psychology from its preoccupation with the dysfunctional mind to focusing on the normal, functional mind. After the world war years of dealing with trauma of the war fatigued soldiers that were psychologically scarred, the practice of psychologists (and psychiatrists in their treatment) started to deal with normal human feelings and emotions, and a new perspective evolved. The earlier understanding on the basis of remedying dysfunctional minds thus gave way to a new understanding of psychology through the perspective of well-being of the functional mind. This major shift made it a better tool to study the general populace rather than dysfunctional cases and came to be known as '*positive psychology*', resulting from the seminal works of scholars like Martin Seligman and others (Argyle, 1987; Diener, 1984; Gillham & Seligman, 1999; Kahneman, 1999; Seligman, 2002a, 2002b; Seligman & Csikszentmihalyi, 2000; Seligman *et al.*, 1995). These were followed by a host of scholars such as Gabe & Haidt (2005), and Fredrickson (2001, 2003) positing positive emotions as fundamental human strength central to the study of human flourishing. Sheldon & King (2001) opined that positive psychology was needed to correct the negative bias that seemed to pervade much of theoretical psychology in the past. Ryff & Singer's (2003) study on well-being, pushed the field of positive psychology and captured the imagination of the general public, resulting in an important shift of focus to studying not just selfish or negative behaviour but normal and altruistic behaviour. The large scale studies of Ryff developed well-being scales of differing lengths (Ryff, 1989, 1996; Ryff & Singer, 2003). The 14-item questionnaire defined the most internally consistent and highly valid scale for well-being (Samman, 2007) and is designed to indicate a respondent's "positive functioning" on the whole (Ryff, 1989). It is the most widely used measure of positive psychological functioning and has also resolved some of the contrary results of earlier studies (Huppert, 2009: p145). The scale has six dimensions Ryff calls 'aspects' assessing, with reverse negative coding, autonomy, environmental mastery, personal growth, positive relations¹ with others, purpose in life, and self-acceptance. It is believed 'positive functioning' persons would score high in the Ryff wellbeing scale and so

treat others well (Ryff, 1989; Ryff & Keyes, 1995). This is particularly useful to assess the level of engagement with employee concerns among the entrepreneur sample and should therefore indicate their willingness to institute good HR practices in the firms that they run. Considering that small firm decisions are made primarily by the entrepreneurs running them (Ruzzier *et al.*, 2007; Westhead *et al.*, 2001), it is considered particularly suitable to use an individual response scale like the Ryff scale for gauging human resource management policies and practices in small firms by examining their Ryff well-being questionnaire responses.

The proposition

The expectation is that entrepreneurs who set up more formalised HR management and development policies and practices will be associated with higher Ryff Scale wellbeing scores. To this end, the definition of formalization, from the detailed discussions of sophistication in HR systems and practices in the literature, was taken to mean a) written down procedures relating to HR management, eg, job descriptions, b) regularity of procedure application, eg, regular performance appraisals, and c) assurances that certain activities will occur as communicated, eg, employer sponsored training, following Kok and Uhlaner (2001). It is proposed that the motive or intent of the entrepreneur with regard to maximising gain appropriation from the venture even at the cost of employees will be reflected in lower Ryff scores, and will thus contribute to the micro-explanation of the variability in HR formalization in small firms, beyond RBV-TCE, institutional and knowledge or expertise gap reasons. The method section below details the choice of location, of the sample population and data gathering.

Method

It was decided to locate the study in a large auto-ancillary cluster in India. The country location India, where the researchers hail from and where two of the three researchers reside, was chosen for knowledge the research team had of the institutional framework and the level of formalization of HRM generally found in businesses there. While small South Asian firms are found lacking in formal HRM practices (McPherson, 1995), 80% of Indian small firm respondents to a large survey by the highly regarded industry association, the Confederation of Indian Industry, reported no formal HR department (Bose, 2007). This makes it a good location to examine reasons behind the low presence of good HRM practices in small firms. Furthermore, the lack of compliance to minimum standards of employment conditions in the small and medium sector in Indian industry is well known and particularly made widespread due to lack of governance at the political level in recent years (Sharma, 2012). That, in the absence of strict or pliant regulation, provides a suitable platform to examine the question of businesses' internal motivation to treat employees well.

The auto-ancillary cluster of Pimpri in western India is part of one of the largest automotive clusters in India with over 50% share in net added value and over 35% in output and among the largest contributors to employment. While it is a long established cluster that started in the 1940s it is presently also one of India's fastest growing clusters with a CAGR of 3.2% over 1991-2007 (MIDC, 2009). Therefore the availability of skills and human capital development avenues for businesses are expected to be well established. Ten entrepreneurs

were selected for the study from the office of the Association of Small Scale Industries in the region. These were selected on the basis they were supplying engineering components of varied technological input to OEM companies, and availability of the entrepreneur. They ran firms that were all small scale manufacturing and machining businesses according to the government definition that defined small manufacturing industry by investment in plant and machinery, and were at least eight years old allowing them to see at least one business cycle in the auto sector. In fact, these entrepreneurial firms were between ten and eighteen years old and had seen the recent changes including the entry of global players in the auto sector in India recently.

The discussions with the entrepreneurs started with their background and the firms' history in terms of changes in products sold over the years and the nature of buyers, etc, the data gathered for analysis were on i) the entrepreneur's details, viz, educational/ vocational qualification, age and background in terms of work experience prior to setting up the present business, ii) firm age, level and nature of activity including the level of technology used, iii) level of formal HRM / HRD practice and policies in the firm. The number of computer numerical control (CNC) machines the firm had was considered a good proxy for the level of technology in the firm. Since all of them were engineering and component manufacturing/ machining units, this was an adequate measure of the level of technology in operation. This formalization data was gathered by asking a) whether the firm had codified rules and descriptions (of job description, leave, salary and bonus levels, disciplinary concerns, promotion), b) the regularity of applying the policies and rules particularly performance appraisal, and c) whether there was employer sponsored training, as gleaned from the literature above. Since India does not have state sponsored medical care, medical and accident insurance forms an important part of employee compensation and was part of the information about whether their employee compensation package included insurance cover limited to or beyond the minimum government sanctioned levels was sought from entrepreneurs. Beyond codification of basic benefits like leave entitlement, whether or not employees were entitled to paid leave at all was also asked, since there are businesses in India where irrespective of the formal arrangements employees are found not to be allowed leave. Similarly the wages bill as a ratio of total cost was also gathered which led to an estimation of the average per employee compensation cost as a ratio of total cost. These data outside of the three kinds mentioned above also added up to form a basis of whether HR policies and practices in the firm considered employee concerns even though a benefit that is assured and yet not given is more a governance issue discussed later. Finally, the entrepreneurs' responses to the Ryff questionnaire were gathered. The interpretation of the six dimensions of the Ryff Scale is given in Appendix 1.

The research therefore was designed as a descriptive study with the added psychological questionnaire. The data gathered and the results are shown in the following section.

Data, results and discussion

Table 1 shows the descriptive data on the entrepreneurs and their firms. All ten entrepreneurs are of the same age group around 50 with over 10 years spent in running their present business after considerable prior experience. All the entrepreneurs here qualified engineers. All the firms they ran hired varying numbers of employees as temporary workers from labour contractors. Permanent to total employees varied from 39% to 60%.

None of the firms had a formal HR department or cell and the entrepreneurs took all major HR decisions. No job descriptions were made on paper except that some of them written down very brief and indicative descriptions for technical/foreman positions they had advertised several years earlier for their factories. Very little was codified; permanent hires were given paperwork with salaries at recruitment by some firms. No paperwork was given to the temporary employees and the firm dealt with the labour contractor. This was despite the fact that several of the firms had computer numerical control (CNC) machines which needed skilled workers and supplied to original equipment manufacturers (OEMs). There are no patterns seen vis-à-vis employee treatment, ie, higher technology operations of firms did not lead to use of better HRM policy and practice in order to retain skilled employees, for instance, as can be seen in the case of firms run by E1, E2, E4E8 and E10 where similar levels of technology in firms see very different employee concerns.

With a minimal level of codification of HR policies, it was worthwhile examining the treatment that employees got in these entrepreneurial firms. This was assessed from the whether employees were entitled to paid leave, whether they had the government stipulated employee insurance and were covered by insurance for medical care or injury beyond the minimum stipulated. Employer sponsored training programmes, even though not regularly held, were noted only in some firms where one firm had supervisors undergo Autocad training on the computer. One firm had some training given to the permanent technical workers under the entrepreneur's guidance, while three others had them as understudy to the foreman. Two firms had external training organized but on a needs basis rather than regularly. On the whole, there could be seen a large variation in terms of the package of compensation including insurance cover, training avenues and leave benefits for employees were found at rock bottom levels in six firms while the other four had some elements of these in the mix. These were entrepreneurs E1, E5, E6 and E8 as highlighted in Table 1 below which summarises the data gathered on the ten entrepreneurs and their firms.

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Table 1: Entrepreneur and firm characteristics, HR policies/ practices - summary

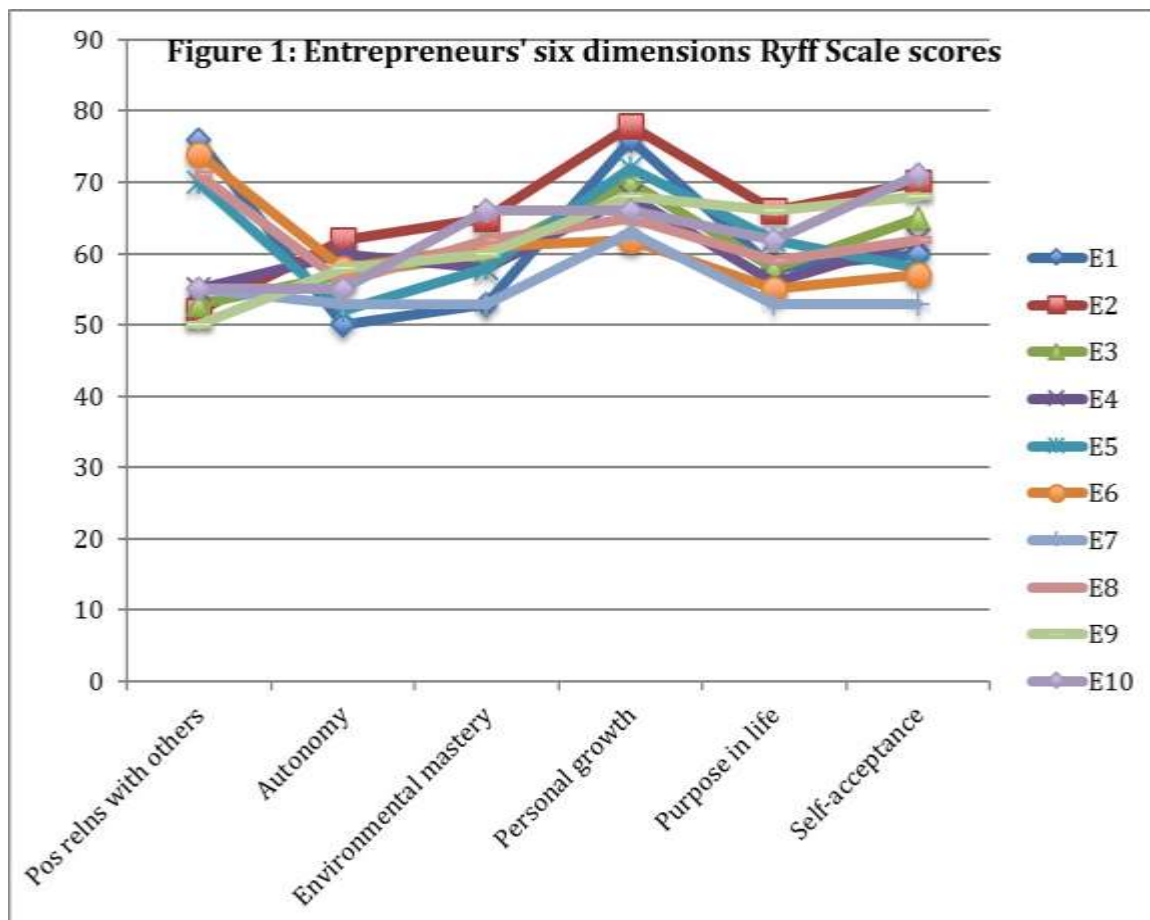
Entrepreneur -->	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
Entrepreneur's age (years)	53	49	49	48	52	47	54	49	48	52
Entrepreneur experience/Firm age (years)	30 /18	29/15	28/16	28/10	30/13	27/10	29/14	28/13	29/15	30/18
Entrepreneur's qualifications	Diploma Mech Engg	B Engg	B Engg+ MBA Mktg	B Com	B Engg	Diploma Mech Engg	B Engg	B Engg	B Engg	Diploma Mech Engg
Permanent employees	12	17	16	10	18	9	14	17	11	10
Permanent-to-total employees ratio	60%	50%	45%	40%	56%	39%	50%	50%	55%	40%
Formal HR Department/cell	No	No	No	No	No	No	No	No	No	No
Written policy on Leave/ Salary+bonus/promotion/job descriptions/ disciplinary procedure	Only recruitment process written	None	None	Only recruitment process written	Recruitment process & leave rules written	Only recruitment process written	Only recruitment process written	Only recruitment process written	None	None
Employee Insurance coverage	All emp & health cover	Less than statutory minimum	Less than statutory minimum	Minimum statutory	Most emp covered	All emp & health cover	Less than statutory minimum	All emp & health cover	Less than statutory minimum	Minimum statutory
Paid leave entitlement	All employees	Permanent emp only	Permanent emp only	Permanent emp only	90% employees	All employees	Permanent emp only	Most employees	Permanent emp only	Permanent emp only
Training	With Entrepreneur	Self learn	None	Autocad training	Understudy + some external	Understudy + with entrepreneur	Self learn	Understudy + some external	Self learn	None

Salaries-to-total cost	12-13%	12%	12%	8%	15%	10%	15%	15%	12%	15%
Salaries-to-total cost per employee	0.625%	0.353%	0.338%	0.320%	0.469%	0.435%	0.536%	0.441%	0.600%	0.440%
No of machines: total/ CNC	10/2	9/1	8/2	12/2	22/7	15/2	12/3	18/7	10/3	10/2
% CNC machines	20%	11%	25%	17%	32%	13%	25%	39%	30%	20%
Average age of machines	5+	7.5	7	8	9	7	4.5	5	7	6

Table 2: Ryff Scale scores of the entrepreneurs

Entrepreneur -->	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
Positive relations with others	76	52	53	55	70	74	55	71	50	55
Autonomy	50	62	57	60	52	58	53	56	58	55
Environmental mastery	53	65	60	58	58	61	53	62	60	66
Personal growth	76	78	70	68	72	62	63	65	68	66
Purpose in life	58	66	58	56	62	55	53	59	66	62
Self-acceptance	60	70	65	62	58	57	53	62	68	71

Table 2 above shows the scores of the respondent entrepreneurs on the six dimensions of Ryff Wellbeing Scale. It is pertinent that five of the six dimensions have a dispersion in the entrepreneurs' scores except in the dimension of 'Positive relations with others' where it is split into two fairly distinct groups. The entrepreneurs E1, E5, E6 and E8 scoring higher on this dimension are those that are seen in the descriptive data to be having a better standard of HRM in terms of better employment conditions such as leave and insurance and employee sponsored training programmes which are more formalized than the others. Thus it appears that, rather than the entire scale with six dimensions, the dimension of "Positive relations with others" that discriminates entrepreneurs that set up better HR practices in their firms from the others. The graphical representation of the Ryff scores in Figure 1 below shows this divergence.



Concluding remarks

This study, carried out among entrepreneurial firms in a large auto ancillary cluster in Western India finds the diverse HR practice levels go beyond such attribution as costs and paucity of resource or institutional theory explanations to implement formal HR policies and practices. The small sample data show that the psychological aspect of wellbeing may be useful to understand the variability in the HR practices across small firms. The results of the study show no consistent logic for attribution except a possible attribution to the positive psychological functioning due to a high 'wellbeing' state of the individual entrepreneur as assessed through the Ryff Wellbeing scale, as the intention or motive of the small business

owner seems to be at play here. It is important to note that five of the six dimensions did not discriminate between the respondent entrepreneurs as they were dispersed in each of the dimensions of: self acceptance which shows a positive attitude toward self; autonomy, which shows self regulating behavior; environmental mastery which shows ability to manage the surroundings; purpose in life which shows aims and beliefs giving meaning to the person's life; and personal growth which shows a belief in self and one's own development (see Appendix 1). These, on closer scrutiny, show up as dimensions that make up much of an entrepreneur's self image and internal strengths but not his/her concern and feeling for others. However, it is the sixth dimension of 'positive relations with others' that show concern of others' welfare, empathy and an understanding of "the give and take of human relationships" (Ryff, 1989). It is thus this dimension of the Ryff scale that may have the discriminating power and identify those entrepreneurs who treat their employees better and have better HR policies and practices.

Limitations

The main limitation of the study is its small sample size. However, being an exploratory study it is designed to be a pathfinder for new explanations for the high level of variability in formal HR policy and practice in small firms, from a different discipline. The purposive sampling of the ten entrepreneurs done through the office of the Small Industries association may have brought together those that were politically active or known to the office bearers of the association and how far they are representative of the cluster is difficult to confirm for a small sample size.

Further research

Treatment of internal stakeholders such as employees mirrors entrepreneurial intent at a broader level. A psychological basis proposed here that may enhance present understanding of such diversity in the HR realm in small firms through differences in the entrepreneur's concern for employees and others could also pose questions about the definition of entrepreneurship itself as pure pursuit of opportunity. An unanticipated implication of the study results is that the definition of entrepreneurship, and hence of entrepreneurial success, on the basis of opportunity (Shane & Venkataraman, 2000; Venkataraman, 1997) may need to be enhanced, particularly as several instances have now come to light where opportunity pursuit transformed to opportunism without regret, blurring the line between entrepreneurship that is celebrated and the dark side entrepreneurship (Jones & Spicer, 2010; Kets de Vries, 1985; Osborne, 1991) questioning the amoral opportunity centric definition of the entrepreneurship phenomenon. This study may be a microcosm of such aspects embedded in a pure opportunity perspective of entrepreneurship. However, further larger studies would gainfully explore intrinsic reasons for confirmation of the relationship between positive functioning of the entrepreneurs and good HR practices they set up, and perhaps provide insight in the entrepreneurs' engagement with various other stakeholders more widely.

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APPENDIX 1

The Ryff scale questionnaire assesses six dimensions or 'aspects' of the person's wellbeing: Autonomy, Environmental Mastery, Personal growth, Positive Relations With Others, Purpose in Life, and Self Acceptance. These are defined in Ryff & Keyes (1995) as follows.

Self-Acceptance: A high scorer possesses a positive attitude toward the self; acknowledges and accepts multiple aspects of self, including good and bad qualities; feels positive about past life.

Positive Relations With Others: A high scorer has warm, satisfying, trusting relationships with others; is concerned about the welfare of others; capable of strong empathy, affection, and intimacy; understands give and take of human relationships.

Autonomy: A high scorer is self-determining and independent, able to resist social pressures to think, regulates behaviour from within, evaluates self by personal standards.

Environmental Mastery: A high scorer has a sense of mastery and competence in managing the environment, makes effective use of surrounding opportunities, chooses or creates contexts suitable to personal needs and values.

Purpose in Life: A high scorer has goals in life and a sense of directedness, feels there is meaning to present and past life, holds beliefs that give life purpose, has aims/objectives for living.

Personal Growth: A high scorer has a feeling of continued development, sees self as growing and expanding, open to new experiences, has sense of realizing own potential, is changing in ways that reflect more self-knowledge and effectiveness.

ACCELERATE AUSTRALIA FAR: EXPLORING THE EMERGENCE OF SEED ACCELERATORS WITHIN THE INNOVATION ECOSYSTEM DOWN-UNDER

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ACCELERATE AUSTRALIA FAR: EXPLORING THE EMERGENCE OF SEED ACCELERATORS WITHIN THE INNOVATION ECOSYSTEM DOWN-UNDER

1 Abstract

This study presents our preliminary analysis of the emergence of seed accelerators in Australia. We review the history of this organizational form in context of over 40 years of policy debate about venture capital and innovation. We also provide a critical review of whether accelerators are an evolutionary extension of business incubators, or a new form of organization, more in line with angel investing.

Keywords: Accelerators, incubators, start-ups, new ventures, innovation ecosystems, qualitative, high tech/high growth/high potential business, coevolution

2 Introduction

Accelerators are acclaimed to have played a critical role in creating billions in dollars in value and thousands of jobs since their emergence around the internet revolution, including Yahoo!, E*Trade (Hansen et al., 2000), a more recently household names like Dropbox and Airbnb. However, scepticism remains whether they are a sustainable business model, and whether the recent boom in accelerators is just a repeat of the business incubator bubble (Lavrow & Sample, 2000; van Huijgevoort, 2012)¹. For the most part, they are a US-based phenomenon and have only recently been adopted in other regions. According to a key information source for accelerators around the world² as November 4th 2013, there are 172 accelerator programs world-wide, with 2,921 companies currently being accelerated. In Sydney alone, it seems that there is another seed fund, accelerator or related space or program being launched every month: Artesian Venture Partners launched a \$100M fund in Sept 2013³, and Telstra launched a technology incubator in Oct 2013⁴. Additionally, major players like Google are partnering with a local accelerator with the intention of franchising it across the country⁵. Are accelerators really different than seed funds and incubators, or simply a new twist in the evolution of incubators? What role do they really play in facilitating innovation activities in Australia? Why do they seem to be flourishing in Australia? Are they here to stay? Can they achieve the same level of success (effectiveness) in Australia as they have attained in the U.S.?

These questions need to be considered in the larger context of what we know about accelerators in other parts of the globe and what kind of role they play within the larger process of innovation. To do so, we locate accelerators within the larger National Innovation System literature (Freeman, 1987; Lundvall, 1992; Nelson & Rosenberg, 1993). From this framework, accelerators are another set of actors within a larger system of organisations and institutions whose complex interactions with each other explain the results and dynamics of innovation development within a country. In particular, this framework highlights that these actors and institutions are interwoven and change interdependently. In other words, they coevolve in unique ways (Geels, 2004), we need to assess the evolution of the whole system in order to understand the emergence and role of any actor within the system. Adopting this holistic systems lens, we explore the emergence and role of Australian accelerators, particularly those headquartered in Sydney, in context of (inter)related key innovation actors within the National Innovation System (NIS) in Australia. Australia seems to be a particularly

¹ See also: www.businessweek.com/printer/articles/102080-waiting-for-the-accelerator-bubble-to-pop, and www.venturebeat.com/2012/05/01/the-dirty-secret-behind-the-incubator-boom

² www.seed-db.com/accelerators

³ www.protoinvest.tumblr.com/post/61723411713

⁴ www.afr.com/p/technology/telstra_to_open_incubator_office_kxHbKFdVASMSGvoF6xVvtO

⁵ www.arnnet.com.au/article/528280/google_backs_sydney_student_startups/

interesting context to explore the role and evolution of accelerators because Australia has an underdeveloped venture capital (VC) industry (when compare to that of the US) and multiple ‘boomerang entrepreneurs’ (Dana, 1996)—entrepreneurs who migrate overseas and return—who are continuously trying to improve Australia’s NIS.

This study contributes to this literature by describing the path dependent process by which accelerators emerged in Australia. Additionally, our analysis allows us to suggest that theoretically conceptualising accelerators as an extension to business incubators, as currently occurring in the literature, might be counterproductive in fully understanding the role that they play in NIS, in particular regarding how accelerators’ founders and members consider their contribution to new start-ups. Instead, we argue that accelerators are a more natural extension of business angels and syndicates, and thus have a greater emphasis on wealth creation than regional development.

In exploring these issues, this manuscript is structured as follows. First we briefly review the relevant literatures on the coevolution of the National Innovation Systems (NIS) and the role of incubators, accelerators, VCs and angels, explicitly addressing the key characteristics that differentiate these actors and the role each of them have played. Then we describe the secondary data we collected on the evolution of the Australian NIS and the emergence of accelerators in Australia. Lastly, we conclude with a discussion of research implications of our findings and analyses.

3 Literature Review

An NIS (Freeman, 1987; Lundvall, 1988) is usually defined by government, university and industry interactions as well as the institutional infrastructure regulating their mutual relationships (aka the *triple helix* described by Etzkowitz & Leydesdorff, 2000). Scholars have highlighted that these set of actors, institutions and relationships interpedently evolve over time in unique ways in each country (Geels, 2004). In particular, given our interest in understanding the emergence and evolution of accelerators in Australia, the emergence and evolution of VCs and incubators seems particularly relevant (Kenney, 2011; Samila & Sorenson, 2010; Tsai, et al. 2009). We review below how accelerators fit into the current technology entrepreneurship landscape, by exploring theoretically how incubators and accelerators are defined and thus, how they differ from each other.

3.1 Business incubation

Broadly defined, business incubators (BIs) are facilities that shelter vulnerable new firms until they can become self-sustainable and survive in the environment. Hackett and Dilts (2004) define business incubators as “a shared office space facility that seeks to provide its incubatees [...] with a strategic, value-adding intervention system of monitoring and business assistance” (p.57). However, incubators have changed significantly over time (Grimaldi and Grandi, 2005). Indeed, Bruneel et al. (2012) have identified three generations of business incubation. The first generation of incubators focussed on regional development, venture survival and employment, creating economies of scale which could be passed on to start-ups along with government subsidized rent. Second generation business incubators built on this concept and moved to a value-add model by directly providing coaching and professional services. This change in emphasis demanded facilitating access to growth capital, usually in the form of angel capital. By the third generation of business incubators, the core offering was chiefly on the intangible resources available via the incubator operators (Grimaldi & Grandi, 2005; Bruneel et al 2012). It is also not uncommon for incubators of this third generation to make ad hoc investments directly into incubates (von Zedtwitz, 2003; Carayannisa & von Zedtwitz, 2005) and thus pursue a for-profit model (Leblebici & Shah, 2004), even though this may seem at odds with also charging them fees for rent and professional services. The majority of BIs are general co-location facilities for small

businesses. However, there are some that specialize on high technology firms, usually (but not exclusively) in the internet and communication technologies (ICT) sector.

There is some critique that “incubator” is perhaps no longer the best descriptor for third generation (for-profit) BIs (Hannon, 2004; van Huijgevoort, 2012). Instead, later generation BIs have also been referred to as “*business accelerators*” (e.g., Lumpkin, 1988; Bollingtoft, 2012) since they are metaphorically more equivalent to fertilizers, steroids or growth hormones, than they are to the protective interpretation of incubators. This continued use of BI jargon has created certain confusion with the other type of organisations, as we will discuss below.

3.2 Accelerators

Accelerators are a recent new breed of organization that has some elements resembling incubators, some elements resembling other types of organisations⁶. Unsurprisingly, “there is little formal academic literature on the subject and no universally accepted definition of what an accelerator is” (Barrehag, 2012). Most of this emerging literature emphasizes a resemblance to incubators (von Zedtwitz 2003; Carayannisa & von Zedtwitz, 2005; Grimaldi Grandi 2005). The biggest resemblance between (3rd generation) incubators and accelerators is the co-location of ventures, a focus on value-added (not low cost or low rent—including access to corporate lawyers) and access to industry⁷. While these features may indeed be present in accelerators, they are not their defining features.

Some argue that “the accelerator programme model comprises five main features, consisting of : (1) “An application process that is open to all, yet highly competitive; (2) Provision of pre-seed investment, usually in exchange for equity; (3) A focus on small teams not individual founders; (4) Time-limited support comprising programmed events and intensive mentoring; (5) Cohorts or ‘classes’ of start-ups rather than individual companies” (Miller & Bound, 2011, p.3, also cited by Barrehag, 2012 and Los Kamp 2013). Of these factors, the cohort model is the most distinctive factor.⁸ Admission, like to a university, is based on a competitive application, in which every applicant is asked the same questions within the same deadlines⁹. Ultimately, the admission process (like angel investing) comes down to whether the accelerator wants to invest in the venture. Depending on the accelerator, the cohort size may be fixed or variable, contingent on the quality of the applications, available space, and financial resources. Once accepted into the program, teams are generally offered the same terms of admission. This is a full step beyond a standard *structure* for a simplified term sheet¹⁰, because it includes standard conditions within the term sheet¹¹. Commensurate with a cohort model, there is a predefined exit date (aka graduation). This is usually 3 months after entry, and culminates in a ‘Demo Day’¹². The demo day is much like

⁶ The prototypical (and most well-known) accelerator, Y Combinator, was formed in 2005, and is (surprisingly) not referred to as an accelerator. Instead, founder Paul Graham calls it a “**seed-stage investment firm**” (Livingston, 2007, p. 205), and later describes it almost purely in terms of angel investing. By his own accounts, Y Combinator was deemed “inconsequential” for several years because the operating model seemed to support businesses resembling “toys” and not fully formed or viable businesses.

⁷ In the case of Y Combinator, the legal support is in-house and offered free to the entrepreneurs, rent and server space is free, and connections to industry include the founders and CEOs of many of the best known technology companies and hundreds of alumni of the program.

⁸ Graham explains the serendipitous origins of the Y Combinator cohort model: “funding start-ups synchronously, instead of asynchronously [...] turned out to be the most important idea. [...] The reason we began by funding a bunch of start-ups at once was not that we thought it would be a better way to fund start-ups, but simply because we wanted to learn how to be angel investors, and a summer program for undergrads seemed the fastest way to do it.” www.ycombinator.com/start.html

⁹ For example, Y Combinator received over 2,000 applications in 2011 for what turned out to be 43 openings and eventually a maximum of 84 admissions.

¹⁰ E.g., www.angelblog.net/The_One_Page_Term_Sheet.html

¹¹ For example, in Y Combinator “Each team that’s accepted receives seed funding—\$11,000 for the group, plus \$3,000 more for each member of the founding team. In exchange, Y Combinator gets a small stake in the start-up, usually 6 or 7 per cent.

¹² www.ycombinator.com/atyc.html

the regular angel investor meetings wherein multiple entrepreneurs take turns pitching to an audience of angel investors or VCs.

Accelerators offer services to resident entrepreneurs like incubators, with the exception that they may be offered for free, sometimes by in-house experts. Offering free services for resident entrepreneurs is more consistent with offering seed capital in exchange for equity. Some accelerators also regularly invite guests or alumni to talk to and meet the current cohort. They have also have formal mentor programs, with transparent lists of available mentors¹³. The transparency of the mentors' identities is akin to AngelList¹⁴, in that angel investors and mentors usually prefer to keep a low profile, and may be represented by a higher profile individual (Christiansen, 2009).

Finally, it is important to highlight that most accelerators focus on one industry sector. The dominant sector for accelerators is ICT, largely because ventures in this sector can 'pivot' (Ries, 2011) their target market, business model, or technology within the few months of residency in the accelerator programme. Overall, while there are some similarities between incubators and accelerators, there are also significant differences. Table 1 summarizes the key features and differences between incubators, accelerators and also angel investors. In the next section, we summarise the history of Australian accelerators as part of the coevolution of some other key parts of the Australian NIS.

=== Insert Table 1 here ===

4 Research Design

This study is part of a larger project seeking to understand the coevolution and performance of different organisations within the Australian NIS. The Australian context is interesting for several reasons: First, Australia shares many cultural aspects with the US, the global leader in venture capital, and high-tech start-ups. Second, many Australians have easily assimilated into the Silicon Valley high technology community, while some of these have returned to Australia as 'boomerang' entrepreneurs. Thirdly, Australia seems to lack international leadership in several high-technology sectors, but seems to have some relatively competitive sectors, particularly the ICT sector¹⁵. Lastly, the venture capital, angel capital and accelerator organisations have only recently become more established. The latter point makes it easier to find recent historical records and give us the opportunity to talk with key participants throughout this evolving set of processes.

As a first step into this exploration, we have collected data on the emergence of accelerators in Australia drawing on several secondary data sources, including public media, industry and government reports, some academic theses, and other available sources. This data search is complemented by the first-hand experience of two of the authors with business accelerators and angel investing in Canada and Brazil, as well as first-hand contact with the technology entrepreneurship community in Sydney since July 2009.

5 Australian Innovation Ecosystem: Key Actors & Evolutionary Eras

Considering our theoretical interest and the literature review presented above, we review the historic context (and co-evolutionary processes) in which accelerators emerged in Australia. In doing so, we collected and analysed data linked to all the pivotal actors within the Australian NIS. They are: a) The commonwealth government (and associated agencies); b) the private providers of capital (e.g., venture capitalists, angels, etc.), c) some key start-ups & entrepreneurs (whose success & relevance reverberated over time within this ecosystem) and

¹³ For example, TechStars, the franchised US accelerator program based out of Colorado (Feld, 2012) usually pairs teams with 6-8 mentors

¹⁴ www.angel.co/ even mentions funds for entire accelerator cohorts, not just individual residents

¹⁵ www.austrade.gov.au/Invest/Why-Australia/Innovation

d) the start-up facilitators (a varied set of organisations whose main role has been supporting the launch and development of start-ups). Based on the data we collected, we have identified three eras in this ‘history’ of the coevolution of the Australian NIS explicitly linked to our focal organisations: accelerators. These eras are: 1) The dark ages (1983-1995); 2) the dawn of venture capital (1995-2003); and 3) the emergence of accelerators (2004-present). It is important to note that these eras have no precise date at which they end the next one begins because some events and organizations that define each era overlap. For each of these eras, we review the role and key events played for each of the key co-evolving actors we identified above. Figures 1-4 synthesise this overarching evolution of incubators, start-ups and VC firms, and significant interrelations.

=== Insert Figures 1-4 here ===

5.1 The Dark Ages (1983-1995)

This era is defined by a significant lack of local private venture capital. Two key events define this era: 1) an influential government report (e.g., Espie Report) that laid out how the Australian government might help creating an active venture capital industry, and 2) the formation of the Australian Private Equity & Venture Capital Association Limited (AVCAL).

5.1.1 Espie Report (1983)

In 1983, the High Technology Financing Committee of the Australian Academy of Technological Sciences (AATS) led by Sir Frank Espie provided a report to the Minister for Science and Technology. In particular, the report (AATS, 1983) recommended that the Australian government needed to facilitate the flow of risk capital by creating investment companies in the form of “Growth Business Investment and Management Companies (GBIMC's)”. GBIMC’s would play the role of start-up supporters analogously, to the role played later by incubators and other private organisations, as visualized in Figure 5. In essence, a licensing board was expected to issue GBIMC’s licenses, which in turn provide funds and management capabilities to promising new start-ups in exchange for equity. This report is commonly identified as the genesis of the current venture capital industry¹⁶.

=== Insert Figure 5 here ===

5.1.2 Australian Association of Private Equity & Venture Capital Funding (1992-1994)

On 1992, the Australian Association of Private Equity and Venture Capital (AVCAL) was established. AVCAL's members comprised most of the active private equity and venture capital firms in Australia, ranging from firms who provided early stage capital for startups through to capital for management buyouts of established companies. Along with the creation of this organisation, the first formal venture capital fund was created in Australia: Nanyang Ventures, 1994. This fund was co-founded by Chris Golis, an individual who is considered “an elder statesman of the Australian venture capital community”.¹⁷ Nanyang Ventures has been a key VC player throughout the evolution of the Australian NIS and by 2003 had invested in 40+ new ventures.

5.2 The Dawn of VC (1995-2003)

While the response was not immediate, the Australia NIS did eventually react to the Espie Report. We review these changes in the following sections.

¹⁶ www.ausindustry.gov.au/programs/venture-capital/iif/Documents/IIF-VentureCapitalBrochure.pdf

¹⁷ <http://search.proquest.com/docview/313887392>

5.2.1 VCs and Innovation Investment Funds (1998 & 2001)

In 1998 the Australian government created the Innovation Investment Fund (IIF) program to encourage VC investments and commercialisation of Australia's research. In the IIF model (summarized in Figure 6), the government matched funds raised by VCs at a ratio of 1:1 or more, and passed the majority of the disbursements from an exit to the VCs. The IIF programs were designed to be invested within the first 5 years, and were expected to generate returns over the next 5 years. In the first round of IIF, five funds were supported with a total funding of \$197.4 million, with the government providing \$130M to private sector \$67.4M¹⁸. A second round was launched in 2001, releasing a total of \$156.6M in venture capital (\$90.7M from the government funds matched by \$65.9M from the private sector). The second round of funds was hit by two external shocks: first by the dot.com bubble which reduced the rate and scope of investments, then by the Global Finance Crisis (GFC) which restricted the capacity of IIF fund managers to raise new capital and reduced exit possibilities for existing investments.

==== Insert Figure 6 here ====

Trying to respond to the IIF funds, VC organisations were quickly created by notable individuals. Allen & Buckeridge¹⁹ (formed 1997), and Macquarie Bank²⁰ (formed 1998) created two of the most influential funds. Collectively, these VCs represented a new set of organisations that were able to channel over \$300M into over 70 new ventures.²¹

5.2.2 Start-ups

In the late 1990s and early 2000s, a handful of Australian companies started to stand out as success stories within the IT and venture capital industry, including *Looksmart* (founded 1995), *Hitwise* and *Seek* (both founded in 1997). Each of these firms received a mix of venture capital from Australia and US, with most later stage funding coming from the US. The only of these ventures that received IIF funding was *Looksmart*. Throughout the process of developing their businesses, the entrepreneurs generally relocated to the US and remained there for several years. Some of these entrepreneurs wanted to help other 'mates' to follow their steps. For instance, three months after their IPO in 1999, *Looksmart* bought a controlling share of start.com.au, a small Australian free email service provider. Another (later) success story was *Atlassian*, which was launched in 2002. *Atlassian* did not receive angel or venture capital through any organized programme, and was funded using only a credit card and some revenues from contract programming. While relatively unremarkable at the time, *Atlassian*'s founders would later become Australia's youngest ever recipients of the Ernst & Young Entrepreneurs of The Year award.

5.2.3 Incubators

While this era is dominated by the emergence of VCs and the IIF programme, it also includes the genesis of the first generation of technology BIs. By 1997, business incubation was relatively established in Australia (Schaper & Lewer, 2009), and a BI association (then "ANZABI"), had published best practices (Dowling & ANZABI, 1997). At the time, the bulk of the incubators and their practices were entirely focussed on small businesses, self-sufficiency by "aim[ing] to operate at greater than 90% occupancy" (ibid, p. 1-15), and the only mention of *equity* is a single aside remark in the section about incubator financial plans. Technology start-ups were only one of many tenants, and not yet an exclusive focus of any

¹⁸ DIISR. (2011). *Innovation Investment Fund program Progress Report*. Canberra, ACT: Retrieved from www.innovation.gov.au/industry/VentureCapital/Documents/InnovationInvestmentFundProgramProgressReport.pdf.

¹⁹ <http://search.proquest.com/docview/363377093>

²⁰ <http://search.proquest.com/docview/363420053>

²¹ <http://search.proquest.com/docview/363680179> and <http://search.proquest.com/docview/363815456>

incubators. A lack of specialized focus on technology startups could likely be because the popularity of the Internet and related start-ups (e.g., the dot-com era), had not yet occurred.

5.2.4 *BITS I & BITS II (1999 & 2004)*

In 1999 the Australian government launched the *Building on Information Technology Strengths* (BITS) program as a continued commitment to develop the IT sector in Australia. The BITS program consisted in the establishment of 11 incubators across Australia to help entrepreneurs turn their ideas into globally competitive businesses. The programme was backed by \$158M over 5 years (ending in June 2004) to establish BI's in conjunction with seed stage funding. Each incubator facility was managed by a consortium of investors (including KPMG, CSIRO, and Universities) and provided tenants with professional services (mentoring, consulting, capital raising advice, business model development). Table 2 summarises which BITS incubators were set up in which states, and who operated them, including some recipients of the IIF funds. To a certain extent, these BITS BIs were closer to the accelerators than many BIs to come. By November 2003, the performance of the BITS I encouraged the government to extend the program for a second round (BITS II). The second round was funded by \$36M and the program was renamed ICT Incubators Program (ICTIP). In June 2008, the 8 remaining incubators and program were restructured, and most of these BIs are no longer active.

=== Insert Table 2 here ===

5.2.5 *ATPi (2003)*

Conceptualized in 1991 and officially opened in 1996²², Australian Technology Park (ATP) in Sydney would become a key organization within the Australian NSI. In 2000, ATP Innovations (ATPi) was formed as a formal incubator subsidiary of ATP²³. ATPi was formed by consortium of four research intensive universities with the goal to focus on incubating new early stage ventures. Since 2006, ATPi has worked with more than 80 businesses, helping them raise over \$80M in private investment and secure more than \$18M of competitive government grants, leading to 6 exits via acquisition.

5.2.6 *Other Government Programmes*

In addition to the IIF and BITS programs, the Australian government launched a few additional programs related to startups and technology commercialization. Commercialising Emerging Technologies (COMET) was a merit-based grant program tailored to early-growth stage companies, spin-off companies and individuals. COMET commenced in 1999 and closed to new applications on 1 January 2010. The Australian Technology Showcase (ATS) commenced in the lead-up to the 2000 Olympics, with a focus on identifying innovative, market ready Australian technologies with global market potential. Part of the ATS program was an overseas road show to meet with potential industrial clients. In 2001 the Pre-Seed Fund (PSF) program was designed to encourage private sector involvement in the commercialisation of publicly funded early stage research. The establishment of PSF program was predicated on the view that research institutions, including universities, Cooperative Research Centres (CRCs) and publicly funded research agencies lacked appropriate commercialisation expertise, and that more funding would be necessary to make a given technology 'investment-ready'.

²² <http://search.proquest.com/docview/363351966>

²³ www.atp.com.au/About/Heritage---History

5.3 The Emergence of Accelerators (2004-present)

This era is driven mainly by entrepreneurs, some of whom became angel investors or otherwise got involved in accelerating or germinating more new ventures. Meanwhile, VCs moved upstream to keep their older investments alive given the difficulties for raising large sums of funds due to the GFC²⁴. The government continued its involvement by providing additional institutional changes & fresh funds. Key issues within this era are discussed below.

5.3.1 Additional Government Intervention: VCLP, ESVCLP & IIF Round 3

The ESVCLP and VCLP provide tax benefits to private investors. They remove the necessity for the Government to provide up front capital. The VCLP program was introduced in 2002 to provide a world-class investment vehicle to encourage new foreign and domestic investment into the Australian VC industry. The program provides flow through back end tax benefits (that is, benefits are only accessed when investments are sold, not when they are made) to foreign and domestic investors, as well as fund managers. The VCLP program is continuously open for new applications. As of June 2011, the program has committed \$4.98 billion—approximately 20 per cent is foreign sourced. It has \$2.1 billion invested in 578 eligible deals, of which 63 per cent of the deals are pre-seed, seed, start-up and early expansion. The ESVCLP program was introduced in 2007, and is continuously open for new applications. As of June 2011, a total of \$120 million has been raised through the ESVCLP program, with 67 per cent being from the IIF program. Unlike the previous two rounds of IIF, Round 3 used a staged approach for licensing with a target of up to 10 new funds to be licensed over a five-year period – nominally two per year. This approach provides a more consistent flow of VC over time (i.e. new investment will be supported for a period of nine years rather than five years if all funds were licensed simultaneously) and avoids momentary flooding of the market.

5.3.2 Angel Capital

In 2007, the Australian Association of Angel Investors (AAAI) was founded with the aim of driving the growth, success and sustainability of angel investing as a professional practice in Australia. In 2008, Sydney Angels, a Sydney-based risk capital organisation was co-founded by members of the angel investing community, including the CEO of ATPi.

5.3.3 Germinators, Accelerators and Incubators

Concurrently with the emergence of an organized angel community, and maturation of VC funds, a diverse mix of organisations were formed to help ‘accelerate’ the development of nascent new ventures, generally within the ICT industry. While BIs were soliciting existing businesses, a new crop of germinators formed, in the sense that these firms co-created new ventures while the venture is still in the idea stage (Hannon, 2004). In addition to providing seed stage capital, these germinators also provided technological support for non-technical founders interested in launching ICT ventures. Of the two germinators in our study, BlueChilli (incorporated in 2006, with a launch of a co-working space in 2012) and Pollenizer (launched in 2008), neither associates itself directly with BIs or accelerators. Instead, BlueChilli is self-described as a “combination of an incubator, accelerator, digital agency and venture capital all rolled into one model called “Venture Technology””²⁵. In comparison, Pollenizer is self-described as a start-up studio, which build companies for shareholders. Pollenizer is able to boast a successful \$40M exit within 10 months of

²⁴ www.businessreviewaustralia.com/money_matters/overview-australia-s-venture-capital-industry

²⁵ www.quora.com/Startups-in-Australia/Are-Australian-incubators-Pollenizer-and-Blue-Chilli-giving-a-fair-deal-to-new-startup-founders-do-the-same-deals-exist-outside-of-Australia

founding²⁶, and has since shifted focus to starting ventures internally, for which it then recruits co-founders paid with equity (5 to 15%) and a low salary.

In the meanwhile, multiple seed accelerators have emerged, some of which have received international press recognition and are listed in the de facto directories for seed accelerators.²⁷

We briefly review three seed accelerators here. Startmate is the organisation that most closely resembles the accelerators described in our literature review. StartMate was founded in 2010 by a returning Australian entrepreneur and two of his old friends, who happened to be the co-founders of Atlassian. By 2013, Startmate has graduated 21 ventures over multiple cohorts, many of which have gone on to raise significant follow on capital. In 2009, PushStart launched as a start-up mentorship network, and transformed itself in a formal accelerator by 2011, investing up to \$20k in over 10 companies²⁸. By 2013, PushStart reduced its cohort size to 8 start-ups, and even abandoned seed acceleration in order to shift "back" to its "Education and Community" model²⁹. Notwithstanding this change, public press still refers to PushStart as one of the accelerators programs in Australia. A third seed accelerator in Sydney is IgnitionLabs, which was founded in 2012. Whereas StartMate rents space within the ATPi facilities, IgnitionLabs is an initiative entirely from within ATPi. Unlike the ICT focus of most seed accelerators, IgnitionLabs' first cohort focused on clean technologies that enhanced the use of renewable resources or decreased the use of finite resources. Five teams were selected from the applicant pool and completed the 3-month accelerator program in October 2012. Highlights from this cohort include a hydrogen generation technology company that closed over \$400k in follow on capital based on IP licenced from UNSW, and a collaborative consumption company that recently signed a multi-site community trial with one of Australia's largest property developers. IgnitionLab's second cohort is scheduled for announcement soon, and has a sector focus on health and medical technologies, possibly leveraging the wet labs within the ATPi facilities.

6 Discussion

The evolution of the Australian NIS has been at the core of many public and policy discussions. In particular, the lack of funds and management/business skills has been singled out as one of the key drawbacks of this system for a long time. However, in the last few years, the amount of funds available and the number of new start-ups launched have grown explosively. Along the way, accelerators, as new organisational forms have emerged as a new phenomenon within the Australian Ecosystem, as have germinators. Despite their similarities with other organizations in the NIS literature, neither of these organizations is well documented in the literature, and there is much to be learned about how they fit into the NIS framework.

The results of our exploratory data collection show that accelerators in Australia have come to fill out a particular role within the ICT sector: the need for initial seeding funding (typical accelerator funding between \$10-20k) for early stage ICT ventures. Additionally, in contrast with accelerators in the U.S. or in some European Countries, the emergence of accelerators in Australia is strongly connected to "boomerang entrepreneurs", each of which bring to the emerging organisation a key set of first-hand experiences in this specific industry, and perhaps more importantly, a first-hand (technical & capital) network connection with the U.S. (specifically within the ICT industry in Silicon Valley).

²⁶ www.anthillonline.com/spreets-sold-for-40-million-in-the-biggest-and-fastest-group-buying-deal-of-the-year-so-far/

²⁷ www.seed-db.com/accelerators

²⁸ www.startupsmart.com.au/funding/pushstart-launches-seed-fund-for-start-ups/201112154882.html

²⁹ www.startupsmart.com.au/financing-a-business/pushstart-ends-investment-and-accelerator-focus/2013071810248.html

6.1 Implications for Research on Accelerators

Our literature review about accelerators reveal that current conceptualisations of accelerators as new organisations tend to link them with incubators (some even argue that accelerators are even perhaps a new evolved form of incubator). However, our review of the founders, mentors and members of the Australian seed accelerators depict a different picture. If one considers that angel investors are “wealthy individuals who acts as an informal venture capitalist, placing his or her own money directly into early stage new ventures” (Wiltbank et al., 2009, p.116), then accelerator are in essence more like angel investors than incubators. The link between accelerators and angels is reinforced by the motivations to invest. For instance, angels tend to be former entrepreneurs motivated by helping out the next generation of entrepreneurs, investing relatively small part of their individual wealth (Wiltbank, et al., 2009; Wong et al., 2009). It would seem that the founders and mentors involved in Australian accelerators again are a better fit with angel investing than business incubation. Additionally, angels deals are known as ‘seed stage’ deals or ‘seed funding’, which is exactly the role that accelerators are playing in the Australian NIS. Angel investing tends to focus on equity investments and fast exits, not continuous operating cost-recovery, or co-location (like BIs). Again, this is the modus operandi of accelerators in Australia. All of these seemingly coincidences between the role and actions of angel investors and mentors and founders of Australian accelerators might suggest that perhaps it would important to reconsider whether accelerators are really a new twist on the old incubation form or whether accelerators would be better described and theorised by linking them more closely the behaviours and motivations of angel investor.

7 Conclusion

This study has explored the concepts of business incubation and seed acceleration in context of the Australian National Innovation System. In doing so, we have revealed that most of the main features of business accelerators are related to angel capital and are derivatives of earlier developments in the Australian VC industry. As a result, it is questionable whether seed accelerators are directly related to business incubators (BIs), or whether BIs are primarily subcontractors to accelerators.

This study presents our initial data collection and exploratory analysis of secondary data. As such, it does not (yet) allow us to strongly support these theoretical speculations, but does define our research program ahead. As next steps, we are collecting more first-hand data (via conversations with the accelerators founders) to further explore whether accelerators need to be reconceptualised, how and why they have evolved, and what role they play in the NIS.

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9 Tables & Figures

Table 1: Comparison of business acceleration model

Dimension	Business incubators (3 rd generation)	Seed accelerators	Angel syndicates
Emphasis	Survival of start-ups	Early and high exits	High exits
Metaphor meaning	Protective environment	Controlled environment for rapid growth	Protective hands-on management by new co-owners
Business model	Fee for service and sometimes equity (potentially schizophrenic mix)	Standard terms for equity with aim to achieve a large multiple on exit (e.g., trade sale or IPO)	Negotiated equity with aim to achieve a large multiple on exit (e.g., acquisition or IPO)
Management	General	Ex-Entrepreneurs	Ex-Entrepreneurs
Office space	Discounted	Free, outsourced to a BI at a discount, or recommended co-working office	N/A
Value added services	General	Free, outsourced to a BI at a discount, or recommended co-working office	N/A
Entry or investment criteria and timing	Ad hoc entry by individual ventures, subject to availability	Synchronous entry by cohort, vetted by an open and competitive application process	Ad hoc investments into individual ventures, subject to availability of funds, interest, and other criteria
Exit criteria and timing	Physical exit: Based on growth (or lack thereof) or age of individual ventures	Programme exit: Completion of fixed term residency or early acquisition Financial exit: Acquisition, IPO or failure of individual ventures	Financial exit: Acquisition, IPO or failure of individual ventures
Duration	Variable. Graduation encouraged by gradually increasing rent	3 months. Earlier possible by acquisition.	Variable. Earlier preferred if a desirable exit multiple is attainable
Learning model and mentoring	Some group workshops, often facilitated by external consultants or professional service providers	High peer-pressure and collegiality within cohort. Sometimes highly transparent list of mentors, many of whom are angels (Australian accelerators and TechStars)	Directly from investors, advisors, mentors. No peer to peer learning by entrepreneurs. Angels may learn from each other if they co-invest and sit on the same boards.
Exhibitions	Ad hoc participation in or hosting of industry networking events	Demo Day for entire cohort upon as a graduation process	Regular angel pitching events (monthly or semi-annual)
Industry links	Referrals. BI managers may actively pursue these links	Referrals, regular guest speakers, alumni	Referrals, idiosyncratic to each angel
Follow on capital	Referrals to angels and VCs	Referrals to angels and VCs	Referrals to VCs

Figure 1: Australian NIS Evolution Synthesis

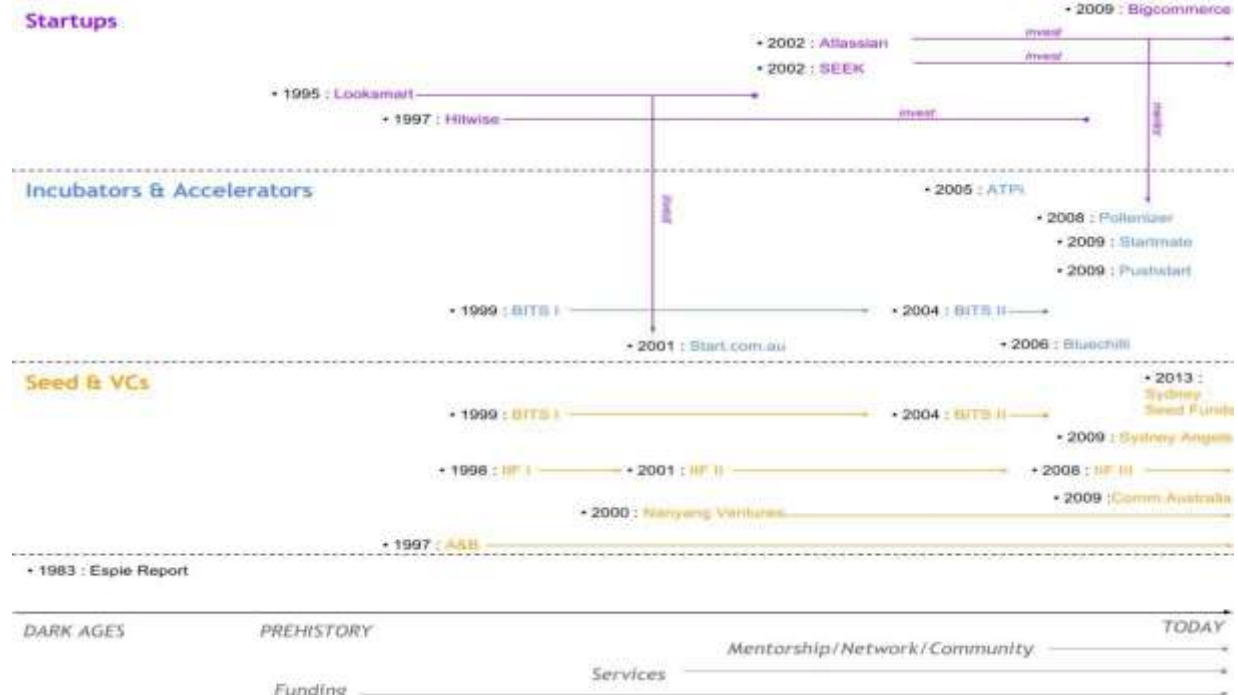


Figure 2: Total Incubators over Time

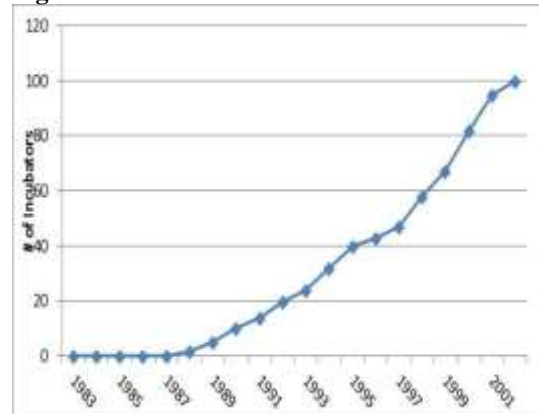


Figure 3: Start-ups Created per Year

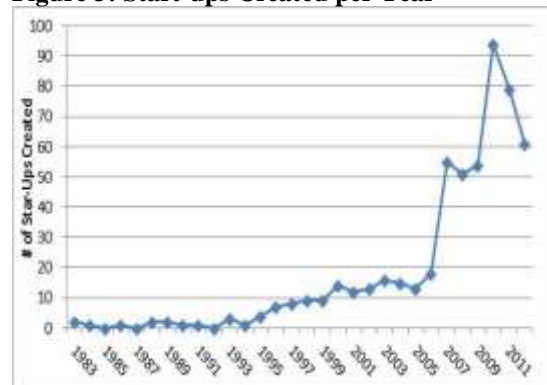


Figure 4: VC Funds Raised per Year

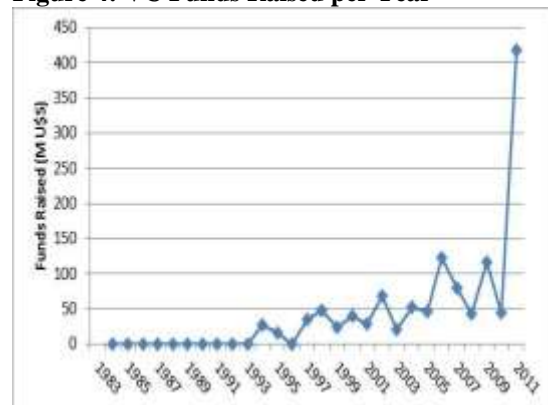


Figure 5: Espie Model

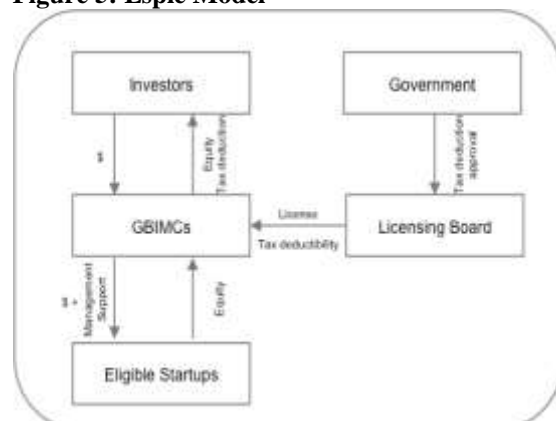


Figure 6: IIF model

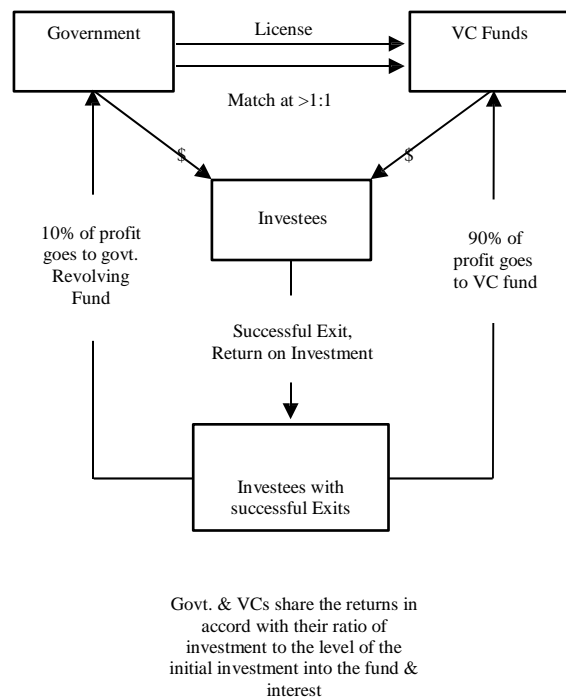


Table 2: BITS Program & Incubators

Allen & Buckeridge Seed Stage Ventures Pty Ltd	NSW/VIC	Allen & Buckeridge Pty Ltd
Australian Distributed Incubator (ADI) Pty Ltd	VIC	EMERGE CMC Ltd; Ernst & Young; Babcock & Brown (via its subsidiary AIDC Ltd); Greyhair.com Pty Ltd
BlueFire Group Incubator Pty Ltd/Divergent Capital	NSW	BlueFire Group Pty Ltd BlueFire Innovation Pty Ltd
Entrepreneurs in Residence (EiR) Pty Ltd	WA	Imago Multimedia Centre Ltd; Zernike (Australia) Pty Ltd; and Software Engineering Australia (WA) Ltd.
Epicorp Ltd	ACT	Anutech Pty Ltd; CSIRO; University of Canberra Australian National University
Information City Victoria (ICV) Pty Ltd	VIC	Joint Technology Partners; Melbourne IT; Photonics RedCentre (a spin off from Australian Photonics); University of Ballarat—Greenhill Enterprise Centre; Ericsson Australia Pty Ltd
inQbator	QLD	Timsco Pty Ltd is the owner and operator of inQbator.
ITem3 Pty Ltd	NSW	Iplus Development Pty Ltd; Lateral Concepts International Pty Ltd Software Engineering Australia (NSW) Ltd
Original IT Investments Pty Ltd	NT	Nexus Energy Limited (formerly eNTITY1 Limited); Darwin International Textile Pty Ltd; Northern Territory University
Playford Capital Pty Ltd*	SA	The Playford Centre; Ngapartji Pty Ltd
Intellinc Pty Ltd	TAS	Item3 Pty Ltd; KPMG (Tasmania); University of Tasmania

Source: Allen Consulting Group. (2003). Evaluation of the BITS Incubator Program & the Intelligent Island Incubator: Final Report to the Department of Communications, Information Technology and the Arts.

ENTREPRENEURIAL ORIENTATION AND INNOVATION OUTCOMES – A LONGITUDINAL, CONTINGENCY-BASED ANALYSIS

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ENTREPRENEURIAL ORIENTATION AND INNOVATION OUTCOMES – A LONGITUDINAL, CONTINGENCY-BASED ANALYSIS

Innovation and Entrepreneurship are inseparably tied to each other. Firms that manage to innovate faster than others can rely on this capability as a source of competitive advantage. As such it is surprising that few studies have analyzed the link between entrepreneurial orientation (EO) as a firm-wide construct of literature on entrepreneurship and innovation outcomes. It remains uncertain whether entrepreneurially oriented firms are (a) more successful in bringing forward radical innovations, (b) less focused on incremental innovations and (c) how environmental factors influence this relationship. This study fills this gap by investigating the relationship between EO and radical and incremental innovation using a longitudinal data set. This will be done using a contingency-based model. Findings support the notion that EO is a driver of radical innovation outcomes. This relationship proves to be the strongest in turbulent industries. Results also showed that entrepreneurially oriented firms do not fall back to competition with regards to incremental innovation. Surprisingly, economic turbulence - particularly the recent financial crisis - did not have a significant effect on innovation outcomes of entrepreneurially oriented firms, indicating they follow a long term strategy robust to short term changes in their surroundings.

INTRODUCTION

“Innovation distinguishes between a leader and a follower” - Steve Jobs

In order to change the competitive landscape and capture new markets, innovation is the key driver and source of competitive advantage (Ireland et al., 2009, Bever & Prince, 2002). Therefore, researchers have focused on understanding the drivers of innovation (Paladino, 2007; Wuyts et al., 2004; Sridharan, 2004). In this regard, a significant amount of knowledge has been collected on the internal processes that help to create innovative outcomes (Flatten et al., 2011; Kreiser, 2011). Research on firm-wide drivers related to innovation is scarce thus far (Pérez-Luño et al., 2011; Wu et al., 2008).

EO is a firm-wide construct that represents a strategic posture combining the attributes of risk taking, innovativeness and proactiveness to constantly strive to seize market opportunities (Miller, 1983). It has been shown that EO is positively linked to firm financial performance under various organizational and environmental conditions (Rauch et al., 2009). Also, researchers have been analyzing the relationship between EO and financial performance in the context of the broader resource-based view of the firm (Zhao et al., 2011; Wiklund & Shepherd, 2011; Eisenhardt & Martin, 2000).

However, to date little is known about the relationship between EO and innovation outcomes as a non-financial performance dimension representing how well the firm's efforts to innovative result in more incremental and/ or radical innovation than their competitors. With the common agreement that performance is a multi-dimensional construct (Cameron, 1978) and the growing awareness of the importance of innovation to explain long term sustainable success (Wiklund & Shepherd, 2005), answering this question is an important task to advance research.

We will use a new, longitudinal measurement approach based on secondary data to analyze this effect by taking into account EO as a strategic posture and the time lags innovation efforts take to result in incremental or radical innovation outcomes. Environmental and industry specific factors will be included in the analysis using a contingency based model. By understanding the firm-wide drivers of innovation outcomes, researchers can focus future efforts on exploring multi-level mechanisms necessary within the organization to foster the transformation. Practitioners will benefit from a more thorough understanding of how they can position their organization to become more innovative than competitors in order to succeed in the long run, taking into account the specific environmental situation they are in.

THEORY DEVELOPMENT AND HYPOTHESES

The resource-based view (RBV)

The resource-based view (RBV) conceptualizes the notion that resources of a firm and their transformation into products/ services are the core for explaining sustained superior success (Penrose, 1959). Central to this concept are resources which can be tangible or intangible and the configuration of these (Rumelt, 1991). According to Wernerfelt (1984), “firm resources include all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness”. Capabilities are central intangible resources unique to a firm and required to deploy resources (Amit & Shoemaker, 1993; Itami, 1987).

Resource heterogeneity can be achieved depending on how the firm structures, bundles and leverages its resources (Sirmon, Hitt & Ireland, 2007). The goal of the firm should be to transform its resources in a unique way that is of value, rare and inimitable and thereby creating competitive advantage (Barney, 1991). Sustainability of this advantage is given as long as competitors are not able to copy or substitute it (Dierickx & Cool, 1989).

Entrepreneurial Orientation as part of the broader RBV

Theory on EO dates back to Mintzberg (1973) and Khandwalla (1976), who stated that entrepreneurial firms take on higher risks than others and proactively search for new business opportunities. As part of RBV theory, EO describes a firm’s strategic posture towards using its resources in a way that market opportunities are leveraged (Miller, 1983). As a ubiquitous construct it is not limited to small and medium sized firms, but also captures large organizations (Covin & Wales, 2012; Morris et al., 2010).

Innovativeness reflects a firm’s tendency to support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes (Lumpkin & Dess, 1996). The effort to be innovative should not be confused with innovation outcomes. A firm can commit large resources to achieving radical innovations without succeeding. The mechanisms how to efficiently transform efforts into innovative outcomes have recently been investigated. Absorptive capacity can be seen as a dynamic capability to absorb internal and external information in a way that helps to effectively foresee future needs and direct innovative efforts towards pleasing these needs (Flatten et al., 2011).

Risk taking as an additional EO dimension can be seen as the general tendency to direct resources towards initiatives that promise higher outcomes in return for accepting greater

uncertainty. Put in practical terms, an entrepreneurially oriented firm will be more prone towards using resources for activities that derive from existing practices and therefore set it apart from competitors. Therefore, the performance outcomes of entrepreneurially oriented firms will be subject to greater variance than those of competitors, as Wiklund & Shepherd (2011) have shown.

Proactiveness is an additional dimension of an entrepreneurial posture. It refers to the firm's efforts to direct resources towards new markets with previously unmet needs in contrast to established markets with a clear understanding of customer needs. The underlying rationale is that serving previously unmet customer needs creates a benefit for the firm in the long run.

In order for a firm to be regarded as entrepreneurially oriented, all three dimensions must be present and can only be interpreted from an integrated perspective (George & Marino, 2011; Miller & Le Bretton-Miller, 2011). The resulting continuous venturing activities characterize this strategic posture. If a firm manages to venture into new markets before competitors, it creates a valuable, rare and inimitable advantage as defined in RBV theory (Peteraf, 1993). This advantage translates into financial benefits as it enables firms to increase revenues and skim the market at high profits as Zahra and Covin (1995) have found.

The link between EO and financial performance has been the focus of much research in the past. Upon various research settings with varying construct definitions and different internal and external factors taken into account, most researchers have found the link between EO and financial performance to be positive (Rauch et al., 2009). While research in regards to financial outcomes has been vast, much less focus has been placed on the relationship of EO with non-financial performance dimensions.

EO and innovation outcomes

The success of a firm's venturing activities will largely depend on how well it manages to transform its resources into new product/ service offerings in order to serve new markets. As such, innovation outcomes represent a central non-financial performance dimension of an entrepreneurially oriented firm. Innovation outcomes refer to the output of the firm's research and development activities as new products or services. While many categorizations for innovation outcomes exist, it has been common practice in research to differentiate between radical and incremental innovation (Chandy et al., 2003; Dewar & Dutton, 1986; Covin & Lumpkin, 2011). This categorization is context specific as classification is based upon the deviation from previous offerings from a technological and/ or customer perspective.

Incremental innovation is linked to minor alterations of a firm's product/ service offerings which could be an improved product component or a modified pricing scheme. Incremental innovation is usually linked to offerings in established markets where they serve as a refinement in adapting to evolving customer needs. Radical innovations represent a significant change in the way the customer is served either driven by major technological advances (e.g. the first Apple iPhone) or a drastic departure from commercial practices (e.g. XEROX pricing scheme). It is therefore feasible to assume that bringing forward radical innovation requires more time and effort than producing incremental innovation.

Researchers have tended to link EO to radical innovation from a theoretical standpoint. The widely used scale of Covin & Lumpkin (1989) includes two items that indicate entrepreneurially oriented firms strive for "R&D technological leadership" and "quite dramatic" changes in product or services. It is reasonable to assume that the characteristics of EO in being innovative, risk-taking and proactive can be linked more towards radical than incremental innovation.

Adding to this, entering new markets will generally require significant alterations to current product/service offerings in order to meet previously unfulfilled needs. We therefore expect to find a significant positive relationship between EO and radical innovation outcomes.

Hypothesis 1: An entrepreneurial strategic posture will be positively related to radical innovation outcomes.

As resources are scarce, focusing on radical innovation outcomes might cause entrepreneurially oriented firms to commit fewer resources than competitors to incremental innovation. This is why we expect to find a negative relationship between EO and incremental innovation outcomes.

Hypothesis 2: An entrepreneurial strategic posture will be negatively related to incremental innovation outcomes.

Role of environmental factors

The recent financial crisis demonstrated to an extreme the impact environmental instability can have on single markets and the economy as a whole. As economic uncertainty has become part of daily business in a globalized business environment, handling such uncertainty better than others is a key source to competitive advantage. On the other hand, lack of access to funding, changes in customer demand or imitation by competitors can deteriorate a competitive advantage (Oktemgil et al., 2000). External factors have been taken into account when analyzing the relationship of EO to financial performance. Evidence suggests that entrepreneurially oriented firms - due to their tenure towards pursuing new market opportunities - cope better with economic and market turbulence (Zahra, 1993; Miller, 1988, Covin & Slevin, 1989). However, Wiklund & Shepherd (2005) have found the relationship of EO to financial performance to be strongest in stable environments. Research has mostly been directed towards smaller firms and has shown that these are more flexible and can therefore react more rapidly to respond to new market opportunities (Rauch et al., 2009). It is therefore of interest to analyze the external influence on the relationship of EO to innovation outcome among large firms as they face greater difficulties in adapting to change.

Environmental turbulence can be split into two categories. Economic turbulence refers to the changes within the economy as a whole. The consequences for single firms can be vast from difficulty to attain funding to steep and sudden drops in customer demand among others. Market turbulence reflects the drive for change within an industry. High levels of turbulence could be caused by technological advances, price wars, regulation or other industry specific circumstances.

Radical innovations are the result of long term efforts directed at achieving breakthrough solutions. As a result we expect them to be less dependent on economic turbulence which occurs in cycles and usually has short term effects (Benhabib, 1992). However, we expect changes in the industry to have an influence on the efforts of entrepreneurial firms to bring forward radical innovation. In turbulent markets, the opportunities should be highest for firms that have an orientation towards leveraging new opportunities (Wiklund & Shepherd, 2005).

Hypothesis 3: The relationship between EO and radical innovation outcomes is moderated by market turbulence. Radical innovation outcomes increase with EO at a higher degree if the industry surrounding is turbulent.

Incremental innovations usually occur within regular time frames as a consequence of minor technological advances (Schulz, 2001). They can be regarded as the innovations necessary to stay competitive rather than differentiating from competitors. For example innovations in Apple's second and subsequent generations of iPhone's were of minor nature and included changes like improvement of camera solution. Unlike radical innovations, incremental innovations do not serve as a sustainable source of differentiation. As such we do not expect to find a significant moderating effect of market turbulence on the EO to incremental innovation relationship. In times of economic turbulence, firms might be inclined to reduce their efforts to achieve incremental innovations in order to save cost. Therefore, we expect the relationship between EO and incremental innovation to be negatively influenced by economic turbulence.

Hypothesis 4: The relationship between EO and incremental innovation outcomes is moderated by economic turbulence. Incremental innovation outcomes decrease with EO but to a lower degree if the environment is stable.

METHOD

Sample

The sample comprised 56 randomly selected firms, which are members of the S&P500 index. Data for the publicly listed firms was collected for a time period of nine years from 2002-2010. Secondary financial data was collected from Datastream (Luo, 2009). Data on the announcements of new products was drawn from Factiva (Arzt et al., 2010). Industries were classified according to the Standard Industrial Classification scheme (Dess et al., 2011).

Measurement

The model measures the effect of Entrepreneurial Orientation as a uni-dimensional construct (independent variable) on incremental/ radical innovation outcomes (dependent variable) taking into account economic and environmental turbulence as potential moderators and several controls. To mitigate the influence of outliers, variables were winsorized at the top and bottom at 1% of their distributions we necessary (Erkens et al., 2012).

Independent variable EO as a composite index

Measurement of the EO construct has been the subject to much discussion in the research community (Covin & Wales, 2012; Covin & Lumpkin, 2011; George & Marino, 2011). Wilcox et al. (2008) state a construct is neither formative nor reflective, but can be measured in one way or the other depending on situation. We relied on the three-dimensional, summative index of EO for measurement, as introduced by Miller & Le Bretton-Miller (2011). It is the most appropriate form of measurement for analyzing secondary financial data.

Proactiveness

Proactiveness refers to how the firm actively seeks to grasp opportunities in new markets or market segments (Lumpkin & Dess, 1996). A key characteristic of proactiveness is its forward-looking nature (Penrose, 1959). Identifying and fulfilling customer demands are central goals of a proactive tenure. As a consequence, firms that act proactively are often first movers in their markets (Rauch et al., 2004). Constantly seeking to venture into new markets requires the firm to adapt to its environment and continuously develop its competencies to match market demands. Therefore, a proactive tenure requires the firm to leverage its resources.

In order to measure proactiveness through a financial proxy, the percentage of profits reinvested in the firm each year compared with that of rivals in the same industry was used (Miller & Le Breton-Miller, 2011). It can be assumed that firms that reinvest a high share of their profits into future businesses are forward-looking and seek to expand their business into new markets. The alternative to reinvesting profits is to pay them out as dividends. Firms that prefer to pay out their profits as dividends seek to minimize risk for investors by not reinvesting it into new markets and can therefore be seen as less proactive.

As this study includes a number of heterogeneous industries with a high volatility in relative investments per industry, this figure was industry-adjusted to make results comparable (Helfat, 2007). As the tenure to act proactively can be seen as a long term characteristic rather than a short term action, proactiveness was measured over a period of three years.

Innovativeness

In the context of this research, it is important to note that the EO dimension of innovativeness concerns the effort a firm puts into innovative activities and not the outcome of these activities. Past research tended to blur the definition of EO with its outcome. Zahra and Neubaum (1998) defined “the sum total of a firm’s radical innovation” as part of EO. High efforts can - but do not have to - lead to higher innovative outcomes (Lee & O’Neill, 2003; Hall, 2002). To account for this issue, innovativeness was measured using the R&D-to-Sales ratio as it is the most appropriate proxy for the firm’s effort to produce innovative outcomes (Miller & Le Breton-Miller, 2011).

Given the diverse nature of the R&D-to-Sales ratio depending on the respective industry, results were industry-adjusted to achieve comparability throughout the sample. Given long life cycles in most industries, innovative efforts were measured over a period of three years.

Risk-taking

Measurement of the risk-taking dimension aims to capture firm-specific risk. According to finance theory in the capital asset pricing model (CAPM), the goal of taking higher risks is to yield higher returns (Sharpe, 1964). Risk-taking is closely linked to uncertainty and tenure to exploit potential market opportunities by firms (George & Marino, 2011). Linked to RBV theory, risk-taking refers to the willingness to commit given resources to projects that are typically long running and promise high returns in exchange for taking on greater risks than in projects with less uncertainty. Risk-taking firms will face higher volatility in share price as the valuation of the firms will be driven by speculation on the outcome of the risky projects run by the firms. Idiosyncratic risk was measured by the volatility in share price not attributable to market or

economic fluctuations¹. A period of four years was chosen to minimize the effect of short-term fluctuations not attributable to firm actions like merger speculations (Miller & Le Breton-Miller, 2011).

Dependent variables incremental/ radical innovation outcomes

We defined new product announcements as either a product or service that the firm introduces to the market congruent with Artz et al. (2010). In either case, the firm needs to apply new processes to serve the customer. In order to be included into the analysis, the new product/ service had to be out of development stage and ready for market introduction beyond the pilot stage. The date of the announcement was linked to market entry. The classification of innovations into radical and incremental was based on the degree of novelty and penetration of markets entered. An innovation was regarded as radical when the product/service could be considered as totally new or a revolutionary alteration of traditional products. E.g. the introduction of a new model of an automotive firm was only regarded as radical when the customer experience was altered significantly. This is the case for a new electric vehicle, but not for a new model based on a classic combustion engine with few new features. By nature, such a classification remains subjective. As such it is not surprising, that the share of radical innovation ranges depending on tightness of definition (Coombs et al., 1996). To ensure robustness of results, all classifications done by a researcher were reviewed by a second expert on innovation measurement. Questionable classifications were discussed in detail and a joint decision for classification was made based on the described framework.

Economic and market turbulence

Economic turbulence reflects the general economic situation all firms in the economy are confronted with. The sample includes the financial crises which can be considered a highly turbulent time frame (Erkens et al., 2012). Economic turbulence was measured as the annual change in gross domestic product. Market turbulence indicates changes within the industry (Jaworski & Kohli, 1993). It was measured as the coefficient of variation of net income per industry per year (Tosi et al., 1973).

Controls

The results were controlled against firm size, firm age, past performance and competitive intensity. Firm size was measured using the log of sales (Wiklund & Shepherd, 2011). Firm Age refers to the time since founding (Graebner, 2009). Past performance refers to innovation outcomes in previous periods. Competitive intensity reflects the amount of competition within an industry and was measured using the Herfindahl index (Herfindahl, 1950).

¹ The S&P500 index was used as the index for deducting market and economic fluctuations on a daily level. See Erkens et al. (2012), p.20 and Miller/Le Breton-Miller (2011), p. 1064 for comparable measures of risk taking.

Calculations and Robustness Checks

In this work, longitudinal secondary data was analyzed. Therefore, using simple linear regression would not be appropriate as it ignores dependency of the observations and therefore overestimates the standard errors of time-dependent predictors and underestimates the time-independent predictors. In order to deal with time dependence among repeated observations, general estimation equations is a widely applied statistical method (Zorn, 2001; Zeger & Liang, 1986). Generalized estimation equation models are an expansion of the Quasi-Likelihood-Method applied on longitudinal data. In this method, a linear regression is run first with the assumptions that observations for each firm are independent. Afterwards, the residuals are calculated from this model as observed predictions. This data is used to calculate a working correlation matrix from the residuals (Zorn, 2001). Finally, in an iterative process the regression coefficients are refit and corrected for the correlation. The within-subject correlation structure is then treated as a covariate. In order to take potential heteroscedastic standard errors into account, Huber–White sandwich estimators are used in the equations (Peterson, 2009). An advantage of this method is that it provides temporal stability of predictor variables. As this statistical technique is not a maximum likelihood model, goodness of fit can only be assessed through chi-square (Kirca et al., 2005).

We first ran regression using control variables on the dependent variables incremental and radical innovation outcomes. Subsequently, we ran a universal model additionally including EO, market and economic turbulence. Finally, we added two-way interaction terms to test a contingency model with economic and market turbulence as potential moderators. Wald chi-square statistics were highly significant for all analyses (Rotnitzky and Jewell, 1990). We assessed variance inflation factor (VIF) values among independent variables. All VIFs were below the commonly accepted threshold of 10, indicating that multicollinearity is not distorting results (Engelen et al., 2012).

Table 1: Descriptive Statistics[†]

	1	2	3	4	5	6	7
1. EO	1						
2. Radical Innovation	0.01	1					
3. Incremental Innovation	-0.17	0.19	1				
4. Market Turbulence (MT)	-0.01	-0.00	0.02	1			
5. Economic Turbulence (ET)	0.58	0.10	-0.04	-0.53	1		
6. Firm Size	-0.13	-0.14	0.01	0.09	-0.09	1	
7. Firm Age	0.00	0.28	0.23	0.01	-0.06	-0.03	1
8. Competitive Intensity	0.00	-0.23	-0.16	-0.01	0.06	0.35	-0.11

[†] Correlations greater than 0.18 and less than -0.18 are significant at $p < 0.05$

Table 2: Hierarchical Regression Analysis

	<i>Control Variables</i>		<i>Universal Model</i>		<i>Contingent Model</i>	
	Radical Innovation	Incremental Innovation	Radical Innovation	Incremental Innovation	Radical Innovation	Incremental Innovation
Firm Size	- 0.10	-0.04	0.08	0.02	0.09	-0.00
Firm Age	0.00	0.00	0.00	0.00	0.00	0.00**
Competitive Intensity	-0.56*	-0.08	-0.64	-0.31	-0.63	-0.29**
Past Performance	0.42***	0.03***	0.70***	0.02***	0.70***	0.03***
EO			0.44**	-0.24**	10.88**	0.19
Market Turbulence (MT)			-0.12	0.00	-1.73*	-0.01
Economic Turbulence (ET)			-0.46	0.20	-1.51	-0.32
EOxMT					-1.37**	-0.01**
EOxET					-1.09	-0.50
Wald Chi2	43***	86***	86***	111***	130***	154***
N	248	315	116	156	116	156

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

RESULTS

Table 2 shows the results of the generalized estimation equation of innovation outcomes on EO using hierarchical regression. Increases in Wald chi-square from the control variable model to the contingent model indicate the best model fit of the contingent research model.

Hypotheses 1 on the positive relationship between EO and radical innovation is supported both in the universal model as well as the contingent model. The universal model indicates support for hypothesis 2 on a negative relationship between EO and incremental innovation. However, results are not supported in the broader contingency based model.

Interaction effects need to be considered including main effects to derive a valid conclusion (Cronbach, 1987; Stone & Hollenbeck, 1984). The contingency model shows a significantly negative effect of market turbulence on radical innovation in both the main and interaction effect with EO, thus supporting hypothesis 3. No other main and interaction effect were significant, thus hypothesis 4 is not supported.

DISCUSSION

The focus of this study is to provide a better understanding of the impact of EO on incremental/ radical innovation outcomes. We linked EO to innovation outcomes as a non-financial performance dimension using RBV as overarching theory. We argue that transforming resources into innovative outcomes is a key source of sustainable competitive advantage. Entrepreneurially oriented firms seek to leverage resources in this regard to seize market opportunities and act as a first-mover (Zahra & Covin, 1995).

This research contributes to existing knowledge by finding support for the hypotheses that entrepreneurially oriented firms outperform their competitors in bringing forward radical innovations, which are a key to differentiation. The relationship between EO and innovation outcomes was further clarified as no significant impact was found with regards to EO and incremental innovation outcomes. This indicates that EO firms do not fall back in terms of incremental innovations in comparison to competitors as a consequence of committing resources to radical innovation outcomes.

Results showed that entrepreneurially oriented firms perform especially well in bringing forward radical innovations in industries with high levels of market turbulence. These findings pose valuable insights for researchers and practitioners alike. It provides researchers with a basis for refining EO theory with regards to multi-dimensional performance implications and it helps practitioners to understand EO as strategic posture to enable radical innovation, especially when the industrial environment calls for change.

Unlike most previous studies in the field of EO, this study applied the EO construct to large public firms where the non-financial performance implications are not yet well established (Short et al., 2009) and which are said to have more difficulties in bringing forward radical innovation due to stiff and slow processes (Rauch et al., 2009).

Shortcomings and Further Research

Our research focused on large firms. Future research could contribute to a broader understanding of the EO to innovation outcomes relationship by replicating analyses using a sample comprising smaller firms. Given the importance of bringing forward innovative outcomes to achieve sustainable competitive advantage (Ittner & Larcker, 1998), the mechanisms to

convert resources under the influence of an entrepreneurial posture could be investigated in a multi-level approach to advance research. Furthermore, the longitudinal measurement approach used in this work provides promising paths for advancing EO theory with regards to analyzing moderating effects like resource availability and organizational influence factors on the relationship of EO on innovation outcomes.

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AN INQUIRY INTO THE EPISTEMIC PROPERTIES OF ENTREPRENEURS' KEYSTONE RULES

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An Inquiry into the Epistemic Properties of Entrepreneurs' Keystone Rules

"I think the basics of being an entrepreneur are still very much the same as when I started Virgin 40 years ago. Entrepreneurs should be open-minded, prepared to listen, and also expect to experience rejection and setbacks. It helps to know your limitations and surround yourself with people who have skills you may lack. Also, a vital part of being entrepreneurial is being decisive and being prepared to take risks - don't be afraid to follow your guts"

Richard Branson, 2010

Abstract

Boundedly rational managerial actors would struggle to instantiate the full spectrum of theories of the world. Rather, they use a limited set of heuristics, e.g., the "simple rules" that guide specific types of action. However, cognitive science suggests a hierarchical structure whereby higher order rules would play a disproportionate role, e.g., on learning and selecting low-level simple rules. Assuming the existence of such "keystone rules", we identify the complexity of determining an efficient set, and the necessity thereafter to use meta-heuristical approaches such as genetic algorithm (GA). Noticing that the entrepreneurship context embodies the natural conditions of a GA, we conduct a grounded exploration of entrepreneurs' keystone rules to consider them as epistemic objects. It appears that although those do not match "scientific" theory, they cannot simply be rejected and provide an insight into the paradigmatic structure that drive practitioners' actions. Furthermore, the identification of keystone rules could fill a theoretical gap between the rational decision and social construction perspectives.

Introduction

The division of epistemological labor in management studies has evolved towards a self-evident truce where scholars produce theories according to a scientific method, and practitioners practice. As for practitioners' expressed theories, in particular their theories of action, they appear mostly as objects of epistemological analysis than being attributed much epistemic value per se.

This dichotomy results from two apparently opposed traditions. On the one hand, the decision science perspective, rightfully expecting limited rationality, considers actors' theories of action as being sub-optimal and, not surprisingly, have demonstrated a wealth of biases in actors' decision making processes (e.g., Cyert & March, 1963 [1992]; Levinthal & March, 1993). On the other hand, social constructionists shun notions of optimality of decision-making but focus on the various social factors and processes influencing the construction of mental and social representations. They approach actors' theories of action mainly as cultural and institutional elaborations (Weick, 1979).

Yet, a few alternative perspectives have started to challenge the idea that practitioners' theories of action have little epistemic qualities. Heuristics have been demonstrated to carry significant accuracy in psychology literature (Todd & Gigerenzer, 2003). This idea appears in strategy scholarship where "simple rules" have been demonstrated to drive strategy (Bingham, Eisenhardt, & Furr, 2007; Miller, 1993), and to be the foundations of the cognitive architecture that drives managerial action (Gavetti & Rivkin, 2007). Studies have explored the emergence of simple rules, for instance Bingham and Eisenhardt considering mid-range rules of the type "enter countries with lots of pharma activity" (2011:1444).

Both the simple rules approaches and social constructionist approach to strategy making consider rules mainly through a bottom up focus whereby they study detailed micro-activities or beliefs. However, if cognitive processes have long been modeled as hierarchically nested structures (e.g.,

Argyris & Schön, 1978; Gavetti, 2012), little research has explored the epistemic nature of the *top level set* of rules that would play an architectural role in generating cognitions and actions. For instance, the belief expressed in the opening citation by Richard Branson exemplifies a widespread empirical phenomena occurring in business practice in general, and in particular in entrepreneurship context: that a *limited* set of higher order rules could have dominant effect on outcomes. These rather common expressions among entrepreneurs, which we will revisit here empirically, raises the possibility that, among all possible rules, a limited set of rules could have a disproportionate impact on orienting action, but also on learning and on sense making, hence have architectural effects. Accordingly, we will label those *keystone* rules.

Our conceptual and empirical exploration of such phenomena will rest on two fully acknowledged *assumptions*. First, we will assume cognitions and beliefs to have a hierarchical (e.g., metaphorically pyramidal) structure whereby individual actors, e.g., entrepreneurs, rely on a few rules that are somewhat permanent and operate at the highest-level of cognitive process (Fishbein & Ajzen, 1975). In particular, we will consider this highest level as a bundle that, per the most fundamental interpretation of bounded rationality (Simon, 1947 [1997]), will be small to the point where we can stylize it as a handful. This does not assume that cognition processes and depth are actually so limited, but rather that a small set of keystone rules can orient various mechanisms such as learning and self-selection. Even when stylizing their top-level beliefs as a narrow bundle of keystone rules, actors could still conceivably instantiate a rich and large cognitive process from exposure to others and the environment.

Another major assumption is the possibility to attribute—a priori—an epistemic property to rules, e.g., whether a rule has an efficiency basis vs. being a fad, a fashion, or just plain wrong. Such assumption may be difficult to sustain for some readers, as being overtly rationalistic. We plea to follow the reasoning up to the point where this rationality assumption leads directly into a full social-constructionist perspective. Indeed, the possibility that overt rationalistic assumption would nevertheless lead to social construction is one of the intended contribution of this paper. In a sense, the current approach relates to epistemic culture perspective (Knorr Cetina, 1999), but rather than taking an a priori social construction basis, we will start here with a rationalist assumption and land later into social construction. Similarly, we related to the *epistemic logic* perspective in philosophy of knowledge and beliefs (Hendricks & Symons, 2009)¹, but rather than developing a formal system of logic angle, we probe the effect of bounded rationality constraint.

Thereafter, our research—assuming that a bundle of keystone rules drives action and that the epistemic property of rules can be assessed individually—seek to explore the epistemic property of bundles of keystone rules.

In a first section of conceptual nature, we explore the problem selecting small bundle of rules and demonstrate that this constitutes a hard combinatorial problem (e.g., Rivkin, 2000). This difficulty occurs in various other scientific areas with similar combinatorial problem, and it has been demonstrated that those can only receive a local optimum solution through strategies called meta-heuristical (e.g., Blum & Roli, 2003), such as genetic algorithms. We thereafter identify that the entrepreneurial context as a *natural* setting of such genetic algorithms: entrepreneurs are selected; they get a chance to express their own theory depending on their success; and that such voice leads to collective elaboration of theory of the world. This motivates to explore keystone rules in the entrepreneurial context.

In the second section of empirical nature, we therefore conduct a grounded theory exploration of entrepreneurs expressing their *theories of action* (Argyris & Schön, 1978), when actors express that

¹ The epistemic culture perspective (Knorr Cetina, 1999) is related but has an a priori social construction basis, whereby we will start here with a rationalist assumption and loop back later to social construction.

a few principles are fundamental to their practice. We gathered and selected archival interviews of entrepreneurs, selecting on instances where they appear to express such keystone set. In addition, we subsequently conducted primary interviews to explore further the nature of the theories that entrepreneurs expressed, the weight that these actors assign to their theory, and their perceived rationale. The analysis consisted of a two-level categorization of the expressed rules, leading to identify a corpus of theories of action that constitute a candidate for keystone rules in that context. We then conduct an epistemic analysis of keystone rules. We identify their negative epistemic properties: fuzziness, inconsistency, counter-factual. Simultaneously, we find them to have also positive epistemic properties: they match cognitive capabilities, are polymorphic and self-fulfilling.

In the third section, of inductive nature, we build on these observations and their evolutionary nature. Observing distinct bundles confirms that distinct logics may arise in the entrepreneurship context, for which the keystone rules have the role of quasi assumptions. The evolutionary clusterization around keystone assumptions suggests that entrepreneurs' logics follow an epistemological dynamic similar to the one described by Thomas Kuhn (1970), hence we propose to label paradigm such bundles of keystone rules.

These findings contribute first to various literatures. First, the bundles that emerges has functional similarity to bundles previously identified in the entrepreneurship literature, such as the causation vs. effectuation logics (Sarasvathy, 2001a), suggesting to reinterpret it through a paradigmatic lens. Second, it contributes to the emerging literature on simple rules and heuristics (Bingham et al., 2007) by suggesting the importance of simple rules but adding an architectural dimension. Although these keystone rules may appear simplistic, even biased, when viewed through a positivistic lens, this study should motivate to more robustly identify and study practitioners' paradigms, even if their high level architectural position make them less liable to micro-level observations.

The Problem of Determining an Optimal Set of rules

To determine the bundle of rules with maximum epistemic quality, we first review the motivation to *assume* actors view their world through a limited set of rules. Then, we explore why the selection of such bundle constitutes a hard combinatorial problem, and how the chatter among entrepreneurs regarding keystone rules might constitute a relatively efficient approach to a *social calculation* (Callon & Muniesa, 2005).

Assuming the Existence of a Keystone Rules

The core idea of bounded rationality is that humans have limited cognitive resources, such as memory, process, attention, etc. (Simon, 1947 [1997]), hence putting constraints on the number of items to which actors can be exposed, memorize, pay attention, and process. One can also interpret this through an attention-based view of organizational life, whereby the limited attentional capabilities of actors drive outcomes (Ocasio, 1997, 2011).

Such constraints are acute for all managerial actors but may be even more so for entrepreneurs. In entrepreneurial contexts, in particular early in the life of a new venture, individual agency dominates. Decisions occur without the help of a significant organizational structure to process and manage information beyond individual capabilities of the entrepreneur. This constraint may be compounded further in the entrepreneurial context since many individuals engage in entrepreneurial activity without having been exposed to the large and structured body of knowledge delivered in business schools. When it comes to their theory of action, entrepreneurs are likely to rely on a relatively small set of simple rules.

Cognitive science has demonstrated that rules get organized into complex stratified structure (Hodgkinson & Healey, 2008), which has often been assumed to have some sort of hierarchy, for

instance of a pyramidal style (e.g. Gavetti & Rivkin, 2007:432). For the purpose of the rest of the reasoning, we will therefore focus on the top set of rules, and stylize the bounded rationality constraint as putting a limit on those generative rules. This assumption is consistent both with the essence of the Carnegie tradition, as well as more symbolic and social constructionist perspectives when, for instance, identifying logics of action as small set of principles that drive action (DiMaggio, 1997). Proving such stylization is not the purpose of the current study, and we forthcomingly acknowledge as the crucial assumption of this study that *actors generate the(ir) world through a short bounded set of high-level simple rules*.

This assumption does not require that cognitions are actually so limited, but rather that because actors face limitations, they use a set of high-level *keystone rules* that orient various mechanisms such as learning and selection of low-level simple rules. On an ongoing basis, actors instantiate a fundamentally large range of cognitions—even if relying a limited set of keystone rules—hence our assumption is not incompatible with rich cognitive and social processes such as (vicarious) learning, social construction, communication, etc.

The above assumption does not qualify the actual size of the rule bundle. However, as we observe in the sub-section below, size does not matter except if actor could actually hold all theories of the world, i.e., enact perfect rationality. In the empirics, in practice, entrepreneurs state keystone rule bundles that range from one to a dozen rules of action. Assuming such set exist, our inquiry will now focus on the *epistemic properties* of such bundle of keystone rule.

The Hard Problem of Determining an Optimal Keystone Rules Set

Assuming actors are actually cognitively constrained, little is known about which subset of theories of the world would be cognitively efficient for actors in practice. The reason is that by contrast to individual hypothesis testing (e.g., is hypothesis A true or not?), selecting an optimal subset amounts to a *combinatorial* problem (e.g., how to select an optimal A, B, C among a large set of theories?). Such selection has long been identified as an intractable problem (e.g. Rivkin, 2000). Let us qualify what makes this hard: evaluating the validity of a limited size bundle (e.g. 3) to be picked out of a large set of validated theories (e.g., out of 10.000) implies that it is better than *any* other combination. In practice, the bundle would have to be compared to an outstandingly large alternative set (e.g., for 3 out of 10.000, the alternatives amounts to roughly 10^{12} , a trillion) making it hard since it implies non-human time and scales.

Notice that the larger the set to select (e.g., from 3 to 10 to 100), the larger the combinatorial. The only case when the combinatorial is not divergent in practice is if having to choose only one rule (still would have to parse all possible rules individually), or if assuming that one can hold all rules simultaneously which would amount to having full rationality. Interestingly, this detail contributes to the assumption that actors rely on a small set: whatever the size one choose, the problem is intractable in all cases except the unacceptable degenerated cases of having full rationality. For those that worry that actors can instantiate more than a handful of theories, assuming a complex and rich set would still generate divergent combinatorial, just even more intractable...

How would one make such selection of a few rules out of a large set? Sciences that have been confronted with similar combinationally difficult problems have explored alternative solutions, for example, Genetic Algorithms (GA, Holland, 1975). In practice, a GA requires a massively large group of actors experimenting with various combinations of the rules, exchanging those rules among themselves, and assigning a reproductive advantage to individuals that over-perform. GAs have been demonstrated to converge efficiently towards local optimum, given that pure optimality remains out of reach in most such hard problems. Local optimums are solutions for which no local improvement exists, i.e., no better strategy by changing only a few parameters by small amounts.

Genetic algorithm have already been invoked in organizational studies as a solution to select sets of

routines (Bruderer & Singh, 1996) or sets of strategy rules (Rivkin & Siggelkow, 2003). GA are most commonly performed in computer simulations, where agents enact rules, perform, exchange their rules, etc. until they converge onto a (probably local) optimum. However, the context of entrepreneurship provides exactly the *natural conditions* of a GA. The expression of keystone rules (by direct contact or through the press) is the exchange mechanism; entrepreneurs experimenting provides variations; and the selective pressures of entrepreneurship occur through death of firms, exit of entrepreneurs; finally, reproductive advantage condition occurs since voice is given in priority to successful entrepreneurs (Aldrich, 1999:chap. 4). The ecology of memes perspective (Weeks & Galunic, 2003) concurs with this interpretation since it identifies such types of expressed belief as being subjected to evolutionary processes which would occur jointly to the evolution of entrepreneurs. Overall, one can interpret the *entrepreneurship context as constituting a natural genetic algorithm where both individuals and their beliefs are co-selected*. Therefore, the emergence of a small bundle of rules that are commonly cited by entrepreneurs suggests that such rules are adaptive, at least relative to the constraints that entrepreneurs have in carrying and exchanging rules.

This formal reasoning suggests that the rules that emerge from entrepreneurs exchanging their keystone rules would constitute a locally optimal bundle. This reasoning does not validate per se the bundle as being optimal, as no method exists to actually validate optimality in such massively combinatorial problems. To be clear, positivistic approach can be applied to theories of action (e.g., evidence based management in Pfeffer & Sutton, 2006), but would at best determine, which of a selection of sets is more efficient (e.g., which, of two sets [A, B, C] vs. [D, E, F], is more efficient). However, this approach is completely mute about whether this is even a local optimum. For instance [A, B, C] being better than [D, E, F] does not preclude [A, B, D] from being even more efficient—yet again not even a local optima (and so on).

The identification of keystone rules could fill a theoretical gap between the rational decision and social construction perspectives. Relative to rational decision approaches that viewed entrepreneurs theories as systematically biased, the bounded rationality constraint is now externalized and made a defining constraint of theory construction. Moreover, the emergence of shared belief that was considered by social constructionist as an institution devoid of optimality is now made a mechanism to resolve a hard problem: the identification of bundle of theories of the world that can actually be instantiated by actors.

Empirics

Entrepreneurship potentially embodying the natural conditions of a Genetic Algorithm motivates to explore keystone rules in the entrepreneurial context. We conduct a grounded theory exploration of entrepreneurs expressing their theories of action based on archival and primary interviews, which we categorize to identify the most common theories of action in that context. Finally, we discuss the epistemic properties of those candidates of keystone rules.

Full details about the methods and the results are available from the authors. This process allowed extracting from a broad set of expressed theories of action, a kernel of meta-rules, summarized in Table 1.

----- Insert Table 1 roughly here -----

Findings

Dominant Meta-Rules

Three meta-rules emerge strongly, mentioned in more than half of the cases, hence constitute good candidates as keystone rules in this context. These will be the one for which we will provide further

substantive details and epistemic analysis.

The first most common meta-rule states that the entrepreneur should embrace the possibility of failure. It appears as the aggregation of three relatively distinct sub-rules. The first one suggests that entrepreneurs should expect failure. Notice that the wording often varies, for instance, failures are sometimes evoked as “mistakes”, or the concept of failure appears at firm level, individual level, or innovation / product level. The second rule concerns learning from the failure that has been predicted to occur from the first rule, with a large proportion of actors stating that failure matters in that it is a crucial path to learning. The third rule states that one must find the strength to try again after failure, both regarding the humiliation of the first failure, and regarding the possible repeat of such failure. Overall, this cluster about failure echoes generous literature in entrepreneurship research regarding failure (e.g., Shepherd, Wiklund, & Haynie, 2009).

The second most common meta-rule concerns the idea that entrepreneurs be undeterred by negative feedback, even though the tension with the necessity to accept and learn from such feedback is acknowledged. This rule is often complemented by a sub-rule that entrepreneurship requires a significant amount of irrationality. This second meta-rule complements tightly the first meta rule, whereby entrepreneurs have to stick to their gun not only regarding long run market selection (i.e., possibility of failure) but also regarding short run interactions (i.e., possibility that the rest of the world disagree with the venture). Scientific literature has explored related issue for instance on the relationship of optimistic overconfidence and performance (e.g., Simon & Shrader, 2012).

The third most common meta-rule concerns the best motivation for entrepreneurship, associating success to “passion” (i.e., a deep emotional motive quite distinct from expecting monetary rewards), mainly as a mediator of the persistence into the entrepreneurial effort. It echoes significant literature linking entrepreneur with passion (e.g., Cardon et al., 2009; Chen, Yao, & Kotha, 2009). A typical counter to this rule would be nominally that entrepreneurs act out of greed, which is reflected in the data when some interviewees clearly contrast passion to money. While being present, the alternative that entrepreneurs should act out of greed is exceptionally disclosed. This signals an issue, discussed below, whether social desirability could play in such dynamics.

For the record, those last two meta-rules also have varied ways to be expressed but with no clear sub-structure as for the first one. So the summary of Table 1 only sub-divides the first rule.

Negative Epistemic properties of keystone rules

We now turn to exploring the epistemic properties of the rules, and start first with their main negative characteristics: fuzziness, internal contradiction and external invalidity.

Fuzzy categories - Categorizing the rules is made somewhat subjective because of semantic issues. Many of the keystone rule expressions tend to be imprecise, embedded in everyday language. For instance, the meta-rule regarding failure will sometimes be worded as “failure,” other times as “error,” still other times as “mistake,” and so forth. The rule also varied on various properties. Sometimes, they are descriptive, associating a characteristic with the nature of the entrepreneur (e.g., “an entrepreneur is a risk-taker”). Sometimes, they are normative, associating the same characteristics with success. In addition, sometimes they fall into symbolic range (e.g. the “be foolish” rule by Steve Jobs as an example of a rule falling into our “self-determined to the point of irrationality” keystone rule category).

Inconsistencies - Inconsistencies and biases have been at the heart of the study of heuristics (Kahneman & Tversky, 1979). Accordingly, our study of keystone rules unearths various inconsistencies, beyond the fuzziness already identified above. The most obvious example occurs on the issue of rationality. The meta-rule #2 that entrepreneurs should exhibit some stubbornness and resistance to outside influences is dominant, yet simultaneously, the rule also persistently

mentions that entrepreneurs should learn from feedback. Most entrepreneurs who had mentioned, “do not listen to advice”, when explicitly asked about it, acknowledge the benefit of feedback and advice. This creates an interesting contradiction whereby the natural rule expression exhibits interesting inconsistencies, at least across actors and sometimes at the level of individuals. Assuming this might signal a case of “ambidexterity” (Tushman & O'Reilly, 1996), these two—apparently contradictory—aspects can be integrated into a single keystone rule.

Factual Inaccuracies – Some of the interpretation of the rules can make them factually untrue, or at least controversial or difficult to support. For instance, the idea that entrepreneurs should be “risk takers” emerges frequently, yet research has demonstrated that entrepreneurs are indeed more risk averse than non-entrepreneurs (Hongwei & Ruef, 2004). Similarly, the rule “be self-determined to the point of irrationality” could be interpreted as a typical case of optimistic overconfidence, which has been shown to lead to detrimental outcomes (Simon & Shrader, 2012). Finally, even though passion has intuitive appeal, its actual effects have been difficult to pin down (Chen et al., 2009).

However, notice that each rule can lead to various interpretations, which itself can lead to a large literature with various branches to consider. For each of them, as exemplified above, probably one could find a contradiction to a specific expression of the general idea. Hence, attempts to determine the validity of the rule in its general expression probably does not make sense, and many of its derivation could be easily rejected in a classical scientific epistemology.

Interesting Epistemic Properties of Keystone Rules: a Difficult to Reject Rationality

Even though properties of keystone rules confirm the general perception that they cannot—a priori—be attributed validity in the classical scientific sense, our analysis suggests some positive epistemic properties that might make them useful and adaptive.

Cognitive Dimensioning and Generativeness – By construction, we have probed the apex of the belief system of entrepreneur. Both in the archival data and in our primary interviews, entrepreneurs spontaneously exhibit the desire to organize and communicate their belief in a tiered system, with a high prevalence of them identifying a small set of belief as being “fundamental”. This signal is consistent with our assumption that boundedly rational individuals form and use a set of keystone rules to guide the many more actionable heuristics that have been identified by research in specific contexts.

This tiered schema has strong analogies to the idea of second-order learning (Argyris & Schön, 1978), whereby some cognitions would play a disproportionate and generative role towards the rest of the cognitive structure (Alessi, 1987). Here, if acted upon, the rules in the bundle we identify (acceptance of failure, role of passion and self-determination up to irrationality) orient the mechanisms of learning and have significance consequences on entrepreneurs’ performance trajectories.

Polymorphism – In the ambiguities of their formulation, each keystone rule potentially carry a spectrum of beliefs. For instance, the “be prepared to meet failure” theory of action is interpreted variously across actors but also variously intra-individual. For instance, one actor might mention this idea in a manner that might appear precise (“Entrepreneurs like risk”) but then moves smoothly around the spectrum of the meta-rule, and ‘explains’ the previous sentence as meaning that “they should not fear failure”, finally stating that the key point is to “be able to recover”. Therefore, what could be measured as an isolated cognition if trying to capture a narrow idea is actually the source of a large spectrum of cognitions, which are subsumed in the keystone rule. Hence, such keystone rules can be viewed less as a bundle of isolated and well-defined theories, but more as exemplars of a polymorphic and broad idea.

Self-fulfilling - The keystone rules also have the property of being self-fulfilling prophecy—or as

being “performative” (MacKenzie & Millo, 2003). For instance, the statement that entrepreneurs “do it by passion (not for money)” could be challenged whether this reflects wishful thinking. However, its expression implies a strong desirability dimension that will affect the dynamic of actors and beliefs in the field. In particular, since our interviews incorporated actors who are also in position to judge and select entrepreneurs (i.e., venture capitalist), the keystone rules appear as having an influence on who is likely to get funded and who is not. Thereafter, the proportion of entrepreneur that are selected or—at least—learn to profess that they do it by passion is bound to grow, just by the selection mechanism.

Obviously, this self-fulfilling property relates to the narrative nature of the communication by which the GA is conducted, and would constitute ante-narratives in the sense of Boje (2001). More generally, the genetic algorithm amounts to an *institutionalization* of the field: the process by which a social calculation (as in Callon & Muniesa, 2005) help resolve cognitive limitations then becomes enforcing by itself (iron cage in Weber, 1904) triggering isomorphism (DiMaggio & Powell, 1983 [1991]) across actors—here a relative homogenization of the belief of individual entrepreneurs. This isomorphism might then be reinterpreted not anymore as an exogenous norm, but more as a powerful endogenous social resolution of a hard cognitive problem.

Induction

The above empirics offered a grounded illustration of the nature of keystone rules. They also provided the impetus to conduct a theoretical induction to revisit the evolutionary nature of the processes leading to the emergence of keystone rules, in order to consider the structure and dynamics those may exhibit.

Evolutionary Process Implications on Selection Level

Let us consider one of the most fruitful lines of enquiry in evolutionary biology, the question of the selection level. It appears that biological selection may occur both at species level (a bundle of genes) as was originally theorized by Darwin (1859) as well as at the individual gene level, as advocated by Dawkins (1976). This nuance translates here to whether the selection occurs at rule level, or at the *bundle of rules* level. Traditionally, the memes and simple rules perspectives have considered rules in a unitary manner. Even if rules are understood to fit into contexts of cultural or normative nature, the focus is on the rule and what could lead to its emergence. Evolutionary perspective suggest that indeed rules might evolve not so much for their individual “fit” but because of a collective fit, i.e., interactional effects leading to co-occurrence or incompatibility of rules.

In the current empirical setting, the set of rules that emerges differs from alternative possible sets that have been appearing in previous literature, such as the effectuation or the causation clusters (see Sarasvathy, 2001a, onto which we will elaborate further down below). For instance, Sarasvathy identified a “causation” cluster of rules of entrepreneurship that underlie business school education to include, for instance, the need to “construct of business plan” and the belief that the goal of a venture is to “maximize shareholders’ returns” (Sarasvathy, 2001a:251). Without getting yet into the comparison, one interpretation why such rules appear so rarely in our empirics could have been that the emergence is the result of specific contexts or circumstances influencing the selection of each rule.

However, we have to consider the possibility that a rule may emerge in presence of the other, or may be hindered if another were present, i.e., that the unit of selection is a collective of rules. For instance, there could be a rationale for “passion” to appear conjointly to “embracing failure”; and “failure” may make sense conjointly to “self-determined up to irrationality”. In addition, there could be a rationale for “passion” to exclude “maximization of returns” and for “embracing failure” to fight “construct a plan”. Such interactional effects shape the emergence of rules in ways that

have not yet been studied. Overall, this leads us to propose the following:

P1: keystone rules will also be selected at bundle level, with positive and negative interactions among rules shaping the emerging set.

The Paradigmatic Structure of Simple Rules

The emergence of keystone rules constitutes a complex phenomenon. On the one hand, as with all practitioners' beliefs, keystone rules are probably biased or socially polluted in various ways. Some scholars might even argue that, as a result, the most we can establish are the mechanisms of their social construction. On the other hand, the data and the above induction suggest that they can have positive properties that would make them adaptive to the constraints on the rationality of actors.

The possibility that keystone rules are selected at bundle level has implications on the dynamic of changes. Selection of the optimum set will obviously depend on the environment, but the possibility of changing an isolated rule depends on the interaction with other rules, which makes that a bundle will continue to dominate long after each of its individual rules are not anymore the most efficient individually. Only once the environment has moved enough for an alternate set to be more efficient, would the change occur. Furthermore, because of interaction across rules, the alternate is likely to differ by many rules simultaneously, making the change to appear rather rapid compared to a linear model where change would occur progressively, one rule at a time.

Such dynamics occurs because of convergence of GAs towards local optima, which implies a reasonable stability with solutions robust to small changes. Conversely, because the solution may hold even when conditions shift gradually, this implies that once a solution representing a better local optima appears in the population, it is likely to be significantly far from the previous solution. In addition, the population would join it relatively rapidly since the tension towards it has been accumulated and can be released all at once.

All those dynamics make for what has been labeled punctuated equilibrium of systems with evolutionary dynamics (Eldredge & Gould, 1972). This phenomenon has already been demonstrated in organizational studies for instance regarding archetypes of ventures (Ambos & Birkinshaw, 2010) or organizational configurations (Siggelkow, 2002). However, since we study here theories of the world, the closest matching concept would be the description of science as proposed by Kuhn (1970), except that instead of probing actual scientists, we have been probing the entrepreneurs as "naïve scientists".

Kuhn shifted the representation of science from one where valid theories accumulate rationally and gradually (Popper, 1934 [2002]) to one of a social practice where changes occur very marginally for long periods ("normal science") before major *paradigmatic* changes occur rapidly when the core set of assumptions that "provide model problems and solutions for a community" are wholly altered (Kuhn, 1970:10).

Interestingly, this study suggests a possible similar dynamic in the logics of action in management studies. Our field might have entertained a Popperian metaphor whereby the practitioner should thrive for a goal of perfect rationality informed by the sum of a large body of scientifically validated rules. Such perspective is advocated most explicitly by an *evidence-based management* perspective (Pfeffer & Sutton, 2006) that exhort managers to embrace the scientific method and results for management practice.

By contrast, and consistent with a Kuhnian perspective, we suggest that actors such as entrepreneurs may be under the spell of a small bundle of beliefs, elaborated collectively to identify an efficient theory of the world—an efficiency teleology—hence the punctuated dynamics. By implication, an organizational field such as entrepreneurship could be analyzed as a set of

communities acting according to different *paradigms* (i.e., bundles of keystone rules) that mesh social construction and rational decision-making, in a theoretical hybridization that warrants further research. We therefore propose:

P2: the sets of keystone rules have paradigmatic dynamics, evolving through punctuated equilibrium and simultaneously embodying social construction and rational efficiency

Discussion

Entrepreneurial Paradigms: Previous Occurrences

The current study presents some similarities with the effectuation perspective (Sarasvathy, 2001a). First, by focusing on the constraints on elaborating optimal rule sets, we study a key mechanism towards the elaboration of normative theory at the heart of effectuation paradigm (Sarasvathy, 2001a). Second, even though the methods do not perfectly match, here qualitative grounded theory building vs. quasi-experimental lab protocol for Sarasvathy (2001b), they rely nevertheless on observing practitioners (qualified as “expert” in effectuation research, and here as “experienced”) and elaborating on their mental models.

Regarding the substantive findings, effectuation research identifies a dichotomous contrast between two paradigms: causation vs. effectuation. Sarasvathy took position against a prevalent world view based on predicting and planning the future—i.e., *causation*—and posited that actors would use the alternative effectuation approach whereby planning is downgraded and attention shifts to a *effectuation* (Sarasvathy, 2001a). The causation logic was described as following a logic of (Sarasvathy, 2001a:249): start from a goal; determine effective means; take into account constraints on means; select (usually a maximization of expected returns). The alternate effectuation logic that emerged can be summarized by its five *effectuation principles* labeled idiomatically as follow (Sarasvathy, 2008): “patchwork quilt” (e.g. use existing means); “affordable loss” (e.g. commit only what one can afford to lose rather than plan expected returns); “bird-in-hand” (e.g. focus on those willing to commit something to the project); “lemonade” (e.g. embrace surprises); “pilot-in-the-plane” (e.g. focus on what one can control and act on).

As far as mapping those principles to the keystone rules emerging here, the overlap is not perfect. First, the “embrace possibility of failure” keystone rule implies both “lemonade” (embrace surprises) and “affordable losses”. Second, one can notice that the “self-determined to the point of irrationality”, with its sub-rules of “not listening to advice” and “being irrational”, has strong similarities to the key idea in effectuation ‘not to attempt to plan the future’. Regarding mapping of the other elements, some of the effectuation principles could appear further down the pyramid of beliefs—typically for instance the focus on existing means was mentioned in our interviews—but do not appear in our empirics as keystone elements. Reciprocally, the element of passion (not money) that appears in our keystone rules does not appear, a priori, to have an equivalent in the effectuation paradigm.

However, effectuation research provides an interesting echo to this study by clearly structuring epistemology of action around two distinct bodies of beliefs (causation vs. effectuation). By doing so, it support the need of a distinct construct such *paradigm* of action as constituted of bundle of keystone rules. In the view of effectuation scholars, some actors are under the spell of a causation paradigm, and some others of an effectuation paradigm. Such binary structuration of logic action have already been evoked in previous organizational studies, for instance “theory X vs. theory Y” study that contrasted the world views of managers as a binary possibility of either “workers intrinsic hate work” vs. “workers find satisfaction in work” (McGregor, 1957). Along the same line, Miles’ “theories of management” (Miles, 1975; Yoder et al., 1963) proposed a three-tier model (Traditional vs. Human Relations vs. Human Resources) and formalized dimensions to qualify those heuristics (assumptions, policies, expectations).

In that sense, effectuation *principles* may not match clearly the *keystone rules* that emerge in our sample but they embody a *paradigm*, and can be clearly contrasted to the canonical paradigm of business school, i.e., causation. Using that framework, we can reinterpret all three paradigms as they could be decomposed in keystone rules as summarized in Figure 1.

----- Insert Figure 1 roughly here -----

When comparing the elements of the three paradigms, a pair-wise contrast appears. As intended originally by Sarasvathy, effectuation and causation can be opposed by the differences between: “constructing plans” vs. “embracing surprises” and “planning for (affordable) losses”; “focusing on resources at hand” vs. “deriving resources from the goal and the planning that it entails”; “focusing on what one can control and those willing to commit” vs. “optimizing action plans by a maximization logic”. Furthermore, effectuation claims agnosticism towards goals vs. the central role they play in causation paradigm.

In similar manner, the paradigm that emerges from this study can be opposed too to the causation paradigm: “doing by passion” vs. “maximization logic” (and its hint of monetary rewards); “embracing failure” and “possibility of irrationality” vs. “the construction of a plan” and “following an optimization logic”. The notion of resources did not emerge as a keystone belief in the current paradigm whereby it appears both in the causation and effectuation paradigms.

Overall, the paradigm that emerges here resembles very much effectuation in its contrast to the causation paradigm. The notable differences are that effectuation put an emphasis on using resources at hand (just absent here) and that the current paradigm put a substantive emphasis on the goal being derived from intrinsic motivations (hinted to be emergent in effectuation). On that basis, the two approaches land in a very compatible approaches even though substantive differences remain.

Contribution to existing literatures

This study contributes to several management scholarship perspectives. To managerial cognition literature, the paper contributes by suggesting the importance of keystone rule and their bundling into paradigms, and by focusing on a hierarchy of simple rules. Furthermore, this study suggests specific characteristics and peculiarities of keystone rules, in particular relative to their emergence that may not be so grounded in experiential or vicarious learning (Bingham et al., 2007; Bingham & Eisenhardt, 2011) but more from a social calculation. It also contributes to institutional theory by revisiting the social construction interpretation of shared beliefs in a field (here entrepreneurship). It proposes a structuration mechanism (Barley & Tolbert, 1997; Giddens, 1979) linking individuals to a field construction, in a way not devoid of function even when it may appear somewhat irrational (e.g., Abrahamson & Eisenman, 2008; Staw & Epstein, 2000). In a larger sense the keystone rule set can also be reinterpreted as logics of actions (DiMaggio, 1997) similar to the logic identified and advocated by Sarasvathy, i.e., opposed to the causation institutional logic that permeates business schools and large established firms (2001a).

Limitation and Future research

The current study implies limitations not only on the number of rules but also on the ability to carry multiple paradigms of intrinsically different spin. For instance, it may be that additional rule can be carried but that the causation paradigm remains intrinsically incompatible with the effectuation paradigm, hence difficult to learn, enact, and practice simultaneously for practitioners. Future studies could explore the conditions and context that make paradigm the most relevant model of actors, by contrast to alternative possibility that actors can act on a much broader base of rules. Context (Entrepreneurial vs. organizational), education, intelligence, stress, etc. may all be factors that could determine the relevance and breadth of keystone rule sets. Some practice oriented

studies have already suggested the existence and described such clusters (e.g., Denning, 2013; Raynor & Ahmed, 2013), which may constitute interesting empirical basis to further studies of management paradigms.

A limitation of the current qualitative approach was that we attempted only to observe the existence and character of keystone rules; we did not attempt to measure and quantify the cognition, since we gave priority to the emergence of grounded theory and the formal reasoning necessary to interpret it. Future research might explore further ways to measure and validate the meta-rules beyond just observing their emergence. If establishing validity in absolute sense will be difficult, one can nevertheless conduct comparative studies of different bundle, both for descriptive purposes (how the bundle evolve with culture, with experience, etc.) and for normative purpose (which of bundle A or B is more efficient).

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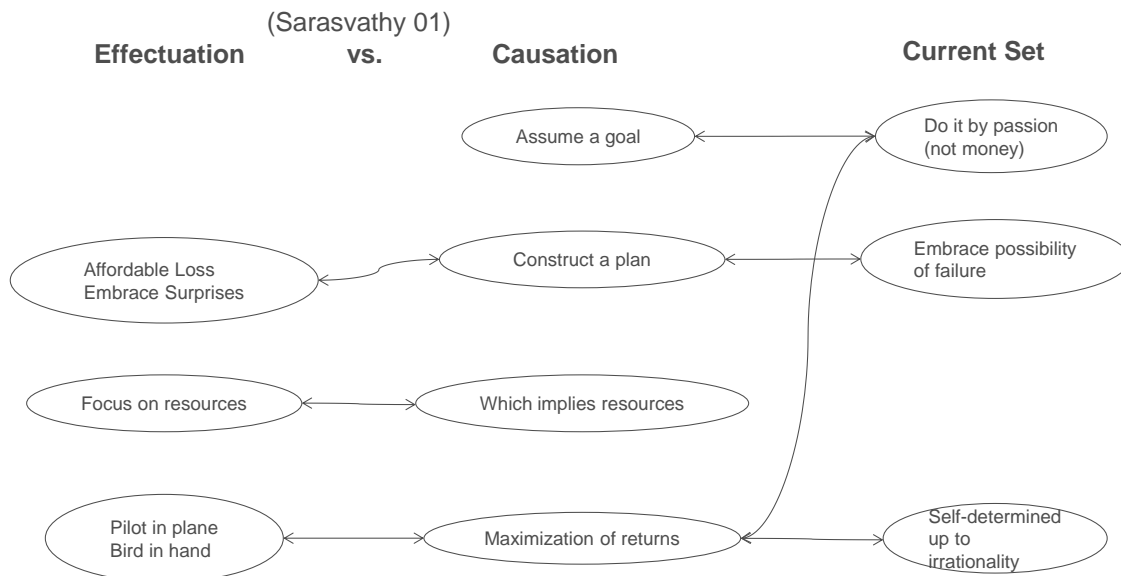
TABLE 1

Description of Keystone Rules

Rule (level 2)	Rule (level 1)	Example citations
Embrace possibility of failure	Be prepared to meet failure	"One of the most important attributes to being a successful entrepreneur is the ability to learn how to be wrong and fail fast" (Th)
	Learn from your failure	"Make the mistakes and learn from them. So what if your business fails? Your next one will be even better than your first, and the next one after that will be even better again. Essentially, treat it as a learning experience, one that teaches lessons money could never buy. And over time wisdom shall enable more fruitful outcomes" (Gu)
	Be able to reboot after failure	"The trait of not quitting, ever. You can never give up as an entrepreneur. If their first business goes under, they start another one. If their seventh business goes under, they start another one, and so on." [Bro]
Do it by passion (not money)		"In my view wanting to be an entrepreneur just for the purpose of getting rich is not a strong enough motive to survive the journey ahead" (Kha)
Be self-determined to the point of irrationality	Do not listen to advice	"The difference between founders and professional managers is that founders are stubborn about the vision of the business" (Bez)
	Be Irrational	"the best [entrepreneurs] are a bit contrarian, sometimes unreasonable" (Bot)

FIGURE 1

Comparison of Three Exemplar Paradigms



MEANS, VARIABILITY, AND EXTREMES: REINTERPRETING THE ROLE OF RESOURCES IN NEW VENTURES

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Means, Variability, and Extremes: Reinterpreting the Role of Resources in New Ventures

ABSTRACT

Organizational theory often focuses on the average effects of constructs on outcomes. However, despite the many benefits of such an approach, the complexity of our world implies the occurrence of extreme outcomes that can violate what was predicted regarding average outcomes. Although our theories acknowledge variability, little research has thoroughly examined the effect of factors on outcome variability. In this paper, we discuss the study of variability and illustrate this discussion with an empirical example in entrepreneurship, exploring the role of resource abundance in human and financial capital on performance variability and the incidence of extreme outcomes. We explore these questions using a panel data set of 4,928 new firms followed over their first four years to verify that canonical human and financial resources have little relationship with mean performance but rather with performance variability across firms, and with the likelihood of extreme performance outcomes such as fundraising or failure.

INTRODUCTION

Organizational theory and research often focus on the average effects of constructs on outcomes (Mohr 1982). Despite the many advances such an approach has produced, the unusual complexity of our world means that sometimes our collective attention to average effects can be misleading. Extreme outcomes, such as Google's initial public offering (IPO), Apple's iTransformation, or Enron's implosion, characterize the foundations of many of our most frequently discussed stories, and extreme positive outcomes are the unabashed goal of many actors, particularly entrepreneurs. In addition, sometimes constructs have contradictory effects. For example, consider the relationship between resource abundance and new venture success. On the one hand, greater resource abundance may enable young ventures to overcome the liabilities of newness and smallness (Stinchcombe 1965), helping them weather early development, respond to unforeseen shocks, invest in production capabilities, or grow more quickly than competitors (Brown and Eisenhardt 1997, Eisenhardt 1989). On the other hand, resource abundance can also be negative, with research suggesting that resources can cushion organizations from the realities of the environment, facilitating tangential pursuits or apathy that leads to their eventual downfall (Barnett and McKendrick 2004, Cyert and March 1963 [1992]), or it can even constrain the ability of the organization to respond to novel developments affecting their industry (Christensen and Bower 1996, Henderson and Clark 1990, Leonard-Barton 1992). It would then seem that increased resources may imply an increased divergence in outcomes, some firms performing far better and some performing far worse. This example suggests that despite the fundamental focus on averages in our field, the effects could be conceptualized to occur on the variability—which would then play an acknowledged but underexamined role in organization studies.

Even though various approaches are possible to address situations where the mean outcome does not capture the richness of the phenomena, most attempts employ a contingency approach whereby the effect of a construct is moderated by an additional factor. In the example of resources, the effects of this factor on performance might be moderated by industry complexity (George 2005). Certainly, such an approach has benefits and enriches our theories. However, accounting for the many sources of variability in a complex world can

sometimes require a growing list of possible contingency factors, and it soon becomes an equally complex theory. Furthermore, when taken to its furthest logical conclusion, implicitly, this dominant approach implies that unless someone controls those intervening factors, prediction will not be available.

Fortunately, an alternate approach provides a way around this problem: it amounts to framing the problem as contingent on the outcome. Instead of trying to untangle expectations of improving outcome on average (better versus worse outcome), one can aim to untangle expectation of average outcomes versus extreme outcomes—basically, to predict outcome variability. Since in most contexts we are focused on only one type of (extreme) outcome (for instance, bankruptcy or a major fund-raising event), building inferences about extreme outcomes can provide fruitful theory. For instance, Arora and Nandkumar (2011) suggest that greater opportunity cost for the entrepreneur (a proxy for quality, a human capital resource) might increase the chances of both quicker success and quicker failure. Although such effects are contradictory on the surface, a variability theory subsumes the effect of the factor that would tilt toward one or the other extreme, but with the benefit of providing a robust inference about the extremes (robust because it does not need to control for an ever-growing list of contingency factors). This amounts to making inferences linking factors with *variability* of outcomes,¹ beyond the traditional inferences on average outcomes.

Considering effects on variability matters to organizational scholarship because increased variability implies the potential for more extreme outcomes (March 1991). And extreme outcomes (threshold, reference points) are often the actual targets of organizational actors (Hu et al. 2011). However, because most theoretical and empirical work has an intrinsic grounding in a means-based, expected-value conceptualization of probability theory, nuanced effects between the mean and the extremes are likely to have been missed (Denrell 2003, Kalnins 2007). Beyond the necessary study of moderating factors, it may be possible to develop theory that is more generalizable and robust by conceptualizing the effects of factors on the variability of outcomes.

VARIABILITY AND EXTREME OUTCOMES

A tricky issue often challenges management scholars. On the one hand, for the most part our research offers insights into the average effects of constructs on a theorized relationship. On the other hand, outliers invariably emerge to challenge our assumptions, often in the form of students or practitioners raising the question of how to emulate the success of the latest IPO or questioning how we account for abnormally low performance of a collapsing firm. Such extremes represent more than fascinating examples or troubling nuisances in the research process—they underscore a fundamental tension in the very nature of our theories. At the core, management theories are largely focused on explaining the average effect of a construct on outcomes, with limited attention to the effect of a construct on variability. While it may be tempting to label extremes as irrelevant or to try some methodological approach to correct for their existence (e.g., labeling them outliers, fat-tail

¹ Variability here is conceptualized as the spread of outcome, conceptualized at firm level, i.e., the construct captures the likelihood of a focal firm to differ (either in good or bad) from the average of the population. Its most common operationalization will be the second moment of the distribution of outcome, as much a firm-level measure as is the expected outcome—traditionally captured by first moment of the distribution. We discuss mean and variability in cross-sectional terms, i.e., the spread of outcomes observed across a population of firms, consistent with the theoretical and empirical operationalization of many studies, such as March's exploitation-exploitation study (1991). To be clear, this paper does not address issues of firm-level constructs such as intra-firm variability along time (i.e., volatility).

events, etc.), their very existence suggests the need to examine the effects of constructs on variability with as much attention as has been paid to the effect of constructs on averages.

Although theorizing about averages has its merits, such an approach does not fit all contexts because some of the most and the least desirable organizational outcomes are *extreme*, not average outcomes. Enron's bankruptcy or the Google's IPO are examples of extreme organizational outcomes. Because these types of outcomes have disproportionate impacts on stakeholders, knowing what triggers them may be just as important as knowing what improves outcomes on average. Indeed, extreme outcomes have captured the attention of practitioners and the general public, feeding a growing practitioner literature dealing with topics such as outliers (Gladwell 2008) or black swans (Taleb 2007). Collectively these works express the intuition that extreme success—or failure—cannot be treated and predicted like average phenomena.

Nonetheless, extreme outcomes present difficulties for scholars, mostly because they have been undertheorized (Baum and McKelvey 2006, Daft and Lewin 1990, Starbuck 1993). A few organizational theory perspectives focus—in substance—on extreme rather than average outcomes. For instance, the literature on *high-reliability organizations* (Weick and Sutcliffe 2001) and *normal accidents* (Perrow 1984) focuses on organizational catastrophes, and it takes extremely low outcomes as the focus of research. At the other extreme of the performance range, entrepreneurship literature often studies how new firms reach the IPO stage, building theories around these rare, positive events (e.g. Beckman and Burton 2008, Stuart et al. 1999). Because it informs the occurrence of extremes, predicting variability of outcomes in our theories and research represents an important need.

In entrepreneurial contexts, identifying sources of variability has particular relevance since variability is the driving factor of selective processes in an evolutionary perspective (Campbell 1969 [1998]). Entrepreneurship is subject to various evolutionary mechanisms (Aldrich 1999) and has been modeled as the locus of various types of selective processes (Eckhardt and Ciuchta 2008). However, rarely has the literature identified sources of variability that could have consequences on evolutionary outcomes. We will, therefore, provide an empirical illustration of the means-based versus variability-based approaches by exploring how, in an entrepreneurial context, canonical resources commonly assumed to have a positive effect on mean outcomes may actually increase variability.

There are several approaches to modeling variability. The dominant approach so far has been to introduce contingency factors into a theory, which has significant drawbacks. First, since the pool of possible contingencies may be bounded only by the various ways in which one could make effective use of resources, the theoretical body of possible contingencies could become equally complex; in layman's terms, the map may become as big as the world it attempts to represent. Although such a concern may seem outlandish, it may lie at the heart of many debates, for example, the debate about the potential tautology of the resource-based view (Barney 2001, Priem and Butler 2001). Critics of the resource-based view suggest that the theory's overdependency on contingency borders on tautology, since theory about resources often ultimately depends on good utilization of those resources (Bromiley and Fleming 2001). Therefore, simply introducing more moderating factors, many of which may fall under the umbrella of "good management," might lead to theory resembling *ex post* rationalization rather than *ex ante* prediction (Priem and Butler 2001).

In addition to a contingency approach, the mean-variance trade-off approach, popularized in management literature by March (1991),² offers a productive method to more

² Mean-variance trade-off has roots in operational research and appeared early in business literature in finance theory (Black and Scholes 1973), for instance.

robustly account for the effects of constructs on variability. Specifically, March (1991) suggests that the effect of a construct on the average and on variability may not move in the same direction. For instance, March introduced the idea that survival can diminish at the same time that mean performance improves (1991: chapter 3). An alternate approach to identifying a long list of contingency factors would be therefore to theorize about variability itself. Such theory encapsulates the effects of moderating factors that could account for the likelihood of one or the other extreme occurring, to the benefit of having a robust inference about the spread—robust because it does not depend on contingency factors, hence it does not assume *control*, nor *measure*, of the contingency factors. This approach suggests a theory construction that *subsumes* the contingencies to the benefits of building inferences linking factors to outcomes variability without intervening moderating constructs.

APPLICATION: THEORIZING EFFECTS OF RESOURCES ON PERFORMANCE VARIABILITY IN NEW VENTURES

One area where the contrast between means-based and variability-based approaches may be strongest is in the setting of new organization emergence (Schumpeter 1934). In contrast to mature businesses, new ventures often face an increased likelihood of severe negative outcomes, including death, as they struggle for legitimacy and survival (Meyer and Rowan 1977, Stinchcombe 1965). At the same time, new ventures also often have a chance of extremely positive outcomes, such as performing an IPO or getting funding from professional investors that expect such IPO (Beckman and Burton 2008). Given the tension between those extremes, examining the effect of resources only in terms of average expectation may overlook the effect of resources on the spread of outcomes, suggesting the need to explore variability effects, especially since even small initial heterogeneity in resources tends to amplify over time (Wernerfelt 2011). Substantively, we will focus on two canonical resources—human and financial capital—that are often assumed to have a positive effect on organizational outcomes, and we will explore their influence on the average, variability, and incidence of extreme outcomes.³ Our goal is not to provide uncontested empirical proof of the effect of resource abundance on performance, but to provide an empirical illustration of the potential variability effects embedded in constructs, that we normally discuss in terms of “average” outcomes.

Financial capital. Financial capital is a fundamental resource for new organizations, and probably one of the most robust indicators of organizational slack (Bourgeois 1981). In particular, capital at founding can help firms overcome the liabilities of newness and smallness (Bruderl et al. 1992, Levinthal 1991) and may be necessary for or at least facilitate bootstrapping activities. Such capital can be put to many uses, including expenditures, such as rent or salaries as well as investments such as equipment or buildings (Timmons and Spinelli 2008). Despite these many benefits, various arguments suggest the possibility that an abundance of financial resources may also decrease organization performance. For one, the organizational slack from excess founding capital may act as a security cushion against the need to change course or focus on activities that create more value (Bourgeois 1981, Cyert and March 1963 [1992], Kraatz and Zajac 2001). This problem has been well illustrated in

³ Various other classical resources could be considered, yet the context suggests focusing on the most canonical ones (money and people). For instance, if one were curious about the intellectual capital, the KFS data set contains a cross-sectional sample of U.S. firms, for which little patenting activities occurs, so this factor has little variance. If curious about organizational resources such as culture, it does not apply since we consider firms from their starting point; so many organization-level “antecedents” do not apply. With such a diversified sample of fresh new firms, the most obvious resources (money and people) were the common denominator around which we could conduct the exploration.

settings of radical innovation where firms, cushioned by revenue from their existing activities, do not respond to innovations until too late (Christensen and Bower 1996, Henderson and Clark 1990), as well as in new venture settings where financial resources can lead ventures to focus more internally (Patzelt et al. 2008).

Furthermore, excess financial resources may allow a venture to fall into search traps (behavioral with cognitive bias), such as engaging in tangential projects that distract the firm from the core task of creating value. To illustrate this danger, in their simulation of search after discontinuous change, Lant and Mezias (1990) suggested that firms can fall into a trap of wasting resources on costly, tangential search and mistakes. By contrast, having constraints may force the firm to be more creative and proactive. To illustrate, Zott and Qu (2007) found that entrepreneurs with fewer financial resources were more motivated to engage in symbolic actions—actions and value that might not have been deployed under conditions of greater resource abundance—that created significant positive benefits for their firms,.

As noted earlier, one approach to dealing with such contradictory influences could be the introduction of multiple contingency factors; however, such a contingency approach might not be perfect since it reduces parsimony and might ultimately amount to making *good use* of resources, a tautological tendency of resource-based theory critiqued by earlier authors (Bromiley and Fleming 2001, Priem and Butler 2001). However, these contingencies have much in common with a variability approach: the more equity that firms receive, the greater the gap between the firms whose performance improves and the firms whose performance declines due to resource abundance. For instance, feeling of cushioned is less likely with less equity (not much cushion anyway) than with more equity: hence the gap between the worst firms (that would be primed to complacency because of a large cash cushion) and the best firms (that will not make this mistake) will be greater with greater equity. Similarly, with little equity, the possibility to engage in tangential projects is limited (not much slack anyway); but with more equity, the gap between the worst firms (that could go out of bounds with easy money) and the best firms (that would not make this mistake) will be great. We could continue to reason in a similar manner for related contingencies, reaching the conclusion that for most of imaginable ways to (mis)use equity, more equity implies a greater gap between the worst firms (for which increased means implies increased spoilage) and the best firms, hence an increase in the dispersion of performance among firms, i.e., the cross-sectional variability. Therefore, we predict that:

Hypothesis 1: Greater financial capital in the form of founding equity will be associated with greater variability of performance across firms.

Human capital. A second canonical resource to consider is human capital (Becker 1964), which lies at the foundation of resources-based theory (Coff and Kryscynski 2011, Foss 2011). Even more than financial capital, human capital may be a central factor in the success of a new venture since it provides firms with knowledge, expertise, relationship, experience, and so forth (Amit and Schoemaker 1993). Of the several types of human capital, founders play an important role, contributing labor, knowledge, and other resources which significantly affect the future of a new venture (Eisenhardt and Schoonhoven 1990). For these reasons, founders are distinguished from other groups, such as simple shareholders, who usually contribute primarily financial capital, or employees, whose contribution is usually limited in scope and driven largely by salary. We will focus on simple and parsimonious measures of human capital: for the founding team, its size, and for the main individual (the “founder”) and whether he/she had a previous start-up experience (Garbuio et al. 2011)—clear and simple measures of human capital that have already been associated with outcome variability (i.e., extremely low and high outcomes in Singh and Fleming 2010).

Despite the many positive benefits, a mix of behavioral and organizational arguments suggests potential downsides to greater founder resources. To start, some studies have failed

to find an effect for the number of founders on firm performance (Beckman 2006, Hogan and Hutson 2005, Lange et al. 2007), signaling that if more founders bring benefits, this must also bring handicaps to balance those benefits. For example, more founders increases the potential for conflict, which slows decision-making processes and decreases performance. Furthermore, more founders means there are more individuals who perceive they have authority because of their status as founder and, therefore, there may be more conflicts or it may be more difficult to resolve conflicts (Brehmer 1976, Cosier and Rose 1977). In support of this view, Ensley et al. (2002) examined the effects of affective conflict in new venture teams and found that such conflict had a large, negative effect on sales growth.

The challenges of ownership transition are another reason greater founder resources may be detrimental: when conflicts arise, it may be difficult to make changes to the new venture team composition, since removing founders implies more administrative or personnel difficulties than removing simple employees. Existing empirical research suggests that removing founders, although common, can be a costly and complicated process (Boeker and Karichalil 2002, Wasserman 2003).

Shirking and communication issues are the third reason that more founders may be detrimental (Shapiro and Stiglitz 1984). Specifically, more founders means both more opportunities to assume work will be done by someone else (and, therefore, engage in tangential projects) and more incentives to shirk since a smaller share of the total reward will go to each founder. Finally, adding more individuals to the decision-making team may simply increase the complexity of communication and slow decision making, thereby decreasing performance (Bourgeois and Eisenhardt 1988).

Employing a similar argument as we did for the effects of equity abundance, the number of founders is a resource with many potential explanations and contingencies. We, therefore, chose not to theorize directly on each of these contingencies to avoid complexity (expansion in the number of contingencies to check) and ensure availability of prediction even if we cannot control for the moderator. Therefore, we hypothesize an increase of dispersion of performance across firms, similar to Taylor and Greve's (2006) work linking multimember teams (compared to individuals) to greater variation in innovation. We posit that:

Hypothesis 2: Greater human capital in the form of more founders will be associated with greater variability of performance across firms.

Notably, this hypothesis corresponds to Singh and Fleming's (2010) findings, with two notable differences. First, the context here is new ventures instead of inventor teams. More importantly, we hypothesize in this first step an increase in spread of outcomes (variability), whereby Singh and Fleming (2010) directly hypothesize effects on the extremes, a step we accomplish separately in the next section. Conceptually, we suggest distinguishing the fact that increase in variability in outcomes can be embodied by greater *spread* from the fact that it imply that particular types of *extreme outcomes* are more likely to occur.

Finally, besides examining human capital resources in terms of number of founders, we also examine human capital in terms of the primary founder's entrepreneurial experience (Bruderl et al. 1992). A human capital- or resource-based perspective suggests that experience in starting a previous firm—which we will label serial entrepreneur—should be a valuable resource when founding a new venture (Argote 2004, Forbes 2005). Even in the cases where an entrepreneur's previous experience was a failure (and for some observers, especially in the case where it was a failure), past venture experience should trigger learning (Dencker et al. 2009) or learning about one's quality, hence self-selection naturally eliminating those without proper quality (Stam et al. 2008). Hence, experience in prior ventures should imply an increase in performance for ventures run by serial entrepreneurs (Shane and Khurana 2003).

At the same time, there exists the possibility that serial entrepreneurs may actually decrease venture performance. For one, entrepreneurial success may be more an issue of skill than learning (Gompers et al. 2010), which would neutralize potential learning effects for repeat entrepreneurs. Worse, there may be an analogous “market for lemons” in the labor pool of serial entrepreneurs (Akerlof 1970). Specifically, successful entrepreneurs may behave differently than unsuccessful entrepreneurs, leading to the underrepresentation of successful entrepreneurs in the total pool of serial entrepreneurs. For example, assuming successful entrepreneurs have already established a value-creating organization, they are more likely to stay engaged with their existing venture rather than reenter the entrepreneur pool. Alternatively, if they exit their successful ventures, they may have generated sufficient wealth that they no longer need to work as entrepreneurs, hence exiting the entrepreneur pool by becoming investors or pursuing other activities. By contrast, unsuccessful entrepreneurs are often forced back into the labor pool much more quickly, leading to an adverse selection effect for prior founding experience. Hence, serial entrepreneurs may exhibit a negative selection bias that would imply lower venture performance.

In addition, some serial entrepreneurs may have an increased likelihood of engaging in negative transfer of prior learning (Plous 1993). Specifically, an entrepreneur with prior experience is likely to transfer learning from his/her prior organizational experience to his/her next venture even if it may no longer be appropriate, thereby decreasing performance (Finkelstein and Halebian 2002, Schilling et al. 2003). Indeed, either the adverse selection effect or the negative transfer effect may explain why prior research has struggled to find an effect for the prior experience of the primary founder (Song et al. 2008).

Therefore, similar to our arguments regarding equity and number of founders, serial entrepreneurs represent a resource where outcomes depend on many contingencies. So we chose not to directly theorize on the average effects of each contingency in order to avoid complexity (many contingencies to check) and implicit agnosticism (contingency theory does not predict anything if the moderator cannot be controlled). Rather, we hypothesize an increase in dispersion of performance across firms, consistent with other attempts to hypothesize variability, such as Adams et al.’s (2005) prediction of effect of CEO on performance variability.⁴ We, therefore, posit:

Hypothesis 3: The main founder being a serial entrepreneur will be associated with greater variability of performance across firms.

Expressing Inferences as Effects of Resources on Extreme Performance Outcomes

We suggested that canonical resources may have contradictory effects on performance in new ventures and, as a result, the more interesting effect on resources may be the effect on variability in performance outcomes. Consequently, the first set of hypotheses were expressed in terms of variability in performance rather than average effects, assuming performance can be measured in a continuous manner. Given such an effect on performance variability, a second important question is what those effects signify for other types of firm outcomes. The mean-variance trade-off suggests that if performance variability increases, both positive and negative extreme outcomes will occur more frequently (March 1991). Below, we identify some extreme outcomes—typically discrete extreme events—and express

⁴ We insist that all these hypotheses about variability are not similar to those of Bowman’s paradox (1980) literature that focuses on the relationship between performance—the mean of Y —and risk—the longitudinal variability $\Delta_t Y$ (e.g., Andersen et al. 2007, Bromiley et al. 2001). By contrast, the current study considers the effects of resource factors (X) on cross-sectional performance variability ($\Delta_t Y$) to predict whether the factor increases occurrences of extremely high (H) and low (L) outcomes. Where Bowman’s (1980) literature studies $Y = f_0(\Delta_t Y)$, the focus here is to establish $\Delta_t Y = f_1(X)$.

theory accordingly to the following logic: a factor that increases variability of performance in a continuous dimension should also increase occurrences of both discrete extreme negative and discrete extreme positive organizational outcomes. This will lead to a second set of hypotheses, this time formulated in terms of extreme outcomes instead of outcome variability.

Regarding extreme negative outcomes, the most salient to consider is failure. Because of the liability of newness, limited market power, and a firm's short history, death is a salient extreme outcome for ventures: it represents the end of firm operations and often a significant loss to equity and debt holders (March et al. 1958 [1993], Stinchcombe 1965). Furthermore, this is also an extreme threshold since it distinguishes the large majority of firms that survive from the minority that die every year (e.g., in our sample, roughly 18% of firms were identifiable as failures after three years). Thereafter, we will consider failure as a *negative extreme performance outcome*.

Regarding extreme positive outcomes, ideally we would like to examine a classical measure of extreme entrepreneurial performance: for example, whether the firm reaches IPO or the amount of capital raised during an IPO (Beckman and Burton 2008, Hannan et al. 1996, Stuart et al. 1999). However, our study relies on a representative sample of new ventures in the U.S., a general population out of which the chances of reaching IPO are mostly negligible (in many industries, making an IPO is simply exceptional). Therefore, as a proxy of extreme positive outcomes, we explore a related rare and positive event that is yet significantly attainable—whether the firm completes subsequent fund-raising activities. Such events can also be considered positive performance outcomes, especially when the funds come from professionals or independent investors (Beckman et al. 2007, Burton et al. 2002), which we label *premium investors*. Such funding events are rare since only a small fraction of new ventures successfully obtain such funding—most firms must rely on funding from other sources, such as friends and family (e.g., in our sample, less than 6% of firms can raise money from premium investors in the first three years after their establishment). Such professional funding events also constitute a positive signal—hence, a performance measure. Thereafter, we will consider fund-raising from premium investors as a *positive extreme performance outcome*.

Assuming equity increases outcome variability (see theory subsection above), equity should have a detrimental effect by increasing extremely negative outcome (failure), while having a beneficial effect by increasing extremely positive outcome (raising funds from premium investors):

Hypothesis 4a: Greater financial capital in the form of founding equity will be associated with a greater likelihood to reach extremely low performance, such as failing.

Hypothesis 4b: Greater financial capital in the form of founding equity will be associated with a greater likelihood to reach extremely high performance, such as raising funds from premium investors.

For the same reasons, the variability effect of the number of founders also suggests an increase in the likelihood of both high and low extreme performance outcomes.

Hypothesis 5a: Greater human capital in the form of more founders will be associated with a greater likelihood to reach extremely low performance, such as failing.

Hypothesis 5b: Greater human capital in the form of more founders will be associated with a greater likelihood to reach extremely high performance, such as raising funds from premium investors.

Finally, the variability effect of serial entrepreneurs also suggests an increase in the likelihood of both high and low extreme performance outcomes.

Hypothesis 6a: The main founder being a serial entrepreneur will be associated with a greater likelihood to reach extremely low performance, such as failing.

Hypothesis 6b: The main founder being a serial entrepreneur will be associated with a greater likelihood to reach extremely high performance, such as raising funds from premium investors.

If considering the overall set of hypotheses, it is noteworthy that the variants of each hypothesis set (a versus b) in H4-H6 go normatively in opposite directions, e.g., more equity is beneficial by increasing extremely high outcomes but is simultaneously detrimental by also increasing extremely low outcomes. These effects are assumed to occur concurrently across the population of firms. A second remark is to notice that one could consider H4-H6 to derive formally from H1-H3. However, this would be the case only if the dependent variable was the same across all hypotheses and the theory made strong assumptions about the distribution about that variable. By contrast, we theorize about different performance outcomes that cannot be perfectly correlated in the field. Hence, even relying on the same mechanism, the analytical separation of effects on variability (H1-H3) and on extremes (H4-H5) is warranted, both empirically as well as theoretically, and the two expressions should be considered on an equal footing until further empirical verification.

METHOD

Data from the Kauffman Firm Survey (KFS) was used to test the hypotheses and explore the empirical consequences of variability effects. The KFS is a survey of new businesses in the United States, initially based on a Dunn & Bradstreet (D&B) database of firms founded in 2004. This survey of 4,928 firms is the first large national sample of firm startups that is tracked over time. Extensive details about the actual indicators used and other methodological issues concerning the KFS are publicly available (Desroches et al. 2007), even though access to the full actual data is restricted to vetted researchers.

Full details about the variables, the methods and the results are available from the authors. The full analyses allow to verify the hypotheses, and are summarized in the Figure 1.

DISCUSSION

This study argues for greater theoretical attention to variability beyond the usual focus on means-based theorizing, as a complement to contingency theorizing. It also suggests that predictors might have negligible effects on average performance outcomes and, therefore, could easily be dismissed as irrelevant, yet could actually have significant effects on performance variability, hence on extreme outcomes. Despite its relative merits and flaws, the empirical analysis attempts to illustrate the greater theoretical need—the development of theory that addresses the effects of constructs on both the average and variability of outcomes while remaining robust to various, often unpredictable, contingencies. To illustrate, we discuss specific applications of these results in terms of resources, organizational risk, and theory development.

Making Theory Robust Rather than Contingent

This research illustrates an opportunity to make resource theory *robust* rather than, and sometimes in addition to, being *contingent*, which has both theoretical and practical appeal. For one, a moderation approach to some theories, such as the resource-based view, may trigger an endless addition of contingencies explaining how the *beneficial* effects of resources depends on their *good* use, which runs the risk of becoming tautological (Priem and Butler 2001). By contrast, hypothesizing about variability allows formulating a positive theory that subsumes such contingencies in their commonality: *resource abundance increases the gap between the best and the worst performers*. Interestingly, critics of resource theory have

suggested shifting resource theory toward a more evolutionary perspective (Bromiley and Fleming 2001)—a theoretical framework into which variability predictions naturally fit.

Variability theorizing also avoids the implicit agnosticism in contingency theories, which are always at the risk of making prediction inapplicable if the moderating variable cannot be predicted *ex ante* or controlled. By contrast, even without such controllability, the variability approach allows expressing a prediction about increased variability/stochasticity/risk, which is often sufficient to inform many field decisions.⁵ For researchers, this parsimony has the noticeable benefits of allowing development of theory that is robust (to the large range of contingencies) and positive (i.e., with verifiable consequences), which would be impossible otherwise.

To be clear, the variability approach is complementary to traditional contingency theorizing. A variability approach is more theoretically and empirically parsimonious and easier to exploit in practice, hence more robust. By contrast, a traditional approach explicitly modeling moderations allows us to fully exploit mechanisms. However, by requiring measurement and control of the contingency factors, it makes the theory complex and fragile: if one cannot control or measure the moderator, the theory cannot apply. The message here is not that moderation lacks merit since the current study relies on the numerous previous studies that painstakingly identified a wealth of ways to make good or bad use of resources. Rather, the variability approach, in effect, complements the substantial body of contingency theories by allowing the expression of a more parsimonious version of the same phenomena.

Opportunities to Improve Theory

The resources we examined seemed to have little effect on the mean but a significant effect on variability and extreme outcomes, which underscores the importance of theorizing about variability to better predict extreme outcomes (e.g., Denrell 2003, Kalnins 2007). Ignoring such variability effects would imply that a theory based on expected outcomes (e.g., average) might wrongly be assumed to apply to extreme outcomes and vice versa. To illustrate, our analysis highlighted two ways in which theory addressing variability may differ from means-based theory. First, we demonstrated how resources (financial and human capital) might have countervailing effects and, therefore, might be nonsignificant on the mean while having significant, and apparently contradictory, effects on various classes of extreme outcomes. Second, we observed how a construct (serial entrepreneur) could have a different effect on an extreme outcome (beneficial) than on the mean outcome (detrimental) because of variability effects.

Such nuances might not have been observable with a one-dimensional expected outcome approach—i.e., if theorizing only the mean or only an extreme outcome. Although theorizing on the mean will remain a mainstay of the field, our findings highlight how theorizing about the effects of constructs on variability can enrich and synthesize organizational theories. For example, the field is often characterized by significant debate about whether a construct or activity (e.g., acquisitions, resources, etc.) has a positive or negative effect on performance outcomes. This study suggests that such questions may benefit from a theoretical approach accounting for variability that may help explain

⁵ On that aspect, some readers might wonder whether the current study could nevertheless control for such factors. However, note that variability addresses two issues with resource theory: controls are difficult to capture and there is an endless list of factors related to “making good use” of resources. Hence, trying to control here (i.e., showing that the divergence of outcomes is actually linked to this factor) would be a defeating strategy: if the outcomes move accordingly, we are not much advanced; if they do not, the theoretical reasoning tells us that a wealth of other ways exist to make good use of resources, so nonverification of the moderation would not be a refutation.

apparently contradictory effects of a construct on organizational outcomes. Instead of making the resource theory contingent on difficult-to-capture factors, the theory, in fact, becomes contingent on outcomes: if one seeks great success, more resources can be beneficial; if one shuns significant failure, more resources may be detrimental. In some ways, developing theory that explicitly addresses the effect of variability on performance outcomes is one step toward unpacking the apparent “paradoxes” of performance (Meyer and Gupta 1994).

Future Research and Limitations

Future research could be conducted by focusing on specific resources and by choosing an empirical setting designed to prove causality with solid robustness. Rather, we aimed here to reconsider the predominant approach to theorizing and testing about average effects. We hope this study exemplifies how to frame a theory—illustrated here about resources—that is intrinsically robust to different contingencies linked to managing well and nuanced on different types of outcomes (fund-raising, bankruptcy, profit, IPO, etc.).

If our findings contribute substantively to theory and practice in entrepreneurial contexts, they also suggest new directions for organizational theory at large. Namely that various performance paradoxes might be illuminated by compacting various contingencies into a variability (i.e., risk) theory and that making theory contingent on the outcome—distinguishing average, extreme positive, and extreme negative—would match it better to the various shades of organizational outcomes.

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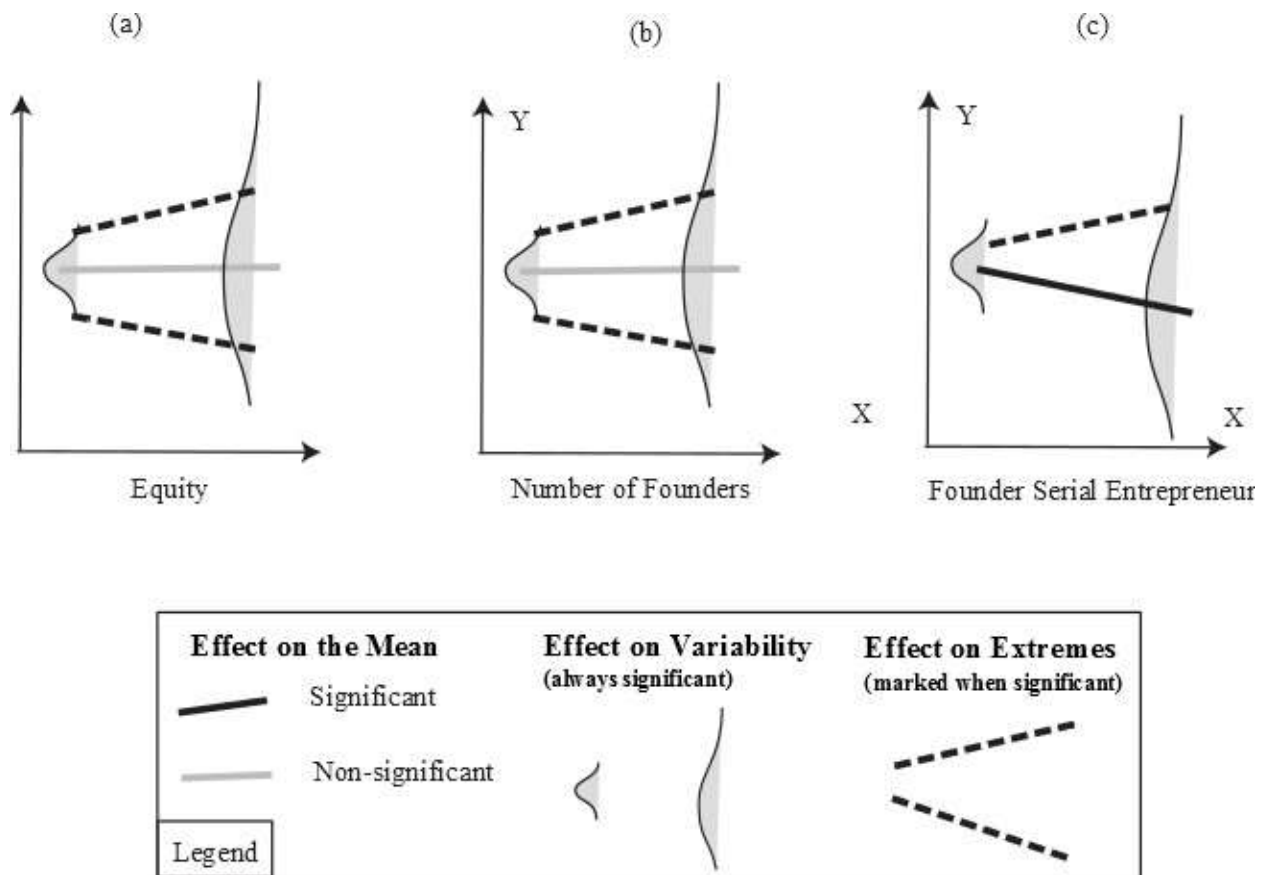
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Figure 1. Graphic Summary of Findings



**PUBLIC POLICY, SOCIETAL CULTURE, AND ENTREPRENEURSHIP: A
CROSS-NATIONAL PERSPECTIVE**

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Public Policy, Societal Culture, and Entrepreneurship: A Cross-National Perspective

ABSTRACT

This paper seeks to contribute to the institutions and entrepreneurship literature by examining the interactive influence of public policy and societal culture on new business creation from a cross-national perspective. It argues that public policy can help promote entrepreneurship by taking on a compensatory or reinforcing role in relation to societal culture. A compensatory role would be for public policy to make up for the absence of a supportive societal culture that encourages entrepreneurial behaviors. A reinforcing role, on the other hand, would be for public policy to add to or further enhance the impact of an already existing supportive culture. It also argues that societal culture has a more intrinsic and enduring effect on entrepreneurial behaviors and entrepreneurship types than public policy that seeks to provide economic incentives or reduce transaction costs. This is particularly true for the high value-added entrepreneurship types that involve new product and/or new technology development.

Introduction

Contrary to the widely held assumption that entrepreneurship brings innovation which in turn helps promote economic growth and enhance country competitiveness (Porter, 1990; Sanidas, 2005; Schumpeter, 1934), there exists little systematic empirical evidence in support of this postulated relationship. In fact, some recent published work (e.g., Acs and Szerb, 2007; Anokhin and Wincent, 2012; Valliere and Peterson, 2009) shows that not all entrepreneurship is the same and its economic impact varies according to the type of entrepreneurship involved and the institutional context in which it takes place. This finding points to the need for future research to recognize heterogeneity in entrepreneurship and examine its contextual antecedents and consequences in a systematic manner.

In their recent literature review, Cheng, Skousen, Minefee, and Jones (2013) observed that there is great diversity in the ways entrepreneurship is conceptualized and empirically studied. While some progress has been made to combine the different approaches into an integrated framework (Shane, 2012; Shane and Venkataraman, 2000; Venkataraman et al., 2012), the field is still fragmented in many ways from the definition of entrepreneurship and whether opportunities are subjective or objective to the boundaries of the field of entrepreneurship itself (Alvarez and Barney, 2007). These problems have made it difficult for the entrepreneurship field to accumulate knowledge across studies and advance as a scientific discipline. To help with the field's paradigm development (Kuhn, 1962; Lodahl and Gordon, 1973), Cheng and colleagues (2013) developed a three-dimensional typology that identifies eight distinct types of entrepreneurship with contrasting combinations of market, product, and technology characteristics. This typology can be used as an organizing vehicle to integrate the diverse perspectives and fragmented research findings currently existing in the literature. It also provides an analytical framework to facilitate systemic inquiry into the antecedents and consequences of different entrepreneurship types.

Building on the Cheng et al. (2013) typology, this paper examines the impact of public policy and societal culture on entrepreneurship from a cross-national perspective (Cheng, 1994; Child, 1981; Przeworski and Teune, 1970). Unlike previous research that focused on their independent effects (e.g., Levie and Autio, 2011; Peng, Yamakawa, and Lee, 2009), our investigation seeks to uncover the joint influence of public policy and societal culture on new business creation across different types of entrepreneurship. Specifically, we argue that public

policy can help promote new business creation by taking on a compensatory or reinforcing role in relation to societal culture. A compensatory role would be for public policy to make up for the absence of a supportive societal culture that encourages entrepreneurial behaviors. A reinforcing role, on the other hand, would be for public policy to add to or further enhance the positive impact of an already existing supportive culture. We also argue that societal culture has a more intrinsic and enduring effect on entrepreneurial behaviors and entrepreneurship type than public policy that seeks to provide economic incentives or reduce transaction costs. This is particularly true for the high-value added entrepreneurship types that involve new product and/or new technology development. These ideas are presented as testable propositions with illustrative discussions about their applicability to Japan.

Concept and Types of Entrepreneurship

Because of the great diversity in the ways entrepreneurship has been conceptualized in the literature, it is helpful to start with a brief review of the concept and define how the term will be used in this paper.

Nearly twenty years ago, Morris, Lewis, and Sexton (1994) conducted an extensive review of published journal articles and leading textbooks over a ten-year period and identified 77 different definitions of entrepreneurship. They performed a content analysis of key words contained in these definitions and found eighteen terms that appeared at least five times in the sample. Among the top three were terms that included the following key words: (1) starting/founding/creating, (2) new business venture, and (3) innovation/new product/new market. These results are consistent with those reported earlier by Gartner (1990) based on a Delphi study of 36 scholars and 8 business leaders. The top three entrepreneurship attributes emphasized by his sample subjects were (1) creating a new venture, (2) adding value, and (3) capitalizing on opportunity.

In a more recent review of the literature, Davidsson (2004) identified seven commonly cited definitions of entrepreneurship. Among these definitions, five (Cole, 1949; Gartner, 1988; Hisrich and Peters, 1989; Low and MacMillan, 1988; and Lumpkin and Dess, 1996) included key words pertaining to the creation of something new with value. The other two definitions (Stevenson and Jarillo, 1990; Wiklund, 1998) focused on the pursuit or exploitation of opportunities as a distinct characteristic of entrepreneurship. This opportunity-centered perspective is also the one adopted by Shane and Venkataraman (2000) when they proposed a process view of entrepreneurship as the identification, evaluation, and exploitation of opportunities.

Taken together, the above findings show that “the creation of a new business venture” is a commonly observed or considered attribute pertaining to entrepreneurship and thus qualify it as a defining characteristic of the phenomenon. It should be noted that the term “business venture” can mean a one-person operation and does not necessarily involve the formation of a formal organization or firm. Further, because of the high failure rates of new business ventures (Shane, 2009a), entrepreneurship should be defined in a “neutral” way that does not imply business success through adding value or (effectively) exploiting an opportunity. Finally, because not all new business ventures are born with or created to introduce (highly) innovative products/services or operational processes (Shane, 2012), innovation should be treated as a variable rather than a constant (or an inherent characteristic) when conceptualizing entrepreneurship.

While defining entrepreneurship as “the creation of a new business venture” captures the essence of the phenomenon, it would be useful to supplement it with a typology to help identify the various forms in which entrepreneurship may manifest itself. Accordingly, Cheng et al. (2013) selected three frequently mentioned attributes from the entrepreneurship literature as anchors for constructing an entrepreneurship typology to expand on the definition stated above.

These attributes concern the mix of market, product, and technological uncertainty faced by a new business venture. Schumpeter (1934), for example, noted that entrepreneurship involves the creation of new markets and products through new technologies or resource combinations. This implies that new business ventures face high uncertainty on all three dimensions (market, product, and technology). More recently, scholars have observed that markets for new products can be known or unknown and thus entrepreneurship may involve serving existing markets with known products or transforming both markets and products (Alvarez & Barney 2007; Dew, Read, Sarasvathy and Wiltbank, 2008). Also, the technology or resource recombination used in producing the products can be based on fundamentally new means-end relationships or slight modifications to old relationships (Shane, 2012). Taken together, the above ideas suggest that one can conceptualize entrepreneurship as the creation of a new business venture that varies on the following dimensions:

- To serve an existing or anticipated market niche/opportunity.
- To serve this market with known or unknown product specifications.
- To produce the product with an old or new technology/resource combination.

Using these three dimensions as anchors, one can construct an eight-cell typology (see Table 1 below) representing a range of different forms in which the phenomenon of entrepreneurship can manifest itself.

Place Table 1 Here

Specifically, the typology identifies eight contrasting types of entrepreneurship (or new business ventures) each having a unique combination of market, product, and technology attributes. At one end of the spectrum is Type 1 entrepreneurship, which seeks to serve an existing market niche with known product specifications using an old technology/resource combination. This kind of new business venture would require little innovation in either product or process and involve minimum risk. An example would be opening a franchise store of FEDEX in town to meet unmet or increased demand for express mail services. At the other end is Type 8 entrepreneurship, which seeks to serve an anticipated market niche with unknown product specifications using a new technology/resource combination, such as launching the Apple company to manufacture and sell desktop computers. This kind of new business venture would require substantial innovation in both product and process and involve great risk. Between these two extreme cases are types of entrepreneurship that vary in different combinations of market, product, and technology attributes.

In the reminder of this paper, we will use the Cheng et al. (2013) conceptual definition of entrepreneurship and the accompanying three-dimensional typology as a basis for analysis.

Societal Culture and Entrepreneurship

A considerable amount of research has been conducted to investigate the potential impact of national or societal culture on entrepreneurship across a broad range of entrepreneurial activities and outcomes (Terjesen, Hessels, and Li, 2013). In general, societal culture refers to the set of shared values, beliefs, and norms within a given society that guide or shape behavior (Child, 1981; Hofstede, 2001). Research findings indicate that societal culture is highly associated with entrepreneurship as culture shapes the personality traits and motivations of individuals that engage in entrepreneurial activities (Mueller and Tomas, 2000; Pinillos and Reyes, 2011; Shane, Kolvereid, and Westhead, 1991; Tomas and Mueller, 2000). Further,

societal culture creates an overarching institutional environment that influences the general acceptance and promotion of entrepreneurs (e.g., risk-taking, adventurism, etc.) as well as the value and reward that a society places on their behaviors (Hayton, George, and Zahra, 2002).

Research that focuses on the influence of societal culture on entrepreneurship can be categorized into three specific areas. First, studies that examine culture's influence on the overall level or rate of new business creation (e.g., Autio, Pathak, and Wennberg, 2013; Davidsson and Wiklund, 1997). Second, those that investigate culture's impact on the personal orientations and behaviors of entrepreneurs and non-entrepreneurs, such as their motivation, cognitive ability, and personality (e.g., Tajeddini and Mueller, 2009; Thomas and Mueller, 2000). Finally, there are studies that focus on the effect of culture on the characteristics of new start-up firms, such as entrepreneurial orientation, innovation performance, and internationalization (e.g., Boter and Holmquest, 1996; Hansen, Deitz, Tokman, Marino, and Weaver, 2011; Perks and Hugues, 2008). Historically, each of these literature streams has predominately used Hofstede's (2001) five cultural dimensions as indicators of societal culture (Pinillos and Reyes, 2011; Terjesen, Hessels, and Li, 2013). Recently scholars have begun to incorporate additional cultural dimensions and frameworks, such as House's (2004) Global Leadership and Organizational Behavior Effectiveness (GLOBE) and the World Values Survey, to assess the impact of societal culture on entrepreneurship (e.g., Hechavarria and Reynolds, 2009; Stephan and Uhlaner, 2010).

Some researchers have hypothesized that a supportive societal culture for entrepreneurship would be high on individualism, low on uncertainty avoidance, low on power distance, and high on masculinity (Hayton et al., 2002; Shane, 1992). These predictions, however, have received mixed confirmation from empirical studies. Mitchell, Smith, Seawright, and Morse (2000), for example, found that an individual's decision to start a business is positively related to individualism. This finding, however, is contradicted by Acs, Audretsch, and Evans (1994) who found a negative relationship between individualism and levels of self-employment. Pinillos and Reyes (2011) reported that individualism is negatively related to entrepreneurship in medium and low developed countries but positive in countries with higher development. Finally, Noorderhaven et al. (1999) found that uncertainty avoidance has a negative impact on business ownership while Wildeman et al. (1999) reported that uncertainty avoidance (and power distance) are positively correlated with levels of self-employment.

The above review suggests that the impact of societal culture on entrepreneurship is a complex matter and we have yet to fully understand how and under what circumstances cultural values affect entrepreneurial activities and outcomes. The contradictory findings currently existing in the literature might have been due in large part to the lack of consistent definitions of entrepreneurship used in past research (Cheng et al., 2013). For example, in the studies noted above, the authors vary in their operational definitions of entrepreneurship from self-employment (Acs et al., 1994; Wildeman et al., 1999), to business-ownership (Noorderhaven et al., 1999), and total entrepreneurship activity following the GEM Survey (Pinillos and Reyes, 2011; Uhlaner and Thurik, 2007). While these research findings are interesting and informative, it is difficult to draw any conclusions as they pertain to different entrepreneurial activities and outcomes. Until we perform more fine-grained research that differentiates between different types of entrepreneurship, studies will continue to produce conflicting results and fail to accumulate systematic knowledge needed for theory development.

Public Policy and Entrepreneurship

Government officials, both at the national and local levels, have long been interested in using public policy to spur entrepreneurial activities under the general belief that entrepreneurship is an important driver of economic growth and prosperity (Schumpeter, 1934). In his seminal work, Birch (1979) revitalized the debate about entrepreneurship when he

identified that SMEs (small and medium-sized enterprises) have an important role in job creation. Recent events in the global economy, such as the 2008 global financial crisis and increased global competition from emerging markets, have furthered policymakers' interest in entrepreneurship as an instrument to capitalize on and adapt to new and changing business and economic opportunities.

While the role of SMEs in the economy has gained importance, Lundstrom and Stevenson (2005) point out that there are fundamental differences between entrepreneurship policy and SME policy. Entrepreneurship policy focuses on individuals at the earliest stages of the entrepreneurial process. SME policy, on the other hand, focuses on later stages of the entrepreneurial process and more established firms. As such, entrepreneurship policy tends to have a greater emphasis on soft policies such as mentoring and entrepreneurship promotion. By contrast, SME policy relies more heavily on hard policy instruments such as financial subsidies and other economic incentives.

Audretsch, Grilo, and Thurik (2007), building on prior work by Verheul et al. (2002) and Wennekers et al. (2002), makes a useful distinction between public policy that influences the demand compared to supply side of entrepreneurship. Demand side policies attempt to provide incentives to potential entrepreneurs and access to resources and entrepreneurial opportunities. Policies that influence the incentives of individuals to become an entrepreneur include taxation policy and bankruptcy laws, etc. If taxes are too high or bankruptcy laws too stringent, potential entrepreneurs may choose employment over entrepreneurship. In regard to accessing resources, demand side policies seek to help entrepreneurs overcome market failures by developing venture and angel capital markets, or by providing direct financial support through subsidies, grants, loan guarantees, and government supported research parks, etc. Finally, in an effort to provide access to entrepreneurial opportunities governments may use competition or trade policy to increase potential entry into more markets.

Supply side policies focus on increasing the amount of entrepreneurial activities in a society. Policies in this realm include immigration policy to attract overseas entrepreneurs and regional development policy to provide economic incentives for new business start-ups in underdeveloped areas. Additionally, supply side policies attempt to affect an individual's attitude and preference toward becoming an entrepreneur. These policies include an education system that teaches the necessary skills and knowledge as well as general policies aimed at developing a societal culture that encourages and supports entrepreneurial behaviors. According to Lundstrom and Stevenson (2005), this last policy realm of entrepreneurial promotion is the least well-articulated and discussed public policy option.

There exists some evidence in the research literature that supports the use of public policy to spur entrepreneurial activities. Lee, Yamakawa, Peng, and Barney (2011), for example, reported that friendlier bankruptcy laws are positively associated with the rate of new firm entry. Klapper, Laevena, and Rajan (2006) found in their cross-national comparison of European countries that streamlining procedures for obtaining licenses and permits for starting new firms increases venture formation. Levie and Autio (2011) observed that a lighter burden of government regulation is associated with higher entry rates but found that the relationship is moderated by the quality of rule of law. Similar to research on societal culture and entrepreneurship, these studies do not distinguish between different types of entrepreneurship and use different operational definitions of entrepreneurship. By not considering the type of entrepreneurship, interpretation and comparison of the effectiveness of public policy across studies remain limited. According to Shane (2009b), increasing levels of entrepreneurship is not necessarily good public policy. He argues that there are significant differences between types of start-ups and their founders, and suggests that subsidies and other policies to fund, facilitate or promote inefficient and low-growth entrepreneurship may be poor public policy.

Joint Influence of Societal Culture and Public Policy on Entrepreneurship

As seen in the previous two sections, past research on societal culture and public policy tended to (1) focus on their independent effects on new business creation and (2) not differentiate between different types of entrepreneurship. In this section, we will examine the different influences that societal culture and public policy have on entrepreneurial behaviors and how the two can be combined to promote and support new business creation for specific entrepreneurship types.

Three working premises provide the logical base for this analysis. First, the dimensions of market, product, and technological uncertainty in the Cheng et al. (2013) typology (see Table 1) can be conceptualized as representing three value-added propositions or drivers of new business creation. These are: (i) market-driven entrepreneurship aimed at serving an existing or a new market niche, (ii) product-driven entrepreneurship aimed at offering a new or improved product, and (iii) technology-driven entrepreneurship aimed at introducing a new technology that can be applied to improve existing products or develop new ones. (Note that the new technology can also be sold as a product to the technology market.) While usually only one driver (a new market, new product, or new technology) is needed for new business creation, many new business ventures are motivated by two or all of the three drivers, with three (using a new technology to produce a new product to serve a new market) being the most challenging involving the highest levels of innovation and risk. But these new business ventures also have the highest value-added and payoff potential.

Second, the three drivers of new business creation differ in the supporting institutional or public policy conditions needed for their activation. Market-driven entrepreneurship, because of its external orientation, would require conditions that provide the entrepreneur with information about potential markets existing outside of his/her current or immediate location. Other sources of support include if the entrepreneur receives assistance in overcoming market entry barriers, such as the home government securing a free-trade agreement with a big overseas market (e.g., China and India). By contrast, product- and technology-driven entrepreneurship would require a different kind of supporting conditions. Because both types require the creation of something new (a new product or a new kind of knowledge/method), they would benefit from conditions that enable or facilitate the entrepreneur to be creative and engage in R&D-related activities. Some of these conditions include a societal culture that values and supports innovation, availability of formal training in product/technology development, and access to community-based/cooperative R&D labs,

Third, because entrepreneurship is primarily an individual-based initiative (Shane, 2012), at least in its early stage when the person is thinking about starting a new business either on his/her own or with partners, new business creation is more an outcome of intrinsic rather than extrinsic motivation. It follows then that we need to pay more attention to creating or providing conditions that help strengthen a person's internal drive rather than an external pull to engage in entrepreneurial behaviors. This is particularly true for entrepreneurship that involves high levels of uncertainty and risk, such as that requiring the development of a new product and/or new technology to serve a new market-niche (e.g., Types 4, 6, 7 & 8 in Table 1). As noted in the previous section, most existing public policy seeks to promote entrepreneurship by providing economic incentives to entrepreneurs and/or reducing transaction costs to facilitate entrepreneurial behaviors. While these policy initiatives may prove to be effective, their effects tend to be short-term and will cease once the initiatives end. By contrast, entrepreneurial behaviors that are driven by societal values are more enduring because they are motivated from within a person and will continue as long as the societal culture remains supportive.

Taken together, the above analysis suggests that societal culture and public policy have different but complementary influences on entrepreneurial behaviors and should be treated as

such in analyzing their respective roles in promoting new business creation. Also, depending on the specific type(s) of entrepreneurship desired, different societal values and policy initiatives would be required to make the promotion effort successful. Finally, because societal culture tends to have a more intrinsic and enduring effect on entrepreneurial behaviors, particularly those involving the development of a new product and/or new technology, we need policy initiatives that seek to change societal culture if the existing values are not supportive of such behaviors. These ideas can be summarized into the following propositions for further development:

P1: There exist three major drivers of entrepreneurship or new business creation: market, product, and technology. The greater the number of drivers involved, the higher the levels of uncertainty and risk facing the new business venture.

P2: Different supportive conditions are needed to activate the three entrepreneurship drivers. Market-driven entrepreneurship would benefit more from conditions that are externally oriented toward reaching the customers. Product- and technology-driven entrepreneurship would benefit more from conditions that are internally oriented toward enhancing personal creativity.

P3: The more uncertain and risky the new business venture, the more supportive conditions would be needed to facilitate its creation. These conditions can come from the societal culture, or from public policy designed to reinforce the existing supportive culture or compensate for a non-supportive culture.

P4: Public policy can influence entrepreneurship in both a direct and an indirect way. Policy can have a direct influence by providing economic incentives and/or reducing transaction costs for new business creation. Alternatively, policy can have an indirect influence by seeking to change existing societal values in ways that support entrepreneurial behaviors.

P5: Policy initiatives that seek to promote entrepreneurial behaviors through economic means will have a smaller and less enduring impact than supportive societal values. This is particularly true for new business creation that involves new product and/or new technology development.

Illustrative Examples

Japan is a good illustration of a country where entrepreneurship is impeded by both its societal culture and public policy as well as the interaction between the two.

According to the Global Entrepreneurship Monitor, Japan exhibits the lowest level of entrepreneurial activity among developed economies (GEM, 2012). In addition, Japan ranked among the lowest in perceived entrepreneurial opportunities and capabilities. For example, only 28 percent of people in Japan between the ages of 18 to 64 thought starting a business was a desirable career choice compared to 68 percent in the United States. Further, nearly all of the well-known product and technology innovations from Japan were invented by corporations, not entrepreneurs working in their garages. Finally, Japanese national country experts are the least positive about whether the population in their own country has the skills and knowledge to start a business among developed countries.

Much of this low level of entrepreneurial activity can be explained by Japan's societal culture. According to Hofstede (2001), Japan is one of the most uncertainty avoiding countries in the world, and has moderate scores for individualism and power distance. "Tomoko Inaba, a former AIG Director and current entrepreneur in Japan, commented that in general the Japanese culture is 'not one that encourages risk-taking behaviors or the pursuit of unexploited opportunities.' It tends to be more cognizant of rules, tradition and customs, and it encourages highly conscientious and detail-oriented behaviors. It emphasizes conventionality, consistency, community and relative risk aversion"(Knowledge@Wharton, 2012). "Toshiko Oka, the CEO and founder of Abeam M&A Consulting Ltd., observed that the 'status of entrepreneurs in Japan

is not high, particularly relative to their counterparts in the U.S.’ It was also noted that ‘a typical Japanese parent often does not support his or her child’s aspiration of becoming an entrepreneur. These parents tend to want their children to go to an elite public university and join a major conglomerate’”(Knowledge@Wharton, 2012). In short, the fear of failure and resulting social alienation pose a huge psychological barrier for would-be entrepreneurs in Japan.

In our earlier discussion and as summarized in Proposition 3, public policy could play a compensatory role in promoting entrepreneurship by making up for the absence of a supportive societal culture. In the case of Japan, because of the presence of a suppressive societal culture that discourages entrepreneurship, the most needed public policy is one designed to change the existing societal values in ways that appreciate and support entrepreneurs and their activities. This, however, was not done by the Japanese government in their recent policy initiatives.

Accordingly to Yasuda (2009), since 2000 the Japanese government has made a considerable effort seeking to spur entrepreneurship in the country. Most of the policies are designed to support start-up firms including: (1) removal of the minimum capital requirements for the establishment of the limited liability companies, (2) provision of education and information for entrepreneurs through the National Startup and Venture Forum through the Small and Medium Enterprises and Regional Innovation Japan, and (3) a new startup loan program through the National Life Finance Corporation which requires no collateral, guarantors, or personal guarantees, and the expansion of the upper limit of “free property” that is exempt from seizure under new bankruptcy law implemented in 2005. To date, these policy initiatives have produced limited success.

Instead of the above policies that aimed at providing economic incentives or reducing transaction costs, what Japan needs most is a broad-based cultural policy to educate and change the public’s general attitudes toward entrepreneurship. According to Lundstrom and Stevenson (2005), this policy would seek to create widespread awareness of the role of entrepreneurship and small business in the economy, increase the visibility and profile of entrepreneurship in the society, and recognize and reward successful entrepreneurs as role models. Specific initiatives might include (1) sponsorship of television programs and advertising campaigns, (2) entrepreneurship awards programs, (3) promotion of entrepreneur role models through print publications, (4) sponsorship of national entrepreneurship-related conferences and regional events, and (5) use of radio, print media and web-casting to profile entrepreneurship issues.

This cultural policy can be supplemented by government efforts to increase the supply of entrepreneurs in Japan by way of immigration and educational policy. According to the OECD, Japan currently has a relatively closed labor market. Most of the inflows are temporary, low-skill migrants. Skilled migrants are low in numbers and tend to come through intra-company transfers. Also, Japanese students receive the least amount of formal education on entrepreneurship as per GEM’s 2010 Special Report on Education and Training. With combined cultural, immigration, and educational policy initiatives, Japan will be able to start the long process of shaping a societal culture that values and supports entrepreneurship, particularly the high value-added types that involve new product and/or new technology development (Types 4, 6, 7 & 8 in Table 1).

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Table 1
Entrepreneurship Typology

Market Niche/Opportunity	Existing				Anticipated			
Product Specifications	Known		Unknown		Known		Unknown	
Technology/Resource Combination	Old	New	Old	New	Old	New	Old	New
Type	1	2	3	4	5	6	7	8

BUSINESS FAILURE AND LEARNING: THE ROLE OF TIME PERSPECTIVE AND EMOTION

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Business failure and learning: The role of time perspective and emotion

1. Introduction

Although there exists a growing literature in experimental psychophysiology on time perception and emotions (Geoffard & Luchini 2010), researchers have seldom investigated the relationship between time perception, emotions of entrepreneurs and their learning after business failure. Understanding the impact of business failure on the entrepreneur is key to understanding the entrepreneurial process. Business failure is an emotional event for entrepreneur (Byrne & Shepherd 2013). The impacts of business failure on individual are complex and can vary. This paper examines how entrepreneurs perceive and respond from business failure, as well as the roles emotions and time play in their learning.

2. Literature Review

The literature on business failure, emotions entrepreneurs experience after business failure, and the role time plays in recovering from business failure formed the basis of this research. We focused on the effects of business failure on individual entrepreneurs rather than the causes of failure. First, we explored the general definitions of business failure and identified that scholars have defined the term in different ways. Then the emotions entrepreneurs may experience after business failure, the impacts of these emotions on their learning, and the relationship between emotional attachments and the emotions they may experience is discussed. Finally, the literature regarding the importance of time in entrepreneurship is discussed. This is important because entrepreneurs behave in ways consistent with their perceptions and interpretations of reality. Their time perceptions, therefore, should be taken into account when investigating their experience. The literature on Time Perspective and the factors that may influence individuals' perceptions of time provides an insight to this aspect of entrepreneurship.

2.1. Business Failure

The majority of entrepreneurship studies focus on new venture formation and growth (Mueller, Stel & Storey 2007; Dobbs & Hamilton 2007; Iacobucci & Rosa 2005; Lechner & Leyronas 2009). Little is known about business failure and the impact of business failure from the individual perspective of entrepreneurs. Business failure is a common experience for entrepreneurs (Shepherd, Patzelt & Wolfe 2011; Pretorius 2009; Marcella & Illingworth 2012). Yet business failure has been proposed as a powerful lesson and individuals can learn more from their failures than from their successes (Shepherd, Patzelt & Wolfe 2011). Knott & Posen (2005) also found that failed businesses can even provide economic benefits to the economy.

Numerous definitions have been used for business failure. A broad definition of business failure focuses on entrepreneur's exit from his or her business (Singh, Corner, & Pavlovich, 2007; Watson & Everett, 1996; Ucbasaran *et al.* 2013). Coelho & McClure (2005) defined business failure as when an enterprise has not survived the market test; if revenues do not sufficiently exceed costs to make continuing the enterprise attractive, then it has failed. McGrath (1999) defines business failure more broadly as the termination of an initiative that has fallen short of its goals.

Business failure is an emotional event for entrepreneurs (Cardon *et al.* 2012; Byrne & Shepherd 2013) and this has resulted in research on the impacts of business failure on entrepreneurs' emotions and learning (Cope 2003; Singh, Corner & Pavlovich 2007;

Shepherd, Wiklund & Haynie 2009). However, unlike most other areas of social science, emotion has been a neglected concept within entrepreneurship research (Goss 2007). Entrepreneurship is an emotional process (Cardo *et al.* 2012), and emotion influences many important elements of the entrepreneurial process (Baron 2008). The impacts of business failure on individual are complex and can vary. Entrepreneurs experience different levels of negative or, surprisingly, positive emotions after business failure (Jenkins, Brundin & Wiklund 2010).

2.2. Emotions

The terms *emotions* and *mood* have frequently been used interchangeably in the literature. It is important to define and differentiate both terms as they are closely related but distinct phenomena (Beedie, Terry & Lane 2005). A mood often last longer, and is less intense than an emotion (Bagozzi, Gopinath & Nyer 1999; Scherer 2005). Emotions are short-term immediate responses (Giacobbi, Hausenblas & Frye 2005) and tied to a particular event (TöRnblom & Vermunt 2007), they are the transitions between one sequence of action and another (Oatley 1992, p 64) whereas moods are considered as diffuse affect states that may often emerge without apparent cause (Scherer 2005). Emotions are more specific feeling states (e.g. anger, sadness) and moods are more general, such as feeling good or bad (TöRnblom & Vermunt 2007). In this research, we will focus on the emotions entrepreneurs receive after the experience of business failure.

The emotions entrepreneurs receive after business failure may have an impact on (1) whether or not to re-enter entrepreneurship in the future, (2) how one learn from the experience of failure, (3) and how long it takes to recover from the experience of business failure. Shepherd (2003) and Singh, Corner & Pavlovich (2007) suggest that how an entrepreneur copes with the failure can influence the extent and speed of recovery.

2.2.1. Negative Emotions

Business failure represents a form of personal loss to entrepreneurs (Cope 2003). Losing the ownership of businesses has the emotional intensity of the death of a loved one (Shepherd 2003). Business failure is likely to generate negative emotions (Shepherd & Cardon 2009) including anger, sadness, stress, frustration, fear, embarrassment and guilt (Shepherd & Cardon 2009; Byrne *et al.* 2011; Singh, Corner & Pavlovich 2007). It may create an emotional and traumatic experience that could possibly prevent entrepreneurs from learning from failure and affect their ability to recover (Cope 2011). The psychological costs of business failure could be an obstacle to learning from failure (Ucbasaran *et al.* 2013; Cope 2011; Shepherd 2003; Shepherd, Patzelt & Wolfe 2011). Failure can lead to social costs in relation to its impact on personal and professional relationships both internal and external to the venture (Ucbasaran *et al.* 2013; Cope 2011). The experience of failure is one of the most powerful negative events people experience and people actively attempt to keep the implications of these potential threats to self-esteem as narrow and as neutral as possible (Taylor 1991). Due to this reason, some entrepreneurs who may never be able to recover from business failure seemed to disappear off the face of the economy forever and created difficulties for entrepreneurship scholars attempting to understand them (Sarasvathy & Menson 2002; Zacharakis, Meyer & DeCastro 1999; Byrne *et al.* 2011).

Some suggest that the negative emotions are ‘necessary precursors to greater positivity’ (Sutton 1997) because they indicate the beginning of acceptance that the loss is occurring. If a negative outcome has not yet been experienced, the individual may feel exempt from it ever occurring (Higgins, Amand & Poole 1997). An absence of negative emotions can indicate denial of the impending loss (Sutton 1997).

2.2.2. Positive Emotions

The majority of literature to date has investigated the negative emotions generated by business failure (Singh, Corner, & Pavlovich, 2007; Shepherd, Patzelt & Wolfe 2011; Ucbasaran *et al.* 2013) as to be expected. However, most ignore the fact that positive emotions can also be generated by business failure.

Individuals often feel relief when a stressful (Pekrun *et al.*, 2004) or painful (Roseman *et al.*, 1996) event is over (Jenkins, Brundin & Wiklund 2010). Lazarus (1991) also suggested that relief is a positive emotion that always follows distressing emotions. Positive emotions might also correct or undo the after effects of negative emotions (Fredrickson 2001). Therefore, even though the examination of positive emotions regarding failure may be rare in the current literature, entrepreneurs may very well experience positive emotions after failure.

Although Business failure is an emotional and traumatic event for entrepreneurs (Byrne & Shepherd 2013), it is a powerful and beneficial lesson that can give entrepreneurs revitalised awareness of their abilities and a more sophisticated knowledge base (Cope 2011). However, little is known on how the emotions entrepreneurs receive after business failure can affect their learning and their willingness in engaging with entrepreneurial activities again.

2.3. Emotional Attachment

Entrepreneurs are highly attached to their businesses (Shepherd 2004). They are of such personal significance that it could be compared to a child (Cardon *et al.* 2005b) and losing the ownership of businesses has the emotional intensity of the death of a loved one (Shepherd 2003). An entrepreneur's emotional attachment to the business played a crucial role in influencing when and how entrepreneurs chose to close their failing firms (Shepherd, Wiklund & Haynie 2009). For most entrepreneurs, their venture is, or was a dearly valued possession (Singh 2011) and attachment develops because of the meanings bestowed on a possession (Richins, 1994). Entrepreneurs may feel ownership for the organisations they establish (Pierce, Kostova, & Dirks 2003) and therefore it is not easy to cut the emotional attachment between oneself and a failing business (Shepherd 2004).

Entrepreneurs' emotional attachments to their businesses may influence the emotions they experience after business failure. For many entrepreneurs, a change in their affective state (core affect) may often be attributed to their ventures, due to the intertwinement of entrepreneurs with their ventures (Cardon *et al.* 2005a). Greater levels of psychological ownership and personal engagement in a project are likely to lead to more intense negative emotional reactions when the project fails (Shepherd & Cardon 2009). Entrepreneurs with strong business ownership self-identity will be likely to pursue entrepreneurial activity again after failure as a way in which to regain control of their future.

2.4. Time

There exists a growing literature in experimental psychophysiology on time perception and emotions (Geoffard & Luchini 2010). Time is not exogenous to the individual, it is elastic, and this will be influenced by emotion the person experiences (Geoffard & Luchini 2010). Entrepreneurs behave in ways consistent with their perceptions and interpretations of reality (Gabrys & Bratnicki 2011). An individual's conception of the flow of time in the future has a significant impact on entrepreneurial risk behaviour (Das & Teng 1997). When investigating entrepreneurs' experience of business failure, the level of emotions they receive may vary, so

their experience of time may also vary. As a result they may perceive time differently to others and to themselves at other times.

Time Perspective (TP) refers to a stable individual difference or bias in the temporal frames used by individuals as planning and decision making (Zimbardo & Boyd 1999). This perspective focuses on social time, rather than clock time (Lee & Liebenau 1999). Das (1993) suggests that time should be recognised as a subjective phenomenon. This introduces many difficulties when investigators turn to the study of the individual's experience of time (Arlow 1986).

Further, individual's perceptions of time change as they age. The same period of time appears shorter to older managers for whom a single month or year represents a smaller percentage of a lifetime, than to younger managers (Forbes 2005).

There is also considerable evidence suggesting that emotion and mood influence the perception of time (Conway 2004; Wittmann 2009). In uneventful or unpleasant situations, such as when nervously waiting for something to happen, individuals experience a slower passage of time and overestimate its duration (Wittmann 2009). Increased attention of time (such as in waiting situations) and an increase in physiological arousal (such as under stress) can lead to longer time estimates (Wittmann 2009). Danckert & Allman (2005) found that boredom-prone individuals are more likely to overestimate the passage of time, and they tend to perceive time to last longer than individuals with lower levels of boredom. In terms of moods, happy people report that time passes more quickly than depressed people (Conway 2004).

2.4.1. Locus of Control

Locus of Control (LOC) refers to the degree to which individuals expect that a reinforcement or an outcome of their behaviour is contingent on their own behaviour or personal characteristics versus the degree to which individuals expect that the reinforcement or outcome is a function of chance, luck, or fate, is under the control of powerful others, or is simply unpredictable (Rotter 1990). Individuals with an internal LOC believe that they are in control of their actions and outcomes and their successes or failures come from their behaviours whereas individuals with an external LOC believe that they don't have control over their successes or failures and they may not take responsibility for their behaviours (Coleman, Irving & Cooper 1999; Haghighatgoo, Besharat & Zebardast 2011).

Studies investigated the relations between individual's LOC and time perspectives. Platt & Eisenman (1968) found that internal LOC individuals typically have more future-oriented time perspectives than the external LOC individuals. Haghighatgoo, Besharat & Zebardast (2011) also found a significant relation between controlling styles and time perspectives.

3. Methodology

This research examined the impact of business failure from the individual perspective of entrepreneurs who have experienced it. The impacts of business failure on individual are complex and can vary. This research aims to give a deeper understanding of the underlying factors in the areas of business failure. It investigates the experience from the entrepreneurs' point of views in order to understand the essence of their experience. This research is aimed at understanding the meanings that entrepreneurs attribute to their experience in business failure. It is exploratory in nature, and is searching for understanding (Cresswell 2007). It is conducted within a social constructivist paradigm (Crotty 1998),

It is important, therefore, that this study focused on detailed individual experience. Qualitative studies, as compared to quantitative studies, are conducted in a real world context and are case-bound (Sandelowski & Barroso 2007) and are focused on words and observations rather than numbers (Zikmund 2000). Therefore, a qualitative study is more appropriate in this research.

When conducting the study, we identified and selected the themes to search for from the literature review while at the same time, allowed some themes to emerge naturally from the collected data (Neuman 2000).

Researchers in the past have successfully used qualitative studies to investigate similar issues. For example, Singh, Corner and Pavlovich (2007) found that entrepreneurs experienced grief and other negative emotions such as guilt, frustration, anger and depression by conducting in-depth interviews with five entrepreneurs who experienced business failure. Cope (2011) conducted in-depth studies with eight entrepreneurs who have directly experienced business failure. He found out that failure can give entrepreneurs revitalised awareness of their abilities and a more sophisticated knowledge base.

3.1. Method

The study is based on rich qualitative accounts of business failure and subsequent life provided by six entrepreneurs who have experienced business failure. Data collection was undertaken through in-depth and semi-structured telephone and Skype interviews. Table 1 demonstrates the characteristics of the participants, such as ages, nature of their businesses and current occupation.

TABLE 1 - Characteristics of participants

Participant	Age Group	Nature of Business	Lengths of Business	Year of Failure	Current Occupation
A	40 – 50	Flower Shop	5 years	2012	Postgraduate Student
B	40 – 50	Beauty Centre	1 year	2007	Tailor
C	30 – 40	Music Learning Centre	6 years	2008	Private Music Tutor
D	40 – 50	Engineering Company	3 years	1995	Chief Engineer
E	20 – 30	Karaoke Bar	3 years	2012	Unemployed
F	40 – 50	Fashion Boutique	2 years	2008	Housewife

4. Data Interpretation

We investigated the literature on entrepreneurs' emotional attachment to their business and the emotions entrepreneurs may experience after business failure. We collected the data through in-depth interviews. The cases of six entrepreneurs who have experienced business failure are examined. We then applied thematic analysis (Neuman 2000) to identify the key meanings that the participants attributed to their experience of business failure.

Each interview was recorded using a digital recording device and manually transcribed within 7 days of the interview. The interviews were conducted in both English and Chinese. One of the authors is a native Chinese speaker and translated the Chinese into English for analysis.

Key themes were established through the literature review (Creswell 2007), however, themes were allowed to emerge naturally from the collected data during analysis. In this manner, predetermined structures were used as a guide to the thematic analysis, (Miles and Huberman 1994). This analysis reflects the authors' interpretations and analysis of the literature and

collected data. This process provided a deep understanding of the meanings of the participants leading to an understanding of the personal issues in business failure.

5. Data Analysis

Followings key themes were identified from the literature review and data analysis:

- 1) Emotions after business failure: How each participant emotionally responds to, and perceives business failure.
- 2) Emotional attachment: Participants' emotional attachment to the failed business.
- 3) Post-business behaviour: The immediate and next actions each participant takes after business closure.
- 4) Willingness to start another business: Whether each participant is planning or willing to start another business in the future.
- 5) Learning after business failure: Whether each participant believed that they have achieved learning after business failure.

5.1. Emotions after Business Failure

The emotions that participants experienced after business failure are presented in Table 2. The table demonstrated the negative or positive emotions they experienced with supporting quotes from the interviews.

Five participants reported that they experienced different negative emotions such as guilt, embarrassment, depression and worry. Three of the participants reported that other than negative emotions, they also experienced some positive emotions after closing the business such as relaxed, relief and calm.

Two participants experienced a mix of both negative and positive emotions, and were of moderate levels. Three participants reported that they experienced only negative emotions and these emotions were more intense than others in the study. The only participant who did not experience negative emotions received the highest level of positive emotions. She reported that she felt happy and blessed after closing the business, possibly due to her personal religious beliefs.

TABLE 2: The emotions participants experienced after business failure

Participant	Negative Emotions	Positive Emotions	Supporting Quotes
A	Guilt Depression Worry Sadness Hurt Grief		<i>I felt really sad. To be honest, I don't know how I survived. I was thinking about it yesterday, if it happens to somebody else, they would commit suicide.</i> <i>I felt the worst when I had to kick out all my staff. I was worried that they may not get a job tomorrow, and that is something I think I should cry for. I really got hurt.</i>
B	Regret	Relaxed Relief	<i>I regret starting my own business as I lost fair amount of money that I have put in.</i> <i>I wasn't very sad about it though. Somehow, I think I'm more relaxed after closing down the business.... I didn't really have much spare time when I started my own business...It was really tiring.</i>

C	Sadness Grief Shame Embarrassment Fear		<i>I cried in front of my parents...It felt like experiencing the loss of a loved one.</i> <i>I didn't attend any social events, not even normal family and friends' gatherings.</i> <i>I was afraid of being looked down by friends and relatives.</i>
D	Guilt	Calm	<i>I felt sorry for my team... I trusted myself too much and I thought I did not need to discuss with the team.</i> <i>I realised how wrong I was. It felt like a dream was over and it's time to wake up now.</i>
E	Embarrassment Guilt Anger Fear Worry Depression		<i>I felt awkward and embarrassed to contact relatives and friends...I didn't want to see them and talk to them anymore. I was afraid of their comments</i> <i>I felt really bad to my parents as they funded the business. Now, I have to think of a way of paying back.</i> <i>I wanted to "disconnect" myself from the society, no Facebook, twitter or whatever. I didn't want to pick up any phone calls or reply any messages.</i> <i>Business partner did not listen to my advice. He thought he was everything that he never took my advice seriously and he made no contribution to the business.</i>
F		Relief Happiness Blessed Less stressful	<i>I was pregnant in 2007, which was the second year of the business...I didn't feel sad...I was experiencing another stage of life</i> <i>I was so grateful that god has decided everything for me.</i> <i>I felt less stressful because there really weren't much things that worried me</i>

5.2. Emotional Attachment

Most of the participants developed a deep emotional attachment to their business. Table 3 demonstrates different terms they used to explain how they were emotionally attached to their business. They described their feelings towards the failed business using terms such as 'love' and 'dream'.

For example, participant A said that:

The business was part of us

She also commented she loved the business although she understood she can't make a lot of money from it. She expressed her love towards her business in the following quote:

*I understand you can't be rich from selling flowers, but I **love** it.*

Similarly, participant F said:

*I understood I might not be able to make a living from a **dream** but I really enjoyed the experience.*

Participant F also said that she may not be able to make a living from the business but she still enjoyed the experience. Also, she described her business as her 'dream'.

Participant D described his business as a dream as well:

*I realised how wrong I was. It felt like a **dream** was over and it's time to wake up now.*

Participant C explained how he felt when the business failed:

*It felt like experiencing the loss of a **loved** one.*

TABLE 3- Participant's emotional attachment to the failed business

Participant	Supporting Quotes
A	<i>I understand you can't be rich from selling flowers, but I love it. The business was part of us.</i>
C	<i>It felt like experiencing the loss of a loved one.</i>
D	<i>I realised how wrong I was. It felt like a dream was over and it's time to wake up now.</i>
F	<i>Sometimes, I would feel upset and moody when there were downturns in the business. I understood I might not be able to make a living from a dream but I really enjoyed the experience.</i>

5.3. Post-business Behaviour

Table 4 illustrates the immediate and subsequent actions each participant took after closing their businesses with supporting quotes from the interviews.

Immediate social impacts were obvious. Three out of six participants reported a social distance from friends or family members after closing the businesses due to the feelings of guilt, shame, and embarrassment. They preferred to be alone and did not want to contact anyone. It is interesting that two participants went on a trip after closing the business, which can be seen as taking a break from the reality, in order to relieve the stress and negative impacts from the business failure. One participant reported that she had to go to the hospital the next day after closing the business as she was pregnant and the date of confinement has changed.

The experience of business failure may have influenced some entrepreneurs to perform related activities after closing their businesses. Two out of six participants reported that they pursued further studies to prepare for the next venture. Two participants looked for a new job and one went back to her previous job after closing the business.

TABLE 4: Participants' post-business Behaviour

Participant	Post-business Behaviour		Supporting Quotes
	Immediate	Next	
A	<ul style="list-style-type: none"> Became socially isolated 	<ul style="list-style-type: none"> Pursued further studies 	<i>I shut myself inside the house for a few months. Luckily, I did not commit suicide.</i> <i>...I decided to study a Master's degree in applied innovation and entrepreneurship.</i>
B	<ul style="list-style-type: none"> Went back to previous job 		<i>I continued helping my husband with his business</i>
C	<ul style="list-style-type: none"> Became socially isolated 	<ul style="list-style-type: none"> Worked a part time job Pursued further studies 	<i>I became socially isolated. I didn't want to pick up any phone calls.</i> <i>I worked part time as a private music tutor.</i> <i>I went on to take some e-commerce courses, as I wasn't aware of using e-marketing tools to promote business.</i>
D	<ul style="list-style-type: none"> Travelled with partner 	<ul style="list-style-type: none"> Looked for jobs 	<i>I gave myself a break for a month. I went on a trip to Thailand with my partner, who gave me enormous support. Then I started looking for job after the trip.</i>
E	<ul style="list-style-type: none"> Social distance from friends and family members Travelled alone 	<ul style="list-style-type: none"> Looked for jobs 	<i>Did not attend any social events... I felt awkward and embarrassed to contact relatives and friends.</i> <i>I went on a trip alone.</i> <i>I began my job-hunting as soon as I came back from the trip.</i>

F	<ul style="list-style-type: none"> Gave birth to baby 	<ul style="list-style-type: none"> Looked after her child full time 	<p><i>My situation was a little bit special. I had to go to the hospital the next day after it closed because the date of confinement has changed to two days after closing the business</i></p> <p><i>I have to look after my son, and that is going to need a lot of time and effort.</i></p>
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5.4. Willingness to start another business in the future

The entrepreneurs' experience of business failure may have an impact on whether or not to re-enter entrepreneurship in the future. Participants' willingness to re-enter entrepreneurship are presented in Table 5.

Four out of six participants indicated that they are willing to start another business in the future, and one, participant C, is in the planning process of starting another business. Participant A reported that it is difficult to work for someone after being self-employed for a long period time. Two participants (A & F) reported that they want to become entrepreneurs again because of their passion. Participant F also pointed out the advantage of being self-employed.

Two of the Six participants reported that they did not have intentions to start a business again in the future. Participant B reported that she has become more risk averse after the experience of business failure. Participant D reported that he realised the fact that not everyone has the capabilities to be a successful boss.

TABLE 5 – Participants' willingness in re-entering entrepreneurship

Participant	Willingness to start another business	Supporting Quotes
A	Yes	<i>It is difficult to work for someone after being self-employed for many years...I have a passion in the flower business</i>
B	No	<i>I don't think I will take such risks anymore</i>
C	Yes	<i>I have been planning to start another business in the next 3 years.</i>
D	No	<i>I don't think I will start a business again. Not everyone can be a boss, at least not a good or successful one.</i>
E	Yes	<p><i>I still want to operate my own business, but probably not in the near future. I might be better off working under someone until I get enough experience and knowledge, especially until I managed to pay back what I owed my parents.</i></p> <p><i>If I were to start another business again, I would work by myself. I would not recommend a partnership.</i></p>
F	Yes	<i>I would really love to do it again if I get an opportunity in the future, as being self-employed gives me flexibility and it has always been my dream.</i>

5.5. Learning after Business Failure

Although business failure is an unpleasant event, it is a powerful lesson and individuals can learn more from their failures than from their successes (Shepherd, Patzelt & Wolfe 2011). Table 6 demonstrates whether the participants think they have learned from the experience of business failure.

All participants believed that they have learnt a lesson through business failure. Four pointed out the mistakes they made when running the business and what they should have done better. For example, participant B reported that she shouldn't have started a business in an industry where she had no prior experience in. Participants C and D both reported that lack of experience has resulted in their failure. Participant E believed that it was a valuable experience as not everyone has the opportunity to start a business.

TABLE 6 – Participants' learning after business failure

Participant	Achieved Learning?	Supporting Quotes
A	Yes	<i>I think I definitely learnt a good lesson...Although I have lost fair amount of money on the business, I have built up a huge network, and I think I can utilise the network in the future.</i>
B	Yes	<i>I think I shouldn't work on something that I am not familiar with. I mean I shouldn't have started a beauty Centre, as I had no prior experience in the beauty industry. I shouldn't have taken the risk.</i>
C	Yes	<i>I was too young and I did not have any knowledge and capacity in management, especially when I switched my role from a music teacher to boss.</i>
D	Yes	<i>I was too young and naïve by that time. I was far too optimistic about the business and lacking understanding of risk management.</i>
E	Yes	<i>It was a good learning experience because not everyone has an opportunity to start a business</i> <i>If I were to start another business again, I would work by myself. I would not recommend a partnership.</i> <i>I might be better off working under someone until I get enough experience and knowledge.</i>
F	Yes	<i>I learned quite a lot. I thought it wouldn't be too difficult to start and run an own business, but in fact, it really wasn't easy to do everything on my own</i> <i>Sometimes, I would feel upset and moody when there were downturns in the business, but I think that helped shape a more balanced personality. I understood I might not be able to make a living from a dream but I really enjoyed the experience.</i>

6. Findings

We found that grief and other negative emotions such as anger, sadness, frustration, fear, embarrassment and guilt can be generated from business failure (Shepherd & Cardon 2009; Byrne *et al.* 2011; Singh, Corner & Pavlovich 2007). Business failure may also lead to social cost that impact on entrepreneurs' personal relationship (Ucbasaran *et al.* 2013) both internal and external to the venture (Cope 2011). Entrepreneurs may 'hide from their society' (such as not contacting friends and family or going for a trip) for a period of time in order to make sense and recover from business failure.

At the same time, entrepreneurs may experience positive emotions such as relief and relaxed after business failure (Jenkins, Brundin & Wiklund 2010).

We found out entrepreneurs can receive both positive and negative emotions at the same time after business failure, which corroborate Byrne & Shepherd's (2013) research.

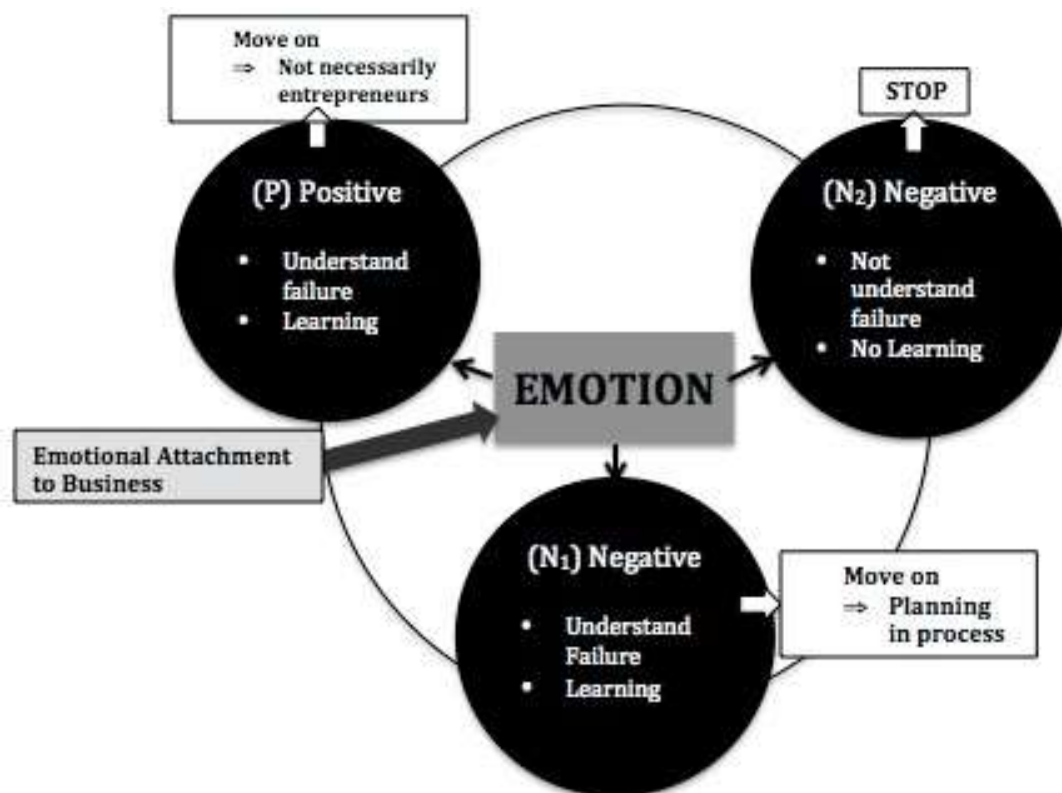
We see a relationship between entrepreneurs' emotional attachment and the intensity of emotions they experience after business failure. Entrepreneurs who are more attached to their business are more likely to generate higher levels of emotions when the business fails.

Both entrepreneurs who experience negative and positive emotions can achieve learning after business failure, but the more intense negative emotions one has experienced, the more time is required to achieve learning. Interestingly, we found that entrepreneurs in this study who experienced higher level of negatives emotions are more likely to re-enter entrepreneurship in the future, and those who experienced lower level of negative emotions or positive emotions indicated that they were less likely to become self-employed again.

However, we believe that there are entrepreneurs who may never be able overcome the negative impacts and recover from business failure. As suggested by Sarasvathy & Menon (2002), these entrepreneurs seemed to disappear off the face of the economy forever. It created difficulties for entrepreneurship scholars (Sarasvathy & Menon 2002; Zacharakis, Meyer & DeCastro 1999; Byrne *et al.* 2011) to trace and understand them.

6.1. FRAMEWORK 1

Based on our findings, we present a framework that identified three affective states of entrepreneurs who have experienced business failure in relation to their perceptions of time and learning:



Business failure is an emotional event for entrepreneurs (Byrne & Shepherd 2013). For most entrepreneurs, it is not easy to cut the emotional attachment between oneself and a failing business (Shepherd 2004). An entrepreneur's emotional attachment to the business played a

crucial role in influencing when and how entrepreneurs chose to close their failing firms (Shepherd, Wiklund & Haynie 2009). We found that entrepreneurs who are emotionally attached to their businesses are more likely to generate more intense emotions when the business failed. The greater levels of psychological ownership and personal engagement in a project are likely to lead to more intense negative emotional reactions when the project fails (Shepherd & Cardon 2009). Entrepreneurs with strong business ownership self-identity will be likely to pursue entrepreneurial activity again after failure as a way in which to regain control of their future (Byrne *et al.* 2011).

Based on our findings on the emotions entrepreneurs may experience and their learning after business failure, we identified three affective states of entrepreneurs:

Affective State 1 - Positive Emotions with Learning (P)

Entrepreneurs may experience positive emotions such as feeling relief from stress. A sense of relaxation may occur after business failure. Individuals often felt relief when a stressful or painful event is over (Jenkins, Brundin & Wiklund 2010). In this affective state, entrepreneurs are able to achieve learning from the experience of business failure. However, they do not necessarily become entrepreneurs again in the future.

It is possible for entrepreneurs to shift from other affective states to this positive state. They may experience positive emotions after they overcome the negative emotions. Lazarus (1991) also suggested that relief is a positive emotion that always follows distressing emotions. Positive emotions might also correct or undo the aftereffects of negative emotions (Fredrickson 2001).

Affective State 2 - Negative Emotions with Learning (N₁)

Business failure is an emotional event for entrepreneurs (Byrne & Shepherd 2013), and it represents a form of personal loss to entrepreneurs (Cope 2003). Entrepreneurs may experience intense negative emotional reactions when the business fails (Shepherd & Cardon 2009). They may experience intense negative emotions including anger, sadness, stress, frustration, fear, embarrassment and guilt (Shepherd & Cardon 2009; Byrne *et al.* 2011; Singh, Corner & Pavlovich 2007), as losing the ownership of businesses has the emotional intensity of the death of a loved one (Shepherd 2004).

We found that entrepreneurs are more likely to re-enter entrepreneurship in this affective state. It is not easy to overcome the negative impacts from business failure, but through the recovery from negative emotions, entrepreneurs may achieve a higher level of learning and sensemaking. They may develop a clear understanding of failure and realise what they have done wrong and how they should have done better. Shepherd (2004) also suggested that through a dual process of grief recovery, emotions could be managed in a way that minimizes interference and maximizes learning.

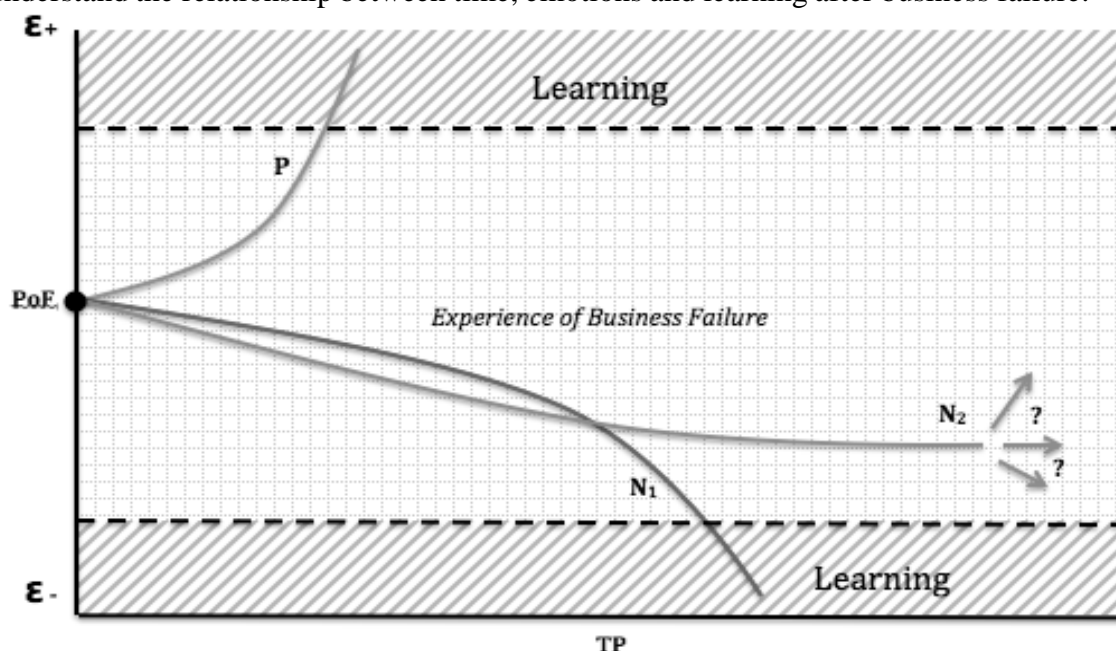
Affective State 3 - Negative Emotions with No Learning (N₂)

We believe this group of entrepreneur exists but they may not be traceable, as they have not yet overcome the impacts and recover from business failure. The negative emotions they experienced after business failure may be of such high level that they cannot recover within a short period of time, or possibly never be able to recover. As failure experience is one of the most negative events people experience (Taylor 1991), the entrepreneurs (those who have not yet overcome the negative emotions) may not be traceable due to the stigma associated with failure. They may not be willing to talk about their experience (Byrne, *et al.* 2011). It is possible that they intend to distance themselves from the society in order to hide the fact that they have failed. A number of scholars (Zacharakis, Meyer & DeCastro 1999; Byrne, *et al.*

2011) have also experienced difficulties in finding failed entrepreneurs to participate in their research. In this affective state, entrepreneurs are unable to achieve learning from the experience of business failure, as they are still stuck in the negative emotional state that prevents learning.

6.2. FRAMEWORK 2

We applied the concept of Time Perspectives to our finding and developed a framework to understand the relationship between time, emotions and learning after business failure:



Point of Failure (Pof) is the point where the experience of failure occurred after closure of a business. Individuals may experience positive or negative emotions

Emotion (ε)

Emotions are, for this purpose classified into two states;

1. Negative (-): Negative emotions are often experienced by entrepreneurs after business failure. Singh, Corner and Pavlovich (2007) found that entrepreneurs experience grief and other negative emotions such as guilt, frustration, anger, and depression after the experience of business failure.
2. Positive (+): Individuals may receive positive emotions after business failure. They may feel relieved, relaxed or less stressed after closing the business. Lazarus (1991) suggested that relief is a positive emotion that always follows distressing emotions.

Time Perspective (TP) refers to a stable individual difference or bias in the temporal frames used by individuals as planning and decision making (Zimbardo & Boyd 1999). Time is elastic and not exogenous to the individual, and it will be influenced by the emotion the person experiences (Geoffard & Luchini 2010), and entrepreneurs behave in ways consistent with their perceptions and interpretations of reality (Gabrys & Bratnicki 2011). There is considerable evidence suggesting that mood influences the perception of time (Conway 2004).

Positive emotions with learning (P) - Entrepreneurs who experience positive emotions after business failure tend to move on and recover faster from business failure as compared to

entrepreneurs in other affective states. Happy people perceive their time passes more quickly than depressed people (Conway 2004), which explain the reason why entrepreneurs who experience positive emotions after business failure tend to recover faster than those who experience negative emotions. However, they do not necessarily re-enter entrepreneurship in the future.

Negative emotions with learning (N₁) - Entrepreneurs who experience negative emotions after business failure require longer time to overcome the negative impacts from failure. Individuals perceive time to flow slower when waiting for something to happen in uneventful or unpleasant situations (Wittmann 2009). Entrepreneurs may be waiting for a new job or opportunity and result in overestimating the passage of time. Also, being unemployed may cause boredom to entrepreneurs, which influence their perception of time (Danckert & Allman 2005). However, they tend to move on and re-enter entrepreneurship again after recovery from business failure.

Negative emotions with no learning (N₂) - Entrepreneurs who experience negative emotions after business failure may not be able to overcome the negatives impacts and recover from failure. Further research is required to investigate whether it is possible that entrepreneurs can shift from N₂ to N₁.

7. Conclusion

- Grief and other negative emotions such as anger, sadness, frustration, fear, embarrassment and guilt can be generated from business failure. At the same time, entrepreneurs may also experience positive emotions such as relief and relaxed after business failure.
- Entrepreneurs who are more attached to their business are more likely to generate higher levels of emotions when the business fails.
- Entrepreneurs who experienced negative emotions (such as stress and depression) perceive time to flow slower, and it takes longer time for them to recover from business failure because it is considered as an unpleasant situation, and boredom can be a result of losing a job.
- Entrepreneurs may experience different affective states after business failure:
 - (1) Positive emotions with learning;
 - (2) Negative emotions with learning &;
 - (3) Negative emotions with no learning
- We suggest that entrepreneurs who have experienced negative emotions after business failure and are able to overcome these emotions, are more likely to re-enter entrepreneurship in the future, than the entrepreneurs who have experienced positive emotions after business failure. However, more time is required for them to achieve learning and recover from the failure than the entrepreneurs who experience positive emotions.

8. Limitations

Qualitative research such as presented here rely heavily on participant recall. Further, the ability of the researcher to understand and interpret the conversations with participants is crucial to the outcomes and conclusions. The interpretations are, then, a constructed knowledge between the participant and researcher, and may show a bias because of it. This is important, but should be seen in the context of the philosophical paradigm of such research, where understanding and co-created knowledge is more important than dispassionate valid interpretation as would be found in more positivist research endeavours.

The participants were of a relatively coherent cultural background, and people from other cultures, social environments, and environmental factors could conceivably provide different interpretations on their experiences.

There could be a self-selection bias, in that only those willing to talk about failure took part. There is a possibility, as identified in the paper, that there could be entrepreneurs who fail and will not discuss their experience.

9. Future Research

Cohorts from different cultural and social backgrounds should be investigated to ascertain whether the findings in this paper are relevant to different cultural and social pressures and influences. There is also a need to understand better the perceived time aspect, and to this end, longitudinal studies exploring the impact of perceived time around entrepreneurial failure and whether this shifts could provide deeper understanding around the process of recovery and learning in particular.

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TECHNOLOGY LEVEL EFFECTS ON NEW FIRM'S CONFIGURATION OF RESOURCE

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Technology Level Effects on New Firm's Configuration of Resource

Abstract

Assembling, attracting, and combining resources does not guarantee success. The entrepreneur must deliver personal strengths to the firm and convert these individual strengths into organizational strengths that can lead to a unique advantage. The entrepreneur knowledge provides a basis for continued growth in value of the resource bundle and leveraging someone to achieve another. As Cohen and Levinthal (1990) point out, investments in R&D and technology have “two faces” for an organization. They do not only generate knowledge within the firm but also increase its ability to absorb knowledge from its environment. In this research not only try to understand vital resource for developing new firms but also decipher how one bundle of resource can be leveraged to acquire another in different technology level.

In this way, we examined the conceptual model on the performance of 308 firms established in 2007 and 2008 in Tehran through survey method and using questionnaires. Considering the necessity of defining the amount of synchronic influence of independent variables on dependent variable, multi-group structural equation modeling (SEM) used for hypothesis testing and data analysis.

Results show that among internal factors, individual resource with aspects of ‘human capital’, ‘employees and entrepreneurship social network’ and “path dependency” has the most impact on firms’ performance in high-tech firms. In contrast, ‘organizational resource’ has the highest impact on service sector and medium-tech new firms.

More plus, new firm performance in the service sector more predict by organizational resource than individual resource. Results demonstrate that financial resource impact on new firm performance increase from medium-tech to high-tech and service firms. Additionally, financial resource affects the firm’s performance by leveraging organizational resources in high-tech firms whereas in medium-tech firms, it affects the firm’s performance by predicting marketing capabilities’ path. In contrast previous research, findings reject direct and crucial impact of the financial resource on new firm performance.

1. Introduction

The idea, which senior performance requires a firm to decipher, identify, hold and improve resource over competitors, is central to current strategic thought. Hence, new firms seeking convenience encourage to identity and develop advantageous competences through their valuable, rare, inimitable and non-substitutable resources. The proper resources are essential but inadequate to gain a competitive advantage. As resources should be managed fruitfully (Gunasekaran et al., 2005; Mainela, 2012), the source of competitive advantage is not only resource but also the birthplace of the structuring resource. Thus, new enterprise strategies and resource structuring decisions are more valuable than resources possessing (Brush et al., 2001). To the long-term success, new firms early strategies must be founded on unique capabilities rooted in innovative combinations of resources and this mixture takes effect from

technology level (Brush et al., 2001; Schumpeter, 1976). Entrepreneurial ventures that are innovative and growth-oriented require different resource leveraging from slow-growth small- niche firms with low technology (Covin et al., 1990). Firm's Technological level determines knowledge needs. Therefore new high-tech firm due to technology life cycle have a greater need to update knowledge and learning from outside. Although previous research (Brush et al., 2001; Henderson and Clark, 1990; Ward et al., 1996; Wiklund and Shepherd, 2005) argue that pattern of strategic decisions has a higher impact on new firm performance than achieving resource in all industry types, their findings do not specify how these firms leverage the resource to get succeed. Hence, it seems a useful exercise to conduct a study on paths' contributing to success of medium-tech manufacturing, high-tech manufacturing and service sector firms bundling and leveraging resource. Thus, the purpose of this study is to determine the extent to "What configurations get the firm to high success in High-Tech, Medium-Tech and Service Sector?" The concept of configuration fit suggests that firms must match the demands of their technology level with their internal resource in order to survive and succeed. A proper fit positively affects performance, while a misfit negatively affects firms' business performance.

1.1. Theoretical and conceptual background

When we talk about new firm, performance relates to superiority in skills and resource. In this paper, we follow Chitsaz, et al framework and test a model of firm performance at new ventures in "High_Tech" manufacturing, "Medium_Tech" manufacturing and "Service Sector". In this framework they identified four variable named "individual resource", "organizational resource", "marketing capabilities" and "financial resource" to evaluate firm success. According this model, 'individual resource' increases 'financial resources', 'organizational resource', 'marketing capabilities' and performance (Chitsaz et al., Under revision). On the other hand, organizational resources have a positive effect on marketing capabilities and performance. In this model, financial resources predict organizational resource, marketing capabilities and performance. Finally, marketing capabilities have a positive effect on new firm's performance.

Ruiz-Mercader et al. (2006) believe that technology level and learning in small businesses are related to sector knowledge-intensity. Others believe sector knowledge-intensity has an impact on various managerial aspects (Desnoyers and Lirette, 1999). Covin et al. (1990) argue that strategic posture varies among new ventures in different industry life cycle stages. New ventures in emerging industries similar to high-tech industries have the most entrepreneurial strategic postures. Other researchers believe that industries with a greater need for new technology-based entrepreneurship grow disproportionately faster than other industries. They argue that the knowledge spillover effects fostering the growth of new technology-based firms contingent on certain industry level of technology (Delmar et al., 2011). On the other hand, theory of knowledge spillover entrepreneurship express that a context with more knowledge will generate more entrepreneurial opportunities. By contrast, a context with less knowledge will generate fewer entrepreneurial opportunities. According Audretsch and Keilbach (2007) empirical evidence entrepreneurial opportunities are not exogenous but rather systematically created by investments in knowledge by incumbent organizations and it make unique resource leverage based on technology level. Prajogo et al. (2014) argue that technological intensity is a moderator of firm's capabilities in delivering performance why the effectiveness of firms' strategies in producing competitive advantage is influenced by the organizational context, including the business environment. Hence, we consider, technology uses and its level in the firm are related to

sector knowledge-intensity and therefor affect to the firm performance by changing new firm's resource structuring. As a result we hypothesis that:

H: The relationships among individual resource, organizational resource, marketing capabilities, financial resource and performance in a new firm mediate with its technology level.

Considering previous sections discussions, the following conceptual model proposed for operational test:

[Insert Figure 1 about here]

2. Materials and Methods

To evaluate the proposed theoretical model, we collected dataset from 308 firms established in 2008-2009 in Insurance's Social Security Organization data bank. In this section, we describe the empirical setting and data collection protocols.

Our empirical analysis draws on the latest available high-, medium- and low-tech classification proposed by Legler and Frietsch (2006) using sectorial R&D expenditure as benchmarks.

2.1. Data Sources

From the Insurance's Social Security Organization database, we identified 62000 independent new ventures created during 2008 to 2009 by a founder or a team of founders. The firms specialized by industry and finance on high-tech-manufacturing such as computer software, IT, pharmaceutical, medical equipment, bio-technology, telecom and data communication, industrial products and machinery (CNC, Sensor, process control, machine vision, instrumentation, pollution and recycling related). Medium-tech-manufacturing firms categorized as food industries; textile and fabric; vehicle and propulsion; machinery and equipment; cellulose, mineralization and metal. Service sector was include retails, banks, hotels, real estate, education, health, social work, transport, computer services, recreation, media, communications, electricity, gas and water supply. We collected data in two steps. First, with a questionnaire during the fourth year of the new venture creation, we collected data on financial resources, individual resource, organizational resource and marketing capabilities as independent variables; and customer performance and financial performance dependent variables, based on the applied indexes and definitions and studied theories.

This questionnaire also has some common questions such as the entrepreneur's education, gender, year of establishment, company's name, company registration number, business plan design at the time of establishment, number of employees and entrepreneur's opinions.

Second, this research data on financial information gathered according firms reports to the Iranian Tax Organization.

The data only included the ventures which have less than 42 months years old (Levie and Autio, 2008). Therefore, the population of the study was those firms which established in 2008-2009, in Insurance's Social Security Organization data bank.

The empirical data presented in this study include complete data of 62000 new ventures with less than 42 old (out of the original sample of 1241 new ventures, a 2% yield rate). The final sample included 308 new ventures.

2.2. *Potential Bias Tests*

To examine representativeness of the participating firms, we performed a MANOVA to compare participating firms with non-participating firm on founding team size, pre-business planning. The results were not significant at the 89% confident level for all variables; there were no significant differences between the participants. Therefore, we concluded that the final sample of 308 new firms has representative validity.

2.3. *Study Measures*

Individual Resource (IR) measured using a 3-dimension “Employees and Entrepreneurs Knowledge (EEK)”, “Employees and Entrepreneurs Social Network (EESN)” and “Path Dependency (PD)” in 5sclae. Employees and entrepreneurs knowledge adopted from (Wennberg, 2009). This measure assesses the relevant and irrelevant education level of employees and managers in comparison to the industry average. Employees and Entrepreneurs Social Network adopted from (Raz and Gloor, 2007). This measure assesses the strength of relation, cooperation, confidence and intra-organizational networks of employees and entrepreneur. Path Dependency adopted from (Tu et al., 2006). This measure assesses the progress history of the entrepreneur and employees and their relevant and unrelated experiences.

Organizational Resources (OR) measured using a 3-item knowledge Scanning (KS), flexible structure(FS), supporting creativity and innovativeness culture((Pandey and Sharma, 2009) newly developed for this study. Knowledge Scanning adopted from (Tu et al., 2006). This measure assesses firm’ efforts to investigate and interpretation of the political, economic, social and technological events and trends with using suppliers, competitors, consumers, partners, educational and research centers. Flexible structure adopted from (Carter et al., 2006). This measure assesses the method of organizing and productivity according firm’s boundaries, choices, flow and tools. Supporting creativity and innovativeness culture adopted from (Pandey and Sharma, 2009). This measure assesses open, supportive atmosphere safe-failing and organizational learning.

Marketing Capability (MC) measured using 6-item scale adopted from (Weerawardena, 2003). It assesses whether the new venture had a strong customer relationship (CR); distinguished product (DP), brand reputation (BR), promotion activity (PA), marketing research (MR) and distribution network (DN).

Financial Resource (FR) is a 5-item scale financing and cash flow preparing (FCP), cash flow planning (CFP), controlling and reporting (COR), portfolio management (PM) and investor relations (IR) newly developed for this study. “Financing and cash flow preparing” and “cash flow planning” adopted from (Sanz and Lessiza, 2013); controlling and reporting adopted from (Deslauriers, 2011). For portfolio management, we used (Lutz et al., 2013) indicators. Investor relations we adopted from (Sanz and Lazzaroni, 2009).

Performance (PERF) measured using a 3-item scale adopted from G. Hooley, Fahy, Greenley, Beracs, & Boris, (2003). It does include customer performance (CP), market performance (MP) and financial performance (FP). The scale degree of market performance assesses sales volume and strong market share. Customer performance measure satisfied and loyal customers with three criteria, which are customer retention, customer satisfaction and trust. 'Financial performance' test profit, profit margin, and return of investment, which we collect profit and profit margin from Iranian Tax Organization data bank.

Validity of research tool's context confirmed by five experts with academic qualifications and managerial experience in newly firms' performance. The reliability of the questionnaire tested by Cronbach's alpha method. The Cronbach's alpha coefficient was 78% in the first step. Then, the questions, which decreased the reliability of the questionnaires, eliminated by factor analysis; (questions about patent registration, 'purchase and sales' in 'knowledge scanning' variable and questions about 'investor relations' and 'portfolio management' from 'financial resource' variable). Second calculation shows 90.4% for Cronbach's alpha coefficient. Considering this research and the necessity of defining the amount of synchronic effect of independent variables on dependent variable, structural equation modeling (SEM) used for hypothesis testing and data analysis.

3. Results & Discussion

Using the full sample of empirical data from the survey, we analyzed the theoretically derived model. Furthermore, we conducted a multi-group comparison using different sub-samples. We chose the partial least squares (PLS) approach (Chin, 1998) for data analysis as it is advantageous compared to covariance-based approaches when the research model is relatively complex and relationships between indicators and latent variables should be modeled in different modes (Calantone et al., 2011). We examine the hypothesized structural relations among the constructs in Figure 1 with a full-structure model using the maximum likelihood estimation procedure in Lisrel 8.80. The method is that at first we evaluated null-hypothesis by assuming all path coefficients equality in high-tech, medium-tech and service sector ($\chi^2 = 4.2$; $df=2$; $\chi^2/df=1.6$; GFI=0.92; CFI=0.96; NFI=0.95; RMSEA=0.015). The models indices in three groups suggest that the full model fits the data well. Considering the original model's indices, it could be said that the model has a relatively good fit with data. However, given the error observed, it needs to be modified.

Next by rejecting model similarity we examine alternative-hypothesis in the groups by releasing the coefficients estimated and presume that every group has its own path. Because the competing model obtained better coefficients fit, it can be concluded that new firm's resources configuration influenced by the technology level.

[Insert Table 1 about here]

Considering the final model indexes, it could be said that the model has a good fit with data and by eliminating the relation between 'individual resource'-'marketing capability' and 'financial resource'-'performance' in all groups and eliminating 'individual resource' to 'performance' in medium-tech and services groups, not only the error rate (RMSEA and SRMR) decreases considerably, the model fit (GFI and AGFI) increases as well. Furthermore, all hypothesized

relationships, with one exception, were statistically significant ($p < .01$). The results of the final structural model are shown in Figure 2,3,4. Table 2 presents standardized path coefficient estimates and goodness-of-fit indices.

[Insert Figure 2,3,4 and Table 2 about here]

In high-tech group results suggest that the individual resource as the most important variable, predicts the status or quality of financial resources (34%), organizational resource (44%) and performance (41%). Additionally, medium-tech model states that the individual resource as the most important variable, predicts the status or quality of financial resources (37%), organizational resource (56%) and performance (25%). Service sector results show that the individual resource as the most important variable, predicts the status or quality of financial resources (30%), organizational resource (32%) and performance (15%). It means that individual resource comprised of firm's 'human capital', 'social network' and 'path dependency' is the most important variable in firm performance prediction.

High-tech model analysis show that organizational resource is predicted by individual resource (35%) and financial resources (33%) which is itself the predictor of performance directly (36%) and indirectly (5.8%) (through marketing capabilities). As well, medium-tech model analysis show that organizational resource is predicted by individual resource (50%) and financial resources (35%) which is itself the predictor of performance directly (56%) and indirectly (18%) (through marketing capabilities) but in service sector organizational resource is predicted by individual resource (40%) and financial resources (25%) which is itself the predictor of performance directly (61%) and indirectly (16%) (through marketing capabilities)

Marketing capabilities has also a positive effect on new firms' performance; in high-tech group its effect is equal to 20% at medium-tech the effect increase to 49% whereas in service sector is about 32%. However, the effects of individual resource on marketing capabilities have not been proved. Moreover, results didn't verify the positive effect of financial resource on new firm performance in all group types. Meanwhile, according data and analysis the path between individual resource and performance didn't confirmed in medium-tech and service sector. In addition, results didn't suggest any path between financial resource and marketing capabilities in service group.

According table 2, consistent with H₁ and H₄, 'financial resource' and 'organizational resource' and are found to be positively related to the 'individual resource' ($p < 0.01$). Therefore, H₁ and H₄ are supported in all groups.

In all groups, hypothesis H₅ and H₆ predict that 'organizational resource' is positively related to the 'marketing capabilities' and 'performance'. The results provide supports for H₅ and H₆ ($p < 0.01$). As predicted by H₇, an increase in 'financial resource' leads to an increase in 'organizational resource' ($p < 0.01$), supporting H₇ in all groups.

Hypotheses H₉ predicts that 'marketing capabilities' positively affects the 'performance', the results provide support for this hypotheses ($p < 0.01$).

Counter to hypothesis H₂, 'individual resource' is not shown to provide a significant positive effect on 'marketing capabilities' ($p > .10$) in all groups. Also, in contrast H₈ in all

groups, 'financial resource' doesn't have positive relation with 'performance'. In sum, seven of our nine hypotheses are supported with only H2 and H8 not supported by the results.

The analysis of the research model of the surveyed firms shows no significant path between individual resource and performance in medium-tech firms and service sector lead to reject H₂ in medium tech and service sector.

Finally, results illustrate that financial resources don't have any significant path to marketing capabilities at service sector which rejecting H₁₀ at service sector.

3.1. Important Resource for New Firm's Performance

The entrepreneurship literatures have not answered this research questions relating that which resource is most important for new firm's performance in deferent level of technology? This study provides answers to all this questions. Referencing the standardized path coefficient estimates of Figure 2,3,4 and Table 2, we notice that 'individual resource', 'organizational resource', 'financial resource' and 'marketing capabilities differentially affect a new firm's performance. On the effects of the performance, we notice that 'individual resource' has the largest standard coefficient estimate in high-tech firms ($\beta=0.41$) while 'organizational resource' has the largest standard coefficient estimate in medium-tech firms ($\beta=0.56$) and service sector firms ($\beta=0.61$). This result indicates that 'individual resource' is the most important capability for achieving a high quality performance in high-tech firms and 'organization resource' is the vital and considerable capability for achieving a high performance in medium-tech' and service sector' firms.

This data defines a lack of a significant relationship between individual resource and marketing capabilities in all groups. Also, data analyses cannot admit a performance prediction with financial resource.

Table 3 provides the total effects (i.e., direct and indirect effects) of each construct on new firm performance in each group. The empirical results in Table 3 reveal differences in the relative importance of the capabilities and resource on new firm performance. Based on the standardized total effect estimates of Table 3, in high-tech group, the order of importance of these factors in descending order is as follows: individual resource (0.41), Organization resource (0.36), marketing capabilities (0.20) while financial resource are found to have no significant effects on new firm performance. In medium-tech firms the ranking of resource is organizational resource (0.56), marketing capabilities (0.27) and individual resource (0.25). In comparison, service sector firms need to organizational resource (0.61) at the highest important level and in subsequent level need to marketing capabilities (0.32) and individual resources (0.15).

Unquestionably, this result suggests that individual resource is the most important factor in the at new high-tech ventures performance whether organizational resource has the most effect on new firm performance in both medium-tech and service sector.

4. Conclusions

Large parts of literature (Prajogo et al., 2014; Ward et al., 1996) demonstrate that technological intensity influences competitive capabilities in predicting business performance. The research

described in this paper examined how technological intensity affects firm resources' configuration to get succeed. These resource decisions follow the entrepreneurs' judgments about which resources are more or less important, and are based on their expectations about the future of the firm, or the perceived criticality of the resources in the organizing process. This research disagrees with some of the earlier researchers (Kakati, 2003) who tend to discount the role of the entrepreneur in favor of other variables in the success of a new venture in high-tech firms and agree with them in medium-tech and service sector firms. Similar to other researchers (Brush et al., 2001; Ward et al., 1996; Wright et al., 2007), this research suggests that individual entrepreneurs are key contributors to the firm performance in high-tech firms while in contrast organizational resource has a higher effect than individual resource in medium-tech and service sector. Hence, social capital; experience and knowledge of entrepreneur and employees play a critical role in the success of a new venture. As Kaul (2012) argued industry context can influence the degree to which incumbent firms pursue technological entrepreneurship while this result demonstrate that the technology intensity can affect to resource leveraging to getting success. In contrast with Brush et al. (2001), results indicate that successful ventures in different technology level appear to follow different resource leveraging patterns and development approach whereas approximately in the same technology level have a similar resource configuration, i.e. venture performance is superior when resource configuration with technology intensity are used in concert.

As a result, marketing capabilities has a higher effect on performance in medium-tech and service sector than high-tech firms. This observation is intuitively plausible why high-tech industries can charge higher price premium for their unique and customized offerings as the prospective consumers may not be as cognizant of what constitutes a reasonable product price and therefore, price may not be as important purchase criteria. From similar argument, brand reputation and promotion activity have a lower important in high-tech firms than medium-tech and service firms. In medium-tech and service sector consumers are frequently familiar with the product or services offerings and consequently, often have good sense of what the product 'should' cost. Also, because of higher level of competition they need more marketing capabilities to serve their products and services than high-tech firms. Because entering in these sectors is easier than high-tech sector. Relatively supply side pressure provides consumers the impression that they will be getting a bargain situation and therefore, firm need higher level of marketing capabilities to develop their market and distribute even for unique and customized products.

In high-tech firms, entrepreneur and employees' social network, knowledge and path- dependencies can predict firm performance, why the commitment of the core team and other employees, their expertise and knowledge can shape the other firm's resource. Those less critical were seen as marketing capabilities, financial resource and organizational resource. Additionally, organizational resource and marketing capabilities have a higher affection to new firm performance than financial resource in high-tech firms.

On the importance of internal resource in high-tech firms as antecedent drivers of advantage, we find that the new firm's financial resource and marketing capabilities are much less, not more, important sources of advantage in the new firm success than individual resources. For example, our results challenge the traditional view that marketing capabilities and financial resources are the most important capabilities for the execution of a high level performance. Although we confirm that marketing skills do enable new ventures to execute a high performance, we show

instead that individual resource is the most important driver for the execution of a high performance in high-tech firms. Therefore, social network, knowledge and path-dependency of entrepreneur and employees, participate in high-tech firms' success concept, and get involved in every stage of firm activities' process contributes more than marketing capabilities to the execution of a high level performance.

On the importance of organizational resource in firm performance, we find that the new venture's marketing capabilities and financial resource are much less, not more, important for the success of new firm than internal knowledge Scanning, flexible structure and supporting creativity and innovativeness culture in all of firms and specially in medium-tech and service sector. We show that making a high level performance in all firms' types need continues and persistent knowledge scanning, flexible structure and finally supporting creativity and innovation culture than high levels of marketing capabilities and a highly resource financing. These results contradict the dominating view in the entrepreneurship literature that emphatic the importance of marketing capabilities and financial resource in the development of a firm performance. They also contradict research work on new firm performance(Morgan et al., 2009) that has claimed the marketing capabilities as a principal determinant of performance. Results advocated organizational resource as the first most important factor predicting new firms' performance in medium-tech and services. Organizational resource effects performance directly and indirectly (through marketing capabilities). Also, this results collaborate new concept of opportunity in relation to new business formation, which believe that opportunities are developed through interaction and co-action and are collectively (rather than unilaterally) enacted, discovered and exploited; contrary to what more traditional entrepreneurship research argues(Ciabuschi et al., 2012; Holmlund, 2012).

The findings show that organizational resource depends on individual resource and financial resources. Researchers believe that individual resource is a prerequisite of organizational learning (identification and use of knowledge). It means that group activities and experience as an opportunity resource could be a base for organizational learning(Denrell, 2003). But as figure 2, 3, 4 and table 2 demonstrate, predicting performance by organization resource increase from high-tech industries to medium-tech and services. It can show that in service and medium-tech firms we need more leadership skills to exploit individual resource in organization and pass it to achieving high level of performance.

Considering the effect of financial resources on new firms' performance, the results suggest that financial resources depends on individual resource, because they provide by experience, knowledge and social abilities of entrepreneur and employees. Researchers think that new firms are in need for financial supports beyond access, suggest that managers need slack to increase firm size or innovate, respectively(Daniel et al., 2004). Although previous studies(Li and Ferreira, 2011) describe financial resources effect on business performance; however they are silent about the way of financial resource affection. Considering the fact that access to financial resources, not directly, but indirectly and through leveraging individual and organizational resource, lead to positive change in performance, it is recommended that in policy makers, instead of allocating large financial resources directly, pave the ground for reinforcing organizations' abilities and structures. This model expands understanding of financial resource role in new firm success. Similarly, we challenge the traditional view that financial resource is one of the important capabilities for firm success when new firms fail because of their lake of

legitimacy to attracting financial resource. We show instead that financial resources are much less, not more, important than individual resource in firm performance that is a resource to fill legitimacy gap for new firm with making connection according knowledge and experience. Similar to Brush et al. (2001) we believe that strong and well-targeted networking along with well-targeted and knowledge in field will better succeed the firm than financial resources. This is consistent with research that has used information processing theory to show that greater “liability of newness” increases the need for higher “individual resource in the firm development effort”(Gupta et al., 1986).

The present research findings contribute to evaluation of new firms dissolution and firms' survival and performance and help investors to evaluate firms' risk.

However, we do not suggest that the study represents a complete picture of new venture performance. Neither can we claim that we exhausted every variable that impacts venture performance, in the administration of our questionnaire as we can see error variance of performance. Hence, it may provide a fruitful stream of future research.

Studying this model in a longitudinal research not only makes it possible to observe new firms dissolution, but also presents more accurate information on performance.

Further research could evaluate more independent and various variables which was not possible in the present research due to use of previous theories. This means that using semi structured interviews as a methodology helps to enrich the researches.

At present, the linear relations have only been evaluated in resulted models. Therefore, further studies are needed to assess whether this relation is exactly linear and the relations are curved.

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Figures

FIGURE 1

A Conceptual Framework for Studying the Internal Factors Affecting New Firm's Performance

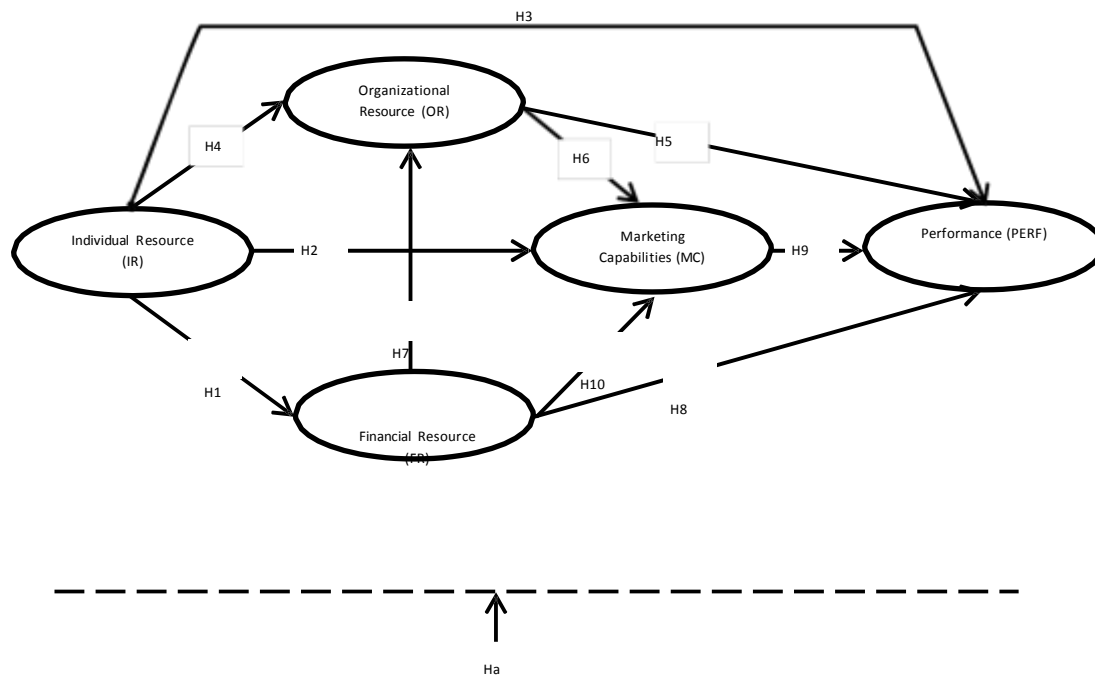
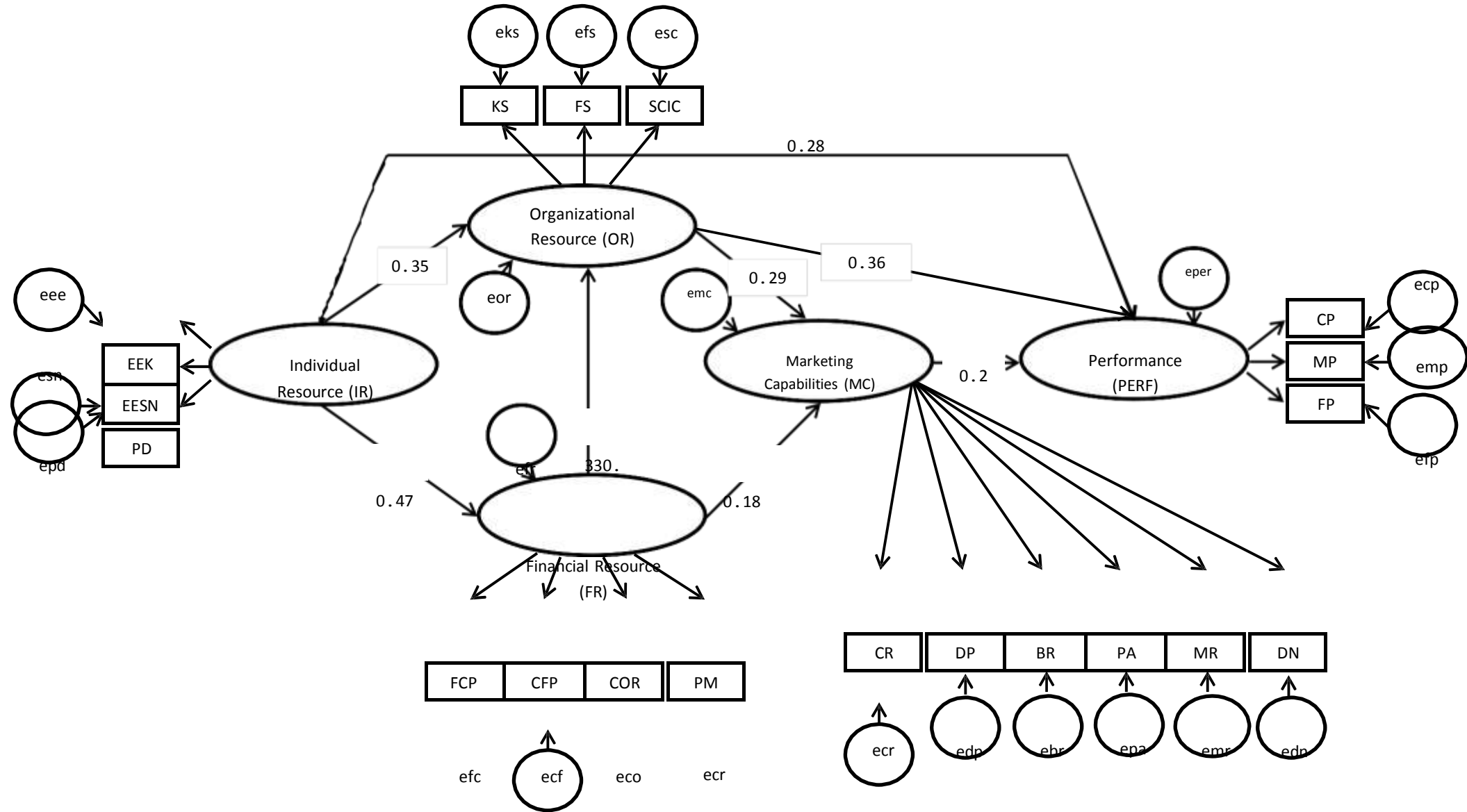
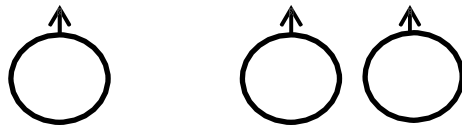


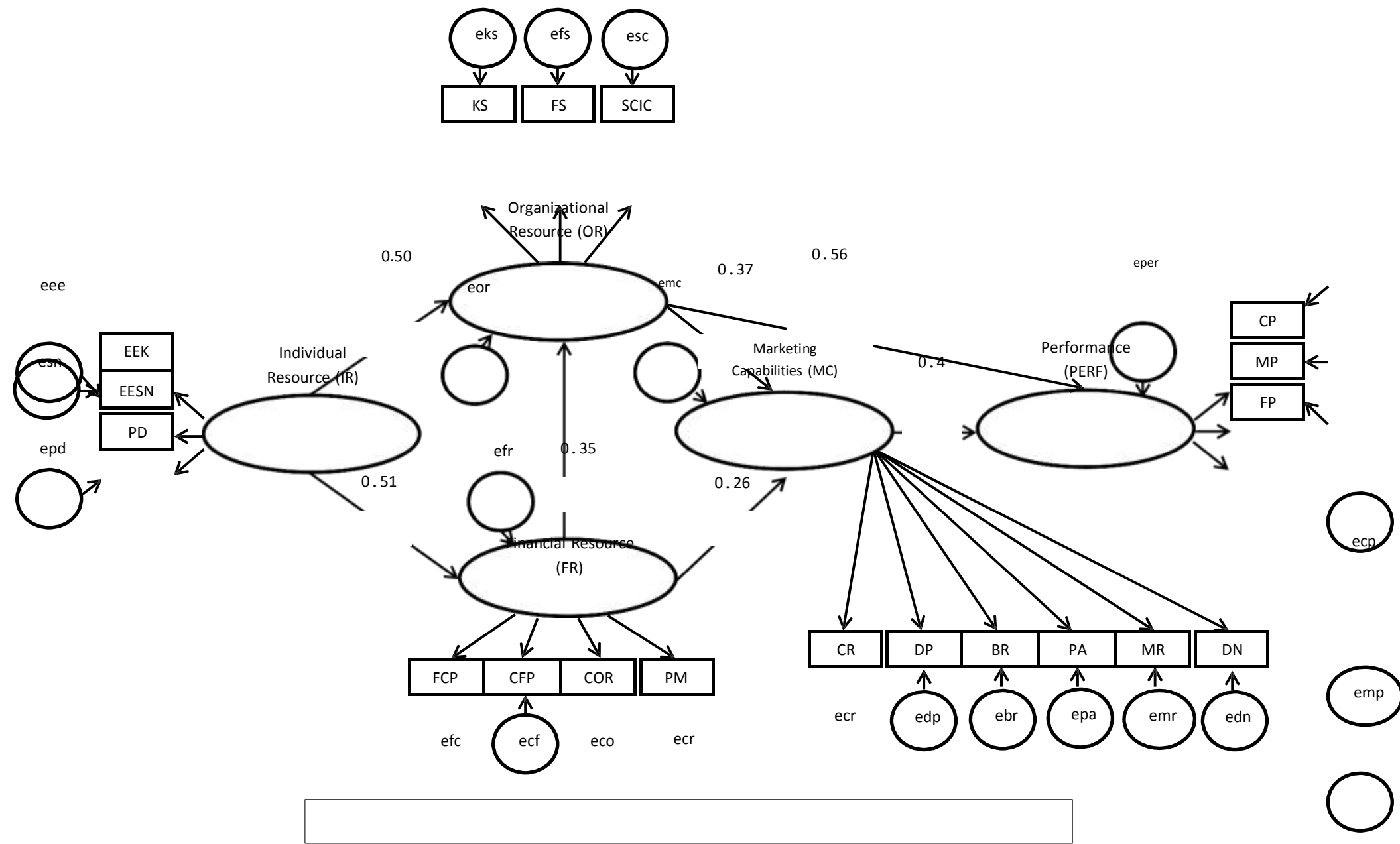
FIGURE 2: Results of Full Structural Equation Model for High-Tech Firms

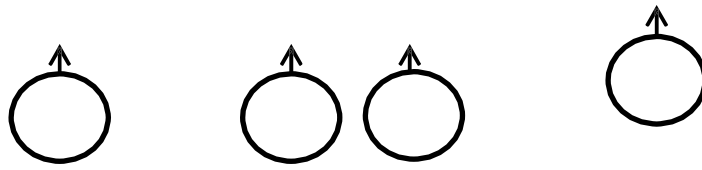




Chi-Square=0.74, df=2, P-value=0.67927, RMSEA=0.000

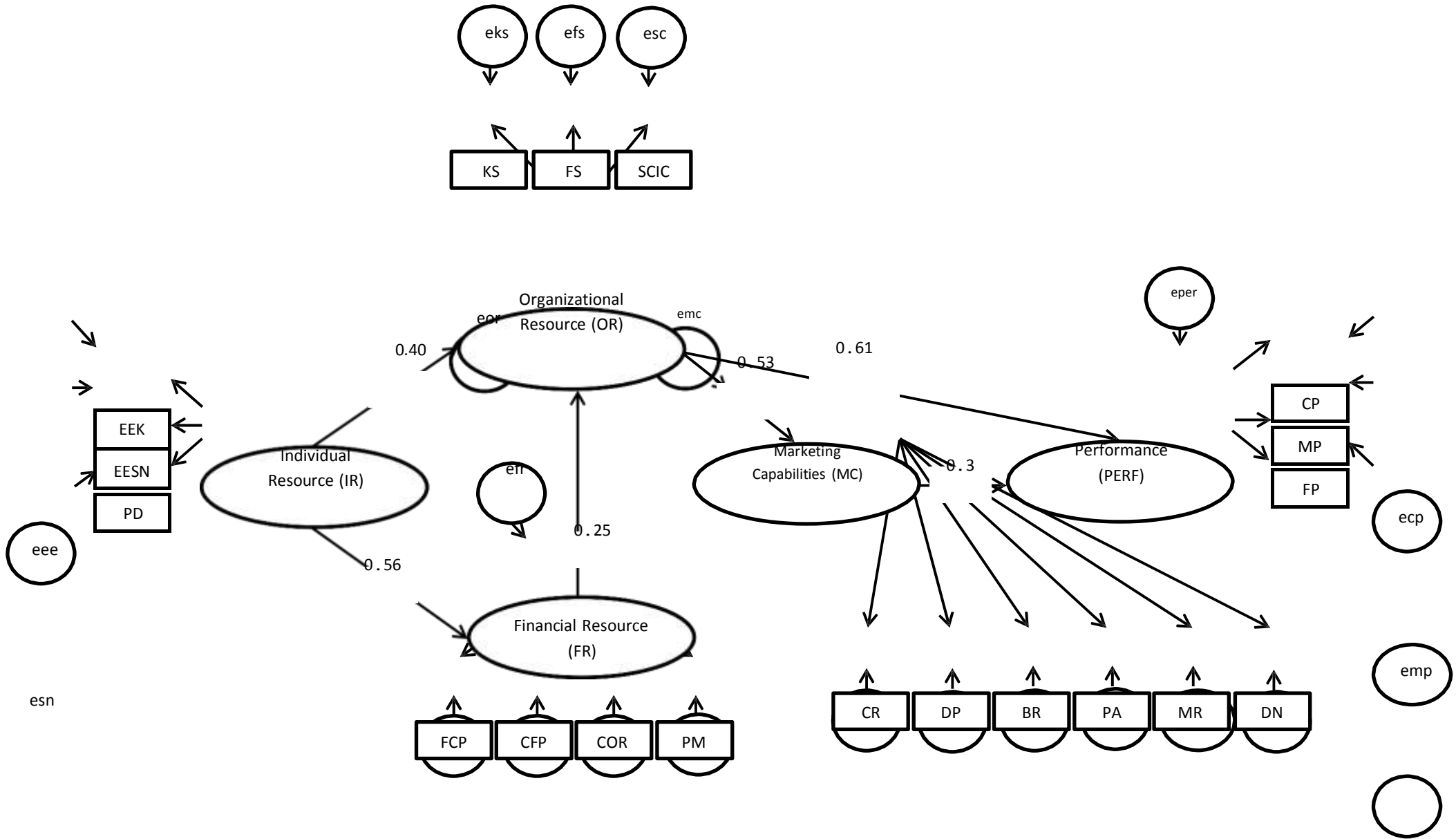
FIGURE 3: Results of Full Structural Equation Model For Medium-Tech Firms

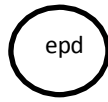
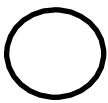




Chi-Square=1.63, df=3, P-value=0.65203, RMSEA=0.000

FIGURE 4: Results of Full Structural Equation Model for Service Sector Firms





Chi-Square=0.007, df=4, P-value=1.0000, RMSEA=0.000

efp

Tables

TABLE 1 Covariance Matrix for High-Tech/Medium-Tech/ Service Sector Firms

	Individual Resource(IR)			Organizational Resource(OR)			Financial Resource(FR)			Marketing Capabilities(MC)			Performance(PERF)		
	High	Med	Serv	High	Med	Serv	High	Med	Serv	High	Med	Serv	High	Med	Serv
Individual Resource(IR)	0.93	0.86	0.76												
Organizational Resource(OR)	0.47	0.58	0.41	0.53	0.70	0.69									
Financial Resource(FR)	0.41	0.44	0.43	0.36	0.43	0.37	0.61	0.60	0.80						
Marketing Capabilities(MC)	0.27	0.28	0.22	0.24	0.37	0.36	0.23	0.31	0.19	0.48	0.71	0.57			
Performance(PERF)	0.48	0.40	0.32	0.37	0.49	0.54	0.29	0.31	0.29	0.26	0.40	0.41	0.59	0.79	0.88

TABLE 2 Full Structural Equation Model Estimates

From	To	Hypotheses	High-Tech Standardized Coefficient Estimate	Medium-Tech Standardized Coefficient Estimate	Service Sector Standardized Coefficient Estimate
Individual Resource(IR)	Financial Resource(FR)	H ₁	0.47***	0.51***	0.56***
Individual Resource(IR)	Marketing Capabilities(MC)	H ₂	0.11*	0.068*	-0.033*
Individual Resource(IR)	Performance(PERF)	H ₃	0.28***	-0.009*	0.085*
Individual Resource(IR)	Organizational Resource(OR)	H ₄	0.35***	0.50***	0.40***
Organizational Resource(OR)	Performance(PERF)	H ₅	0.36***	0.55***	0.61***
Organizational Resource(OR)	Marketing Capabilities(MC)	H ₆	0.29***	0.37***	0.53***
Financial Resource(FR)	Organizational Resource(OR)	H ₇	0.18***	0.35***	0.25***
Financial Resource(FR)	Performance(PERF)	H ₈	-0.013*	0.18**	0.011*
Marketing Capabilities(MC)	Performance(PERF)	H ₉	0.20***	0.49***	0.32***
Financial Resource(FR)	Marketing Capabilities(MC)	H ₁₀	0.19***	0.26***	0.003*
High-Tech Full Model: Goodness-of-Fit: χ^2 =0.77; df=2; χ^2/df=0.38; P-Value= 0.67927; GFI=1; CFI=1; NFI=1; RMSEA=0.000					

Medium-Tech	Full Model: Goodness-of-Fit: $\chi^2 = 1.64$; df=3; $\chi^2/\text{df}=0.54$; P-Value= 0.65203; GFI=0.99; CFI=1; NFI=1; RMSEA=0.000
Service Sector	Full Model: Goodness-of-Fit: $\chi^2 = 0.001$; df=2; $\chi^2/\text{df}=0.00$; P-Value= 1.000; GFI=0.99; CFI=1; NFI=1; RMSEA=0.000

Note:***: p<.01; **: p<.05; *: p<.10. , All hypotheses were evaluated using two-tail tests.

TABLE 3 Results of Lisrel 8.80 Maximum Likelihood Estimation: Total Effects of Determinant Factors on New Firm Performance

Factor	Performance (PERF)		
	High-Tech	Medium-Tech	Service Sector
Individual Resource(IR)	0.41***	0.25***	0.15***
Organizational Resource(OR)	0.36***	0.56***	0.61***
Marketing Capabilities(MC)	0.20***	0.27***	0.32***
R ²	0.53***	0.49***	0.53***
PERF = 0.36*OR + 0.20*MC + 0.28*IR, Errorvar.= 0.27 , R ² = 0.53			
High-Tech	(0.11) (0.091) (0.077) (0.041)		
	3.29 2.30 3.64 6.71		
PERF = 0.56*OR + 0.27*MC, Errorvar.= 0.41 , R ² = 0.49			
Medium-Tech	(0.079) (0.078) (0.051)		
	7.14 3.43 8.00		
PERF = 0.61*OR + 0.32*MC, Errorvar.= 0.42 , R ² = 0.53			
Service Sector	(0.11) (0.12) (0.066)		
	5.74 2.76 6.32		

Note: ***: p<.01

EXPECTATIONS AND REALTIES OF FORMAL NETWORKS FOR ENTERPRISE DEVELOPMENT: THE FEMALE ENTREPRENEUR'S PERSPECTIVE

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Expectations and realities of formal networks for enterprise development: the female entrepreneur's perspective

Abstract

Encouragement of women to engage in new venture formation offers opportunities to increase overall levels of entrepreneurial activity: however, relatively little is known about the ways in which women use networks, particularly formal networks, to access the support and resource required for venture development and growth. There are suggestions that, compared with men, women tend to lack the human and financial capital to develop growth-oriented ventures. Their social capital connections are, therefore, important as they may provide access to key resources. Network research amongst female entrepreneurs is increasing, and suggests women emphasise informal relationships, often with other women, which may limit access to key resources. Less is known about their use of formal networks which, potentially, offer different resources which might help to address key gaps. Qualitative research reported here explores the experience of 36 female entrepreneurs in Northern Ireland to understand the expectations and realities of their participation in and use of formal networks.

Introduction

For governments interested in accelerating economic growth by stimulating entrepreneurial activity there is scope to encourage higher levels of engagement by women since despite increased levels of activity in recent years they still represent a relatively untapped source of entrepreneurial potential. In Northern Ireland, for example, the location of this research, the average level of entrepreneurial activity is 4.9% (compared with 5.6% in the United Kingdom), and the female rate is just 2.1%, making women four times less likely to start a business than men (Hart, 2007).

The ability to develop and manage networks effectively is generally recognised as a key entrepreneurial ability, crucial for venture establishment and growth. When establishing and developing a businesses many entrepreneurs engage in networking to access knowledge, and other types of resources. Much of their activity is with individuals and organisations in their informal networks, but networks created and supported by public and private sector organisations have been established with the intention of facilitating interactions. Whilst our knowledge of entrepreneurship and of the value of networking is increasing relatively little is still known about female entrepreneurs (Brush et al 2009, Gundry et al, 2002; McMurray, 2001) and, more specifically, how women utilise formal networks which are a potentially important source of knowledge and other resources for business development and growth. What is known suggests that women and men might networks in different ways, and that some of the practices in which women engage, such as focusing their efforts on single, same-gender networks, might limit personal and venture development.

This paper explores how female entrepreneurs engage with formal networks when establishing and developing their enterprises. It draws on findings of a study which adopted qualitative methodology, using semi-structured, in-depth interviews, to explore the evolution of the networks of 36 female entrepreneurs in Northern Ireland, analysing in particular the ways in which they engaged with and utilised formal networks over time, in order to understand better the roles which formal networks play at different points in the growth of a business. It considers their expectations of formal networks and their experiences with respect to the use of these networks over time, and their experiences with respect to single-gender and mixed-gender networks. Whilst informing our understanding of networking at a theoretical level, an enhanced

understanding of women's engagement in formal networks is of practical importance as it may help shape the types of network which are developed.

The paper begins with a review of literature on networks and networking, and some influences on women's decisions to engage in networking behaviour, before posing the central research question. The methodological approach is then explained, in advance of the presentation of the findings, discussion and conclusions.

Networks and the networking activities of female entrepreneurs

When establishing and developing a new venture the entrepreneur will require a range of resources, depending upon the nature of the business. The entrepreneur may already possess some of these resources but is likely to need to acquire others through formal and informal means. Entrepreneurial networking is the process of utilising relationships to support and facilitate business development and is characterised by the relationships or alliances which an individual has or may seek to develop between him/herself and others. This network of contacts is, in essence, an intangible asset, intrinsically situated within an individual and in the personalised way in which he/she has nurtured and developed relationships with their network of contacts (Iacobucci, 1996; Hunt & Morgan, 1995; Bryson et al, 1993).

Literature suggests that entrepreneurs utilise two basic types of network, formal, structured, business networks, and more informal personal networks developed by the individual entrepreneur (McGowan & Hampton, 2006). Quality measures in any network, such as centrality, diversity, reachability and the strength of weak ties are well recognised and can add value to any entrepreneur's decision-making processes (Klyver, 2007; Neergaard et al, 2005; Tonoyan et al, 2005; Davidsson & Honig, 2003; Adler & Kwon, 2002). Information, confirmation and seeking business opportunities are seen as key benefits expected by those investing in the development of networked relationships (Farr-Wharton & Brunetto, 2007) and should reflect such dimensions of quality. The challenge for the entrepreneur is to introduce dimensions of quality in a balanced way, into their network of contacts within formal or informal domains. A thoughtful approach to managing networking and the challenge of achieving balance is important if those contacts are to offer some of the expected benefits.

Female entrepreneurial networking

Female entrepreneurship represents a growing area of research (Curli, 2002), but relatively little attention has focused on their networking activities: what evidence there is suggests that women may develop different approaches to their networking activities from men, with the focus of most research being on the informal aspects of the networking activities of female entrepreneurs (van Emmerik et al, 2006). This raises the question, what impact might such behaviour have on the types of resources and support available.

Women have reason to have high expectations from managing their networking efforts, with research suggesting networks provide significant advantages (Linehan & Scullion, 2008), allowing them to develop a competitive edge in business (Miller et al, 2007). Through networking they can gain advice (Brüderl & Preisendörfer, 1998), support (Greve & Salaff, 2003), develop strategic alliances (Tonoyan et al, 2005) and acquire credibility and legitimacy for themselves and their business (Carter & Shaw, 2006). Some researchers, suggest that women do business and engage in networking in ways that are similar to male entrepreneurs (Davis and Long, 1999; Buttner, 1993), including the need to be effective networkers (Brush, 1997). Others, however, suggest that there are marked differences between men and women establishing new ventures

or growing existing businesses, particularly with respect to network development (Forrett & Dougherty, 2001; Shaw et al, 2001; Starr & Yudkin, 1996; Aldrich, 1989), which requires further investigation. Despite supposed advantages female networking activity is seen to suffer problems arising from limitations on the size, density, range and network tie strength (Knouse & Webb, 2001; Ibarra, 1993; Granovetter, 1982), identified, in networking theory as key quality measures.

It appears that men and women have different expectations when establishing networks as women tend to seek social relationships, whilst men tend to seek personal advantages (Buttner, 1993). Characterising women's networks, Martin (2001) suggests that female entrepreneurs seek to build and emphasise collaborative, inclusive relationships, whilst Robinson and Stubberud (2009) suggest that they do not identify strongly with existing formal networks such as business associations, or clubs, preferring to seek advice from family and friends. Some studies identify the informal networks of male entrepreneurs, the so-called, 'old boy's networks, as a key source of business opportunities from which women are often excluded (MacRae, 2005; Timberlake, 2005; Gamba & Kleiner, 2001). Gaining access to these networks, beyond mere 'tokenism', poses real challenges for women (Shaw et al, 2001), for reasons including low self-confidence (Tonge, 2008), anxiety about discrimination, a perceived lack of competence relative to male members, and concern about the amount of time and effort required to engage given their domestic responsibilities (Marlow & Strange, 1994; Smeltzer & Fann, 1989).

With regard to this latter point, research recognises that it is women who take on the heavy burden of childcare, adult care and household responsibilities, doing much more on these unpaid activities than men (O'Reilly, 2004; Verheul et al, 2004). Further, female entrepreneurs experience a sense of guilt and/or conflict when attempting to reconcile their work and family commitments (Carter, 1993; Goffee & Scase, 1985; Carter & Cannon, 1988), particularly those with children who may encounter greater competing demands and be more constrained in how much time they can devote to their business than non-parents (Renzulli et al, 2000).

While the motivations of some female entrepreneurs may be similar to their male counterparts, in terms of a desire for independence and financial gain, there is an argument that large numbers of women, unlike men, are motivated to engage in business venturing in order to balance work responsibilities and earning potential with domestic and familial responsibilities (Mattis, 2004; Marlow & Strange, 1994). However, the reality of having to combine their businesses with childcare responsibilities is seen to have negative implications for business performance, with female entrepreneurs often working fewer hours or on a part-time basis (Weiler & Bernasek, 2001; Barclays, 2000; Mazzarol et al, 1999), or often working long into the night to catch up (Fielden et al, 2003). The issue of work/life balance, therefore, has a direct impact on the ability of female entrepreneurs to engage in formal networking activities in particular which often require specific levels of commitment and engagement from members, including attendance at meetings and events, often presenting women with difficult choices, causing tensions for them between their personal and professional responsibilities. If business events are in the evening the tension is even greater where the woman takes a lead in childcare/caring activities.

Given these many often additional challenges, relative to men, which women face as the ones traditionally responsible for meeting demands of family and other such caring commitments, the challenge they face in deriving benefits in reality from their networking activity requires them to seek novel, as well as sympathetic, ways to make

progress in this key area of entrepreneurial venturing (Linehan et al, 2001; Martin, 2001).

Women entrepreneurs and their use of formal networks

Prior research suggests that, historically, there have been few formal, structured women's networks capable of providing peer support and referrals to female entrepreneurs (Klyver & Terjesen, 2007; Gundry & Ben-Yoseph, 2004; Fielden et al, 2003). To remedy this, there has recently been a drive to develop such networks supporting, exclusively, female entrepreneurs (Donnellon & Langowitz, 2009; Singh et al, 2006; McCarthy, 2004). Despite their establishment their uptake has met with mixed reactions from women. There are suggestions that female entrepreneurs prefer to network mostly with other females (Buttner, 2001), choosing women-only networks with the expectation that they can provide better mutual support and confidence building opportunities, (McGowan et al, 2009; Prowess, 2003). Membership of these formal gendered networks, however, means that women may suffer from problems of "quality in their networks" arising from their network composition (Ibarra, 1993). It has also been suggested that in restricting themselves to gathering information and other resources exclusively from only other women (Renzulli et al, 2000), women-only networks reinforce the perceived disadvantaged position of women, limiting their entrepreneurial opportunities and potential. More recent research has indicated that women-only networks do have benefits, providing they are used to supplement other networking activities (Donelan et al, 2009).

Tighe (2006) suggests that many women prefer gender-neutral networks, rejecting suggestions their gender makes them intrinsically different in business. Others show that mature women, with established businesses have a stronger commitment to and greater expectations from gender-neutral networks (Hampton et al, 2009; Klyver & Terjesen, 2007), suggesting that the length of time which participants have been in business may be important. For less experienced business women who have entered into new venturing more recently, expectations regarding the potential of network relationship building are more limited with women-only networks, at least initially, a preferred option. Greve and Salaff (2003) suggest this latter group is believed to encounter particular problems in terms of acquiring sufficient social capital for entrepreneurial venturing and in dealing with issues of isolation than their more mature counterparts, so ultimately there is a question-mark over the potential of such limited networks in terms of future growth potential.

Making choices in networking

At a more conceptual level, a women's choice to engage in one type of network relationship or another is partly shaped by their motivations and expectations regarding what they seek and might gain from any interaction. The individual will be motivated by internal or external factors which prompt action (Locke & Latham, 2004), generally in the expectation of a positive benefit or outcome. The average entrepreneur is resource-constrained and, therefore, when selecting rationally between options, will pick that which aligns with their background motivations (Porter & Lawler, 1968; Vroom, 1964). Those who are calculating and instrumental will make decisions about where to expend effort based upon their perception of what will deliver the desired outcomes, delivering greatest value for the effort expended/time invested. Viewing networking activity through such a lens can help us to gain insights into the motivations and expectations of women in this research in developing particular networked relations to help them to launch and grow their ventures.

As discussed above, prior research suggests women may be motivated to engage in specific networking activities by their need for empathic support, credibility, and legitimacy as well as by their level of business experience, domestic circumstances, and by network quality issues. Their expectations are that, in addition to a better work/life balance, they will obtain information and support which will increase the likelihood of venture success. We review aspects of these in the research reported in the following sections, reflecting on these dynamics in women's entrepreneurial networking activity to address the question, what are the expectations and experiences of women who engage in formal networks?

Methodological approach

A qualitative methodology was adopted for this study, given its focus on female entrepreneurship and the relative infancy of the research topic (Brush et al, 2009; Brush, 2006; Hirschman, 1986). Thirty six female entrepreneurs participated in the research (see Table 1), constituting a convenience sample which provided information-rich case studies, considered particularly insightful (Neuman, 1997) given that the nature of female networking activities is an under-researched area. Semi-structured, in-depth interviews were conducted in a two-stage process over a twelve-month period. Each participant was interviewed for an average of one and a half hours, during each phase. All interviews were recorded and transcribed. An emphasis was placed on an 'informal' discussion, which was exploratory in nature. The relative informality of the approach allowed participants to discuss their individual experiences in a way which allowed issues of their networking activities and engagement to emerge. As a result of the inductive analysis of the first stage interviews, core categories relevant to the female entrepreneurs' expectations of their networking activities began to emerge. The second stage sought to examine in greater depth the nature of formal networking activities. The approach allowed triangulation of the data and a greater focus on the reality of their formal networking activities compared to their expectations of engagement.

Data analysis

Qualitative data by its nature can be chaotic and messy and so requires a methodical and systematic approach to analysis (Easterby-Smith et al, 2002, Miles & Huberman, 1994). The amount of data obtained is considered a downside of in-depth interview research (Denscombe, 2003). Merriam (1988) suggests that qualitative data should be collected and analysed concurrently, so this research adopted such an approach. Interviews were conducted in a series of six sets, consisting of six entrepreneurs in each set. Once the first set of interviews was completed the interviews were transcribed verbatim. Each set of interviews was analysed before the next set commenced. The substantial amount of interview data led to adoption of a rigorous structure for subsequent analysis which was facilitated through the use of Nvivo. The value of the research was established using strategies to generate confidence in the outcomes. This was achieved by sourcing data from 36 separate cases, in two separate data gathering exercises, over a period of twelve months. Secondly, data were fed back to participants for comment, clarification, amplification, corroboration and amendment (Hirschman, 1986; Guba & Lincoln, 1994).

Empirical findings

Presentation of the findings is structured as follows: first, the findings regarding participation in formal networks is presented; the expectations of formal mixed-

gender networks for female entrepreneurs comparing them with the reality of their experiences in such networks; and thirdly, the key issues highlighted in the expectations of women-only networks contrasting these with the reality of formal networking experiences in practice.

Table 1: Demographic characteristics of interviewees and their entrepreneurial firms

Female Entrepreneur	Product/Service	No. employed	Time in business (years)	Age at start-up	Marital status and no. of children (if any)	Network member – mixed (M) or single sex (S)	Previous work experience	Work experience in same sector
F1	Product	0	3	26	Single (1)	Yes – S	Yes	No
F2	Service	3	1	19	Single	Yes – M	Yes	Yes
F3	Service	1	3	27	Married (2)	Yes – S	Yes	No
F4	Service	1	3	27	Married (1)	Yes – M	Yes	Yes
F5	Service	0	1	29	Co-habit	Yes – S	Yes	No
F6	Product	0	3	26	Married	Yes – S	Yes	No
F7	Service	0	< 1	23	Co-habit	Yes – M&S	Yes	No
F8	Service	16	3	25	Married	Yes – S	Yes	Yes
F9	Service	2	< 1	27	Single	No	Yes	No
F10	Product	0	< 1	22	Single	No	Yes	Yes
F11	Service	1	< 1	25	Single	No	Yes	No
F12	Product	1	< 1	18	Single	Yes – S	No	No
F13	Service	0	1	27	Married	Yes – S	Yes	Yes
F14	Product	0	2	25	Co-habit	No	Yes	No
F15	Product	3	1	22	Single	Yes – M&S	Yes	No
F16	Service	0	1	25	Married	No	Yes	No
F17	Product	20	12	29	Married (2)	Yes – M	Yes	Yes
F18	Service	3	2	36	Married (1)	Yes – S	Yes	Yes
F19	Product	18	5	30	Married (4)	Yes – M	Yes	Yes
F20	Service	17	15	29	Married (7)	Yes – M	Yes	No
F21	Service	6	12	42	Single	Yes – M	Yes	Yes
F22	Product	14	4	32	Married	Yes – M	Yes	Yes
F23	Service	5	3	30	Married (4)	Yes – S	Yes	No
F24	Product	6	14	34	Married (3)	Yes – M	Yes	Yes
F25	Product	15	4	36	Married (2)	Yes – M	Yes	Yes
F26	Service	12	15	23	Single	Yes – M	Yes	Yes
F27	Service	26	8	37	Married (2)	Yes – M	Yes	Yes
F28	Product	20	10	33	Married (1)	Yes – M	Yes	Yes
F29	Product	3	9	47	Widowed (1)	Yes – S	Yes	No
F30	Product	0	0	39	Married (2)	Yes – M	No	No
F31	Product	0	0	26	Co-habit	No	No	No
F32	Product	0	0	27	Single	No	No	No
F33	Product	0	0	28	Married	No	No	No
F34	Product	0	0	26	Single	No	No	No
F35	Product	0	3	26	Single (1)	Yes – S	Yes	No
F36	Product	0	3	27	Single (1)	Yes – S	Yes	No

Participation in formal networks

Data presented in Table 1 indicate that 27 of the 36 women were engaged in formal networking: 13 were members of mixed-gender networks, 12 were members of dedicated women's networks, and two were members of both types of networking organisation. This leaves nine women who were not involved in any formal networking activities, all of whom were nascent or early stage entrepreneurs, including F14 whose comment was typical, *"I was never even aware of them"*.

Those who had embraced formal networking opportunities did so once informal networks, comprising family and friends, had been considered and/or established and were seen as limited. Informal networks often provided much-needed moral support in the early stages, as F18 noted F18, *"My husband and family are a great support"*:

however, some women turned to more formal networks after being denied support from those closest to them. For example, F9 commented how her parents, "...were horrified..." when she announced her decision to start her own business, while F16's family responded to her difficulties in achieving a satisfactory work/life balance with, "*well, too bad, you brought all this on yourself*".

Whether or not they had the support of those in their informal networks, the majority of women were involved in formal networking activities. Findings reveal how these women believed it was crucial for them to tell 'their story' and to gain other peoples' views and opinions within a formal networking environment. Of particular interest was the way that such guidance reinforced and highlighted the importance of networking for the female entrepreneur in the future development of her business. For example, F23 commented, "*I know that if I want to grow the business, then I will have to get to know more people who can help me with that*".

Formal networking was also identified as key in validating and confirming decisions. F26 remarked, "*There are a number of people that I would ask opinions from...just to have their view before I finally make a decision*". Networking was also important for dealing with gaps in existing knowledge and access to resources, as highlighted by F25, "*So bouncing ideas, getting them (members of network) to read our business plan and that kind of thing...brings expertise into the company*".

Expectations and realities of formal, mixed-gender networks

The women who had joined mixed-gender networks, including local Chambers of Commerce and the Federation of Small Business, tended to be those who had been in business for a greater length of time. They were aware of the importance and value of 'tapping' anyone who could contribute to their decision-making with information and resources because of their knowledge and expertise, and not specifically their gender. As F20 commented, "*I would ask questions from anyone that I knew who would have the knowledge in that particular area ... regardless of whether they were male or female. Really, it is amazing who you meet ... and you can come away thinking to yourself, yes, that is the answer to that question*".

Those interviewed had high expectations of engagement in mixed gender networking, believing it would provide further opportunities to develop and expand their businesses and to engage with like-minded individuals, a number of whom they felt were key contacts in their sector. This is illustrated by F28 who commented, "*Being in a network in this industry is essential, people need to get to know what you do. The main reason I joined the network (Chamber of Commerce) was to meet others at my level in business who could hopefully help me in getting business so that we can expand*".

However, some respondents felt that mixed-gender networks had failed to deliver contacts and quality of information. Two interviewees had cancelled their membership of networks, including F4 who had previously been a member of the Chamber of Commerce. She noted, "*I don't see the value of it. I'm very fussy about the value I get and if I'm not getting that then I don't see why I should be a member just to show my face*". There was also evidence of significant challenges for some women in achieving a work/life balance combined with mixed-gender networking activities. There were, for instance, complaints about the timing of formal network events, including, "*there was one thing recently and I was going to go to it but it was at night time and it's just so exhausting trying to fit things like that in after a day's work*" (F14). F23 explained her lack of involvement in formal networks due to family reasons, "*it's difficult to partake in events like breakfast groups that were held early*".

in the morning in Belfast, if you are already trying to juggle working and your family and kids”.

However, for some of those in the later stages of business development, mixed-gender networks were crucial and the ‘only’ type of networks in which they would consider being involved. As F24 commented, *“You have to network in business and it can’t only be with women. You have to have a wider business perspective and the Chamber of Commerce and networks like that are great...you couldn’t not be involved”*. For these women, formal, mixed-gender networks had allowed them to develop relationships with informed and relevant individuals in business. They were able to expand their networks to include venture capitalists, directors of other companies and to plug in to assistance from professional bodies, thus, developing the quality of their networks. F25 remarked: *“You are saying to yourself who do I know in such and such a company that could help me get a meeting with a finance director in X (company name)...so I will go into my network and I will search for somebody who does something in that company and I will contact them...if they are in the club I’m in, I’ll contact them and say can you help me with this?”*.

Expectations and realities of formal, women-only networks

Interviewees were initially very keen to engage with other women in business or, at the very least, acknowledged a need for women-only networks, particularly in the early stages of new venture creation. Accordingly, some respondents had joined a number of formal women-only networks, including Women in Business, Women in Enterprise and Women on the Move, motivated by the perception that they would benefit from the camaraderie and solidarity that comes from networking solely with other women. Typical comments included that of F12, who said of the women-only network she had joined, *“... you meet other people (women); you’re talking to them about their experiences. ... There are people (women) from 18 to whatever age, so you’re getting life experience from them; you’re getting people (women) from the same field as you, people (women) with the same problems as you”*.

Involvement in all-female networks appeared valuable for some women to be able to express their views openly, in a non-judgemental environment, which was both encouraging and helped to develop their confidence. F18 noted, *“Being a part of a women’s group allows me to develop my confidence, people will say, thank God only women are here”*. F13 concurred, admitting that she had rejected her local Chamber of Commerce in preference for a women’s network as the former appeared, *“too male dominated and totally intimidated me”*. In fact, some early new venturers commented on their negative experiences of dealing with men, and this had led them to build network ties with mainly female practitioners through formal all-female networking events. F23 commented, *“Because it was all women, it was fantastic and just a lot of them had been in the same situation and walking into a male environment and feeling maybe belittled... they give you encouragement, you know. Not that it’s like ‘girl power’...now that I have got to know X (female advisor)I know if there is anything that I need or anything that she could help me with or give me advice with, then I could just phone her and ask her”*. F5 also believed that dedicated women’s networks would offer more support and companionship than any mixed-gender network, *“I’ve been speaking to other women who own their own business and they think it’s a very good idea. ... Well, women in business, we have similar mindsets and it’s easier to talk to each other”*.

Despite initial enthusiasm for women’s networks, some respondents expressed disappointment when recalling their experiences and encounters with existing

members, commenting that the reality of formal women's networks differed considerably from their expectations upon joining them. Some felt that formal women's networks failed to provide the supportive environment they anticipated, describing other members as being overly-competitive or forming cliques which excluded them as newcomers. For instance, F1 had joined Women in Business expecting solidarity and support but, instead, noted, "... we went to one of their seminars. We turned up looking like tramps and they were all power dressing, it was really intimidating. We've never really got anything from them". Meanwhile, F3 reported how the competitive women she encountered at a networking event left her feeling disheartened and disillusioned, "...there was a wee bit of competition whereas me, I just want to encourage everybody. You know, the fact that one person does well doesn't mean that nobody else can succeed". F10's experience has also been negative, "I know I haven't been to that many meetings but the ones that I have been to, I found the women to be competitive and less likely to help you out".

Others felt that such negative encounters would not have occurred in mixed- gender networks, including F14 who commented, "I sometimes think men's aggression towards business is quite positive and I find some of them quite inspiring to listen to, you know, they tend to have a 'go for it' attitude". She continued, "...I have that same attitude myself whereas women can sometimes be quite snobby and competitive. ... I think men could be more supportive and more likely to help".

There was also a level of disillusionment regarding the quality of services on offer from formal women's networks. F13 remarked: "I don't really have anything to do with them... I wouldn't be that interested in them... a lot of the things they're running aren't directly relevant to what I'm doing and I don't go because it's just a waste of a day, or a night". Interestingly, and despite her negativity, F13 said that she would almost certainly renew her membership as she felt it was better to be a member than not. F1, however, had allowed her membership of a women's network to lapse and had no intention of rejoining, questioning the value of the events attended, dismissing women-only networks as "... just a waste of time ... a pointless exercise". She was also of the opinion that large-scale conferences and events organised by networking organisations, both mixed and women-only, were "just a waste of time and money. You know, they spend all this time on seminars, meetings, big lunches and you don't really gain anything from it".

F14 conceded that women's networks might be valuable for some women, "I guess there must be a need otherwise they wouldn't exist", but reflecting on her own experience, felt they were not for her as she was, "...not really interested in whatever their cause might be... I'm from a very mixed group of friends so it's never really that hard for me to kind of merge into male environments, you know, whereas maybe other women would find it hard".

There was debate regarding whether formal women-only networks were required to address any inherent bias against women in business. Some believed they were needed to bring female entrepreneurs up to a level playing field with their male counterparts. F5 commented she, "... warmed to the women-only idea because I know that business brings more difficulties for women", while F1 acknowledged she was, "not a raving feminist but more should be said about how there's not enough women in business. Things like women's networks, although we didn't like the experience, are more about encouraging each other – men have had business to themselves for too long". F13 added "... women are special cases, especially women who've had problems dealing with men. ... Business is very male dominated at the minute so I think these networks are the way to go".

The majority believed, however, there was no need for special emphasis simply because of gender, particularly in the 21st Century. Views did not vary according to the women's time in business, with one new venturer commenting that there was not, "... *as much need for them as there used to be*" (F2). Others felt special treatment could result in women being perceived as weak, and even incompetent. F4 was "... *not a fan of being in something that's only a women's network ...continuing, "... you can learn from both men and women.... I think value comes from women, and there's value from men and to say that one is better than the other, I don't think like that, I don't think it's appropriate*". F22 reflected on the need for a range of contacts in any network, saying, '*You can't go around with blinkers on all your life. I tell other women, that they can't stick to women's groups.....because that's going to be a disaster*'. F17 felt more strongly, "*They're dreadful [all-female networks], I just don't go there. I have tried them and I find they're just unconstructive whingeing and I haven't been to one where I've had any advantages or learned anything... I have worked in a mixed environment and, hopefully, managed to maintain my femininity, and got by successfully with my abilities and experiences. These groupings [all- female networks] are not the answer for females in business*".

For some, attitudes towards women-only networks changed between the first and second stage interviews taking place. The opinions of three of the youngest interviewees changed markedly. Initially, F1 acknowledged the need for women-only networks because men had dominated business for too long, but later felt that formal networking should not take place in gender-specific fora: "*I don't know why it needs to be segregated like that, women's networking. I think it sounds like 'oh I'm a woman, I need help*". Similarly, F13 had originally supported women's networks for providing a less intimidating environment, but a year on felt it was "...*defeatist to have a women's only network ... because you're alienating whatever percentage of who's out there... I sort of think the longer women sit in their own wee groups and don't go in and show what they're doing to a bigger network or bigger audience well, discriminatory attitudes can't then be defeated*". Finally, F7 saw the value and benefits of women-only networks for some women starting in male-dominated industries, but commented, "*I'm sure there are loads of women who are really up for that and who are proud to be women in business but for me, I'm not that bothered about networking just with women, I just don't see the value in it*".

Discussion and conclusion

A perceived absence of formal, structured women's networks (Klyver and Terjesen, 2007; Gundry & Ben-Yoseph, 2004; Fielden et al, 2003), together with an inability to penetrate 'old boys' networks' (MacRae, 2005; Timberlake, 2005; Carter, 1993), have been cited as significant barriers to women's entrepreneurial ambitions. Given the growth in the number of formal networking organisations and activities, this paper explored the formal networking activities of female entrepreneurs focusing on their use of 'women-only' and mixed gendered networks, comparing the reality of their networking encounters with their expectations of both types of network.

Previous studies have suggested that men tend to network informally, and to a degree, exclusively, whilst women are more likely to have formalised this activity into one that is more thoughtful and which, more often than not, will include mainly an all-female network (Smeltzer & Fann, 1989), at least initially. It emerged that formal networks had their place in the networking activities of the majority of women in this research as 27 of the 36 had at one time or another, held membership of formal networks, such as the Federation for Small Business and Chamber of Commerce, or

dedicated women's networks such as Women in Enterprise or Women in Business. It appeared that many of these women built their networking activities around a deliberate strategy, targeted towards specific individuals with whom they expected to develop a degree of empathy, trust and confidence (Carter et al, 2001; Aldrich et al, 1997; Starr & Yudkin, 1996), and via/from whom they anticipated gaining, business and moral support, knowledge, contacts and, possibly, resources.

It emerged that the lure of access to knowledge and 'know-how' was significant for a sizeable number of these entrepreneurs, and that their networking activities were influenced by needs of the business, linked to its development stage. This had led some women, who initially focused on female-only networks, to broaden their activities to participate in mixed-gender networks. While many of the women gained valuable support and resources from the networks and organisations which they joined a number were disillusioned as a result of their experiences, as participation failed to deliver the benefits and value in return for the time and energy invested. The gender composition of the network did not prevent it from failing to deliver the anticipated support or resources: while some women found mixed-gender networking events intimidating others were just as disempowered by the cliques and the competitiveness which they encountered when attempting to integrate into female-only networks.

Time and experience as an entrepreneur appeared to influence what women sought from their formal network interactions. Younger women tended to connect with formal sources of support when they had exhausted or had received little by way of support from their informal networks. Where the initial contact was with a female-only network, over time some women recognised the need to broaden their horizons and join mixed-gender communities of practice to benefit their development as entrepreneurs as well as provide access to richer resources for business development. The two-stage interview approach revealed how shifts in attitude occurred, reflecting a realisation that women-only networks had such limitations. The longer the women were in business, the more they looked beyond their initial enthusiasm for women-only networks and viewed their value more critically. Others, particularly women who had greater levels of professional experience in advance of setting up their business, tended to join specific, usually mixed-gender networks from the outset, to strengthen their position within their sector, suggesting an enhanced degree of strategic thinking in their network building activities.

The research provided valuable insights into the formal networking experiences of a group of female entrepreneurs in Northern Ireland, offering contributions to knowledge in an under-researched domain. Lessons drawn from this study suggests that deficits in social capital arising from formal women-only networks may serve to limit the personal and professional development of the female entrepreneurs they purport to assist, especially if they are seen in any way as a substitute to mixed-gender networks. There are implications for those building such networks to encourage younger women to recognise the need to expand their networks and to explore methods for introducing quality dimensions, such as diversity, into their networking activities, from an early stage. Despite investing time and money in gaining membership of formal networks, often through subscriptions, some interviewees viewed formal networks, whether women-only or not, as poor in delivering on quality, resources and contacts. Others believed that networks targeting women only provided vital support in the early stages, addressing initial barriers for those engaging in business, but it was necessary to consider issues such as industry sector

and business lifecycle stage when selecting where to allocate time and money to formal networking.

The research findings highlight the need for appropriate policy interventions designed to assist females in business to be more effective in building and utilising formal networks in ways that are responsive to their changing needs and circumstances. Furthermore, given that women are a significant yet relatively untapped source of entrepreneurial potential in the UK (Hart, 2007; Harding et al, 2004) there is clearly an opportunity to expend greater efforts and resources to help enhance their levels of entrepreneurial activity. A better understanding of issues surrounding formal networking activities of female entrepreneurs offers an opportunity to identify ways in which women might be supported more effectively in their entrepreneurial activities and raise awareness amongst both existing and new/would-be female entrepreneurs as to the relative costs and benefits associated with engaging in different forms of formal networking to enhance both personal and venture development.

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THE CREATIVE ENTREPRENEUR OR THE ENTREPRENEURIAL CREATOR

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The creative entrepreneur or the entrepreneurial creator

Abstract

Purpose

This research investigates the networking behaviour and social involvement of Aesthetic entrepreneurs. Recent literature highlights the economic importance of creativity and knowledge in creative industries. Little is known of their expected social involvement and value contribution to the innovation ecosystem.

Methodology

In-depth interviews were held with sixteen participants across all levels of the creative industries. This provided rich insight into their strategic entrepreneurial and networking behaviour that would not be possible through quantitative analysis.

Findings

The findings produced three main themes. They 1) demonstrated entrepreneurial behaviour and displayed specific 2) networking antecedents (collaboration, competition, co-innovation, coordination and coaching) to socially and commercially be involved in 3) social upliftment and community development as part of an Innovation ecosystem.

Implications

This study aims to contribute to literature and qualitative research on Aesthetic entrepreneurs, networking, innovation ecosystems and community involvement.

Social implications

Social involvement by Aesthetic entrepreneurs are expected by community and government, but not that often fully understood and its contribution on an economic, social and innovation front is often not recognised.

Value / originality

This work encourages further cross-disciplinary research on the arts, entrepreneurship, innovation and social studies.

Keywords

Creative industries, Innovation, ecosystem, network, Aesthetic entrepreneur, qualitative

Introduction

People that act entrepreneurially are seen to drive change in dynamic economic environments (Thompson, 2004). People act entrepreneurially by dealing with change and uncertainty (Zhao, Ritchie, & Echtner, 2011), the way they coordinate their resources (Mueller, Volery, & Von Siemens, 2012) and find new combinations and innovations (Schumpeter, 1934). Entrepreneurship is also mentioned in literature as being instrumental in economic development and creating a competitive internal advantage (Maak & Pless, 2006). Thompson (2004) also describes *Aesthetic entrepreneurs* as people who lead with new innovations and development in arts, music and other creative areas. He mentions that they might perceive themselves to be artists first and foremost, but more than often they create wealth and *make a difference in some way* (Morris, 2013), just as the business entrepreneur.

Entrepreneurship can be broadly defined as a person that take risks, identify opportunities, innovate and use resources creatively (Mueller *et al*, 2012). “Creatives” are mentioned as *being a creative class of model entrepreneurs* (Coulson, 2012) and that they need to utilise entrepreneurial skills (Cobo, 2012) to create work for themselves in this uncertain working environment. They are dependent on their networks and who they know as well as who knows them to find work in production and on projects. Therefore networks play a pivotal role in access to work, opportunity to gain exposure, skills and to advance in their profession (Coulson, 2012).

Previous work that focused on the extent to which ‘creatives’ see themselves as being entrepreneurial include research by Coulson (2012) on musicians and their networks. Fillis and Lee (2011) also argue that the combination of artistic and entrepreneurial skills will not only benefit internationalisation initiatives, but also contribute to the field of arts management, marketing and small business.

Therefore the focus of this research is not only on the contribution of creative industries in terms of economic value but also on the extended contribution to the areas of networking and social community benefits (Potts & Cunningham, 2008:233). The social contribution is often neglected and community upliftment is also not even measured in society. This ‘giving back’ nature also adds value in terms of its contribution to creating an innovation ecosystem in a region. Therefore the focus of this research is on the people’s perception of their networks for the successful innovative and socio-economic development in the creative space. The infrastructure, incubators, special economic zones, etc. have been found not to provide the expected enhancement of the innovation ecosystem. An inside out approach as part of this pilot study relating to the creative industries attempt to provide some insight into the direction of this for future research and highlight some interesting issues mentioned by participants as being their view of what is currently working in their networks towards the creation of a successful innovation ecosystem in the arts.

Literature overview / Background

The enhanced focus on creativity in business practices, and economics in general is even more relevant today after the knowledge economy and macro environment changes such as the recession and shifting economic power to the Asian Pacific region and emerging market. Cunningham (2011) report that in 2006, 109160 people were employed in the Arts or fields related to the Arts, and therefore at that stage representing 1.2% of the Australian employment. Creative industries are widely seen as important to contribute to increased employment opportunities (Heinze & Hoose, 2012); innovation (Zhou, Shung, Brass, Choi, & Zhang, 2009); developing regional and urban areas (Mossig, 2011, Krätke, 2010); value adding (DCMS, 2010); being instrumental in social upliftment (Masters, Russell & Brooks, 2011, Aimers, 2005); contributing to economic growth (Hornidge, 2011, Cooke & De Propris, 2011); and the growth of new business start-up’s (Hotho & Champion, 2011).

The creative economy focuses on the ‘new’ ideas and unique ways of doing things that creative individual add to economic productivity (Seltzer & Bentley, 1999). The industrial components in the economy that produces a creative output, content or intellectual property can be seen as being part of the creative industries (Potts & Cunningham, 2008). In this ‘new’ approach to business it seems to be more important to understand “*how they (creativity and economics) combine to create extraordinary value and wealth*” (Howkins, 2002:8). This creation of unique value is seen as a competitive advantage globally (Flew, 2012). Creativity should however be channelled in such a way that the value can be measured through entrepreneurial management (Greenman, 2012).

Creative industries are defined as consisting of three streams, namely 1) Performing arts and traditional artists, 2) Technological innovation and 3) Business process innovation (UNSECO, 2009). This includes the input by creative labour by individuals and businesses in the fields of advertising, architecture, design, software, film and TV production, music, photography, publishing and the performing arts (Cunningham, 2011). The knowledge economy stresses the importance of creativity, to create and to share their innovation and

knowledge (Florida & Goodnight, 2005). Many definitions of creative industries exist. Florida (2002) uses the term: “*Creative Class*” to describe people working in this industry. The IDCM (2006) defines it for policy makers as consisting of three pillars, 1) performing and traditional artists, 2) technological innovation and 3) business process innovation (UNSECO, 2009). The creative act is central, whether they are in the arts, literary, cultural, musical, architectonic / creative content, works, products, production processes or services for economic purpose (Mossig, 2008, Ravadrad, 2009, Caust, 2003).

Creativity seems to be characterised by “*to be worthwhile*” and “*compelling*” (Cropley, 1967), as well as the end results must be ‘*relevant*’ (Kneller, 1965). Another element associated with creativity that is mentioned in literature is “*adaptation of reality*” (Barron, 1955). Stein (1953) reported that a “*creative person has lower threshold, or greater sensitivity, for the gaps and lack of closure that exists in the environment.*” Creativity is also mentioned in literature (Florida, 2005, Chaston & Sadler-Smith, 2012, Hartley and Lee, 2013) to “*a source of competitive advantage and important for economic survival.*” After the global recession and hard hitting of most traditional industries, creative industries and entrepreneurial venture in these industries offers potential new employment, skills development and increased economic activity (Foord, 2009). It is therefore a gap in literature to investigate the creative behaviour and networking of Aesthetic entrepreneurs (Morris, 2013). With a lot of research being conducted on either entrepreneurship or Creative industries but little research focusing on the combination of these in the phenomenon of Aesthetic entrepreneurship. Schumpeter’s emphasises creativity in entrepreneurship (Swedberg, 2006). The aim of creating an innovation ecosystem in creative industries stems from the nature of the work, with people working on and off with each other on projects, mentoring or social and community projects (Moore, 2006). Business is not an isolated entity, but ‘an organ of society’ (Drucker, 2010).

“Creative (Aesthetic) entrepreneurs, the business executives who operate in the creative industries sector of economy, possess distinctive characteristics that influence people around them due to the nature of creative industries, their position in society and their relations with people within their business operation” (Throsby, 2011). These people work together towards success in the innovation ecosystem. A wide variety of co-innovation exists in terms of cooperation, competence, competition and co-creation opportunities in this flexible and uncertain environment. ‘Creatives’ often need to balance their relationships in a network by having a variety of ties at one given time. These ties include a unique combination of relationships to collaborate, compete, co-innovate, coordinate and coach to enhance their own and others’ skills and create something of value.

Creative industry work however shows a lot of elements that are characteristic of being an entrepreneur. Creative industry work being characterised as being flexible, and marked with insecurities, inequity and exploitation (even self-exploitation); there are a lot of similarities with being a traditional entrepreneur (Banks & Hesmondhalgh, 2009). They need to understand that to manage and protect intellectual property is important; they need to manage their cash flow and talent for the fluctuating market (Howkins, 2001) and recognise opportunities in the market when it presents itself. Creative people are willing to pursue unknown ideas in favour of its growth potential, risking failure and rejection (Runco & Jaeger, 2012). Every person can be creative (Montuori, 2011), but in this research the focus is on entrepreneurial creative people, not hobbyists (Ravadrad, 2009). Creative capital (Merkel, 2013, Pierce, Johnson & White, 2013) is mentioned as being inputs (e.g. skills, abilities, ideas, vision, products) (Öberg, 2013) in innovation processes (Potts, 2011) and links creative

industries to innovation literature (Scheffel & Thomas, 2011). The importance of the creative industries has been researched in literature from geography (Florida, 2002); networking (Daskalaki, 2010), development economics (Earl & Potts, 2013); sociology (Brook, 2013), arts management (Prince, 2010), information society theory (Garnham, 2005); innovation (Heinze & Hoose, 2012) and cultural studies (Harney, 2010), but not so much from an entrepreneurial point of view. Allen (2009:46) stated: “*Entrepreneurship is a creative, not a scientific, process*”, linking entrepreneurship with creative industries. Schumpeterian (Schumpeter, 1934) followers focus on novelty, uniqueness and competitive advantage through differentiation and creativity as tools for success in the business environment (Earl & Potts, 2013).

People in the creative industries are mostly self-employed (Coulson, 2012). Creative work is sporadic (Comunian, Faggian, & Jewell, 2011) and therefore most has to be flexible and provide their own income in-between projects (Van Steen & Pellenbarg, 2012). The nature of their work requires them to work independently and creativity (Sternberg, 2006) in managing their own projects, commissioned projects and to diversify their workload. They have to make a living, market themselves and identify future opportunities and therefore sometimes take risks (Sternberg, 1985). Artists also rely on their personal and professional networks (Borén, & Young, 2011). They make conscious decisions about the projects that they want to be part of and with whom they want to collaborate (Bennett, 2010).

Innovation ecosystem

Innovation ecosystems are described to be an economy wide investment to the growth of knowledge. Therefore acknowledging and relying on the contributions of policy, technology, intellectual property, education, infrastructure and culture, but also the arts, culture and humanities (Potts, 2007). These networks are characterised by high levels of collaboration, competition, strategic thinking and entrepreneurial behaviour is required to successfully manage the innovation ecosystem to leverage on the involved parties’ resources and capabilities (Zahra & Nambisan, 2012).

The right combination of strategic competence and entrepreneurial activities in these innovation ecosystems can lead to higher levels of success than possible than working individually. Innovation ecosystem literature describes it as a combination of different role players’ resources to achieve or develop something that will be to the benefit of all parties concerned and the community. In this environment the parties work towards creating either a better infrastructure, creating new opportunities, contribute to social upliftment and regional development. An innovation ecosystem is mentioned in literature to apply to the Information and Communication technology sector (Kobzeva, Gribov, & Kuznetsov, 2012); institutional innovation (Perdana, & Kusnandar, 2012) and management (Badawy, 2007). In an attempt to support innovation in business some governments have launched some initiatives and schemes to encourage the combination of traditional commercial businesses with creative business. One such an initiative is the Creative credits initiative by NESTA (Bakhshi, Edwards, Roper, Scully & Shaw, 2011).

“The role of networking is particularly important for those working in the creative industries (as it is for entrepreneurship in general). There are also interesting networking effects which arise from the fast-pace of change. For example, the fashion industry is built on relatively few individuals’ assessments of what styles, materials, textiles, colours and so on are “in” for a given season.” There is a considerable level of short-term, albeit highly skilled employment within the cultural sector. The competition and over-supply of creative and cultural workers

means payment can be very low, or even non-existent in a lot of cases (such as unpaid work in festivals and event management) (Stokes, Wilson & Mador, 2010:187). Strategic thinking is needed to embrace change and to create competitive advantage in domestic, but also international markets (Varrichio *et al.*, 2012).

To learn from their existing practices and enhance possible areas of concerns we need to investigate it. Only then can the right support be offered on an educational, policy and practical level. In this paper I aim to link entrepreneurial behaviour, creativity and creative industry literature to understand the Aesthetic entrepreneurs' motivation and work ethic better.

Method

The overarching question for this research: *Do 'creatives' see themselves as being entrepreneurial and how do they diffuse their networks to create work and play a role in the innovation ecosystem?* To understand the act of being 'entrepreneurial' this research focuses on the participants' networks and their perception of their behaviour to 'do business' and "manage their careers".

These questions were answered by sixteen qualitative in-depth interviews. No generalisations can be made about the creative industry or the creative workforce since a snowball sample (Platman, 2004) was used. The sample consisted of artists (painters, dancers, actors, software developers, designers, innovators and musicians), as well as administrators, organisers' of events, art, acting and music teachers and lecturers. This offers perpetual data on how they perceive themselves, their networks and how they manage their creative process. Content analysis was done by hand, and the three main themes and subthemes were identified by making use of Nvivo 10 (QSR International, 2010). The open questions were roughly based on the *Huddersfield Business Generator (HBG)*, with a focus on the entrepreneur characteristics, as well as some questions referring to the questionnaire on business climate for cultural enterprises by Kline (2007).

Results and Implications

The results included three broad themes with subthemes and additional themes to support these findings. The three main themes that emerged are 1) *Demonstrated entrepreneurial behaviour*, 2) *Networking antecedents* and 3) *Community and social involvement*. I will now discuss each of the main themes individually.

Demonstrated entrepreneurial behaviour

The participants mentioned that they are well aware of the need for and in most cases their attempted 'entrepreneurial' behaviour in building their own brand, business and pursuing opportunities in the market. Coulson (2012) mentioned in her research that musicians can be dubbed to be 'accidental entrepreneurs'. Irregular work often pushes 'creatives' to create their own work through the development of their own productions and also by community involvement projects. In these circumstances they often need to cooperate, support and encourage one another rather than compete for work. Most will agree that they take on a combination of 'regular' and 'freelance' work to pay the bills and make a living. In this research the participants reflected that they realise the importance of thinking strategically about work in general or when planning a specific project: "when you're an artist, you are a business" and that "artists and business are intertwined."

The participants reflected on their *entrepreneurial* behaviour by highlighting a few characteristics that they feel is most important to make a success of your brand, business and career. *“Confidence and perseverance” as well as “Discipline, for sure.*

The participants highlighted that they work and innovate in a structured and well organised manner: *“It’s very systematic and it’s not just sort of something I slap together.”* The nature of their craft requires them to *“depends on self-discipline”* and be clear about their vision *“I always say to people, there will be a reason why you’re doing something”* with the necessary skills, experience and practice: *“Stanislavski: ‘from technique comes freedom’. For me creativity is more enhanced if you have technique. So the more capacity, skills you have, the more creative you’re going to be.”*

The ‘*entrepreneurial nature*’ of being creative is echoed in the realisation that they need to take risk in their work, taking on different projects and also on a personal and financial level quit often need to make risky decisions. The participants described themselves as risk takers. They mentioned that they *“take risks on a personal level”* because they have to *“take a risk sometimes to reap higher rewards, but this is not done without doing a risk analysis first to make sure the risk is not too high”*. They mentioned that they face the risk even though they are *“scared of failure”*, but *“the higher the risk sometimes the higher the reward”*. To be recognised and differentiate themselves in the market they mentioned that they have to be prepared to take on *“more risky topics and works”* even though it is difficult to get support for these kinds of productions if you want to build your brand and career then you have to *“take a risk and see what happens, if it doesn’t crash then maybe risk a little bit more”*

“So it’s like well how can I combine an interest and make money out of it, so it really stems from that. So I think part of it is being born at the right time, being in the right environment that is open to innovation is important.”

“Well I think creative people and creative industries are in the business of creativity and innovation, so they’ve already got a bit of a mindset. But there’s a trap in that and it’s the trap that I see all my creative director friends in ad agencies and things like that where they think they are the ones coming up with the ideas and things like that, but there’s not a monopoly on those ideas and creativity. In fact truly thinking out of the box is something that they actually aren’t allowed to do and they can’t do. So a lot of my creative director friends just get frustrated by the process of formalising that creativity through ad agencies that reduces the creativity that reduces the ability to really and truly think outside of that. The other thing is that they’re paid for an outcome so they’re actually driven for an outcome whereas entrepreneurship often is there is no market, there is no money, and yet there is exploration and there is creativity happening.”

To be focused and have a strategy also became clear: *“You’re focussed. So I suppose that’s my whole thing, is I’m all about strategy, everything is strategy for me, it’s all about how to get from A to B is not – I mean you never know how to get from A to B but by strategy you get there the best way possible given that you don’t necessarily know from the start what that way is. But with strategy it gives you a framework to get there using principles and that overall is how I continue to do everything. It’s all about formulating the strategy first, understand and go forward. With entrepreneurship I think you can’t be – I mean the number one thing is you can’t be scared of failure, I mean if you’re scared of failure – so that goes to risk. If all you have to lose is your time then what really is there to lose, and that’s a strong underpinning I think for a lot of the entrepreneurs I know. But the entrepreneurial journey is*

a lonely journey but you take people along the journey with you. But it's lonely when you step back and say well it really is up to me, I mean there's no one to fall back on in an entrepreneurial journey."

There should be an increased focus on management skills training were mentioned as an area for further development *"at Art School and they focus so much on developing your artistic ability. Entrepreneurship and business are areas on which more should be focused. If you run a business that is your brand, your art, your craftthis is a focus on rather than sort of series of master classes that focus on marketing arts culture and "If you go after money you'll never get it, it's an elusive property, it's actually – by doing good things money follows, and I think by doing it the right way the timing happens for you, so things happen to kind of coincide..."*

Networking antecedents

They reflected on working in an environment that have subsidy through grants and the provision of infrastructure in some cases, but their profession was seen by all participants as being a business, having cultural purpose and contributing to community. They reflected on their unique use of networks as an innovation ecosystem that offers support, collaboration, opportunities and also competition. They also described their behaviour in balancing this unique network in an environment where employment and projects are scarce and quite often personally initiated and developed. Literature confirms that creative industries have their own social organisation (Černevičiūtė, 2011). They also mentioned the importance of networking in arts circles and beyond to build their brand, gain access to information and other resources: *"Rather than actually the idea of networking, knowing how to get an exhibition, knowing the right things to tell people, knowing basically where to go", as well as for support "Sense of community as well, we support each other".*

A sense of community is established through the use of networks. Networks are not only to seek employment (Blair, 2009), to share common interests (Cohen, 1985) or to collaborate (Haunschild and Eikhof, 2009). It involves the *"Cause they can network, can discuss how they work independently interstate. What are the different tactics that they have, or issues that they have. If they're trying to crack they can give each other, how do you say? Offer new ideas, or offer different ways of working to...learn from each other"* as mentioned by one of the participants.

Participants also mentioned the need for networking as part of their marketing: *"It's very much... promote, promote, promote, promote. And very much network as well. So it's getting their names and their work out to the general public, but it's also bringing this group of artists together as well, so they can start talking to each other and network. And hey, I know someone who would buy that artwork, and come and talk to that person. Yeah. So it's... I want to say it's more in a business kind of connection".*

The following sections will provide a discussion, direct quotations to support and literature references to shed some more light on the different networking antecedents.

Collaborate

To create work, but also to learn from each other and to bounce ideas and get the energy needed to generate more innovative ideas and be creative. The participants mentioned that they found that they had to *"collaboration and cooperation is not something that is always so easy to establish. You got to start by seeing the big picture, that whatever it was working"*

Some mentioned that they realise that it is essential to network and to collaborate with others to grow in their area and creativity: *“And I think that the arts to grow, you need to network, and you need to be supportive of other performers. And actually my favourite, favourite, favourite, favourite thing to do is collaborate. So find other like-minded artists, even if they’re not doing something similar to you, and go how can we connect, how can we work together, and how can my knowledge and talent benefit yours, and vice versa.”*

“And I think that that’s a really important thing within the arts, to actually embrace the collaboration and networking.”

The lack of opportunity to gain experience and to collaborate seems to be true for most of the younger participants that mentioned they knew they had to reach out more and be more open to these opportunities or create such opportunities: *“I’d done all my ballet exams and physical training but not much choreography or creative process or collaboration. We’re trying to get that happening earlier which is really rewarding and a few of the kids from Bathurst have gone on to do tertiary dance as well which makes me so happy.”*

Competition

Most participants mentioned that they often find themselves to compete with each other for positions in productions, competing for funds in terms of grants and *“You all compete for the same slice of the cake.”* They also mentioned that the way they deal with the fact of *“competing with, across the country with people you know”* is by having respect for each other’s ability and their reputation.

If the work is not coming in, then they accept that they need to create their own projects and opportunities: *“I believe as an artist if you’re not getting the work and you’re creative enough, you can create your own work.”*

“You’ve got to create avenues or area of support there yourself. So this is to get local artists out to the local communities. So it’s really concentrating on like being local and actually... OK, how can I advertise that person? So a jewellery designer might just sit at home and make her jewellery and then try and sell it to a local shop, but if there was something like this, and she will get out to a core group of a thousand people, and it’ll be online.”

This is supported in literature that this environment offers not enough avenues for work, network and involvement (Parkman, Holloway & Helder, 2012). Often people have to compete for positions and castings in productions, although not a lot of mention about this could be found in literature. They also compete for funding in the form of private or government funds and grant schemes. With an increased global focus to market their products (art works, music etc.) and services (teaching, coaching, mentoring, community involvement projects) they also have to compete on an international scale (Bodirski, 2011).

Co-innovation

In this industry most productions and projects require a variety of skills and input, therefore to work in team towards the same goal and with the same vision are evident of their working environment: *“You have to be courageous, you have to put yourself out there and take a risk. Especially as an independent, you’re showing your own work and especially for the way choreographers work these days, as a dancer if you’re contracted to a choreographer they ask a lot of you in the creative process so to be courageous in offering ideas and your*

thoughts and your suggestions, it's not just about being able to physically do the moves but having a voice. And personal management skills like time management. I've found this really hard but I'm getting better at it - knowing when to say no, I'm not interested in that project or no, that's not for me. Often I was just so eager to do anything and sometimes I did projects where I think that I wasn't the right person for it or I didn't have the right skills for it but you still learn things along the way."

Different elements of creating this ecosystem also includes the fact that often competing parties need to work together in productions: *"You need to do the whole cliché of think outside the box, and collaborations do help within that too, of... you know, you might not think of something that somebody else might think of, and then you can join together and create something. So yeah, I do think that you need to not just concentrate on your art, to be able to grow."*

"Well for art's sake. Like let's achieve this and let's create. Yeah. Whereas this, I think, is concentrating on the actual artist, but actually kind of bringing everybody else together..."

Literature offers insight into the creative process of teams and individual input and working through networks to create an environment for successful co-innovation (Romero, Molina, & Camarinha-Matos, 2011). Creative energy can be used to influence, share ideas, inform and to create something of a higher value (Gisbert-López, Verdú-Jover, & Gómez-Gras, 2013). By including different partners they can interact in these networks, bounce ideas of each other and create a positive environment for creativity and innovation development (Agypt, Rubin, & Spivack, 2012).

Coordinate

Most of the participants mentioned that they worked in between and across different levels in the creative industries. Being involved sometimes in the actual production process and other times being the manager or coordinator of the production / event: *"I've always liked organising and putting people together and creating platforms. Trying to give the independent dance scene in Australia a platform, to share practice and discuss practise, actually what is it that we all do, and how do we do it, and how do we try and get work out, and what the processes are for that."*

"Then there are other visual artists who live in communes, there's a famous one south of Sydney whose name escapes me but there's a number of artists who've lived there for 30 years on that site. They keep their living costs down so they can spend their full time being an artist and producing work. They've solved their cash flow story by sharing resources but that's still quite entrepreneurial as far as I'm concerned. There's no safety net for them... they don't have a day job, they don't have sick leave or any of those safety nets that a person in a salaried job has. Most artists who are really making a living from their work and not hobbyists in this country are entrepreneurs in one way or another."

The use of networks and to collaborate on different levels that enhances their own efforts to innovate is mentioned in literature by Varrichio, Diogenes, Jorge, and Garnica (2012). Industry partners, universities, government and other external partners should be included in the ecosystem.

Coaching

The participants shared their experience as teachers, mentors and coaches as part of their training, work experience and as something that is expected by society, community and from themselves.

"I also teach, dance, and mentor the dancers that have recently graduated from tertiary educations, universities in Australia, or they're still in universities and then come and do a choreographic work process, programme over two weeks. I mentor their process. I also teach young kids that have the ambition say, or just love dancing, and trying to give them the training so they're ready to audition for university. Then I make my own work, choreographer, being funded from the A.C.T since 2009, so keeping my practise going and being artistic director of the Australian Youth Dance Festival. So I'm sort of going across all I guess."

"I think you can encourage and you can certainly make everything just right for them to find their feet but there are plenty of others who haven't had any support who still got there because they're driven by some desire to create, whether it's an image or... it may be that many artists' brands are quite different already."

Literature supports the importance of mentoring and coaching in successful business ventures and continuous management (Mitchelmore, & Rowley, 2010). Coaching of how to use resources and to effectively collaborate and work together is important in ensuring a successful innovation environment (Katzy, Turgut, Holzmann, & Sailer, 2013). Brokerage of innovation networks and coaching is also mentioned as a success element for the organisation of work in the creative industries (Hotho & Champion, 2011).

Social and community involvement: Social entrepreneurship

The Arts is described as being multi-levelled and to add value in many different ways: *"Art has an important place as a tool in education, health, community building, for general wellbeing as well as for entertainment and as a hobby. The evidence is clear the arts has much to offer in these areas, though we don't need a body of evidence to tell us that humans use sound, movement and symbols to express themselves creatively and function in the world in a range of ways. The arts are much more than this."*

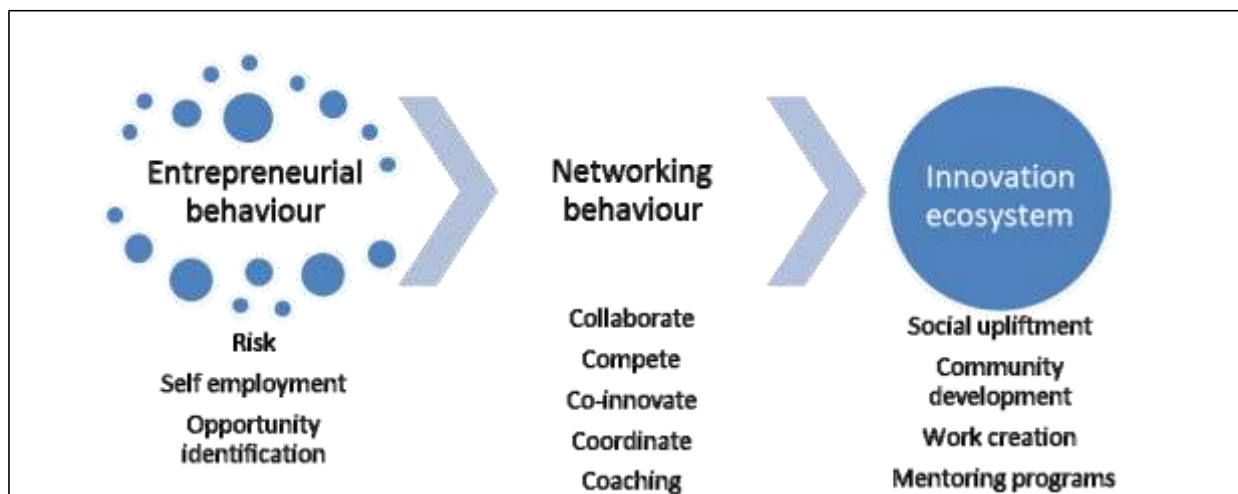
The social side to their business reminds one of the social entrepreneurship literatures and it seems that social upliftment and community involvement has always been expected of the Aesthetic entrepreneur. Most Aesthetic entrepreneurs also mentioned that they value their contribution to community-based projects and want to be involved to some extent in social upliftment and community engagement through the arts. They value being involved in either a teaching, mentoring or organisational role.

"That's what I'm trying to create and teach, I'm here running it, I'm mentoring. It is very much a community based business. I'd eventually like to have that even more so and diversify even more and offer more products that can bring more people in and also do more community work. So we've only got that one charity activity that we're involved in at the moment but last year we sort of had a lot of different plans. We just don't have the time to implement at the moment but to get possibly a free music education centre going. It's a good training ground for new teachers as well. I mean no one's getting paid so no one really matters too much if they're not 100 per cent. They can go and teach for free and people that want lessons but can't pay for it can come and receive lessons. I thought that'd be great to add some sort of community group."

“So it’s kind of – entrepreneurship kind of happens almost of the absence of the fund, and in fact you could say it’s a bit more pure than – it’s kind of exploring needs rather than exploring a market. Whereas a lot of creative industries are focussed towards market and marketability primarily of something that already exists than coming up with new ideas. So I see the entrepreneurship being a lot bigger than just the creative industries. You’ve got to be creative, so – I mean I was creative director for my company for example, so I’d be briefing, and I do that already for my companies, developing briefs for creative people with outcomes. But there’s a whole lot of creativity in coming up with a brief. So there’s a continuum, I think the creative industries are a smaller part of the entrepreneurs, plus good entrepreneurs are not typically confined to what they know, they go and learn. So they’re not really bound by what they already know, they kind of seek to know that that they don’t know.”

Literature legitimises the arts by the expectation by communities to have initiatives and projects in society aimed towards social upliftment and community involvement by the creative industries (Aimers, 2005). Sharing ideas with like-minded people and to grow a love and passion for the arts in a community seems to be important to most people involved in the creative industries (Gu, 2011, Wilson, 2010). Figure 1 provides an overview of the involvement of entrepreneurial behaviour and networking behaviour in the innovation ecosystem.

Figure 1: Entrepreneurial and networking in innovation ecosystems



The balance between advancing in their craft, becoming business savvy and to add value to the innovation ecosystem is illustrated in this Figure. Through entrepreneurial behaviour and successful networking behaviour the Aesthetic entrepreneur contribute on a multitude of levels from economic to socially driven output. This unique contribution lies in the fact that this limited sample demonstrated a better understanding and application of entrepreneurial skills appose to their managerial ability and comprehension.

Conclusions and Recommendations

In this research the complex nature of the work that ‘creatives’ do became apart by just attempting to find a one size fits all definition. The unique blend of people in the creative industries offered a glance of how they employ strategic and entrepreneurial thinking in their career advancement. Being self-employed, but working strategically to find new opportunities and outlets, are entrepreneurial in essence. The creative use of networks to

collaborate, create, co-innovate and cooperate supports their efforts to survive in their related innovation ecosystem. They demonstrated that they in spite of their individualistic competitiveness and other competitive natured antecedents still value their networks as a source of employment, support, collaboration and skills advancement. The challenge remains to enhance, develop and stimulate creativity in the creative industries, but also to encourage strategic entrepreneurial behaviour and networks to support their efforts.

This research contributes on a theoretical level to entrepreneurship, management and creative industries literature. A clear acknowledgement and value on the arts will also increase the link between industry and the arts. On a practical level this research provides a better understanding of the link between entrepreneurship and artists. On an education level there is much to be contributed by entrepreneurship and business management in art education and training (Roodhouse, 2009) to better equip new comers in the creative industries. The self-reflections and perceptions offer a real time overview of current issues and obstacles in creative industries that can be addressed to offer the relevant support. On a policy level suitable support other than just funding can be facilitated through existing networks and newly structured ones.

This research also revealed the expected and often complex nature of social and community involvement as a characteristic of the Aesthetic entrepreneur. The value that they contribute in the development and enhancement of a regional innovation ecosystem is not acknowledged or measured. This research wants to encourage future research on the combination of culture entrepreneurs and people working in the creative industries and their contribution and networking in the innovation ecosystem. Management and specifically project and strategic management skills development should be included in the training of artists and other craftsmen. Therefore there should be increased emphasis to encourage holistic strategic thinking in creating projects, social programs and innovations. Future research should focus and include more rigorous research to substantiate and provide a better understanding of the value adding by Aesthetic entrepreneurs through community-based programs. Their contribution to the advancement of an innovation ecosystem is also new ground to investigate further. Investment in these initiatives is often high in value and time intensive. Therefore future research might inform how to combine artistic and entrepreneurial skills, networks and R&D initiatives to gain a competitive advantage, increased profits and stronger internationalisation.

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PUBLIC R&D SUPPORT, BEHAVIOURAL ADDITIONALITIES AND R&D INTENSITY

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Public R&D support, behavioural additionalities and R&D intensity

Abstract

Public support for R&D has numerous economic and innovation benefits. Small firms in particular can benefit significantly from R&D support. Despite advances in this field, inconsistent findings hampers progress. Limited theoretically tested models, diversity in R&D support across countries, industries, programs and units of analysis and the diversity of empirical methods make it difficult to compare findings. In policy circles the focus of public R&D support has shifted from broadly supporting innovation and financial outcomes such as turnover, to complimentary effects in the form of firm behavioural additionalities. We address this gap in an emerging economy setting by asking how public R&D support relates to firm-level R&D intensity in the presence of three such behavioural additionalities, namely the technological competence, knowledge creation and collaboration. Our results show that in this context, public support matters for R&D intensity. In addition, we illustrate the importance of all three additionalities in this setting.

Introduction

Targeted Science, Technology and Innovation (STI) policies has the potential to have an important impact on economies, supporting increased innovation, competitiveness of targeted industries, and job creation (Justman and Zuscovitch, 2002). In emerging economies such as South Africa these outcomes are crucial to develop a multiplier effect that improves economic and living conditions and address economic inequalities more broadly. Evidence persist that public Research and Development (R&D) funding can increase R&D expenditure (Afcha and Lopez, 2013). There is also longitudinal evidence that targeted industries perform significantly better with public R&D incentives. However, despite these encouraging impact measures, inconsistency in the field hampers progress. Lee (2011) attributes this to 1) diversity across level and unit of analysis as well as nature of programs (specific goals and instruments); 2) diversity of empirical methods; 3) differential effects of public R&D support, which differs based on firm characteristics and multiple public support channels; and 4) a lack of formal theoretical frameworks.

Therefore STI policy interventions have recently focused attention on facilitating firm R&D activities and supporting innovation generation activities by directly targeting the innovation behaviour of firms (Wanzenbock, Scherngell and Fischer, 2013). The emphasis has moved away from simply providing financial support for single firms, to rather focus on collaborative R&D and facilitate knowledge creation and absorption behaviour.

The central interest of our paper is to gain deeper insights into the interrelations between public funding and firm behavioural additionalities with regard to R&D intensity of small firms. We argue that public R&D support is important to small firms in emerging economies, where they have more pronounced difficulties in accessing finance and servicing that debt due to the high cost of capital and pressure this place on their cash flow. However, providing funding to firms that do not have the competencies in place to best use this funding may limit its effective use, therefore it is critical to determine the interrelationships between R&D intensity and public R&D support, as well as associated influences. Wanzenbock et al. (2013) argues that behavioural additionalities experienced by firms involved in R&D should be examined beyond merely direct financial implications for firms. Understanding these behavioural additionalities is not only important theoretically, but also from a policy perspective where it can help granting bodies to target grants better and improve overall economic and social benefits. In emerging economies, where public funding is often limited (Pissarides, 1999), this can be a useful approach to benefit best from scarce funding sources. We build on the work of Wanzenbock et al. (2013) and Lee (2011) to investigate how public

R&D support compliments the development of technological competencies, creates firm valuable knowledge for innovation and encourages collaboration and whether these behavioural additionalities increase the R&D intensity of firms.

Our findings indicate that public R&D support is important for small firms to encourage investment in R&D. Pursuing innovation projects with R&D support then increases a firm's resource base, further enhancing technological competencies and enhancing collaboration. Being involved in R&D projects has a significant knowledge creation effect, allowing firms to accumulate inimitable, intangible resources through learning-by-doing. Importantly, we show that the presence of these additionalities has a profound influence on the amount of variance in R&D intensity explained by our model, supporting our thesis that it is important to have these competences in place to improve the value of R&D support to R&D intensity.

Background

The R&D behaviour of small firms and resources dedicated to it is an essential precursor to improve innovation and financial outcomes. Investment in R&D generates new products, services, processes and techniques for the firm, resulting in firm- and employment growth (Fagerberg et al., 2005; Falk, 2012). The role of small firms in the R&D activity and innovation output within economies cannot be underestimated (Justman and Zuscovitch, 2002). However, R&D requires funding and small firms are typically resource poor (Hall, 2002). Hyytinen and Toivanen (2005) argue financial constraints inhibit innovation and growth and cause small firms to underinvest in innovative activities. These arguments are supported empirically by the work of various researchers (e.g. Feldman & Kelly, 2006; Meuleman & Maeseneire, 2012).

Public R&D support can alleviate these investment pressures (Bennett, 2008) through various innovation support schemes such as tax credits, R&D grants, loans, interest subsidies and loan guarantees (Cressy, 1996). According to Meuleman and De Maeseneire (2012) support from governments, especially in the form of R&D grants alleviates small firms' tendencies to underinvest in innovative activities. The rationale justifying public R&D support is that markets fail to provide incentives to private firms to achieve the socially optimal level of private R&D efforts, due to the limited appropriability and risk involved in R&D and early stage innovation activities (Peneder, 2008). Globally public R&D support incentives stimulate the innovation performance of firms. The focus in recent years has changed though from support for individual firms to collaborative teams and to boost not only financial investment, but also to stimulate knowledge creation behaviour and other complementarity effects such as firm behavioural additionalities (Wanzenböck et al. 2013). Behavioural additionalities refer to changes in firms' R&D activities induced by public policy support (Buisseret et al., 1995). This is evident in the focus of many public R&D schemes that aims to stimulate the acquisition of learning capabilities, improved R&D productivity and problem-solving skills (Lee, 2011). Impact assessment of these policy initiatives therefore need to go beyond merely financial measures.

Studies on public R&D support are more prevalent in developed economies. However, findings from some emerging economies such as China and India are emerging. In these countries Lee (2011) finds for example that public R&D support has differential effects compared to developed countries. Public R&D support mechanisms have a statistically insignificant effect on firm R&D intensity in China and India, but showed significant influences for developed countries such as Korea and Taiwan. These results indicate the opportunity for further research with other emerging economy samples and firm-level behaviour and characteristics. Despite these recent advances data from African countries are lacking and the need to stimulate R&D in these regions is critical for development. In South

Africa public R&D support is facilitated through policy and government strategy, institutional infrastructure, funding and non-financial supports (Malefane, 2013).

Research model

Public support in the form of grants and subsidies is one of the most used tools to stimulate R&D expenditure. Prior research supports this statement by reporting that public funding is positively related to R&D expenditure (Afcha & Lopez, 2013; Gonzales, Jaumandreu & Pazó, 2005; Gorg and Strobl, 2007). Hyytinen and Toivanen (2005) also provide evidence that firms in industries that are more dependent on external financing invest more in R&D and are more growth-orientated when they have more public R&D support. In a cross country study, Czarnitzki and Bento (2011) show that on average firms invest significantly less on internal R&D investment and on total innovation activity if they have not received public R&D support. Not only does public R&D support stimulate R&D investment, but it can also help to correct information asymmetries that stop small firms from accessing external funding and market their products and/or services in the market (Hall & Lerner, 2010). Public R&D support thus provides additional resources for firm-level R&D, thereby increasing the R&D intensity. Therefore we hypothesise that:

H1: Public R&D support is positively related to R&D intensity

Public R&D support has an amplified effect on firm R&D behaviour, not only increasing financial resources, but also stimulating innovation activities by enhancing innovation competencies, encouraging knowledge acquisition and learning, and fostering collaboration (Busom and Fernandex-Ribas, 2008). This means that depending on the nature and level of these competencies in a small firm, R&D support may be more or less useful in stimulating R&D intensity. Next, we review each of these behavioural additionalities.

Technological competence refers to a firm's ability to understand, use and exploit state-of-the-art technologies for its R&D efforts. This competence provides firms with the chance to become a market leader through new product development or the use of new process innovations. Ritter and Gemunden (2004) show empirically that firms with higher levels of technological competence achieve greater innovation success, compared to those with a low level of technological competence.

Firms that receive public R&D support and focus innovation projects on public priorities often benefit from learning curve effects (Tidd et al. 2005). Through their involvement they learn new skills, improve their absorptive capacity and increase their innovation productivity. These behavioural additionalities constitute a crucial part of the firm's technological competence (Lee, 2011). In the learning process firms create, renew and upgrade their latent and enacted capabilities and enhance their explicit and tacit resources for R&D (Carayannis and Alexander, 2002). Through learning-by-doing when involved in R&D projects, experience and know-how increases, becoming part of firm routines on an operational level, but also improving decision-making and managing uncertainty and complexity (Carayannis & Alexander, 2002; Lee, 2011). Tacit and explicit technological competencies increase as a firm's R&D experience accumulates and deepens, thus creating more intangible R&D resources. Therefore we hypothesise that:

H2: Technological competence is positively related to R&D intensity

Engaging in R&D projects results in learning-by-doing. This learning process that takes place during R&D often results in new knowledge being created in the firm, complementing internal knowledge with external sources (Casals 2011; Tidd et al. 2005; Zeng, Xie & Tam, 2010). First, firms draw from their internal knowledge, resources and capabilities in the R&D

process. Second, absorptive capacity determines the ability to recognise and use external information sources in the R&D process (Cohen & Levinthal, 1990). De Jong and Freel (2010) argue that a firm's absorptive capacity is a function of its prior related knowledge. Therefore current R&D projects influence the type of external information sources sought and used. Absorptive capacity then strongly influences a firm's ability to create new knowledge. Firms invest significantly in knowledge-building and knowledge acquisition processes to enhance their chances of innovation success. Investments in people, information systems and processes all contribute towards a firm's knowledge creating capability (Tidd et al. 2005). The knowledge creation process positively impacts on a firm's human capital and compliment R&D resources, production, marketing and management capabilities, resulting in improved efficiencies (Narula, 2004). While firms may not have all the resources they require in the innovation process, public R&D support can facilitate knowledge acquisition from external and complementary sources. Therefore we hypothesise that:

H3: Knowledge creation is positively related to R&D intensity

Collaboration refers to the engagement of firms in establishing networks and partnerships that create value for themselves as well as for the network partners (Simatupang & Sridharan, 2005). It offers small firms numerous benefits, such as a broadened resource and/or knowledge base and increased access to market opportunities. Casals (2011) argues that collaboration provide three main benefits. First, it enables firms to explore new ideas and external sources of innovation, contributing to the sharing of ideas, knowledge, resources and individuals. Second, R&D collaborations result in sharing of risks beyond the scope of a single firm and can increase the buying power of the two firms as one, then enabling them to improve their negotiation position. Finally, international collaboration allows partners to expand their capabilities and provide resources regardless of their location. Thus collaborating firms are in a better position to seek public R&D support.

Policy initiatives reinforce this notion by encouraging firms to improve their innovation networks. Firms are more apt at collaboration if they have the ability to exploit the knowledge and resources of their network and innovation partners. This is linked to improved R&D performance (Hung and Chou, 2013), which is important for other success measures such as growth. In organising a firm's R&D activities a number of decisions need to be made with regard to R&D collaboration. Firms need to decide if the benefits of collaboration outweigh the potential costs and risks, how many and type of partners (customer, supplier, competitor or research organisations for example). This choice will be influenced by firm- specific idiosyncratic characteristics, the strategies of partners, relational characteristics as well as costs involved in collaboration (Wanzenbock et al. 2013).

Successful collaboration depends on finding partners that are relatively easy to engage with and provide support, with similar culture, values and ethics (Blomqvist, Hurmellina & Seppänen, 2005). A firm's prior experience in collaboration and existing relationships influences the trust and resource availability for new R&D projects. Public R&D support for collaboration provide firms the opportunity to share competencies, combine resources and innovate outside of their individual capabilities (Cormican & Dooley, 2007). Few firms are capable of innovating in isolation therefore they consider pursuing innovation activities in collaboration with other firms as a beneficial opportunity (De Jong & Freel, 2010; Hung & Chou, 2013; Tether, 2002). Therefore we hypothesise that:

H4: Collaboration is positively related to R&D intensity

Method

Our empirical research is based on a sample 731 South African small firms. The data used to test our hypotheses emanate from the community innovation survey (CIS) conducted by the

Human Science Research Council (HRSC) in 2005, based on the Oslo Manual (2005). CIS data are used widely in academic publications focused on innovation, innovation capabilities and innovation performance (e.g. Laursen & Salter, 2006). A random stratified sample (by size and industry sector) was drawn from the South African business register. A total of 2 627 firms were targeted with mail surveys, of which 37.3 per cent responded. After data cleaning, 731 small firms remained in the database.

Variables

To test our hypotheses, we created a range of variables; using the approaches developed in previous studies using CIS data (e.g. Freel, 2005; Laursen & Salter, 2006).

R&D intensity, our dependent variable, refers to the extent to which resources, such as financial or human capital is devoted to R&D, a precursor of innovation. This is often expressed in terms of the percentage of a firm's revenues or sales invested in R&D (Hsu and Hsueh, 2009). To test Hypothesis 1, our primary independent variable was *public R&D support*, a composite variable from five items that enquired about five different types of public financial support measures, including from: metro and municipalities; provincial and national government; national funding agencies; and foreign governments. R&D intensity was log transformed to enable further statistical analysis such as the correlation and OLS regression analysis. Hypotheses 2 to 4 were tested using three additional independent variables. First, *Technological competence* was proxied by a firm's experience in the innovation process relating to whether they were innovation active. This was binary variable, with firms indicating their activity in process and product innovation (yes=2; no=1). Firms who are innovation active in products and processes acquire technological competencies through learning-by-doing. *Knowledge creation* was a continuous variable, based on a question about the monetary value of acquired knowledge sources (in Rands). *Collaboration* was a binary variable, based on a question about engagement in formal collaborations posed to firms.

The database allowed us to control for two often used firm characteristics. *Industry* was divided into four categories namely services, manufacturing, mining and 'other'. The latter was left out of analyses as reference category. *Firm size* was based on the number of full-time equivalent employees. This variable exhibited a Poisson distribution, and was therefore log transformed to be included in regression analyses. We used Spearman's correlations and OLS regression to test our hypotheses, controlling for industry and size.

Results

Table 1 shows the descriptive statistics and correlations. The firms in our data ranged from one to 200 full time equivalent employees (mean = 55.8); 35 per cent employed fewer than 20 staff and 20 per cent between 100 and 200 staff. The OECD (2005) regard small and medium sized enterprises (SMEs) as independent firms with employees between 200 and 250 maximum, but point out that this varies by country. For the purpose of this study we used 200 as the upper limit for our sample of small firms, in line with South African guidelines (DTI, 2006). These firms were from manufacturing (33.2 per cent), mining (3.8 per cent), services (20.9 per cent) with the remainder from 'other' industries.

Several significant correlations were observed. Of particular interest is that R&D intensity is positively correlated with public R&D, indicating some tentative support for Hypothesis 1, as well as technological, knowledge and collaboration competence, indicating some tentative support for Hypotheses 2 to 4. No correlations were observed at a level that gave concern for multi-collinearity in our research model. The correlations further indicated a potential industry effect for R&D intensity, but no firm size effect.

Table 1: Descriptive statistics and Spearman's correlations

	Mean	SD	RDInt (log)	Public R&D	Tech Comp	Knowl edge	Collab	Firm size	Serv	Manuf	Mining
R&D Intensity (log)	45.172	368.89	1.000	.270**	.191**	.293*	.179**	-.092	.306**	.114*	.110*
Public R&D	1.11	.308	.270**	1.000	.030	.098	.040	.054	.045	.100*	.017
Tech Comp	1.37	0.483	.191**	.030	1.000	.190**	.148**	.264**	.010	.140**	-.020
Knowledge	630.23	4476.5	.293**	.098	.190**	1.000	.104	-.030	.123*	-.141*	.033
Collaboration	1.40	.490	.179**	.040	.148**	.104	1.000	-.066	.035	.090	-.051
Firm size	55.80	51.033	-.092	.054	.264**	-.030	-.066	1.000	-.350**	.268**	-.006
Services	.2093	.40709	.306**	.045	.010	.123*	.035	-.350**	1.000	-.363**	-.103**
Manufacturing	.3324	.47140	.114*	.100*	.140**	.141*	.090	.268**	-.363**	1.000	-.141**
Mining	.0383	.19206	.110*	.017	-.020	.033	-.051	-.006	-.103**	-.141**	1.000

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 2 Model 1 shows the OLS regression with R&D intensity as dependent variable and controls variables as explanatory variables, explained 9.7 per cent of the variance. Following a stepwise approach public R&D support was then added in model 2, which explained xx per cent of the variance. When the independent variables were added to the regression in Model 3, 34 per cent of the variance was explained. All models were significant.

Table 2: OLS Stepwise Regressions

	Model 1			Model 2			Model 3		
Dependent variable	R&D intensity								
	B	Sig.	Beta (st.cff)	B	Sig.	Beta (st.cff)	B	Sig	Beta (st.cff)
Constant	6.270	.013		-.254	.654		-1.945	.012	
Firm size (log)	-1.087	.078	-.100	-.319	.004	-.165	-.324	.006	-.165
Manufacturing	4.880	.001	.200	1.154	.000	.258	1.199	.000	.262
Mining	7.205	.036	.109	1.701	.004	.150	2.068	.000	.198
Services	8.662	.000	.287	1.802	.000	.343	1.724	.000	.337
Public R&D support				1.126	.001	.172	.764	.028	.114
Technological competence							.754	.003	.158
Knowledge creation							.000	.000	.315
Collaboration							.525	.026	.119
R	.311			.444			.586		
R Square	.097			.197			.343		
Adjusted R ²	.087			.185			.322		
F	9.526**			16.258**			16.372**		

As indicated in Table 2, we found support for three of our four hypotheses. Hypothesis 1, namely that public R&D support is positively related to R&D intensity, was supported. This implies that public R&D support therefore enable firms to commit greater amounts of resources to R&D. Hypothesis 2, namely that technological competence is positively related to R&D intensity, was also supported. Technological competence is increased by the learning that takes place during the R&D process. This finding provides support for the assertion that intangible resources are generated, thereby increasing firms' R&D intensity. Hypothesis 3, namely that knowledge creation is positively related to R&D intensity, was also supported. The learning process of assimilating new ideas and transforming these to exploitable products, services and processes involves knowledge creation that increases firms' R&D intensity. Last, Hypothesis 4, namely that collaboration is positively related to R&D intensity was supported, indicating that collaboration provides access to more resources for R&D.

Discussion and Conclusion

The purpose of our paper was to gain deeper insight into the interrelations between public R&D funding and firm behavioural additionalities with regard to the R&D intensity of small firms. We showed that public R&D support is important to small firms in an emerging economy such as South Africa where accessing finance is problematic, amplified with the high cost of capital to service debt and cash flow pressures. The three behavioural additionalities (changes in firm behaviour induced by public policy support) experienced by small firms were all significantly related to the R&D intensity of the firms in our sample. Up to now few empirical studies have used African countries as samples to study the interrelationships between public R&D funding and behavioural additionalities. This issue is of theoretical importance to the science and innovation community, can help policy-makers design and target R&D support programs and provide small firm owner/managers with guidance on making the most of R&D support.

In our analysis we included R&D intensity as a dependent variable, indicating small firms' tendency to invest in R&D activities and abilities to accrue intangible and tangible and resources, such as know-how, technological competencies, teamwork and organisation of R&D processes, which are attributable to persistent and intensive R&D activities. We employed OLS regression to investigate the relationships between R&D support, behavioural additionalities and R&D intensity using data from 731 small South African firms, emanating from the 2005 Community Innovation Survey.

The results of the empirical analysis provide interesting insights into the interrelationships of public R&D funding and firm behavioural additionalities and R&D intensity. First when analysing the influence of public R&D support on small firms' R&D intensity our findings showed a significant relationship, implying that small firm recipients of public R&D support increase their R&D intensity. This finding is supported by the literature (Hyytinen and Toivanen, 2005; Meuleman & Maeseneire, 2012) and confirms that this type of support can curb the tendency of small firms to underinvest in innovative activities, thus having the potential to increase the innovation and growth output of these targeted small firms. Second the technological competence enhancing behavioural additivity was considered related to firm R&D intensity. Our findings provide support that firms' with higher levels of technological competence were able to increase their R&D intensity. These small firms involvement in R&D projects increased their abilities to assimilate and use new technologies for innovation, increasing their knowledge stocks and intangible technological resources. Third we find strong support that engaging in R&D projects enhances knowledge creation, which is significantly related to R&D intensity. Therefore public R&D support programs should take care to provide funding support for firms with little prior experience of the R&D process. Our findings showed that learning-by-doing is instrumental to increase intangible resources for R&D through knowledge creation, also influencing efficiencies in the innovation process. Finally our findings showed that collaboration also increases R&D intensity, therefore the resources available for the R&D process, however this relationship is not as strong as the others, suggesting that other factors such as the nature of the collaboration relationship and sources of ideas also play a role.

Although our study is limited in using a South African sample of small firms, the empirical results are supported by previous findings and existing theory and therefore hold significant implications for policy makers. Public R&D support has a significant behavioural impact on small firms, as reported in the literature (Falk, 2012; Justman and Zuscovitch, 2002), provided these firms have prior experience of the R&D process and have accumulated technological competence and knowledge. Policy programs should focus not only on providing financial incentives, but also in stimulating behavioural additionalities,

encouraging small firms to collaborate with more established, technologically advanced firms. In this way the value of R&D experience, absorptive capacity and knowledge creation can enhance the tangible and intangible resources available to achieve valuable R&D outcomes and larger economic benefits.

Our findings also have implications for small firm owner/managers when it comes to managing R&D and innovation outcomes. While the process of accessing public R&D support programs in South Africa is quite cumbersome (Radebe, 2013), securing this type of support can have numerous benefits for small firms, not only from an investment perspective. Small firms who are grant recipients are able to increase their resource investment in R&D through tangible, immediate resources, but over the longer-term the intangible resource benefits are related to increased technological competence, knowledge creation and inimitable collaboration relationships which may be formed on the strength of public R&D support. Lee (2011) argues that there are further benefits such as reputational gains and increased market demand, due to government spending. Such insights are crucial to a firm's future innovation strategies and seeking collaboration partners.

From a scientific and methodological point of view, this study provides a basis upon which more rigorous analysis can be conducted, should additional databases be available to enrich the analysis. While the CIS survey provide an indication of the impact of public R&D support longitudinal, systematic data on small firms R&D and innovation processes would further enhance our understanding of the impact of public R&D support.

This study is not without its limitations. First, the data used to analyse the interrelationships between the independent and dependent variables were not collected for the purposes of this study and proxies were used for some of the variables in our analysis, however the findings seem to be supported by the literature. Second, most of the data were self-reported answers of firm owner/managers and although we anticipate the administration of the questionnaire sought to limit single-informant data, we were not involved in the process. Third, this research was conducted using an emerging economy sample. As such it is possible that other environmental factors at play in developed economies may influence R&D intensity in this context, therefore future research would benefit from testing our research model with other datasets. Finally, the data employed in this study were cross-sectional. In order to establish causal claims of the model longitudinal data is needed. Hence our results should be interpreted as association among variables and not in terms of causality. This limitation can be overcome in the near future as we are negotiating to gain access to another dataset collected, having panel data should improve the strength of the research model and findings, allowing us to address new and interesting research questions.

To conclude in this paper we show that public R&D support, in the form of grants, loans, tax credits and other support programs, is important for small firms to encourage investment in R&D. Small firms that actively pursue innovation projects with R&D support are able to increase their R&D resource base. These initial actions and direct support has further benefits namely enhancing technological competencies and promoting collaboration. Being involved in R&D projects has a significant knowledge creation effect, allowing firms to accumulate inimitable, intangible resources through learning-by-doing. Importantly, we show that the presence of these additionalities has a profound influence on the amount of variance in R&D intensity explained by our model, supporting our thesis that it is important to have these competences in place to improve the value of R&D support to R&D intensity. We provide implications for policy makers, small firm owner/managers responsible for firm-level R&D innovation programs and suggest theoretical implications.

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THE ROLE OF FDI AND INTERNATIONAL ENTREPRENEURSHIP BEHAVIOUR

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The Role of FDI and International Entrepreneurship Behaviour

Abstract

Theoretically and traditionally, it is arguable that the role of FDI¹ in international entrepreneurship has been seen in a blinkered fashion. For example, much of the research on the internationalisation behaviour of firms has focused on outward FDI. There has been less focus on inward FDI and its effects on the entrepreneurial behaviour of domestic subsidiaries. Previous research on the role of FDI has also largely been quantitative, examining the effects of inward and outward financial flows with a consequential bias on the macro-economic effects of investment. This paper examines qualitative evidence on the role of both outward and inward FDI effects on businesses' international entrepreneurial behaviour and, hence, examines the micro-economic effects of FDI.

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Introduction

International entrepreneurship behaviour has been the subject of intensified interest for the potential it can provide to economic development for both developing and developed economies (Davis and Lunati, 2011). New Zealand, where this study was conducted, is no exception and the New Zealand Government has set a target to increase the contribution of exports to the economy from 30 to 40 per cent of GDP by 2025². Although research on international entrepreneurship behaviour has expanded with this intensified policy interest, especially over the last decade, the role of FDI in terms of its influence on international entrepreneurship behaviour has been relatively neglected. FDI is still usually examined as a stock concept with a focus on inward and outward flows of investment. Previous research on the role of FDI has largely been quantitative, examining the effects of inward and outward financial flows with a consequential bias on the macro-economic effects of investment (Lipsey and Sjöholm, 2004). By contrast, qualitative research on the micro-economic effects of FDI at the firm and individual entrepreneur level has been limited, this paper seeks to redress this balance and increase our understanding of the causes and consequences of FDI within the context of international entrepreneurship behaviour.

Economic theory of the role of FDI has an extensive foundation following the seminal work of Dunning (1979) and the development of his eclectic paradigm, which was based on transaction cost theory and sought to explain firm motivation for undertaking FDI. The eclectic paradigm conceptualises a combination of firm advantages, which include entrepreneurial skills, for explaining firm and, by implication, entrepreneurial behaviour. One

¹ For the purposes of this paper we define foreign direct investment as an investment that that involves a commitment to a long term relationship, reflecting a lasting interest (Alfaro, et al 2004; UNCTAD, 2002).

² Ministry of Business, innovation and Employment (2012) *Business Growth Agenda*, MBIE, Wellington

of the predictions of Dunning's work was that economies would go through economic development stages of inward and outward FDI, firstly being recipients of FDI, then through a number of stages to be net generators of outward FDI. It is arguable, therefore, that New Zealand, a small open economy, provides an interesting and relevant context to examine the role of FDI and international entrepreneurship behaviour.

The remainder of this paper is organised as follows; we examine in more detail relevant theory and previous literature on the role of inward and outward FDI and international entrepreneurship behaviour, discuss the research method and sample, the qualitative findings and provide a discussion and implications section that includes areas for further research.

Relevant Theory and Literature Review

As discussed in our introduction, international economic development theory, rather than theories on international entrepreneurship, provides a foundation for the examining the role of FDI. Following the work of Dunning (2001), we can conceptualise motives for FDI and international entrepreneurship behaviour as illustrated in Figure 1. For both inward and outward FDI, international entrepreneurship behaviour can be motivated via the traditional view of entrepreneurial opportunity recognition and exploitation or driven by the need to acquire firm resource capability, adopting a resource-based view of the firm (Barney, 1991). It is arguable that international entrepreneurs will undertake FDI for informational needs. That is, they will be driven by information seeking behaviour which will occur over time and needs to be seen as dynamic process of information seeking, acquisition and learning (Fletcher et al, 2013).

In contrast to theories of economic development, theories on internationalisation and entrepreneurship behaviour have little specific to say on the role of FDI. Traditionally, firm behaviour towards internationalisation has been conceptualised as a staged approach, based on the Uppsala model (Johanson and Vahlne, 1977), or a network approach where relationships are the key to international entrepreneurship behaviour. It was recognised that these theories could not explain firm behaviour that rapidly entered global markets (Bell et al, 2004) or "born global businesses" (BGBs). Therefore, a single theory cannot explain firms' internationalisation (in a broad sense that includes de-internationalisation) strategies and this behaviour should be considered in a 'holistic' sense, i.e. recognising various aspects of particular theories in the context of individual circumstances affecting businesses over time (Bell et al, 2004; Jones and Coviello, 2005; Jones et al, 2011). However, theoretically FDI can be seen as a rational 'stage' or may even be used to overcome incremental stages to achieve internationalisation (Johanson and Vahlne, 2009).

FDI	
Inward	Outward
Market Opportunity Driven	Market Opportunity Driven
Resource Capability Driven	Resource Capability Driven
International Entrepreneurship Behaviour	

Figure 1: FDI and International Entrepreneurship Behaviour

Thus, theoretically explaining the role of FDI as the outcome of international entrepreneurship behaviour has some foundation in both sets of theories, but it has not been explicitly modelled, we will return to this in our discussion section and suggest a more explicit way of modelling FDI and international entrepreneurship behaviour as an information seeking and uncertainty reducing approach.

Previous literature on the role of FDI and firm entrepreneurial behaviour has tended to treat inward and outward FDI as two separate phenomena, although of course a firm may engage in both simultaneously within the same supply chain. It is arguable that this has been more common with the growth of more complex global value chains (see Backer and Yamano, 2012 for a review). However, for the purposes of our brief literature review we treat them separately.

Outward FDI has received the most attention in previous literature, but as indicated previously largely as a stock concept. For example, Garcia et al (2013, page 231) comment: “Despite the extensive theoretical and empirical study of FDI, surprisingly, research in international strategy has centered almost exclusively on the antecedents and consequences of outward FDI for the firms making the investments”. Work on outward FDI has been focused on testing Dunning’s elective paradigm which suggests that entrepreneurial behavior that involves outward FDI will be explained by market seeking (opportunity recognition), efficiency seeking (resource capability) and risk reduction. For example, Tahir and Weijing (2011) test how organisation, location and internationalisation advantages affect Australia and NZ manufacturing firms’ strategic decisions to undertake outward FDI between the 10 year period of 1998-2008. They find that firms are more likely to have wholly-owned subsidiaries (increased FDI) where markets are larger and more culturally similar (page 143). Outward FDI has been focused on the study of investment flows from foreign-owned multi-national companies (MNCs) to a domestic economy, particularly from MNCs in developed economies, such as Japan and the US, to developing economies (for example see Lipsey, 2000) and the extent of transfer of technology and the performance of the domestic subsidiaries of the parent MNC.

Because of this focus on investment flows, the role of outward FDI and international entrepreneurship behaviour has not been explicitly explored, yet theoretically, there are number of potential and subtle advantages that can explain outward FDI as part of international entrepreneurship behaviour. For example, outward FDI involves the establishment of a subsidiary company (or least a significant long term presence) in an overseas market that gives increased resource and dynamic capabilities and may have a number of more subtle advantages. Overseas buyers may more closely identify with a local company (as opposed to an overseas based company). It may represent a vehicle for a company that will more easily deal with local regulations and trading conditions, compared to operating from New Zealand. However, outward FDI is essentially a response to the need to invest strategically in markets overseas. It represents a long term investment and commitment which is undertaken even though there may be short term changes in economic conditions overseas

Literature on inward FDI has focused on whether it has been beneficial for recipient domestic firms on their performance, productivity and innovation. However, existing literature and research has been equivocal on the impact of effects on recipient firms. For example, conventional industrial economics theory suggests that inward FDI will increase competition in domestic markets and indigenous companies may defend market share by attempting to

innovate and improve their productivity as a strategic response –accordingly the increased competition may stimulate more innovation (Garcia et al 2013; Chung et al, 2003).

Findings of positive effects of inward FDI on the productivity of local firms through a combination of competition and knowledge spillovers have contributed to the view that inward FDI can act as a catalyst for economic growth (Haskel et al., 2007, Keller and Yeaple, 2009). Recent research, however, has started to question this view by drawing the attention to the impact of inward FDI on innovation rather than productivity. It has been suggested that as a consequence of inward FDI, the ability of local firms to innovate on their own might be reduced which in turn might have detrimental effects on the long-term economic development of host countries (Garcia, et al 2013).

Inward FDI can increase knowledge transfer, e.g. through direct access to greater resources or by transfer from a parent company. There may also be indirect knowledge transfer benefits, such as unintended knowledge spillover effects such as learning and intelligence gathering by domestic firms (Almedia and Kogut, 1999). In theory, increased competition increases incentives for domestic firms to innovate and it may provide an operational benchmark for domestic firms (Aghion, et al 2001). Alternatively, inward FDI may have more negative effects and be a hindrance to innovation. In this scenario, theoretically, inward FDI reduces market share for domestic firms, causing them to reduce investment and it may increase their unit costs through the reduced scale economies. Inward FDI can also raise the costs of labour and other resource costs for domestic firms. MNCs often pay higher wages than local firms, causing labour skill shortages for domestic firms as skilled labour is attracted to the MNC's domestic subsidiary. For example, Aitken and Harrison (1999) found a negative effect on the productivity of domestic firms in a Venezuela study. Chung, et al (2003, page 199) in a study of the American motor industry at a time when Japanese car producers were engaged in FDI to the USA from 1979 to 1991, find little evidence of net gains for the domestic subsidiaries. "Although we find that the direct investment by Japanese assemblers was associated with overall productivity improvement in the US auto-component industry, we find little evidence of direct technology transfer." Although increases in productivity were evident, these were due to increased competition. Scott-Kennel (2004) has also looked at micro analysis of Inward FDI and has argued more positively that it up-grades the capacity of recipient local firms.

A literature has emerged on whether domestic subsidiaries of MNCs can take autonomous initiatives from parent MNCs. It is arguable that to undertake autonomous initiatives requires an entrepreneurial culture in the subsidiary. The extent of autonomous initiatives appears to vary with the national context (Raziq, et al 2012).

For both inward and outward FDI, previous research, in line with much of internationalization research, has been conducted with manufacturing firms. In addition, the theory of internationalisation of businesses is based upon manufacturing firms (Altinay and Roper, 2007). In this paper we include findings with service sector firms. We note here that the service sector is very diverse and includes, for example, businesses operating in professional services, tourism and education. Because of this diversity, generalising across the sector needs to be treated with caution, but it has been suggested that personal networks are critical for internationalisation, and hence outward FDI, to be achieved and are more important for service sector firms than manufacturers. For example, Lindsay et al (2003, p.

25) in a study of five service sector firms from the US and from Scandinavia develop a conceptual model in which personal relationships are critical to knowledge transfer. They

indicate that “The role of particular individuals in relationship development, knowledge flows and learning, features strongly in all of the cases”. The role of personal and social relationships was also highlighted by a study by Riedhlen and Apel (2007, p. 142) with internationalised firms in professional services (PSFs). They comment that the nature of such relationships can determine the competitive edge for internationalisation: “For gaining and sustaining competitive advantages, these characteristics imply that strategies of PSFs mainly emerge from managing intellectual capital embedded in social exchange relationships with clients, peers, educators, and professional associations”.

However, because of the greater emphasis placed on personal relationships, FDI may be less likely with service sector firms as an outcome from the internationalisation process. As noted in a recent paper by Scott-Kennel (2013 p. 114): “Service firms, by the nature of their offerings and the need to locate close to customers, often employ exporting in conjunction with network or partnership-based modes of entry.” The greater emphasis on personal relationships compared to manufacturing firms means that it can be more likely that service sector firms will operate from an administrative base in New Zealand. Scott-Kennel (2013 p.

114) in a review of sector differences in the internationalisation process comments “In many cases services are still provided from a New Zealand base, but marketing and customers are international.”

In theory then, businesses in the service sector will rely more closely on personal relationships with customers than businesses in manufacturing. Their competitive advantages can be expected to lie in the quality of service. Their ability to attract clients from overseas markets will be through either a uniqueness or difference in their service or an ability to provide a better quality of service than competitors. We can expect some challenges to be less important such as distance and the appreciation of the exchange rate. However, other challenges may be more important such as different cultures and regulatory regimes

In summary, there has been limited research on the role of FDI and international entrepreneurship behavior. Although there is a strong theoretical foundation for entrepreneurs to undertake outward FDI (in response to market opportunity recognition and exploitation or to acquire knowledge and resources), there has been very little research that examines such behavior at a micro-level. Most research has been concerned with the levels of investment flows. With inward FDI, research has been equivocal on the entrepreneurial behaviour of recipient firms, it may encourage innovative behaviour, increase technology transfer and improve access to global markets, however, it may also be more restrictive. Where the role of FDI on international entrepreneurship behaviour has been examined, this is usually with manufacturing firms, there is little previous work with service sector firms, although we can hypothesise that they may be less likely to engage in outward FDI than manufacturing firms, but by contrast domestic service sector firms with IP are likely to be attractive as takeover targets for inward FDI from MNCs. Thus, there are open research questions which stem from this literature which include the following central research questions:

- What is the role of outward and inward FDI in internationalisation entrepreneurship behaviour of firms?
- How does inward FDI affect the entrepreneurial behaviour of recipient firms?

Research Method and Sample

The sample for this paper is drawn from a programme of qualitative interviews with New Zealand businesses on their internationalization activities. Firms were drawn from a stratified sample of businesses that had responded to the Statistics New Zealand 2011 Business Operations Survey³ and had indicated a willingness to participate in follow-up interviews. Firms were recruited in a priority order which reflected a focus on FDI. Firstly those with overseas production, second those with overseas sales and thirdly a group with no overseas income. This prioritisation approach provided the basis for a programme of 98 interviews, all completed by the authors, of these 25 firms were categorized as being engaged in outward FDI and 24 firms were recipients of FDI. A breakdown of categorisation is given in Table 1.

All participants were initially contacted by phone to seek their participation in the research. Data was collected through face-to-face interviews using a semi-structured interview approach. In keeping with a philosophical approach of seeking to understand the internationalisation process, we carefully designed the interview structure to be non-threatening and to minimise the risk of socially desirable responses. It was important to allow respondents to talk through issues that were important to their business. This meant that a wide range of issues were covered and reliance was placed on the skills and experience of the researcher to obtain relevant and meaningful data. In all cases, notes were made during and immediately after the interview to capture issues raised at the time and to record immediate thoughts and observations of the researcher.

Interviews took place on the businesses premises and averaged around one hour. Informed consent was obtained and, with the permission of the interviewees the interviews were recorded and transcribed. The transcript was shared with the interviewees to give opportunity to amend and augment the initial responses or to withdraw the transcript completely. The first step in the data analysis was to write up a descriptive case summary for each interview to ‘allow for the unique pattern of each case to emerge’ (Eisenhardt 2002, p18) and to capture the diverse international patterns. Subsequently all interviews were coded using an open coding approach (Strauss and Corbin, 1990) to identify common themes. Axial coding was used to identify relationships between the themes and to build a theoretical framework. Finally, selective coding was used to support the emerging framework.

	Manufacturing	Services	Total
Outward FDI	17	8	25
Inward FDI	19	5	24
Totals	36	13	49

Table 1: The Sample Categorisation of Companies

Qualitative Findings

Figure 1 provides a framework for the analysis and presentation of the qualitative findings under the following themes: outward FDI, market opportunity driven and resource capability driven; inward FDI, market opportunity driven and resource capability driven.

³ The Business Operations Survey (BOS) is conducted annually with all NZ businesses that employ 6 or more people. The 2011 BOS included a module on internationalisation activities (Statistics New Zealand, 2012).

Outward FDI: Market Opportunity Driven

Outward FDI that is driven by opportunity recognition is essentially a response to the need to invest strategically in markets overseas. It represents a long term investment and commitment which is undertaken even though there may be short term changes in economic conditions overseas, such as the continuing recessionary conditions in Europe. Outward FDI may be undertaken to exploit overseas opportunities more effectively. For example, case #05, manufacturer of mining equipment was able to exploit new opportunities in Australia through outward FDI, whilst the administrative base was retained in New Zealand.

In time, as those opportunities developed it became ultimately sensible to establish the --Australian operation and employ some --- Australian employees and have that as the marketing and sales arm predominantly with most of the support be in design, project management, administration and services and even financial administration is all done from New Zealand here. #05

A further example is provided by case #20, a manufacturer of vegetable handling equipment, who had chosen to invest strategically in European markets. This was an important platform for continued growth to exploit opportunities, despite the continued economic recessionary conditions on Europe.

I think what was crucial was the move to a direct channel to market in Europe, through the creation of a subsidiary company, otherwise there was the potential risk that we'd probably might have lost the market. So creating a European presence was I think critical to that, it took 3 years of investment to get any real traction, but now we are starting to see the fruits. All the local commentary today is that Europe is in some real trouble, and they are, but for us Europe is our biggest market despite all these tough times. #20

A service company example, case #24, provided environmental consultancy services. The company learned over time that it was important to have a local operation in an overseas market, in this case Malaysia, but allowed some ownership overseas.

We've been in that market a long time and we've gone through various things, we ended up employing some people, locals who were trained here in New Zealand so they have quite an affinity back to New Zealand and rather than owning it 100% we took more of a management fee out of it so they had the ownership of that business and we found that that's worked way, way better than they have a stake in it. #24

A further example is provided from a respondent of a long established NZ owned large sized company, case #48, who over time were operating with subsidiaries in a number of overseas markets, but retaining manufacturing at its plant in New Zealand. The respondent commented on their current operation.

We operate in basically four geographical areas, so we've got NZ, Australia, the UK and to some extent China. We've got legal entities in each of those countries and we also have a 5th legal entity in the US as well [---], but it's not trading. #48

The role of outward FDI provided the basis for continued growth through building on its reputation and the opportunity from its brand name.

We've got a number of brands, [xxx] is our flagship brand, it's our premium brand, we then have some lower end brands which are more predominant in the UK and the Australian market so for example [yyy] in Australia and [zzz] in the UK and really our aim for growth in those two areas is really about driving the [xxx] brand. #48

The examples of outward FDI have been concerned with companies seeking a long term strategic presence and with important export markets accounting for a significant amount of their turnover. Outward FDI may be undertaken for more short term reasons which are less concerned with the strategic development of a market, such as to provide a vehicle for more easily dealing with different rules and regulations in an overseas market. For example, with case #14, a NZ owned company in the electronics sector, the respondent perceived such advantages from having an Australian subsidiary company and that this was perceived to avoid the existence of some barriers⁴.

It's the Australian barriers that they put up though, despite CER that is the difficult one. If you tender [-----] for work into New South Wales or Victoria out of New Zealand, then because of CER they can't penalise us being a New Zealand company. They penalise all out of state companies because it isn't covered by CER. That's Australian politics and it's clearly there just to block New Zealand companies or to make it more difficult for us. It only affects New Zealand-based companies. Part of the advantage of being in Sydney is that we've managed to avoid that because we're selling from an Australian company. #14

Apart from administrative savings and ease of meeting local regulations, companies have an opportunity to develop a transfer pricing strategy; that is, deciding on transfer prices between a parent and a subsidiary. This was mentioned as a benefit in relation to a subsidiary operation in Australia by the respondent from case #04, a NZ owned large sized company with exports in Australia in clothing manufacture.

It works extremely well; we have those two people who are employed by the Australian company, all the administration is done here. It is a very basic agreement, we have a strong transfer pricing agreement in place between the two countries which we do use outside consultants. We use [-----] because it has to be right and it does, it just all flows, it's a very simple structure over there. #04

To facilitate the development of international markets, we have seen that outward FDI can take a variety of forms. This varies from establishing an office that undertakes administrative and financial roles to more advanced modes such as investment in a subsidiary operation that may involve production overseas. The more developed form of outward FDI takes an established market presence over time and represents a strategic response to commit long term to an overseas market irrespective of economic conditions. Those firms that had undertaken the more advanced form of outward FDI, tend to be longer established, but had been successful. With manufacturing companies seeking to operate in relatively distant markets such as Europe and North America there can be some obvious advantages. However, what is also apparent is that there does need to be some minimum scale and time involved to make such advanced outward FDI worthwhile.

⁴ It should be noted that under the Australia New Zealand Government Procurement Agreement (ANZGPA) all New Zealand suppliers must be treated the same as a firm domiciled in Australia, so that the view of the respondent was a perception of discrimination.

Outward FDI: Resource Capability Driven

Investment in outward FDI to achieve resource capability was less common in our sample than that undertaken to exploit overseas markets, but of course outward FDI that is opportunity driven may also yield benefits from increased resources, for example, by having a sales team based overseas.

Two examples are illustrative. The first concerns case #04 which, as mentioned previously had undertaken FDI to exploit opportunities in Australia, but also undertook outward FDI to achieve resource capability. In this case the company had established an important strategic partnership with a Chinese partner in order to outsource the production of its garments, enabling it to reduce the costs of operation in New Zealand, yet retain quality.

Because they have to, they carry the [-----] brand, so they have to be spot on. I know there was a lot of work put in to the factories and finding one which would come up to the quality that we required and also work with our quality controllers, because they go over probably once a month. #04

The second concerns case #06, a manufacturer of health food products, who had been “forced to set up” overseas to demonstrate resource capability, location and capacity to their major buyers (Fonterra and Nestlé).

Ingredient companies like us have almost been forced to set up in Australia so that we can supply to Fonterra in Australia and New Zealand, we can supply to Nestlé in Australia and New Zealand, --they want to negotiate one spot, one deal and that's what they would be pressurising you into doing. #06

Service sector companies, like case \$24 discussed earlier, are more likely than manufacturing companies to retain their administrative base and knowledge base, hence resource capability, in New Zealand. A company that was, unusually, involved in both manufacturing and services (the manufacture of camper vans and tourism) was case #49. The company had found that in order to achieve capability of production in Australia, as it was a protected overseas market for its vehicles, a production capability had been established.

With motor vehicles it's hard to try and find a way to get your vehicles in, so we've had to do some things with exporting, so what we do is we export the box and then we buy a chassis in Australia and then we drop the box off onto an Australian chassis and we are currently in the process of moving to, which is expense and is difficult for us to maintain, to be competitive in their market when you've got Australian producers that are building directly onto a chassis. So we've had to be very clever about cost effective and build better product and do those sorts of things to maintain that and we are currently looking to move into a roll on roll off methodology which is where the compliance process becomes a lot more difficult and challenging. #49

This illustrates how strategically, overseas regulations could drive entrepreneurial behaviour that sought to exploit overseas markets but through outward FDI to increase resource capability. The alternative perspective of inward FDI can of course be seen as a means of achieving resource capability in New Zealand as well as exploiting overseas markets (which may not be just in New Zealand). We turn now to consider inward FDI and international entrepreneurship behaviour.

Inward FDI: Market Opportunity Driven

Inward FDI is more commonly seen from the perspective of acquiring resource capability, but this may also provide the basis for opportunity recognition and new markets. For example, case #16 involved a domestic subsidiary breeding pasture seeds. They are contracted to breed seeds for their parent company and have an operation in Sydney. The overseas company has been involved as a minority shareholder since start-up in the late 80s and has continuously accumulated share until it gained 100 per cent control in the early 2000. However, the subsidiary still has a high autonomy in relation to how the business is managed and is still opportunity driven.

We're definitely a New Zealand company, they have a high level involvement in our operations, but they don't direct us in what we do. We're run here and all of our management are here. #16

From start-up foreign investment was sought and considered crucial for their international strategy. *It was a deliberate attempt from day one to be international. #16*

Being part of a large international holding provides the New Zealand business with access to markets and established distribution channels. Their parent company already had a strong presence in the markets that the New Zealand operation was interested in and they could capitalise on these existing relationships and on the market knowledge. Another benefit mentioned was the knowledge spill overs that occur within the group. The New Zealand operation has got an extensive R&D programme and is considered to be the 'jewel in the crown' within the wider international holding.

One of the big benefits of being part of an international group is that we have commonality in our research. If we want to develop some technology here, well, then we talk internationally first - A to see what's been done and then - B to see what interest the others have in the programme and therefore what investment will they want to put in. If Ireland does some research, well we can pick up on it. Or if we do some research here, then the US might want it also. #16

A further example is provided by case #19, a Japanese-owned MNC that produces computer networking equipment. The close integration between the parent company and the NZ subsidiary was illustrated by having two Japanese staff in New Zealand and at least one New Zealand staff in Japan as "on site connection points" and to ensure that the different systems and processes interlink smoothly. Historically hardware and software development was done in New Zealand and a few other places around the world, but the parent company decided to have all hardware development done in the US. Software development has remained in New Zealand because the operation had and still has the best R&D expertise and skill set available within the group. In contrast to other cases, which for example involved low value manufacturing (see cases #15 and #25 discussed in the next section) and moving production overseas to reduce labour costs. In this case, for high-value software development, labour costs in New Zealand are considered comparably cheap.

When they bought us they saw no need to move the operation. From a Japanese point of view it's not too bad a location because it's in a reasonably convenient time zone and it's not too far to travel. It has the advantages of being relatively cheap by Japanese standards without the disadvantages of corruption that some countries have. #19

Inward FDI: Resource Capability Driven

As mentioned, inward FDI is associated with acquiring resource capability. For example, with case #19, the New Zealand operation which employs 120 staff is the largest R&D facility of the group which has its headquarters in Japan. The business started out as a small local company, but was looking for foreign direct investment to raise capital as part of their internationalisation strategy. They were then bought by the current owners in 1999.

Before that it was New Zealand owned and the key reason for going international was to get capital. #19

It has since invested in a purpose built office and staff and this has helped the company grow which wouldn't have otherwise been possible. Having access to a worldwide sales structure through the holding is of particular benefit.

When they bought us, they poured money in to the place, these buildings were built, they increased the staff numbers quite a lot and poured money into development. So that was very, very helpful, we wouldn't have been able to expand like that, in any shape or form, without them. The other thing that we got that we wouldn't have had is access to the worldwide sales structure. So I don't know a New Zealand company would go about breaking into 80 countries worldwide for sales, but the way we did it was by being bought by a company that already had the sales structure. #19

A further example is provided by case #15, in traditional textile manufacturing. Although a NZ subsidiary, they have still sought to reduce costs by sourcing part of the production overseas. Their semi-finished product is sent to Vietnam where there is an established strategic partner company who complete the process by supplying labour, but the company has invested in machinery and an administrative team.

It's all our machinery over there, but it's in a company called [---] who supply the labour and process it for us. We've got a team of about four people over there that are employed by us who perform quality and administration work over there. #15

A further example is case #25, a tannery with a long standing tradition in international markets. It is a very labour intensive production with relatively low margins. They process about three million skins a year in their New Zealand factory, had two wholly owned subsidiary plants in Australia and sales offices across the US and Europe which presented their largest markets. In the late 80s the business was bought by a Japanese business to secure their source of raw material. Now they are processing only about 800k skins in New Zealand, with the remaining production being shifted to Vietnam. The respondent, the New Zealand manager, explained the move to Vietnam as follows.

At that stage of it, they just said this man here's going to manage your business and [appointed] a manager in here who'd never had a business that was anything like this. In fact that was the first time that man had ever had anybody reporting to him and he was suddenly [appointed] to run a \$60 million business. He did some sums on the back of an envelope and said we're moving the finishing to Vietnam, so that's how it went to Vietnam. #15

While moving the production to Vietnam reduced labour and shipping costs, the Vietnamese operation struggled to meet the standards set by their main customer – a global retail chain. The move of production was not the only change the new ownership brought with it. The new

owners also decided to close down the Australian subsidiaries and to take over and run the sales offices in the US and Europe themselves.

A number of cases of inward FDI provided examples of achieving resource capability, in particular acquiring knowledge and IP that was held in the New Zealand company, which could continue to be the R&D base. For example, case #83, a New Zealand subsidiary that had been acquired by a UK parent company to achieve resource capability in software development for mobile workers (such as postal delivery). Here resource capability was still based in New Zealand although there was likely to be more development of capability in the UK.

Eventually we'll end up doing all the UK customer development from the UK, but we'll keep the New Zealand development team to do the Australian development. #83

The case illustrates the importance of knowledge acquisition as a driver of FDI and hence international entrepreneurship behaviour, we now turn to explore this in more detail in our discussion and implications section.

Discussion and Implications

In this paper, we have only discussed briefly some rich *qualitative* data on the role of FDI and international entrepreneurship behaviour. In the existing literature, we have argued that there are a few studies that have examined qualitative data on the role of FDI. FDI is likely to be viewed as a stock concept, or examined for its effects on subsidiary company's behaviour. In this section, having presented qualitative evidence, we expand on our central research question: What is the role of outward and inward FDI in international entrepreneurship behaviour of firms?

Although previous research on inward FDI has been equivocal in this regard, our qualitative findings suggest that there are more positive than negative effects reported. Likewise, inward FDI can be seen as having beneficial effects on international entrepreneurial behaviour of subsidiary companies; it improves management, opens up new opportunities and improves resource capabilities, in fact leading to greater opportunities, innovative growth and improved (rather than reduced) export activity in overseas markets.

It is perhaps easier to argue that outward FDI is a logical outcome of international entrepreneurial behaviour. Our qualitative data from the case examples, has illustrated that, over time, FDI will be undertaken to more readily exploit overseas markets. It may be undertaken relatively quickly where this is possible, for example, a shortened time scale is more likely with service sector companies that are more likely to retain an administrative base in the domestic economy, in our case, New Zealand. Developing and investing in subsidiaries overseas will require less planning and shorter time scales than manufacturing companies.

In order to model this process, we should see FDI as means to acquire information efficiently in environments characterised by uncertainty. We can apply this concept to our basic model from Figure 1 to give the more complete version of the process of FDI and international entrepreneurship behaviour represented in Figure 2. In this process, we can see international entrepreneurship behaviour through the 'lens' of FDI.

This paper has discussed empirical qualitative evidence on the nature of the way that FDI can influence and drive international entrepreneurship behaviour to more efficiently exploit

overseas markets and/or acquire resource capacity. In Figure 2, information is acquired over time which may modify that behaviour. This implies a research agenda that would involve the following; longitudinal studies to examine the process of FDI and its relationship with international entrepreneurship behaviour over time; investigation of the process of learning to understand how companies absorb information and modify their entrepreneurial behaviour. We have examples of firms that have withdrawn from overseas markets, perhaps disinvesting (negative FDI), as information is acquired and lessons are learned. The factors that affect such entrepreneurial decision-making are not down to just exchange rate movements, but will be influenced by a number of factors such as changing market conditions and increased competition. A small number of case studies on FDI could examine how entrepreneurial decision-making changes over time and an awareness of such factors would help policy to be better informed. Numerous examples exist of state sponsored inward FDI that has not delivered the entrepreneurial behaviour expected. Developing our knowledge of the role of FDI and international entrepreneurship behaviour would allow policies to be better informed.

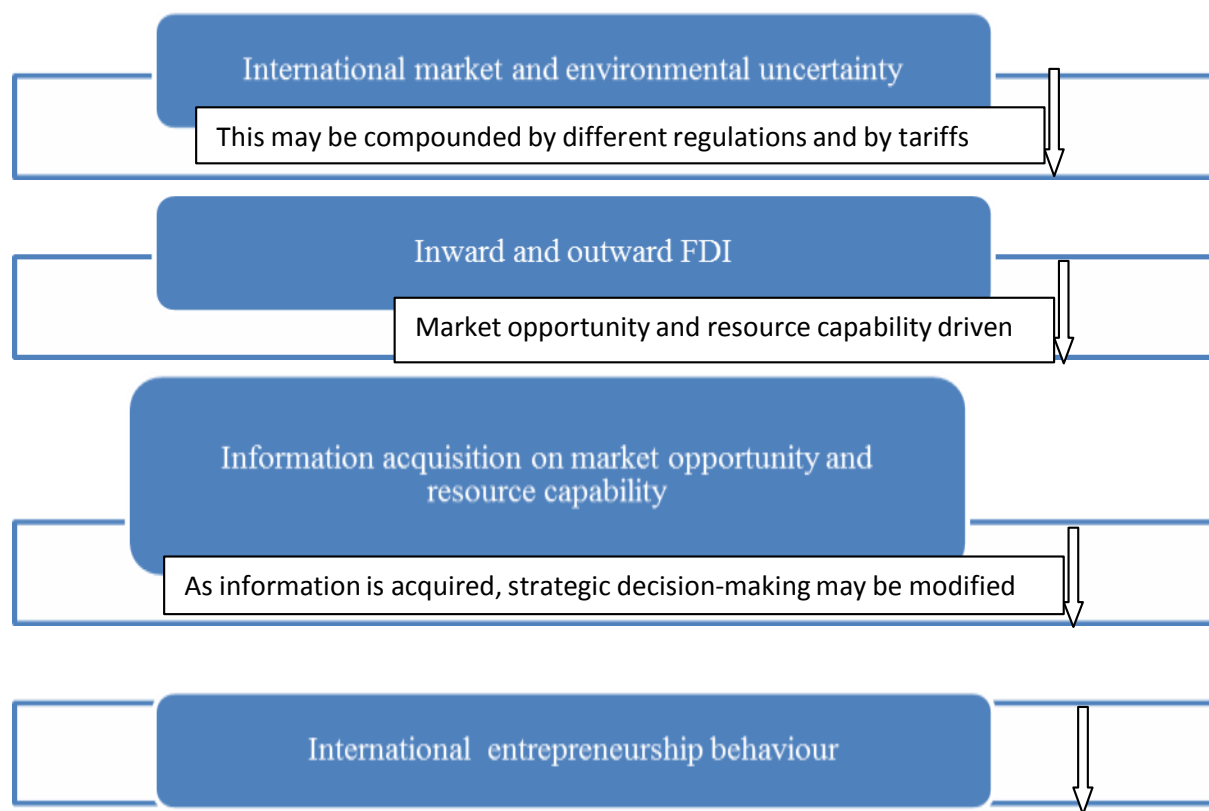


Figure 2: The Role of FDI and International Entrepreneurship Behaviour

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THE USE OF PROBABILISTIC DESIGN METHODS TO MANAGE RISK AND UNCERTAINTY IN NEW VENTURES

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The use of probabilistic design methods to manage risk and uncertainty in new ventures

Abstract

New ventures are defined by risk and uncertainty. Within this context, risk is defined as that which is random, but can be quantified with a probability. Uncertainty is defined as that which is unknown in nature apart from the fact that it might have a material effect. It is uncertainty that defines the entrepreneur; they operate under uncertainty. If dealing with uncertainty is required of an entrepreneur, then removing uncertainty when possible so that their skill can be more intensely applied should reap benefits. One source of uncertainty is the sensitivity of the financials to random fluctuation in the value of parameters. Probabilistic design is an established tool for determining such information. Therefore, three new venture cases were considered from the perspective of probabilistic design to ascertain the benefits in removing this uncertainty. It was found that probabilistic design reduced uncertainty by informing on the otherwise unknown effects of randomness on finances. However, it was also found that it encouraged a design approach to the business financials, which provided greater understanding of the proposed business model. It is concluded that probabilistic design should be used from the onset of business model development to reduce uncertainty and inform better model development.

Key words:

Risk, uncertainty, Monte Carlo, probabilistic design, new ventures

Introduction

Entrepreneurship is both inherently risky and uncertain. Although it is expected that any venture will turn out based on an initial idea, it is typically viewed as being more random than other activities such as science and engineering.

However, paradoxically, engineering has developed tools, not yet used in business, to allow one to design systems in the face of randomness. This is randomness that can come from manufacturing or the environment in which the system is to be operated. These tools, as a conglomerate make up the discipline of probabilistic design. This discipline has been in existence for around 3 decades, and is established. Haugen (1968) is an example of an early work on probabilistic design. Given that new ventures face potentially similar issues to those of a new system being designed, from the perspective of randomness, it would seem likely that the application of probabilistic design to new ventures would potentially offer benefit.

This paper will first review high level literature on theories of risk and uncertainty in business. Next it will review established theory on probabilistic design. From these, it will then draw conclusions on the best application of probabilistic design in new venture analysis. The methodology used to test this hypothesis will then be presented, and followed by the results. The discussion will then review the results in light of pertinent theory. Finally, conclusions will be drawn on how probabilistic design can be used in new ventures and which research direction(s) would be ideal for further pursuit.

Literature review

Risk and uncertainty in entrepreneurship

In the context of entrepreneurship, Joseph A. Schumpeter is one frontrunner in developing and defining entrepreneurship. In his book "The Theory of Economic Development",

Schumpeter saw innovation as an inexhaustible source of growth. He stressed the importance of innovation and his insights into innovation have been confirmed by many later studies on the so-called “Schumpeterian approach” (Schumpeter 1978). Schumpeter also believed in the negative impact of uncertainty on innovation. Frank H. Knight, in contrast to Schumpeter, put uncertainty central in his view of entrepreneurship, and believed that uncertainty has positive effects on investment (Brouwer 2000). Frank Knight emphasised that uncertainty needs to be sharply distinguished from risk (Knight 1921). Risk can be calculated beforehand and turned into costs. Insurance premiums are good examples of this case. Knight (1921, p.21) declared that “It is true ‘uncertainty’ and not risk which forms the basis of a valid theory of profits and accounts for the divergence between actual and theoretical competition”. He also claimed that if profits could be calculated before the act, or even if there is a mathematical or a-priori type of probability of success, these risks can be insured and will be changed into costs.

According to Brouwer (2000, p.151) “Knightian uncertainty refers to uncertainty about the economy at large and uncertainty about outcomes of individual ventures”. Regarding entrepreneurial practices and capturing new ideas for establishing businesses and relationship between uncertainty and risk, Petrakis (2004) stated that opportunities rise in the uncertain environment and living in an uncertain environment helps entrepreneurs take position against risk. Considering the economy in general, accepted risk levels and entrepreneurial practices, Petrakis (2004) mentioned that an economy without risk is one without entrepreneurship. Therefore, the level of risk that the economic agent assumes for a given venture is indicative of the level of entrepreneurship within which he or she chooses to act.

In traditional financial theory the risk may be systematic or non-systematic or it could take another form such as financial risk, liquidity risk etc. Systematic risk is characteristic of the total market. The non-systematic, on the other hand, is characteristic for every investment opportunity and the risk can be reduced or, in some circumstances, completely alleviated. Literature shows (e.g Petrakis, 2004) that non-systematic risk is a satisfactory indicator of entrepreneurship. An economy with a high indicator of non-systematic risk is one that is “full” of entrepreneurial attempts which presuppose the “reuse” of resources in new uses. In addition to the above points, Kan and Tsai (2000) reviewed related literature and declared that the degree of risk aversion plays a prominent role in one’s entrepreneurial decision. More risk averse individuals are self-selected into paid employment and more risk tolerant individuals become entrepreneurs.

Macko and Tyszka (2009) pointed out that entrepreneurs are much more likely to take risks when the outcome of the action depends on their own skills rather than on chance. They believed that the risk associated with running a business venture is related to the skills of the decision-maker. The risk a manager or an entrepreneur has to deal with is associated with his control and skills. Chen, Greene, and Creek (cited in Macko and Tyszka 2009) showed that the area in which entrepreneurs showed a higher sense of self-efficacy was in risk taking: taking a calculated risk, making a decision under risk and uncertainty, taking responsibility for ideas and decisions and working in stressful and conflicting circumstances.

In a controversial article, and in contrast to Macko and Tyszka’s points of view, Hunter (2012) reviewed literature on entrepreneurship and concluded that (p.82) “One of the biggest misconceptions about entrepreneurship is that entrepreneurs are risk takers. Risk or risk taking is a subject that is greatly misunderstood in current entrepreneurship literature”. Hunter (2012) supported his conclusion by refereeing to Peter Drucker’s comments in the book *Innovation and Entrepreneurship* (1984) that an entrepreneur by the use of his or her

actions would try to decrease risks, rather than taking risks. The main argument presented by Hunter, through his literature review, is centred on the following points (Thirlwall 1983):

1. That the uncertainty and risk involved are major factors influencing the viability of an opportunity.
2. There will always be uncertainty with any potential outcome of a new venture. This includes the uncertainty regarding demand and uncertainty regarding capability.
3. Both of these forms of uncertainties create some probability of failure, but individuals see these uncertainties very differently.

Hunter (2012) went on to describe two aspects of entrepreneurial risk. From his point of view the first is considered as “risk of firm failure” and second is considered as “risk in changing lifestyle” as consequences of entrepreneurial action. For instance, starting a new business would have a result in losing current income and lifestyle. The authors are of the opinion that Hunter has not differentiated between that which can be quantified (Risk) and that which can’t (Uncertainty). Certainly, if risk could be minimised, then one would. However, the difference in the way individuals see uncertainty aligns with the entrepreneur’s ability to operate in the face of uncertainty. Therefore, the position held by Hunter is ultimately congruent with that held by Knight and others on the nature of risk and uncertainty within new ventures.

Nevertheless, without the differentiation between risk and uncertainty, Hunter reaches conclusions that might not be accepted by mainstream thought on new ventures. In particular, his hostility towards a business plan. Hunter (2012) believes that formal business plans and forecasts based on historical information do little to assist in the analysis of the viability of the idea and any large amount of time spent analysing the idea in depth will probably not gain much further understanding or reduce uncertainty about its potential success. This suggests that a business plan is not of value when based on assumptions that can’t be said to be certain. From this, it could be argued that a major form of uncertainty is how sensitive a business plan is to changes in assumed values. However, Hunter goes on to argue that the only way to understand the viability and risk of an opportunity is to learn about it through implementation, where the willingness to continue experimenting is a further expression of commitment by the entrepreneur. This second point assumes that there is no way of understanding the effects of randomness on a system and also seems to lack a differentiation between risk and uncertainty. Indeed some things are uncertain until tried; however, risk can, according to Knight, be quantified, and needs no experimentation. Once again, the authors believe that the statements made by Hunter are a result of not differentiating between risk and uncertainty.

The literature does suggest that there is a difference between risk and uncertainty and that uncertainty is the operating space of the entrepreneur. However, the difference between risk and uncertainty seems to be something that has not yet been fully agreed upon. This in turn appears to have led to differences in opinion on the nature of the entrepreneur and how they manage each of risk and uncertainty. This is likely the reason why there is little literature on the value in converting uncertainty to risk to allow the entrepreneur to focus their unique skills more intently. One such opportunity would be to remove the uncertainty of the response of a financial model to random variations in assumed values.

Probabilistic design

Within the field of engineering, probabilistic design has been an established discipline for dealing with the effects of randomness for some time. As have related texts: Haugen (1968)

being an example of this. The key goal of probabilistic design is to understand the flow of variances through a system so that the flow can then be modelled (Parks 1996). Once this model is made, actions can then be taken to reduce the undesirable effects of randomness upon the system through robustification (Lacey and Steele 2006). However, it is worth noting that there are numerous ways to make a system more robust (Jugulum and Frey 2007). Nevertheless, focusing on tools that can help model the flow of variances through a system would be enough to provide insights into the risks that come from randomness within parameters assumed for a system. This would shift uncertainty to risk, and be ideal for an entrepreneur or investor.

One of the most commonly used tools for modelling the flow of variances is Monte Carlo simulation (Fishman 1996). This is not the only method for modelling the flow of variances in a system; there are others that are based on analytical approaches (Siddall 1983, Papoulis 1965) and sometimes combined with approaches such as automatic differentiation (Su and Renaud 1997). However, Monte Carlo appears to be the approach of probabilistic design that is most favoured. In the authors' opinion, this is likely due to the fact that Monte Carlo is easier to conceptualise, and apply. Monte Carlo essentially runs a number of trials of a model where each trial has a randomly generated number for each input. This results in a different output being calculated for each trial. By recording the output value for each trial, a dataset is had at the end that can be analysed statistically. This, then, allows for predictions of risk associated with the system operation in the face of assumed randomness, which would have otherwise been uncertain.

Given the role of risk and uncertainty in entrepreneurial ventures and the potential gain to be had from applying probabilistic design tools to new ventures, it would be expected that there would be some literature on the application of probabilistic design to new ventures. However, the authors were only able to find one piece of work specifically dedicated to this topic (Wright 2002). While this work noted the benefits of knowing more about the nature of a venture, it made little distinction between risk and uncertainty. Further, the focus was more on the provision of general guidelines. The benefits of probabilistic approaches to business ventures, which, while implicitly agreed with by the authors of this paper, were assumed. Thus, while there is little work on the application of probabilistic design to new business ventures, there appears to be practically none on the actual benefits to be gained by entrepreneurs using probabilistic design tools.

Conclusion for literature review:

The above literature has shown that there is an established school of thought that entrepreneurship is very much in the domain of uncertainty. One element of uncertainty is the effects of randomness in assumed values upon a proposed business model. If this uncertainty were to be removed, by converting it to risk, then an entrepreneur would be able to apply their ability to deal with uncertainty more intently on that remaining uncertainty. However, despite the fact that there is an established tool within the discipline of probabilistic design that can help with this, namely Monte Carlo simulation, there are little reported efforts on attempts to apply this tool in such a manner. Therefore, the nature of the application of Monte Carlo simulation to new venture modelling to manage uncertainty is a gap in the literature on entrepreneurship in general. Further, the aim of this research is to begin filling this gap.

Methodology

Strategy

The method used is one of active research combined with case studies. Because the question of how probabilistic design can assist with the management of uncertainty and risk within the new venture context is an open ended one, a method that allows for investigation to respond to findings of an unknown nature was needed. This is a characteristic of both the case study method and active research (Burns 1994). Case studies are common in business research, and were felt to make an ideal starting point. However, for the sake of realism, it was desired to apply probabilistic design methods to an actual venture to investigate the benefits it might have. This was the reason for action research, which is used when researching and improving a real system concurrently, being used with the case study approach.

Process

Three business scenarios were considered in turn. For each, the following was done:

1. A financial model for the respective business was developed based on traditional methods of creating a balance sheet, P&L statement, cash flow etc.
2. Numbers for key assumptions for the nature of the business were then entered. This provided a deterministic financial model of the venture.
3. The model was then reviewed and adjusted to allow for a flow of variance (with a Monte Carlo simulation). A deterministic model can have dependent values typed in manually; however, a stochastic model must be able to update dependent values in response to changes in any assumed value in a sensible manner. Example, a large increase in factory production will require proportionally more total hours worked on the line, but only a less than linear increase in administration.
4. The predicted variances/distributions in key outputs were then reviewed for the extra information that they provided. It should be noted that the review was subjective and based on the authors' experience.

Note: the Monte Carlo simulator used was @Risk.

Analysis

Congruent with both the case study approach and active research, the analysis was basically reflective. Key issues that were noticed while applying probabilistic design to each scenario were recorded and summarised. An analysis of these issues was then conducted to identify requirements, processes and practices common to the application of probabilistic design to new ventures.

Scenarios

Mario's Pizza

Mario's Pizza is an educational case study developed to boost financial modelling skills in students studying entrepreneurship at a postgraduate level. The case centres on the individual Mario approaching an investor with a proposal to expand his business. The main focus is on IRR and NPV of the investment.

In conjunction with this case study, there is a fully prepared Excel spreadsheet that explains data and assumptions, projections, information about cash flow, balance sheet and profit & lost statements of the business for a period of 2001 to 2005. Students, after reviewing the data available in the Excel file, are required to identify several alternatives of capital investment for Mario and his partner, and analyse those financial ratios to determine an ideal investment strategy for further growth and return on investment.

Clarion

Clarion is a Harvard Business Review case study (Stevenson and Roberts 1993) about a new venture that focuses on the development of an implantable contact. The case provides all the numbers required to create a complete financial model for two investment scenarios – full debt and full equity. The case raises concerns about risk and returns for the entrepreneurs and investors and highlights the need to check assumed values.

Omny by 121Cast

Omny is a mobile phone application being developed by a team associated with the second author, who is the venture capital manager for the venture. The application is aimed at heavy mobile data users who want to manage their listening for greater time efficiency. The biggest issue faced by the team was the uncertainty of how changes from assumed values for market size and adoption rate will affect returns. There are also risks associated with both product and business development, that had an unknown affect upon the outcome of the assumed model. Ultimately, these unknowns introduced uncertainty for both the team and potential investors.

Findings

Observations

Because it is not practically possible to present the actual spread sheet models developed for this research in a suitable manner within this paper, observations about unique activities required to generate suitable models will be noted. The observed extra insights gained will also be noted here. These will allow for an understanding of how modelling for risk and the benefits had are different from the traditional modelling of a new venture.

Mario's

The case for Mario's Pizza comes with a near complete spreadsheet with few things such as the final calculation of the IRR and NPV being required. Within the model were assumptions for items such as rent, COGS, the number of outlets to be bought each year, sales per outlet and other similar model parameters. The exact value of each parameter is uncertain, and each was replaced with a distribution. For independent items that were thought to display mild volatility such as the cost of electricity costs, a tolerance was placed around the initially entered value (normally around 10% or based on the authors' experience) and a Gaussian distribution was fitted to that such that 99% of the values would fit within the tolerance

range. For each of the independent parameters that were thought to display higher volatility over the period of the plan, such as interest rates, a triangular distribution based on the worst case scenario, the most likely case scenario and the best case scenario was used. For parameters that were not independent (in this case the number of outlets owned in each year), the approach was different. A binomial distribution (which is discrete; it's not possible to build half an outlet) was allocated for the number of outlets in the first year. In the following years, the number of outlets purchased and operated increased by 2, 3 or 4 with an equal probability for each: a Uniform distribution. Thus, the first year set the scene for how the business would grow.

After running the Monte Carlo simulation, the following was noticed:

- If the entrepreneurs relied upon banking finance, then the average return was 7.71% and the standard deviation was 13.27%
- If the entire funding came from the entrepreneurs, then the average return was 0.27% and the standard deviation was 12.36%
- The major source of the volatility was the number of outlets that were opened in the first year.

The interpretation of these results was:

- that the best investment strategy was to maximise the credit drawn and
- that the entrepreneur could use in their first year of operation as an indication of what was likely to happen next

On the whole, assuming no major uncertainties, the return to the investor was likely to be between -17.2% and 26.2%. This was based on the assumption that the probabilistic model, which was macroscopic in nature, was sufficiently accurate.

Clarion

The Clarion case came with all numbers for each year of the proposed business. However, these numbers were only stated, and no explicit relationship between these numbers was stated. It was however assumed that items such as equipment purchase would be dependent upon sales. Further, it was also assumed that there were implicit relationships between business model parameters in the case. Thus, these relationships had to be found before probabilistic design techniques could be applied. The authors did this by first plotting each series of numbers with those that they were assumed to be dependent upon. Second, models that were deemed to adequately fit the plot were then integrated into the business model. Once the model was found, then the parameters of the model could be treated as inputs to the business model. These parameters would then have distributions allocated to them. The types of models allocated are listed below:

- Sales, General and Admin costs were found to have a logarithmic relationship with sales volume S as shown in the equation $SG\&A = R \ln (S/C_s)$ where R and C_s are parameters adjusted to fit to the data in the case (R was then made random; it was directly proportional to cost, and easier to work with)
- Asset acquisition was increased in steps of \$1M and increased sales/production capacity by a factor of 2/3.
- The market share MS was made a function of entry time – $MS = -Ce^{-nt} + D$. This was exponential decay from an initial maximum and all parameters were adjusted to fit the data, but only C and D were made random; they were easier to gauge intuitively.

- A power law was used to model the continued growth of contacts sales Sc until the implants were released. The form was $Sc = m(t-c)^n + E$ where m was made random (E and m were directly proportional to the output, but E was effectively the starting share, which was already known) after fitting all parameters to the data in the case.

The above models allowed for the automatic calculation of key business operating costs once the respective sales number was known. By making these costs a function of the sales, it was possible to allow for the flow of variances through the model.

However, the sales numbers themselves still needed to be modelled. Because the Clarion case is about the introduction of a new product, the Bass model was selected as the ideal model for sales (Bass 1969). The model was fitted to the sales numbers presented in the case to find nominal values for the market size, the coefficient of innovation and the coefficient of imitation. This was however complicated further by the notion within the case, that the market size and share would be influenced by the time of market entry. Because the case provided only two points for each of share and market size with a corresponding time of entry, a linear model was fitted to the data. The share and the market size were then updated automatically within the Excel model as a function of market entry date.

Once the models were had, the method of bringing them together still needed to be resolved. The basic models above were still used. They were however, altered to account for nuances to ensure that a realistic model of the business as a whole was produced. The following alterations were made before the individual models were combined into a complete Excel model:

- Sales were limited by the equipment purchased
- Purchase of equipment was limited by the cash (either from the operations or from the secured investment) available.

After simulating the following extra insights were noted:

- The chance of negative cash in the third year was in the order of 10%. The original deterministic model simply showed that cash was going to be low, but it was uncertain if it would be an issue.
- To have any chance of gaining the required ROI they would need at least 50% share ownership. Less than this, and even when all went well, they would not gain the required returns. To ensure the same returns when everything went poorly, a 100% share was required.

For parameters within the Bass model, it was possible to use published data on various applications of the model by others. However, for models that had been generated specifically for this case, it was more difficult to allocate the amount of random variation that would be expected. Typically it was set at 10% of the nominal value and a Gaussian distribution was specified. The Gaussian distribution is the least biased when only the mean and standard deviation are known (Haugen 1968).

Omny

The initial Omny financial model had been created by the second author. The basic S curve had been assumed for a number of variables such as market size with time. However, the parameters themselves had been guessed at. Additionally, the relationships between operating costs such as customer support had been implicitly assumed, but not necessarily coded into

the Excel spread-sheet used. The following relationships between operating costs and user numbers were applied to the model:

- Customer support
- Effort to organise content

The biggest concern for the Omny project though was that of gaining the listeners from the onset. Listeners would come from articles written about the app in various magazines, advertising on sites such as Facebook and Google, serendipitous searching through app stores and imitators influenced by current users. The path, through which a user would find out about the app and then become a user, was considered one of the most uncertain aspects of the plan, and thus in considerable need of attention so that it could be modelled for risk.

Once users had downloaded the application, there were then questions such as: how many would use the free system and how many would subscribe; how long users would keep using the system; how long a user would use the system for each day; and how much money would be made from each user?

A flow chart was made for each of the processes mentioned above. These provided a common visual representation of the system for the authors and others to ensure a common and agreed upon understanding. The images then essentially provided the algorithm that was executed in Excel. Key points that provided considerable discussion before agreement was reached were:

- How listening was dependent upon content
- How people dropped off as a function of content and advertising time
- The allocation of funding to advertising streams
- How media coverage affected innovators to install the application – this specific item generated many questions about how the coverages could be ensured and the benefits that could be reasonably expected
- The integration of the Bass model imitator concept given that the innovators were implicitly modelled via avenues such as online advertising and media coverage

The discussion for the above were often investigatory and about the planned business operations.

The outputs that were produced for the model were:

- Maximum negative equity
- Users after 18 months
- Monthly revenue after 18 months
- Expected business valuation (based on a random, but constrained, multiplier of revenue)
- Time of entry into each market (country)

At the time of writing this paper there had been 7 versions of the model generated. While the basic algorithm did not change considerably, there were numerous changes made to the specifics as the model development raised more questions. Additionally, many of the parameters were given temporal effects to account for tuning that would be expected as the business continued. For example:

- Market size – the market gets bigger as it gets bigger (positive feedback)

- The proportion who choose to cease use due to advertising would drop as the company becomes more skilled at placing advertisements and the service is better managed overall
- The proportion who choose to cease subscription due to cost would also decrease as the company becomes better at delivering desired content and the service is better managed overall

There were many parameters where the development of distributions took considerable efforts. Meeting between the three authors often went overtime. Values were reconsidered and frequently changed. The best solution found was to imagine what the worst that could happen was, what the best was; and what considered most likely.

The distributions were also made wider in cases where there was limited confidence in the associated model. The intention was to use the greater randomness to account for different possible models. This was especially so if a linear model was used in place of something that was thought to be possibly non-linear, but it was not possible to determine how it deviated from being linear. Such an example was the rate at which listeners dropping off reduced as the more effective delivery of advertising, mentioned above, was achieved over time.

Because the distributions and models were developed by all three authors for this case, it was found that it naturally produced more insight into the nature of distributions. It also required a document to record all decisions made about the distributions to ensure all could recall what was decided.

Themes

By considering the observations from above, the following themes were identified:

Simulating entrepreneurial behaviour

In the more complex cases of Clarion and Omny it became important to understand how the entrepreneur would respond to trends and events. In the Clarion case it was assumed that as long as sales were increasing, then all available cash would be directed towards increasing productivity. In the Omny case the amount of money put into advertising was dependent upon the calculated value of the customer – as long as the customer was worth more than the advertising to gain them, paid advertising would continue. Because it was essentially a feed-forward tactic, this was not evident in the Mario's case.

Questioning of implied tactics

This theme was closely related to the previous theme. The numbers that were provided in each case assumed certain outcomes based on certain actions. These were tactics that were questioned. In the case of Omny for example, the relationship between media attention and expected clicks had to be queried so that the effects of releases into new markets could be modelled. This brought greater attention to the respective tactics, and they were more thoroughly reviewed.

Deeper consideration of business operations

The second author noted numerous times that the process of creating the overall model made them think much more about how the business actually worked. This was beyond the questioning of the implied tactics. It would at times require one to consider aspects of the business that had not yet been given any thought. For example, in the Omny case much of the conversation was investigatory as the models were created. In the case of Clarion, the

relationships between costs and sales were given more thought so that the way one part of the company affected the other was better understood.

Choosing the appropriate level of abstraction

In the Mario's case the model was the most abstract of the three. The question was one purely of expected return and volatility. In the case of Clarion, which has the second most abstract model, the market itself was treated as a single mass governed by 3 parameters (the Bass model). However, some of those parameters were then dependent upon other variables within the Clarion model. In the case of Omny, the model was the least abstract. For example, each market channel and operating system was considered separately. However, there were still some aspects that were not treated in such a detailed manner. For example, it was assumed that the business operators would find a way to improve the proportion of listeners who remain listening, but the way in which this would be done was unknown, and not modelled.

The use of randomness to account for model uncertainty

As more focus was given to greater detail (specifically in the Omny case) the uncertainty of what the correct model type would be became greater (more abstract models are often easier to understand). This was dealt with by increasing the randomness of the related parameters to ensure the actual model was within the assumed one. This did not appear to be an explicit problem in the other two cases, which were more abstract, and could be said to implicitly deal with model uncertainty with parameter randomness.

Difficulty with determining distributions

In the first two cases, distributions were allocated based on ease (assuming 10% variation) or published data. This however was not an option for the Omny case. In the third case, the development of distributions proved to be a time consuming process. Given that developing accurate and rigorously supportable distributions in the first two cases was avoided and that it took considerable time in the third, it would seem that the development of defensible distributions is no easy task.

Discussion

Simulating entrepreneurial behaviour and choosing the appropriate level of abstraction are related to the level detail chosen for the model. This need to determine the ideal level of details was discussed by Vincenti (1993) when comparing modelling techniques of engineers with scientists. Engineers, who typically design as opposed to discover, are more inclined to model at a higher level, and use what is called control volume analysis (Vincenti 1993) where inputs and outputs are balanced without regard for the specifics in between. This is a challenge faced by all designers using analytical models. The third author recalls the analogy of spherical chickens where the heat produced by a single chicken in a hen house requiring a cooling system to be designed for it could be estimated by assuming the chicken was a sphere at body temperature radiating and convecting heat.

Questioning the tactics of a business plan and thinking more deeply about the business operations suggest that as the problem is solved, the actual problem itself (determining the risks associated with the business plan) is better understood. The development of problem understanding with the problem solution is, in the design area, referred to as coevolution (Cross 2006). Coevolution is considered one of a number of unique attributes of design problems. Its presence in these cases suggests that when one uses probabilistic design tools in

new venture modelling, one actually contributes to the 'design' of the business plan. This would suggest that probabilistic design tools could actually be used to help formulate the final business strategy to a greater extent than was initially assumed by the authors. Evidence of coevolution in business plans is evident in the use of experiments to better evaluate and develop the business canvas model of Osterwalder's (Blank and Dor 2012). This suggests that there is a possibility that probabilistic design tools fit the frame of a business model as opposed to a business plan.

Uncertainty about the nature of a model is an issue that has been known for some time. Not only does it relate to the correctness of the model, but it also relates to the completeness of the model (Perry 1996). This will always be a source of uncertainty that one needs to consider when dealing with when creating risk based models. It could be argued that this is a new form of uncertainty that the probabilistic approach has introduced. However, the validity of a model is still an issue with the traditional financial model currently used in practice.

The difficulty in determining the value of an unknown parameter is not new; however, it is possible to develop one's ability to do so (Hubbard 2007). Hubbard provides techniques on how a person can develop their ability to determine what a likely (90%) range is for an unknown value in business. The use of such techniques would seem to be of great value in the context of this paper. It was also noted in the third case that a larger number of people increased the total effort. It would likely also lead to a more accurate distribution through the phenomenon of *Wisdom in the crowd*, which was first identified in the estimation of the weight of a butchered ox (Galton 1907) and has shown that larger groups of people are better suited to finding accurate estimates than individuals.

Conclusion

The themes identified by analysing the observations of applying probabilistic design to various new venture cases shows that there are strong parallels with design in general. Typically, these were associated with problem and solution formulation such as understanding the business model relative to the market and determining how best to model (mathematically) the system in question. This is congruent with the development of a business model as suggested by others such as Steve Blank through iterations (Blank and Dor 2012). At the same time, it was possible to understand the sensitivity of a business model, regardless of the details had at the times, to randomness in assumed parameters as long as the randomness in those parameters can be properly ascertained. Therefore, probabilistic design in new venture analysis is much like designing a business model and can be used to reduce uncertainty and provide better understanding of a proposed venture. It would therefore likely be of value to use probabilistic design throughout the development of a business model to reduce uncertainty and provide guidance on further development. Because this paper focused on only beginning to understand how probabilistic design can be used in new ventures, the use of probabilistic design from the inception of a venture idea is the next stage in this research area.

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BUILDING A THEORETICAL MODEL OF ENTREPRENEURIAL VENTURE GROWTH: AN ALTERNATIVE PERSPECTIVE

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Building a Theoretical Model of Entrepreneurial Venture Growth: An Alternative Perspective

Abstract

Despite the low theoretical developments in the Entrepreneurial Venture Growth literature, entrepreneurial ventures require growth to provide economic development, to create wealth and employment. However, some entrepreneurial ventures register for high growth whereas others do not. Adding to that, Azevedo, & Ortiz (2011) write, the main cause for firm growth and success can be found inside of the firm. Despite the wide ranging factors ‘inside the firm’, Entrepreneurial Orientation (EO) acts as the strategy of an entrepreneur and the notion of Core Competencies (CC) covers intrinsic resources and capabilities of the entrepreneurial venture. Given these two antecedents of entrepreneurial venture growth, we intend to develop a comprehensive theoretical model of Entrepreneurial Venture Growth. Pertaining main propositions and sub-propositions were developed based on the constructs identified. Entrepreneurial Orientation viewed in a five dimensional framework and Core Competencies was defined rationally. Moderators of entrepreneurial venture growth and core constructs were conceptualized and rationalized and the theoretical framework developed subsequently. We argue that the associated concepts (EO and CC) can be justified as predictors of Entrepreneurial Venture Growth. Also, the application of these constructs in a different setting has important implications. We suggest more scholarly investigations are required in this regard.

Introduction

Regardless of the size of the business venture, entrepreneurship is in prime importance. Even after the establishment, entrepreneurial activities are indispensable to proper positioning of the desired value proposition. In other words, remaining ‘entrepreneurial’ is vital to entrepreneurs. Indeed, to be entrepreneurial, it requires innovation, expanding, and starting additional ventures (Davidsson, 1989). Given that, the notion of ‘expanding’ we rationalize as ‘Growth’; and emphasize, venture growth is the essence of entrepreneurship. Also Ireland et al., (2001) and Chandler et al., (2009) write the notion of venture growth has an increasing interest among the scholars at present (E.g., Brown et al., 2001; Delmar et al., 2003). Firm growth is a key to economic development and to create wealth and employment (Davidsson & Wiklund, 2006). Nevertheless, the notion of ‘growth constitutes one of the least studied dimensions of performance within the field of management’ (Moreno & Casillas, 2008; p.507). In contrast, entrepreneurship researchers pay much attention on venture growth (Cassia & Minola, 2012). Besides, entrepreneurial ventures considered as the ‘engines for growth’ (Liao, 2003) and venture growth is an important topic for scholarly inquiry (Gilbert, McDougall, & Audretsch, 2006). Also, Ferreira, Azevedo, & Ortiz (2011) write, the main cause for firm growth and success can be found inside of the firm. That is, factors with regard to the entrepreneur or to the owner manager. Giving the need of scholarly inquiry, we intend to build our main proposition for our proposed study; that is Entrepreneurial Venture Growth. Also, many of the literature in entrepreneurship concern on assessing performance rather than assessing growth of the venture. As we stated above, growth is the essence of entrepreneurship.

Based on the main proposition, this study intends to construct a theoretical model of Entrepreneurial Venture Growth within the context of Small and Medium Sized firms. In

order to achieve this objective, mainly, two predictor propositions, Entrepreneurial Orientation (EO) and Core Competencies (CC) that emerged from different conceptualizations of the study are used. Thus this model formulation of Entrepreneurial Venture Growth intends to offer following contributions to the existing body of knowledge. First, the concise model formulation is based on two constructs which have not amalgamated together in the Entrepreneurial Venture Growth literature. They are, Entrepreneurial Orientation and Core Competencies. Also we postulate the National Culture moderates the relationship between risk taking propensity and venture growth. Supportively, the notion of national culture add more value to this model development, because Rauch, Wiklund, Lumpkin, & Frese, (2009) suggest it provides a new avenue for future research. Furthermore, we state firm size, industry type and firm age moderate the relationship between EO and venture growth.

The remainder of the paper is structured as follows. Second section details about the main constructs of the study. Comprehensive literatures with regard to the main propositions are developed and corresponding sub-propositions are also developed accordingly. Adding to that, major theoretical constituencies pertaining to each proposition are also presented. Thereafter, the third section details the basic premises on model formulation. Following the basic premises on model formulation the proposed theoretical framework is presented. Then the methodological and the concept of venture growth are elaborated and finally the concluding section elaborates the core concept highlighting the originality of the work.

Theory and propositions development

Entrepreneurial Orientation and Growth

At the outset, we write Entrepreneurial Orientation is a dimension or a construct which depicts the strategy of a sole entrepreneur. Adding to that Moreno & Casillas (2008) affirm, ‘growth tends to be considered as a logical consequence of innovative, proactive and risk-taking behavior on the part of the firm, as these are the dimensions which define an Entrepreneurial Orientation (EO)’, (p.507). Thus we postulate, EO is a main proposition of growth of a venture.

Stated the empirical justification; EO and Growth relationship is not universally proven (Cassia & Minola, 2012) we intend to build EO as a main predictor construct of growth. Supportively, there are exceptions to the EO and firm performance relationship (Morgan & Strong, 2003; Slevin & Covin, 1990). Also, there are very few number of studies have been assessed the EO and venture growth relationship (Covin et al., 2006; Moreno & Casillas, 2008). Moreover, it is essential to assess intrinsic strategic characteristics which affect growth (Soininen, Martikainen, Puumalainen, & Kylaheiko, 2012). Also, Baum & Locke (2004) postulated somewhat differently the same meaning of entrepreneur’s intrinsic characteristics and write, entrepreneur’s traits, skill and motivation categories are significant direct or indirect predictors of new venture growth. Thus we intend to adopt EO as a construct which indicates intrinsic strategic characteristics of an entrepreneur. Supportively, EO is a construct which researched numerously within the fields of strategic management (Soininen, Martikainen, Puumalainen, & Kylaheiko, 2012). Focally, we differs this model formulation from other models, because we intend to extend to notion of EO which has numerously researched using Miller’s (1983) framework.

Miller (1983) affirmed the three ever testing three dimensions of EO, which are namely; innovation, risk taking and proactiveness. These constructs were once more confirmed by Dess et al., (1997) and state innovativeness, risk taking and proactive assertiveness are dimensions of entrepreneurial strategy. However, Lumpkin & Dess, (1996) stated five dimensional framework of EO - risk-taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy. Adding to that, Lumpkin & Dess framework is less examined in the entrepreneurship literature (Hughes & Morgan, 2007).

In terms of business performance the notion of EO act as a valuable construct which depicts the entrepreneurs strategy. But we rationalize and argue the concept of venture growth is also another important dimension which talks about a complete picture acquired through high performance of a venture. In this EO and performance relationship several studies have reported positive (Jantunen et al., 2005; Madsen, 2007; Wiklund & Shepherd, 2005; Harms et al., 2010) no (Smart & Conant, 1994) relationships. However these 'relation is found not to be universally proven' (Cassia & Minola, 2012, p.181). Also studies such as Colvin & Selvin (1991) and Lumpkin & Dess (1996) suggest a positive relationship between EO and growth of firms. Direct effects from EO on growth suggest by Gurbuz & Aykol (2009) and Soininen et al., (2012). Furthermore, EO and growth orientation are positively related to each other (Moreno & Casillas, 2008). Accordingly, the following hypothesis is formed;

Proposition 01: Entrepreneurial Orientation positively influence on growth of entrepreneurial ventures.

Shumpeter (1934 cited in Gurbuz & Aykol, 2009) initiated the notion of innovativeness to the entrepreneurship literature. Further, Lumpkin & Dess (1996) emphasized that innovativeness as a main construct in EO since it reflect an important means through which firms pursue new opportunities. Also they stated innovativeness as, 'the tendency of a firm to engage in and support new ideas, novelty, experimentation and creative processes that may result in new products, services or technological processes' (p. 142). Highlighting the prime importance of innovativeness of a firm Covin & Slevin (1991) stated if innovation is not employed there is no firm level entrepreneurship. Supportively, innovativeness has a positive influence on firm performance (Hughes & Morgan, 2007; Calantone, Çavuşgil, & Zhao, 2002; Hult, Hurley, & Knight, 2004). Perhaps most notably, Brüdel & Preisendörfer (2000) postulate innovation is the most important predictor for growth of the venture. Accordingly following sub-proposition is realized;

Proposition 01a: Innovativeness positively influence on Growth of entrepreneurial ventures. In

entrepreneurship literature 'risk taking and entrepreneurial behavior dimensions are sometimes considered as synonymous' (Gurbuz & Aykol, 2009; p.323). Furthermore, risk-taking reflects 'an acceptance of uncertainty and risk inherent in original activity and is typically characterized by resource commitment to uncertain outcomes and activities' (Hughes & Morgan, 2007; p.652). Study conducts by Hughes & Morgan (2007) affirm risk taking has a negative relationship on performance of venture. However, our justifications are different. We suggest that, a moderate risk invariably leads to high performances and to growth of the venture. Accordingly following sub-hypothesis is formulated;

Proposition 01b: Risk taking behavior positively influence on Growth of entrepreneurial ventures.

The dimension of Proactiveness is defined as ‘an opportunity seeking, forward-looking perspective characterized by the introduction of new products and services ahead of competition and acting in anticipation of future demand’ (Soininen et al., 2012, p.614). Adding to that, the seminal paper on strategic entrepreneurship Ireland et al., (2003) postulate opportunity seeking behavior as a main construct to create wealth of the venture. Simply states, opportunity seeking behavior elaborates identification of a feasible business opportunity which is hard to copy by other competitors. Also, Hughes & Morgan (2007), Lumpkin & Dess (2001) write proactiveness positively influence on venture performance. Thus we build next sub-proposition as;

Proposition 01c: Proactiveness positively influence on Growth of entrepreneurial ventures.

Furthermore, Lumpkin & Dess (1996) added two dimension of EO as competitive aggressiveness and autonomy. Hughes & Morgan (2007) stated that EO literature concentrates more on the common features only (risk-taking, innovativeness, and proactiveness). Given that, we intend to extend Millar’s three dimensional framework to Lumpkin & Dess’s five dimensional framework. Moreover, competitive aggressiveness refers to the ‘intensity with which a firm wish to compete and efforts to surpass competitors reflecting a bias toward out-maneuvering and out-doing rivals’ (Hughes & Morgan, 2007, P.652). This notion of competitive aggressiveness can be either a form of deliberate action or a reactive action. Empirically, Hughes & Morgan (2007) write competitive aggressiveness has no effect on business performance. However, scholars write if a particular venture outperform other it eventually leads to competitive advantage. Therefore we can postulate that it leads to growth as well. Thus we form the next sub-proposition as;

Proposition 01d: competitive aggressiveness positively influence on Growth of entrepreneurial ventures.

Autonomy refers to authority and independence offers to individuals in a firm (Hughes & Morgan, 2007). Highlighting the importance, Lumpkin & Dess (1996) postulate ‘the concept of autonomy is a key dimension of an entrepreneurial orientation’ (p.140). Also Lumpkin and Dess write the notion of *[a]utonomy refers to the independent action of an individual or a team in bringing forth an idea or a vision and carrying it through to completion*, (p.140, emphasis added). Added to this, Hughes & Morgan (2007) write autonomy has no effect on performance. But however aggressive firms do not still as same and they continuously implement change initiatives to weaken competitors. As the term implies, aggressive’ means an act with force and determination in order to succeed. Also, if an organization accepts freedom and if they constantly initiate creative ways and means to occur entrepreneurship, it inevitably leads to high performance thereby to growth of the venture. Adding to that, the phenomenon is not context specific. Lumpkin & Dess (1996) affirm that autonomy of each individuals of a venture is a crucial impetus to create new ventures. Thus we argue, further to create new ventures, growth is indispensable. Therefore we construct our final sub- proposition as;

Proposition 01e: Autonomy positively influence on Growth of Entrepreneurial ventures.

Moderator Variables

Proper alligning of variables are vital to improve performance (Naman & Selvin, 1993). Furthermore, contingency theory suggests that industry conditions and organizational

processes are vital for the attainment of optimal performance, (Lawrence & Lorsch, 1967). The theory suggests that the relationship between two variables depends on the extent the level of a third variable. Given the importance of a moderator variable we investigated the potential moderators of EO and growth relationship. Actually the literature suggests moderators within the perspective of performance (e.g., Lumpkin & Dess, 1996; Zahra & Garvis, 2000). However, basing on the assumption of performance leads to growth, we postulate moderators of EO performance relationship can also be used as moderators of EO growth relationship. Also, it is important to recognize that, though EO performance relationships tests potential moderators, there is no agreement on suitable moderators (Rauch, Wiklund, Lumpkin, & Frese, 2009). We bring the concise definition of Organizational Factors, which covers the moderators of the size of the business and industry type.

Our rationalizations on the size of the Entrepreneurial Venture are as follows. According to the World Bank definitions of enterprises of Sri Lanka, enterprises those with fewer than 49 employees are small; those with 50-99 employees are medium-sized; and those with more than 100 employees are large. As we mentioned above EO depicts the strategy of an Entrepreneurial Venture. We know for a fact that strategy of a venture is a long term direction which determines by the top management. Thus we can postulate that the smaller the organization, the greater the direct influence exert by the top management. Also, larger the organization, the lesser the direct influence exerts by the top management. This is due the involvement of the middle management as an intermediary in the authority execution process. Thus we affirm that smaller organizations are more flexible. This has also being proved by Rauch, Wiklund, Lumpkin, & Frese, (2009) and they claim, size moderates the relationship between EO and performance. Therefore, we build our proposition as;

Proposition 02: Size of the Entrepreneurial Venture moderates the relationship between EO and Growth.

According to Rauch, Wiklund, Lumpkin, & Frese's, (2009) conceptualizations, we select industry type as another moderating variable between EO and growth. They postulate that the businesses operating in dynamic industries are subjected to change in terms of technology and customer preferences. Also those industries gain advantages over another from entrepreneurial initiatives. Therefore, we build our proposition as;

Proposition 03: Industry type moderates the relationship between EO and Entrepreneurial Venture Growth.

Most notably, we add national culture as another variable to assess the moderating effect between risk taking behavior and entrepreneurial venture growth. We affirm this addition would inevitably add a new contribution because we absorb contextual diversity to our model formulation. Illustratively, in a country like Sri Lanka entrepreneurs are not driven by risk baring propensity. Simply stated, they tend to be risk averse. This nature of risk averse behavior is largely confined by cultures vested in a country Sri Lanka. From the past business owners tend to satisfy with a satisfactory rate of return to survive. Given the general scenario, we state the assessment of cultural effects on the strength of EO and performance relationship is a potential avenue for future research. In contrast, Rauch, Wiklund, Lumpkin, & Frese, (2009) suggest that, the effects of cultural dimensions are less and performance seems to be relatively similar in magnitude across countries. However, our conceptualizations are different. Also, Hayton et al., (2002) claim that, an assessment of national on entrepreneurship has a practical and a theoretical value. We assume that the national culture

impact the EO and entrepreneurial venture growth relationship. Accordingly, we build our proposition as;

Proposition 04: National Culture moderates the relationship between Risk Taking and Entrepreneurial Venture Growth.

Core Competence and Growth

Focally in the field of strategic management, the notion of core competence is undoubtedly an important concept for scholarly inquiry. Indeed the concept was initiated in the early 1990s and it was defined as “the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies” (Prahalad & Hamel, 1990. p. 82). Within the perspective of organizational renewal, the notion of Core Competence acts as a driving force for strategic change. Also, the concept has the problem of defining and applying as a phenomenon, (Ljungquist, 2007). Importantly, Prahalad & Hamel (1990) state, having a scan and an assessment about company-critical resources, capabilities and competencies are vital to start identifying core competencies. These three factors are associated concepts, and are merged in the identification process (Ljungquist, 2007).

Different research streams address the notion of core competence differently. For example Resource-Based View (Barney, 1991; Penrose, 1959) and Dynamic Capability-Based View (Eisenhardt & Martin, 2000) are prominent. Thus, Ljungquist (2007) state, due to diverse origins and applications of contemporary notion of core competence, classification according to one particular theory has become problematic. This has become more complex due to the nature of ‘associated concepts’ of the notion itself.

In the literature these concepts are used interchangeably depending on the phenomenon addressed. For example, Peteraf & Bergen (2003) postulated the notions of resources and capabilities, while Hamel & Prahalad (1994) postulate skill, competence, and capability. Adding to that, Spanos & Prastacos (2004) affirm capabilities and competencies.

Based on the above discussions on core competencies we try to emphasize the concept associates with conceptual difficulties and there is a need of assessing the concept cautiously. Thus we intend to define the notion of core competence and thereby to develop the proposition supporting seminal works in the field (see, Ljungquist, 2007; Prahalad & Hamel, 1990; Hamel & Prahalad, 1994; Barney, 1991; Mitchelmore & Rowley, 2010). Accordingly we postulate, core competency is a strategic tool to encapsulate firm’s uniqueness which is determined by unique resources and capabilities. We further argue core competencies lead to growth of the firm as well. This is because the advantage gained from competitors by means of producing unique resources and capabilities will lead to high performance and thereby to growth of the venture. Therefore we build our next main proposition as follows;

Proposition 05: Core Competencies positively influence on growth of the Entrepreneurial Venture.

Accordingly, in our study a competence which satisfies above criteria (resources and capabilities) defined, is taken as a Core Competence. Moreover we believe a clear distinction between Core Competence and Capability of an entrepreneurial venture is important in this regard. In contrast to the concise definition of core competence, the notion of capability has two different meanings (Collis, 1994). In one extreme Javidan (1998) highlight ‘capacity’.

The other extreme of capability define as coordination, consisting of a mix of routines, tacit knowledge, and organizational memory (Nelson & Winter, 1982). However, the contemporary meaning of capability addresses as being either dynamic or operational (Helfat & Peteraf, 2003).

Given those elaborations we intend to build the definition of capabilities that we suppose to address. As we mentioned above the seminal work of Resource Based View propose that in achieving competitive advantage firm's resources are the basic premise that underlie. Those are valuable, rare imitable and non substitutability of resources. In these grounds firm resources include all assets, capabilities, organizational process, firm attributes, information, knowledge, etc. However number of scholars addressed the principles of RBV and addressed differently varying the phenomenon addressed (e.g: Wernerfelt, 1984; McGrath et al., 1995; Gruber et al., 2008; Gruber et al., 2010). All the other scholarly investigations including these seminal works the perspective of RBV has been reshaping over the last years. However, conceptual difficulties in defining the notion of capability have been a greater emphasis among scholars. Given that, we intend to clarify the vagueness the definitions which scholars addressed so far (e.g: Collis, 1994). Thus we intend to avoid the above mentioned issues in defining the concept of capability by means of adopting the definitions of Gruber et al., (2010). They defined capability in a well defined functional area of sales and distribution. This classification of capability is in prime importance because in our model formulation the dimensions of entrepreneurial orientation defined solely as a strategic tool that each entrepreneur addresses. Thus our model is constructive as the term suggests itself.

According to Gruber et al., (2010) firms deploy capabilities along the value chain to perform functional activities such as research and development, manufacturing, or sales and distribution. Perhaps most notably, the configuration of venture capabilities we keep an emphasis because Homburg et al., (2008) warn a list of items in a variable can possibly lead to impede the detection of configurational cluster structures in empirical data. Therefore we limit the number of items in a variable defined. Not only for capabilities but also for entire model formulation is build under this consideration. Thus we stick to sales and distribution capabilities only.

Our justification on venture capabilities is simple. If a particular entrepreneurial venture is filled with effective research and development capability, manufacturing capability or sales and distribution capability in an effective manner to gain advantages by means of creating value to customers the venture performances inevitably increase. Thereby the venture can possibly lead to grow. Based on these identifications we build our next sub-proposition as;

Proposition 05a: Capabilities positively influence on growth of Entrepreneurial ventures.

The next dimension of core competencies is resources. We accept the fact that venture capabilities also another resource which scholars have highlighted. But our model identifies resource differently. Which are namely Tangible and Intangible resources. At the outset we postulate the fact that resources are basic to a venture and we identify it as a natural object of our study. That is because venture resources act as inputs to the value creation process (Eisenhardt & Martin, 2000). Supportively, Javidan (1998) write resources are the basic building blocks of venture competencies. Also, literature suggests that capabilities are necessary to acquire resources and to utilize it (Wiklund & Shepherd, 2003). Besides, in order to have a full effect resource should be combined knowledge resources (we term it intangible resources) and financial and technical equipments (we name it as tangible

resources) (McKelvie & Davidsson, 2009). Indeed, immediately after the establishment of the venture, tangible resources constitute the factors of production that is crucial to run the venture. Thus we identify tangible resources as another important consideration in venture growth process. It can be a plant, equipment, machinery or that will aid the production capacity of a venture. Thus we write our next sub-proposition as follows;

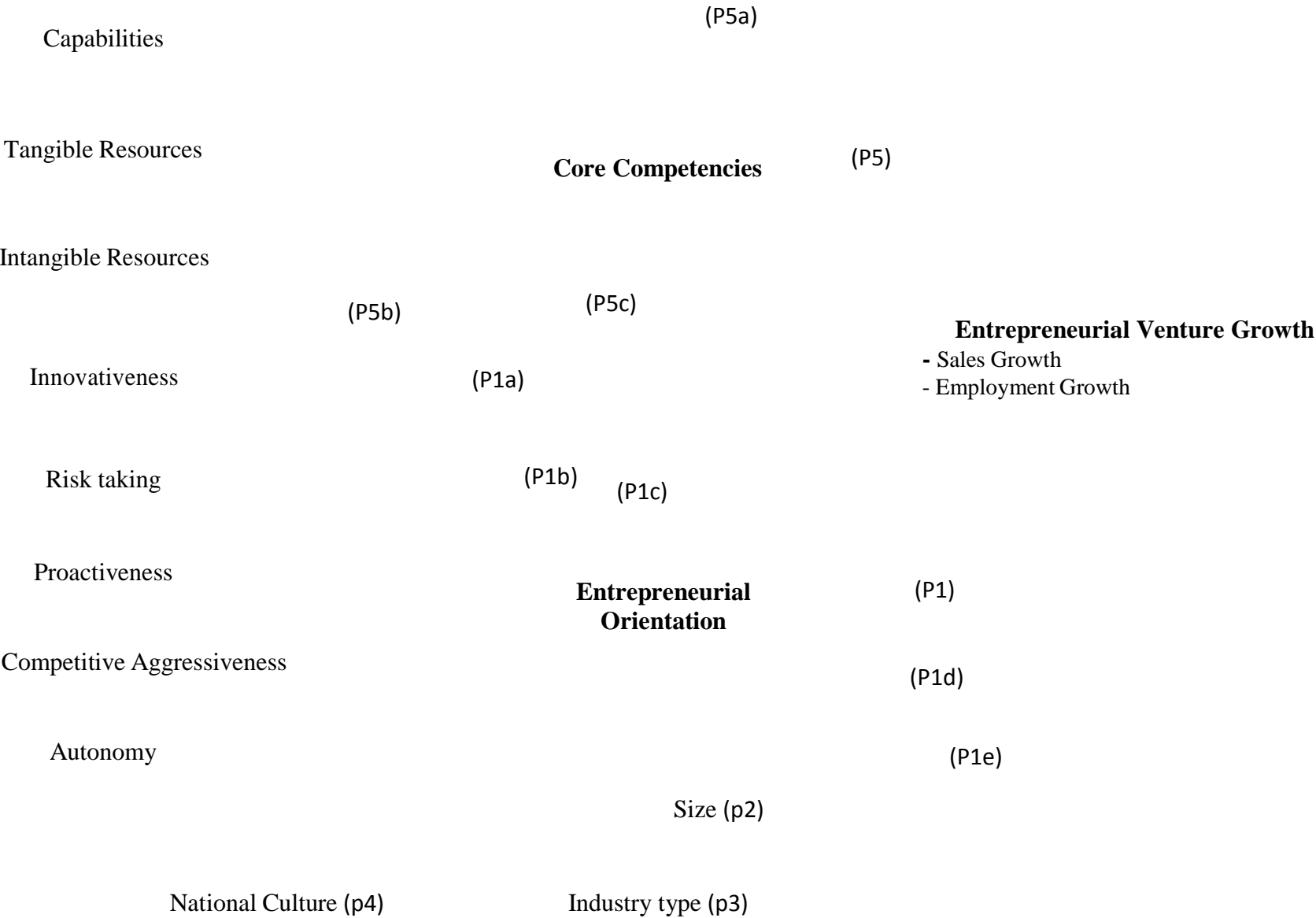
Proposition 05b: Tangible resources positively influence on growth of Entrepreneurial ventures.

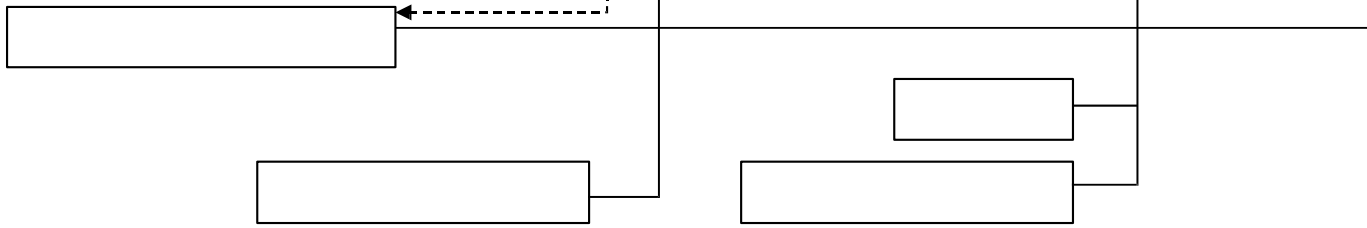
Perhaps most notably whatever the strategy will no longer be executed unless the entrepreneur possesses the capability of managing them. Simply stated, he should possess enough knowledge resource to manage venture wide resources. The Resource Based View addresses the importance of assessing founder's human capital (Alvarez & Busenitz, 2001). However, it is important to state that founder human capital is not a phenomenon that supports universal positive effects. The reasons for this is founders with high level of human capital have a tendency to apply a higher threshold to what is considered as satisfactory performance levels, and consequently they tend to start multiple ventures in response (Davidsson, 2006; Gimeno, Folta, Cooper, & Woo, 1997). However, we write our last sub-proposition as;

Proposition 05c: Intangible resources positively influence on growth of Entrepreneurial ventures.

So far we discussed a diverse range of propositions in order to develop the constructive model of entrepreneurial venture growth. We accept the fact that model building in entrepreneurial venture growth scholars have been addressed the notion of venture growth differently and their considerations are different. Despite the fact, we develop and argue a comprehensive model with a comprehensive literature to address a broad area of venture growth based on our motive. Following figure depicts the relationships between the various propositions identified.

Theoretical Model of Entrepreneurial Venture Growth





The concept of Entrepreneurial Venture Growth and Methodological Considerations

The field of contemporary entrepreneurship largely considers on venture growth. In fact entrepreneurial ventures considered as the engines of growth of a country. Gilbert, McDougall & Audretsch (2006) suggest that venture growth is important topic for scholarly inquiry. Most notably, venture growth is considered as the central topic in entrepreneurship (Chandler, McKelvie, & Davidsson, 2009). However, Markman & Gartner (2002) write it has largely disregarded by academic research. In contrary, Davidsson, Achtenhagen & Naldi (2010) affirm that even though a large number of studies have been conducted, the knowledge about the phenomenon is far from complete. In general, it is accepted that entrepreneurial venture segment is considered as key to fuel economic growth, improve productivity, create employment and thereby significantly to the gross domestic product of a country. In contrary, entrepreneurial venture sector associates with problems such as shortage of capital and managerial skills, use of obsolete technology, reduction in market competitiveness, lack of entrepreneurial policies (Gamage, 2003). This is somewhat a contradictory phenomenon that we intend to address. That is because, though the entrepreneurial venture segment is important for a country, the segment associates with problems. This implies the prerequisite of scholarly investigation. Barringer, Jones & Neubaum, (2005), affirmed that, that some firms' reports more than 80% sales growth every year (they are called Gazells) whereas majority reports less growth (average 3.5% in the USA). This implies us that some entrepreneurial ventures register for higher growth whereas others do not. Once more, this highlights the prerequisite of researching on entrepreneurial venture growth. In particular, the model construction is based on this practical problem identified.

In methodological reviews, scholars define sales growth is the best growth measure (Hoy, McDougall & D'souza, 1992; cited in Davidsson & Wiklund, 2006) and it is the most common performance indicator (Barkham et al, 1996; cited in Davidsson & Wiklund, 2006). Assets are also another important aspect of growth, but it is problematic in *service industries*, (Davidsson & Wiklund, 2006). Additionally, growth in terms of employment is also considered as a secondary relevant indicator. Employment and turnover rates can be employed as an indicator of growth (Delmar, 2006). Employment is an objective measure as well as sales or assets, compared with indicators such as market share and performance index which are subjective (Delmar, 2006). Importantly, change in assets is advised not to include as a growth measure and apply only if it is in the manufacturing sector (Delmar, 2006). Besides, Sales growth is the most common indicator of growth, and employment growth is also a frequently used variable (Chandler, McKelvie, & Davidsson, 2009). Under the category of Subjective measures; perceived market share, performance satisfaction considered as not appropriate measures since it based on the entrepreneur's knowledge and expectations (Delmar, 2006). Basically, the two approaches to measure growth, relative¹ and absolute² growth (Davidsson & Wiklund, 2006). Importantly, initial size of the firm has a positive association with the firm, but negative with relative growth rate (Delmar, 1997; Storey, 1994; cited in Davidsson & Wiklund, 2006). Thus the impact of size is a conceptually problematic. As a wise decision, they advised to use initial size as a control variable is not totally satisfactory. The recommendation is use absolute and relative growth measures in

¹ Say, divide absolute growth by initial size of the firm

² Actual difference of firm size from one point to another

parallel (Davidsson & Wiklund, 2006). Further, organic growth³ is more vital than total growth⁴. Commonly growth is measures usually for five years (Delmar, 2006).

Perhaps most notably, a new paradigm of research was postulated by Davidsson, Steffens, & Fitzsimmons, (2008) constituting growth as a performance indicator in the contexts of entrepreneurship and management. Further they affirmed that growth is much interested among entrepreneurship researchers than profitability. And also, accounting based measures are not concerned on value maximization (Hawawini, Subramanina, & Verdin, 2003).

Discussion

In this article we set out to develop an alternative theoretical framework with regard to entrepreneurial venture growth. Also we added two main constructs which covers a diverse range of entrepreneurial aspects. The purpose of this framework is to support the existing debate in entrepreneurship literature. Since the venture growth literature is fragmented, there is a prerequisite for address the phenomenon more in detail. Thus we hope our understanding on entrepreneurial venture growth will support the existing debate to be solved somehow. Also we intend to postulate that entrepreneurial orientation and core competencies are constructs which highlight the strategy of the venture and organizational wide resources respectively. This is because scholars highlight the importance of arguing about the intrinsic characteristics of entrepreneurial ventures. Despite the number of models of venture growth we intended to form a theoretical model which discusses the organic growth of entrepreneurial venture. In fact a model which discusses the organic growth which stimulates internal aspects of the entrepreneurial venture is seldom in the literature. Also organic growth is largely disregarded by the scholars in the field and scholars tend to discuss about acquisition growth which lie with the extent of the venture. Thus we affirm this theoretical model formulation is pertinent to Small and Medium Sized Entrepreneurial Ventures. Within the theoretical frameworks developed so far, Wiklund et al., (2009) postulated a model enriched with diverse perspectives. They proposed Entrepreneurial Orientation, Environmental Characteristics, Firm resources, and Manager's personal attitudes as main propositions of small venture growth. However, as we mentioned in the preposition development section, Homburg et al., (2008) suggested that a list of items in a variable can possibly lead to impede the detection of configurational cluster structures in empirical data. Thus based on this justification we limit to Entrepreneurial Orientation and Core Competencies which depict the intrinsic characteristics of an entrepreneurial venture. Indeed that is our sole motive in developing a theoretical framework. In particular we build relationships between dimensions of each construct to the main dependent variable. That is also another prominent fact which depicts the novelty in entrepreneurial venture growth literature. Moreover, we add potential moderators of different relationships identified. Based on the Rauch, Wiklund, Lumpkin, & Frese's, (2009) findings on EO, we add size of the venture and industry type as potential moderators of EO and entrepreneurial venture growth. Also we claim rational justifications pertaining to moderators as well. In particular, we rationalize that the national culture moderates the relationship between risk taking behavior and entrepreneurial venture growth. We state this addition enhances the existing body of knowledge because Rauch, Wiklund, Lumpkin, & Frese's, (2009) claim was national culture effects on EO- performance relationship and it is a promising avenue for future research.

³ Organic growth is the expansion of current activities

⁴ Total growth is the expansion in terms of acquisitions

The methodological considerations in this regard are also another important aspect that we identified. That is because; the majority of scholars suggest firm performances rather assessing venture growth. We postulate firm growth is a notion which acquired through high performance of a venture. Thus we emphasize venture growth creates a big picture than assessing performance. Also, we state the prerequisite of measuring venture growth by means of an outcome based indicators.

Further, we enriched with practical as well as empirical ground in this model formulation process. In detail, some ventures registered with high growth whereas others do not. That is our practical issue. Moreover, we tend to bring an empirical issue pertaining to constructs of entrepreneurial orientation and core competencies and affirm there is no any consensus among the scholars in the field. Indeed, we state the prerequisite of scholarly investigation of small venture growth. Thus we affirm entrepreneurial orientation and core competencies affect entrepreneurial venture growth.

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THE INTERACTIVE IMPACT OF ALTRUISM, MATERIALISM, AND ENTREPRENEURIALISM ON THE FORMAT OF SOCIALLY-ORIENTED NEW VENTURES

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The Interactive Impact of Altruism, Materialism, and Entrepreneurialism on the Format of Socially-oriented New Ventures

ABSTRACT

This paper presents a conceptual model to explain the heterogeneity of new ventures, which may be more- or less-altruistic, more- or less-materialistic (i.e. for profit) and more- or less-entrepreneurial in nature. It is argued that individuals who are intending to start a new venture will want to create an organisation reflecting their preferences for altruism, materialism and entrepreneurialism. We observe new ventures that are highly socially-oriented, or not; highly profit-oriented, or not; and highly innovative, or not. Our model considers these three dimensions simultaneously and presents a model of the heterogeneity of entrepreneurial firms that includes socially-oriented as well as self-oriented firms, and also includes the full range of orientation toward innovation and toward profit making.

1. Introduction

The fledgling literature on social entrepreneurship has not yet been reconciled with the literature examining private entrepreneurship, with some authors arguing that they are two separate fields of enquiry (Estrin et al., 2013) while others argue that they differ only in degree (Mair & Martí, 2006). At this point most of the literature on social entrepreneurship has focused on what social entrepreneurs do, and where and how they do it (Shaw & de Bruin, 2013), with little or no research focusing on *why* they do it (Arend, 2012). What motivates individuals to pursue socially-oriented businesses is surely an interesting question, as an increased supply of social entrepreneurs would undoubtedly foster the promotion of human equity. General explanations allude to greater empathy for other people and stronger feelings of altruism (e.g. Miller, Grimes, McMullen & Vogus, 2012) and such motivations seem self-evident. However, some social entrepreneurs engage in entrepreneurial activities for minimal monetary reward, while others seek substantial profits from social enterprise. Further, some social ventures are highly entrepreneurial while others are more conventional. To the best of our knowledge, no prior research has integrated these three aspects of entrepreneurship – namely the extent to which entrepreneurs are ‘other-oriented’ (i.e. altruistic or unselfish) rather than self-oriented; the extent to which entrepreneurs are desirous of reward structures that are composed of monetary rewards rather than psychic rewards; and the extent to which entrepreneurs want to operate more-innovative as opposed to more- conventional businesses.

In this paper we build a three-dimensional conceptual model of the motivations of individuals to pursue self-employment consisting of some combination of other-oriented vs. self-oriented; profit-oriented vs. intrinsic-rewards oriented; and innovative vs. conventional. We conceptually and empirically demonstrate that the heterogeneity of individuals will result, for example, in some people choosing to be highly innovative while volunteering their services for no monetary reward and unselfishly serving others, while others choose to be relatively conservative in their business design, earn maximal profits, and yet focus their business efforts on serving the welfare of others. Our model describes a three-dimensional space in which combinations of the attitudes toward entrepreneurialism, altruism, and materialism motivate individuals to choose occupations that are more or less entrepreneurial, more or less other-centred and more or less rewarded by monetary or psychological benefits.

This paper makes several contributions to the literature. First we build a conceptual model of entrepreneurial heterogeneity to clarify the differences (in degree only) between social entrepreneurship and for-profit entrepreneurship. Our model allows some social ventures to be more entrepreneurial while others are more conventional; some social

entrepreneurs to be unpaid volunteers while others seek to maximize profits; and some entrepreneurs to be totally socially-oriented while others are totally self-oriented, with a multitude of combinations in between. Second, we investigate the ‘why’ of social entrepreneurship, an aspect that has been neglected in favor of the what, how and where of social entrepreneurship. Third, we develop and test original scales for the measurement of the intention to start both socially-oriented and self-oriented new ventures that will provide a valuable platform for future research in the social and private entrepreneurship domain.

In the next section, we develop a conceptual model of the formation of entrepreneurial intentions, focusing on the differing attitudes toward the outcomes that are associated private vs. social entrepreneurship. We build a simple, yet parsimonious model of the antecedents of entrepreneurial intentions, focusing on three attitudinal dimensions. This allows the development of a series of research propositions that may be empirically tested. Then we develop scales to measure socially-oriented vs. privately-oriented entrepreneurial intentions. The fifth section discusses the empirical results of the study. Finally we present concluding comments, implications for practice, pedagogy and further research opportunities.

2. A Conceptual Model of New Venture Motivation

We argue that individuals will seek new venture opportunities that serve their attitudinal needs for altruism, materialism, and entrepreneurialism, and consider trade-offs between and among these preferences such that they can develop an ordinal ranking of new venture opportunities and subsequently choose the venture that best serves their personal wellbeing. Given the heterogeneity of individuals, we posit that there will be a three-dimensional continuum of preferred new venture types and individuals will choose the one that best suits their personal preferences for entrepreneurialism, altruism, and materialism.

2.1 Entrepreneurialism

We define *entrepreneurialism* as the attitude an individual holds towards undertaking entrepreneurial action and all that entrepreneurship entails. *Entrepreneurship* is defined as innovative activity intended to create new wealth for the entrepreneur (Gartner, 1990), by introducing new technologies, products, and/or business models to market. This new wealth may be either monetary or psychological (intrinsic) in nature. However in creating new personal wealth, the entrepreneur must first create market value, meaning that consumers must be willing to pay more for the new product than it costs to produce¹. We suggest ‘intended to create new wealth’ in recognition that the activity may fail, and indeed the failure rate of entrepreneurial new firms remains relatively high (Headd 2003; Shane 2009). That aside, the essence of entrepreneurship is that new means of production are employed such that there are new products or services² presented to the market.

We define *social entrepreneurship* as activity that is intended to create new monetary or psychological benefit that accrues to others who are external to the focal firm. Thus social entrepreneurship is ‘other-oriented’ rather than ‘self-oriented’ as (private) entrepreneurship is typically depicted. Social entrepreneurship may occur in both ‘for-profit’ and ‘not-for profit’ ventures. Note also that both social and private ventures may be more- or less-entrepreneurial in their market activity, ranging in both cases from a virtual absence of innovation to high levels of innovation. The new product may be new to the market (i.e. a new, typically differentiated, brand in an existing product category,) or entirely new to the world (i.e. a new

¹ The market value created might be for the firm itself, such that the customer might be another firm that would want to acquire the focal firm (even if its product is a failure in the marketplace).

² For expositional convenience we shall use ‘product’ to mean the end result of a production process and thus it may mean a tangible product or an intangible service or some combination of the two.

product category) – that is, the extent of novelty of the new product may vary from a little to a relatively large degree.

The entrepreneurialism of individuals will be directly related to their strength of preference (or dislike) for the various benefits (or costs) that accrue to the individual from the practice of entrepreneurship. It has been argued that an individual's preference for engaging in entrepreneurial activity is dependent upon their preference for income, autonomy, and work enjoyment, and the extent that they can tolerate risk bearing and work intensity (see, e.g. Kihlstrom & Laffont, 1979; Douglas & Shepherd, 2000; Douglas, 2013). A related line of reasoning argues that an individual's strength of intention to start an entrepreneurial new venture depends in part on the perceived desirability of the new venture in the light of the individual's attitudes to the salient outcomes of the activity, (see, e.g. Krueger, Reilly & Carsrud, 2000), such as income, autonomy, and risk bearing. The perceived desirability of an entrepreneurial opportunity is considered alongside the perceived *feasibility* of entrepreneurship, which has been measured by the individual's self-confidence that they can successfully complete the tasks required of entrepreneurship (see, e.g. McGee, Peterson, Mueller, & Sequeira, 2009).

Douglas (2013) recently demonstrated that the cognitive composition of individuals will tend to predispose them towards either profit-and-growth-oriented entrepreneurship or independence-oriented entrepreneurship. This dichotomy of entrepreneurial types has been noted frequently by many authors (e.g. Kolvereid, 1996; Reynolds, Carter, Gartner & Green, 2004; Hessels, van Gelderin & Thurik, 2008; Shane, 2009). Utilising self-determination theory (Deci & Ryan, 2000), Douglas (2013) argued that the salient outcomes of entrepreneurship (namely income, autonomy, work enjoyment, risk exposure and work intensity) jointly supply net benefits to the individual which the individual weights according to personal preferences for (i.e. attitudes towards) those salient outcomes. Given differences in preference for the salient outcomes and different provision of the outcomes across different entrepreneurial opportunities, different individuals will choose different entrepreneurial opportunities in the pursuit of the individual-opportunity nexus (Shane & Venkataraman, 2000) that best serves their needs. Here, we expect that attitudes towards the salient outcomes of private vs. social entrepreneurship will be instrumental in the formation of their strength of intention to engage in one or the other of these entrepreneurial types.

2.1 Altruism

Individuals may be more- or less-selfish in the extent to which they consider and weight the welfare of others relative to their own welfare. Unselfishness typically requires a personal sacrifice of income or psychic wellbeing from the consumption or production activity that is foregone in order to serve the interest of others. Moreover, unselfishness also provides a psychic reward in that people generally 'feel good' about helping others (Andreoni, 1990). Unselfishness tends to vary across individuals. A construct commonly used to encapsulate unselfishness is *altruism* which is defined here to be inclusive of a variety of positive feelings that individuals experience and which motivate them to help, do good for, and/or avoid doing harm to others (see, e.g. Becker 1974; Margolis, 1982; Andreoni, 1990). Moss, Short, Payne & Lumpkin, 2010) argue for the dual identity of social entrepreneurs – arguing that they are both entrepreneurial and socially-oriented. We build upon this notion with a third dimension, in arguing that individuals will also have a materialistic dimension. That is, entrepreneurs will possess different preferences for the extent to which the rewards of their actions would generate monetary or non-monetary (or intrinsic) rewards.

2.3 Materialism

In neoclassical economics, firms are depicted as profit-maximising entities that strive to maximise their profits because their owners are hedonistic consumers who want to maximise their psychic utility derived from purchases of goods and services (see, e.g. Mansfield, ch.3). Since purchases of goods and services are constrained by the individual's limited income, individuals are motivated to maximise their incomes, including their income (e.g. dividends) from the ownership of business firms. Thus individuals who are business owners were traditionally modelled as seeking to maximise their profits. Behavioural economics (see, e.g. Simon, 1955; Camerer, Loewenstein, & Rabin, 2011) subsequently introduced and developed the notion that individuals are motivated not only by monetary considerations but also by non-monetary considerations. These latter 'psychological' benefits directly affect their individual's psyche and stem from positive and negative feelings pertaining to relationships with customers, suppliers, and co-workers.. While the job satisfaction literature (e.g. Brayfield & Rothe, 1951; Judge, Heller, & Mount, 2002) has examined this in great detail, in the context of new ventures we expect the main positive non-monetary outcomes are related to decision-making autonomy and work enjoyment, and prominent negative non-monetary outcomes to be related to risk bearing and work intensity (see, e.g. Douglas, 2013).

Monetary rewards are instrumental to other psychological rewards, since money buys food, shelter, entertainment, and other tangible and intangible goods that subsequently provide satisfaction to the individual. However, money cannot buy, it is said, love, respect, inner peace and other states of mind that provide psychological rewards, and these are commonly appreciated for their own sake by individuals to a greater or lesser degree. Accordingly, individuals derive psychological satisfaction indirectly from their incomes via the products they purchase from their incomes (i.e. material goods) and directly from their interactions and relationships developed with participants in their workplace environment (i.e. intrinsic benefits). For the purposes of this paper we shall define *materialism* as the degree to which an individual prefers to receive the rewards to his/her effort, activity or enterprise in the form of monetary compensation (i.e. material goods) rather than as psychological or intrinsic benefits.

2.4 Combinations of Venture Types suggested by the Model

We propose there will be an infinite number of combinations of entrepreneurialism, altruism, and materialism. For discussion purposes it is useful to reduce this to a smaller set of new venture types that are significantly different and which demonstrate the diversity of new venture types. In Table 1 we show eight combinations of altruism, materialism and entrepreneurialism that are possible if we simply dichotomize these three variables as either 'high' or 'low'. Note that low scores on altruism effectively mean high scores on its converse, namely selfishness. Similarly, low scores on entrepreneurialism effectively mean low scores on innovativeness, implying a largely replicative business with high similarity to existing businesses. Finally, low scores on materialism mean high preference for intrinsic benefits over profits. The indicative ventures shown in Table 1 are occupations or business situations that might be found towards these extreme combinations.

[Table 1 near here]

3. The Individual's Choice of New Venture Type

We argue that the individual will have attitudes toward entrepreneurialism, materialism, and altruism, and these will cause that individual to want to set up and manage a new venture

with similar proportions of social-benefit (vs. private benefits), profit (vs. intrinsic benefits), and innovativeness (vs. conventional business model) at the firm level. Person-environment fit theory (Kristof, 1996; Kristof-Brown, Zimmerman & Johnson, 2005) argues that individuals gravitate to work environments that best suit their preference for work-related outcomes. Self-determination theory (Deci & Ryan, 2000; Gagne & Deci, 2005) argues that individuals make reasoned choices designed to attain their objectives. The theory of planned behavior (Ajzen, 1991) argues that attitudes toward (the consequences of) an action precede the formation of the intention to undertake that action, which in turn tends to predict the action taken by the individual. Expectancy-valence theory (see, e.g. Van Eerde & Thierry, 1996) argues that the individual forms ‘expectancies’ (predictions) of the salient outcomes of their actions, and that in a decision making process these are multiplied by the ‘valence’ (or importance) of those outcomes in the individual’s value system (i.e. their attitudes toward those outcomes). The sum of the products of ‘expectancy x valence’ provides an overall evaluation of the desirability of the focal action, and the individual is presumed to choose the action which promises to deliver the greatest level of satisfaction. From an economics perspective, ‘utility theory’ similarly explains the choice between self-employment and employment career options, effectively utilising an expectancy-valence approach (Steel & Konig, 2006) by weighting the expected values of the salient outcomes by the individual’s attitudes toward those outcomes (Douglas & Shepherd, 2000; Douglas, 2013). As such, we utilise the language of utility theory to explain in broad terms why the individual settles on a preference for a particular combination of entrepreneurship, profit and social benefits.

3.1 Trade-offs between Entrepreneurship, Profits, and Social Benefits

In the above we have argued that individuals will expect to derive (differing amounts of) psychic satisfaction (i.e. utility) from being entrepreneurial, from the monetary rewards for their efforts, and from their acts of altruism. We now note that in the context of a new business venture the individual will be prepared to make satisfaction-neutral trade-offs between entrepreneurship, profits, and social outcomes.

Starting with the trade-off between entrepreneurship and profits, adding more of one will necessarily require a reduction of the other in order for the individual’s total satisfaction to remain the same. This negative trade-off implies that for two new venture opportunities, A and B, an individual might consider them to be equally satisfying if, for example, opportunity A promises more intrinsic benefits of entrepreneurship (such as more autonomy, more work enjoyment, less risk and/or less work) but concomitantly offers less profit, as compared to opportunity B (with other things being equal). That is, should two opportunities have the same quantum of (attached) profit, the individual will prefer the more-innovative one, or alternatively, if two opportunities have the same degree of innovativeness, the individual will prefer the more profitable one. The rate at which the intrinsic benefits of entrepreneurship will be sacrificed for profits (while holding total satisfaction constant) will depend on the individual’s preferences for being innovative (i.e. their entrepreneurialism) relative to their preference for material goods (i.e. their materialism). Some people, such as lifestyle entrepreneurs, will be prepared to sacrifice relatively large amounts of profit in order to obtain the intrinsic benefits of entrepreneurship, while others, such as growth-oriented entrepreneurs, will be prepared to sacrifice little or no profit to obtain the intrinsic benefits of entrepreneurship, other things being equal (Douglas, 2013).

Similarly, when both personal profits and social benefits generate satisfaction for the individual, adding more of one will necessarily require a reduction of the other if the individual’s total satisfaction is to remain the same. For total satisfaction to remain the same, the amount of satisfaction lost through abrogating some profit must equal the amount of

satisfaction gained from increased social benefits, other things being equal. The magnitude of this trade-off will tend to be higher (i.e. more profit will be traded for a given amount of extra social benefits) for a person who is more altruistic and/or less materialistic.

Finally if both entrepreneurial and social aspects generate satisfaction for the individual, the trade-off between them must again be negative if total satisfaction is to remain constant. To be viewed as equivalent to an opportunity that has better social outcomes, another opportunity (with lesser social benefits) must have more profit attached to it, with other things being equal. Alternatively, if two opportunities have the same degree of innovativeness, the individual will prefer the one that has greater social benefits, or oppositely, if they have equal social benefits, the individual will prefer the one that is more innovative, by virtue of our assumption that individuals derive utility from both variables.

3.2 Diminishing Marginal Utility from Entrepreneurship, Profit, & Social Benefits

While the trade-offs between the three variables are negative, we do not expect them to be constant. Instead, following the principle of diminishing marginal utility in neo-classical economics (see, e.g. Mansfield, 1994, ch.3), we expect that as more and more of one satisfaction-generating item is accumulated, the incremental satisfaction (i.e. marginal utility) gained from incremental units of that item will progressively decline. Economic theory generally argues that marginal utility (MU) declines and approaches zero, but remains positive. In practice, however, the MU of many things would certainly decline and become negative if the individual continued to consume them. We argue that the same is likely to be true of altruism, materialism, and entrepreneurialism.

The additional satisfaction gained from additional altruism will tend to decline as total altruism increases, because additional acts of altruism, such as helping a homeless person, will generate less psychic satisfaction than did helping the previous homeless person.³ This is because the individual's physical and emotional energy are finite and the person is likely to become physically tired and/or emotionally upset as they continue to increase the frequency of their altruistic acts. Moreover, more and more altruism (i.e. unselfishness) must mean progressively less selfishness, as time and energy are limited and people will want to attend to their own needs as well. Similarly, we expect the MU of materialism to decline and potentially become negative because more and more income (from profit) cannot buy everything that human beings want, such as emotional peace, self-respect, and the inner satisfaction that comes from helping somebody in need. Moreover, the more one seeks materialist outcomes the less one can seek psychic benefits associated with the new venture, again due to time and energy constraints. Finally, we expect the MU of entrepreneurialism to decline and potentially become negative after some point as it brings with it more risk, more work intensity, and more stress as the degree of entrepreneurialism increases.

3.3 Graphical Depiction of the Model

Figure 1 depicts our conceptual model graphically as a three-dimensional box diagram, with altruism on the X-axis, materialism on the Y-axis and entrepreneurialism on the Z-axis. Suppose that each dimension is measured on a scale of 0-100% with 100 representing the maximum possible on that scale. We show hypothetical examples of two individuals who each start from the 0,0,0 origin point (corner 1) and move consistently in the direction of the greatest gain in total utility, that is, where the MU for additional units (percentiles) of the

³ Diminishing MU and negative MU may not occur initially. That is, MU may be constant or even increasing at first, but after some point, MU is likely to decline and become negative for most people at relatively high levels of 'consumption' of an item. Our argument simply requires that at relatively large values of altruism, materialism and entrepreneurialism, the MU of one or more of these will become negative for most people.

three utility-generating variables is highest. The heavy unbroken curved line depicts combinations of altruism, materialism and entrepreneurialism that are expected to generate progressively higher levels of total utility (TU) for one particular individual. The convexity of this curve demonstrates that the MUs of the three variables are each progressively declining, until the point where the TU curve becomes horizontal, indicating that MU is zero for all three variables and that total utility is maximised. For this individual, the preferred new business venture would therefore have a social benefits score of A_1 , a materialism (profit) score of M_1 , and an entrepreneurship score of E_1 . Another example is shown by the heavy dashed line. Here we depict an individual who derives no utility from entrepreneurship at all – this person will maximize utility in a non-innovative (replica) business with relatively high social benefits (A_2) and a combination of psychic and monetary private benefits (M_2). Many other examples could be shown but would require a very complicated graphical presentation. Another individual might exhibit zero altruism and thus locate on the ‘floor’ of the box, with a preferred combination of materialism and entrepreneurialism. Yet another individual (a volunteer) might locate on the ‘back wall’ of the box with zero materialism and operate a social venture more- or less-entrepreneurially.⁴

[Figure 1 near here]

Thus it is possible for an individual’s utility to be maximized at any particular point within the box. Similarly a person might want to be located at one of the corners of the box if they do not experience negative MU from one or more of the three variables. The individual ‘stops’ at a point within the box if the MU of all three variables has declined to zero and would thereafter be negative: there is no point choosing higher levels of any variable if that would cause total utility to decline. Thus, the utility-maximizing solution might anywhere in the interior of the box, and will depend on the individual’s relative strength of preference for entrepreneurialism, materialism, and altruism.⁵

4. Development of Propositions

The foregoing conceptual model suggests a number of testable propositions relating to the antecedents of the intention to start socially-oriented versus self-oriented new ventures.

4.1 Socially-oriented new ventures – Perceived Desirability

Socially-oriented new ventures are those that are shaded in grey in Table 1 and which are proximate to the corners 2, 3, 6, and 7 of the box diagram that is Figure 1. They are relatively high in the provision of social benefits but might be more or less-entrepreneurial and more or less profit-oriented. The foregoing analysis suggests the following propositions:

P1: The intention to start a socially-oriented new venture is positively related to the individual’s altruism.

P1: The intention to start an entrepreneurial social venture is positively related to both the individual’s altruism and entrepreneurialism.

⁴ Notice that we cannot compare the total utility derived by the different individuals. Expected utility is experienced within the psyches of different people, and is measured ordinally, so we cannot say whether one individuals would be happier than another on any cardinal scale (Mansfield, 1994; p.81).

⁵ This could be demonstrated mathematically, or by a very complex depiction of indifference surfaces within the box diagram. That level of complexity would require more space than is available and is unnecessary here.

P2: The intention to start a profit-oriented social venture is positively related to both the individual's altruism and materialism.

P3: The intention to start a profit-oriented entrepreneurial social venture is positively related to all three of the individual's entrepreneurialism, altruism and materialism.

4.2 Socially-oriented new ventures – Perceived Feasibility

We expect that the perceived *feasibility* (of starting a new venture of a particular type) will also influence the individual's intention to start that type of new venture (Krueger, Carsrud & O'Reilly, 2000). Prior authors have demonstrated that measures of entrepreneurial self-efficacy are an effective proxy for perceived feasibility of successfully completing entrepreneurial tasks (e.g. Boyd & Vozikis, 1994). Shane and Venkataraman (2000) argued that entrepreneurs are heterogeneous, and Douglas (2013) has suggested that individuals are likely to have differing self-efficacies for different tasks associated with entrepreneurship of different types. Accordingly we argue here that socially-oriented entrepreneurship may require different skill-sets to those required for self-oriented entrepreneurship.

First, we expect that socially-oriented new ventures are more likely (than are self-oriented new ventures) to attract help and advice from a variety of empathetic and altruist sources, such that the skill requirements of the entrepreneur may be less in socially-oriented new ventures compared to what is required in self-oriented new ventures, other things being equal. Because the social entrepreneur is more interested in 'doing good' for others than being rewarded personally, others will tend to help social entrepreneurs achieve their objectives whereas the private entrepreneur is less likely to gain this outside help and would thus need to possess greater self-efficacy for tasks associated with starting a new venture. This suggests the following proposition:

P5: The individual's entrepreneurial self-efficacy will be more strongly positively related to the intention to start a self-oriented new venture than to the intention start a socially-oriented new venture.

Within the general entrepreneurial self-efficacy construct several tasks associated with entrepreneurship have been identified by prior scholars (Chen et al., 1998; De Noble et al. 1999; McGee et al., 2009). One such task is opportunity recognition. We expect that whereas social problems (and their solutions) are largely evident to most people, entrepreneurial opportunities (deriving from a customers' needs) are usually not evident to everybody but need to be discovered or created by an entrepreneur who exhibits entrepreneurial alertness (Kirzner, 1999; Alvarez & Barney, 2007). Thus we posit:

P6: The individual's ability to recognize and develop innovative solutions to consumer needs will be more strongly positively related to the intention to start a self-oriented new venture than to the intention to start a socially-oriented new venture.

Thirdly, we argue that an individual's interpersonal skills might be expected to be more important for success in a socially-oriented new venture than in a self-oriented new venture, particularly where volunteers need to be motivated to assist, and where governments and firms need to be cajoled and convinced to lend their financial and moral support. We should expect those intending to start a socially-oriented new venture to recognize the value of such skills in that context and thus to be more likely to intend to start a socially-oriented new venture if they have such skills. Therefore, we propose:

P7: Interpersonal skills will be more strongly positively related to the intention to start a socially-oriented new venture than to the intention to start a self-oriented new venture

4.3 Self-oriented new ventures – Perceived Desirability

Self-oriented new ventures are the remaining four main types in Table 1, and the extreme examples of these types are represented by the corners 1, 4, 5 and 8 in Figure 1. These are all characterized by low opportunities for altruism, and may be more or less entrepreneurial as well as more or less profit oriented. This suggests these propositions:

P8: The intention to start a self-oriented new venture is negatively related to the individual's altruism.

P9: The intention to start a self-oriented new venture is positively related to the individual's entrepreneurialism.

P10: The intention to start a self-oriented new venture is positively related to the individual's materialism.

P11: The intention to start a profit-oriented self-oriented new venture is negatively related to the individual's altruism and positively related to their materialism.

P12: The intention to start a profit-oriented entrepreneurial self-oriented new venture is negatively related to altruism but positively related to both entrepreneurialism and materialism.

4.3 Self-oriented New Ventures – Perceived Feasibility

Now turning to the perceived feasibility of self-oriented entrepreneurship we should expect entrepreneurial self-efficacy to be related to the intention to start an entrepreneurial new venture, particularly since this has been demonstrated in many studies previously (see Bullough et al., 2013).

P13: Intention for self-oriented entrepreneurship will be positively related to an overall measure of the individual's entrepreneurial self-efficacy.

With the general entrepreneurial self-efficacy construct several tasks associated with entrepreneurship have been identified by prior scholars (Chen et al., 1998; De Noble et al. 1999; McGee et al., 2009). Entrepreneurs with a past history of success and (concomitantly) higher levels of self-efficacy show an increased willingness to actively engage in opportunity identification (Wright & Stigliani 2013). Moreover, they are typically characterised by higher levels of 'entrepreneurial alertness' (Gaglio and Katz 2001) and will be reliant upon utilizing their own knowledge resources in recognising new market opportunities to accommodate existing or emergent consumer needs (Ozgen & Baron, 2003; Wright & Stigliani 2013). Thus, we conjecture:

P14: Intention for self-oriented entrepreneurship will be positively related to the ability to recognize and develop entrepreneurial solutions to consumer problems.

Next, we note that Douglas (2013) found that attitude towards work enjoyment, defined as preference for the benefits associated with interaction with customers, suppliers and co-workers, was negatively related to the intention to start a profit-oriented entrepreneurial new venture, and was insignificant in explaining the intention to start an independence-oriented

new venture. Given the relationship that might be argued to exist between interpersonal skills and work enjoyment, we might expect that the intention to start a self-oriented new venture would be negatively associated with interpersonal skills. Moreover, a self-oriented new venture allows the individual to avoid reporting to superiors and to avoid interacting with customers is they prefer to do so. These considerations suggest the following hypothesis:

P15: Intention for self-oriented entrepreneurship will be negatively related to the individual's interpersonal skills.

Above we argued that socially-oriented new ventures may not need as strongly developed managerial skills as compared to self-oriented new ventures because the former can attract volunteer and other assistance from individuals, firms and governments on the basis of their pursuit of a social purposes rather than pursuit of private gain. This suggests:

P16: Intention for self-oriented entrepreneurship will be positively related to the individual's perceived self-efficacy for managing people and finances.

5. Development of Socially-oriented vs. Self-oriented Entrepreneurial Intentions scales

In this section we posit separate entrepreneurial intentions constructs that reflect two discrete types of entrepreneurial behavior, namely (i) self-oriented (private) entrepreneurship; (ii) and other-centred (social) entrepreneurship. Although several scales have been used to measure entrepreneurial intentions (e.g. Chen, et al., 1998; De Noble, et al., 1999; Thompson, 2009; Lee, Wong, Foo, & Leung, 2011) these scales typically treat entrepreneurial intention as one dimensional. Following Douglas (2013) we contend that such monolithic entrepreneurial intentions constructs obscure interesting information regarding what are the drivers of entrepreneurial intentions for different types of entrepreneurial opportunity. Although Douglas (2013) distinguishes growth-oriented from independence-oriented entrepreneurial intentions, our construct here is (the more inclusive) self-oriented entrepreneurial intention, which we compare with socially-oriented entrepreneurial intention, for which no scales were found. Accordingly we develop our own scales.

Our scale development began with the co-authors discussing items that might indicate the differing types of entrepreneurial intention, and we subsequently settled on 16 items expected to relate to self-oriented entrepreneurial intentions and 8 items expected to relate to socially-oriented entrepreneurship, as well as 8 distractor questions relating to franchising. We tested this 32-item survey instrument on 155 undergraduate business students, asking them “How likely is it that you would ever want to start and manage a new business venture that allowed you to” (e.g.) “pursue a high-risk opportunity that had the very real possibility of very high profits”. Respondents were asked to rate each of the new venture situations described on a 7-point scale where “1” represents “extremely unlikely” and “7” represents “extremely likely”. Following completion of the Likert responses, respondents answered a validating question, namely to rank the attractiveness to them of five different employment and self-employment scenarios. In general the ranking of the average scores on the Likert questions for each of the two intentions constructs agreed with the ranking of the social entrepreneurship option in the validating question relative to the self-oriented entrepreneurship items. Correlation analysis of the 24 items of interest was then conducted and items were discarded if their correlation coefficients were less than 0.3 with any of the other items intended to load on the same construct and if they were greater than 0.3 with any items from a different construct. Seven items in total were discarded, leaving ten items for the self-oriented entrepreneurial intentions construct, and seven items for the socially-oriented entrepreneurial intentions construct.

A revised survey with 22 items (including 5 distractor questions) was then re-tested on a different group of 85 undergraduate business students from another campus, and again the correlation coefficients were scrutinized and principal components analysis (PCA) was conducted using the STATA package. When the number of factors was constrained to one, a substantial number of cross loadings occurred, indicating that the construct is not one-dimensional. Elimination of several variables, and constraining the factors to two resulted in the emergence of factors indicative of self-oriented entrepreneurial intention and socially-oriented entrepreneurial intention. Orthogonal rotation was utilized to refine the loadings. After several iterations a final solution was found with 7 items loading onto the socially-oriented entrepreneurial intention factor and 5 items loading onto the self-oriented entrepreneurial intention factor, with Cronbach's alphas of 0.9079 and 0.7958 respectively. These are shown in Table 2.

[Table 2 near here]

6. Summary and Implications for Practice, Education & Further Research

This paper presents a conceptual model of entrepreneurial heterogeneity incorporating the dimensions of entrepreneurialism, altruism and materialism. Utilising this novel framework, we developed propositions relating these dimensions to entrepreneurial intention for socially-oriented or self-oriented entrepreneurship. We respond to criticism that social entrepreneurship is under-theorized, and our results add clarity to the debate surrounding the relationship between commercial and social entrepreneurship (Estrin et al. 2013). We endorse the view that private and social entrepreneurship are best considered as variations along the entrepreneurship continuum, rather than separate fields of entrepreneurial endeavour.

A major contribution of this paper is the inclusion of altruism in the objective function of the entrepreneur, whereby the entrepreneur gains utility not simply from the firm's activities (i.e. profit and intrinsic rewards) but separately also from doing good for others (i.e. the social benefits produced). Thus we contend that the corporate social responsibility (CSR) stance adopted by the firm is an outcome of the model, based on the preference structures of its owners, rather than a separate outcome that is revealed later as the new venture matures. From a pedagogical perspective, our conceptual model allow revision of current instructional approaches in entrepreneurship that are largely based on neoclassical economic perspectives of the relationship between private enterprise and private wealth, to include the additional motivational force of altruism. Future students may be presented with a more holistic view of the reasons underlying an entrepreneur's intention to pursue a particular new venture. Moreover, our research will inform students regarding the nature and outcomes associated with social enterprises, which may result in growing numbers of individuals engaging in social entrepreneurship to the betterment of society as a whole. Relatedly, a more precise characterisation of the social venture can be specified for empirical or for public funding purposes, such that 'like can be compared with like' rather than with a broad range of social enterprises, each claiming to be indulging in social entrepreneurship and not-for profit socially-oriented activity as if these were 'black and white' distinctions.

In this paper we also developed new scales to measure social-oriented and self-oriented entrepreneurial intentions which may be related to the differing attitudes and self-efficacies of individuals to more fully explain the heterogeneity of entrepreneurship. Further theoretical work may see the relatively parsimonious model developed in this paper utilised as a basis for the development of a more complex model of entrepreneurial intentions.

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Table 1: Combinations of Entrepreneurialism, Materialism and Altruism

Type	ENT	ALT	MAT	Description of Type	Examples
1	Low	Low	Low	Replicative, private-benefit firm, providing predominately intrinsic benefits to owners	Lifestyle small business, such as 'bed and breakfast' accommodation.
2	Low	High	Low	Replicative, social-benefit firm, providing predominately intrinsic benefits to owners	Soup Kitchen for the homeless; Distribution of used clothing to poor.
3	High	High	Low	Innovative, social-benefit firm, providing predominately intrinsic benefits to owners	Not-for-profit social enterprise, such as the Grameen Bank.
4	High	Low	Low	Innovative, private-benefit firm, providing predominately intrinsic benefits to owners	Poorly paid occupations with personal expression, such as artists, songwriters
5	Low	Low	High	Replicative, private-benefit firm, providing predominately profit benefits to owners	'Salary replacement' businesses, such as fish and chip shops.
6	Low	High	High	Replicative, social-benefit firm, providing predominately profit benefits to owners	Commercially-operated retirement homes.
7	High	High	High	Innovative, social-benefit firm, providing predominately profit benefits to owners	For-profit firms that innovate to serve social needs
8	High	Low	High	Innovative, private-benefit firm, providing predominately profit benefits to owners	High-growth venture-capital-backed new ventures

Figure 1: Indicative Path to Choice of New Venture Characteristics

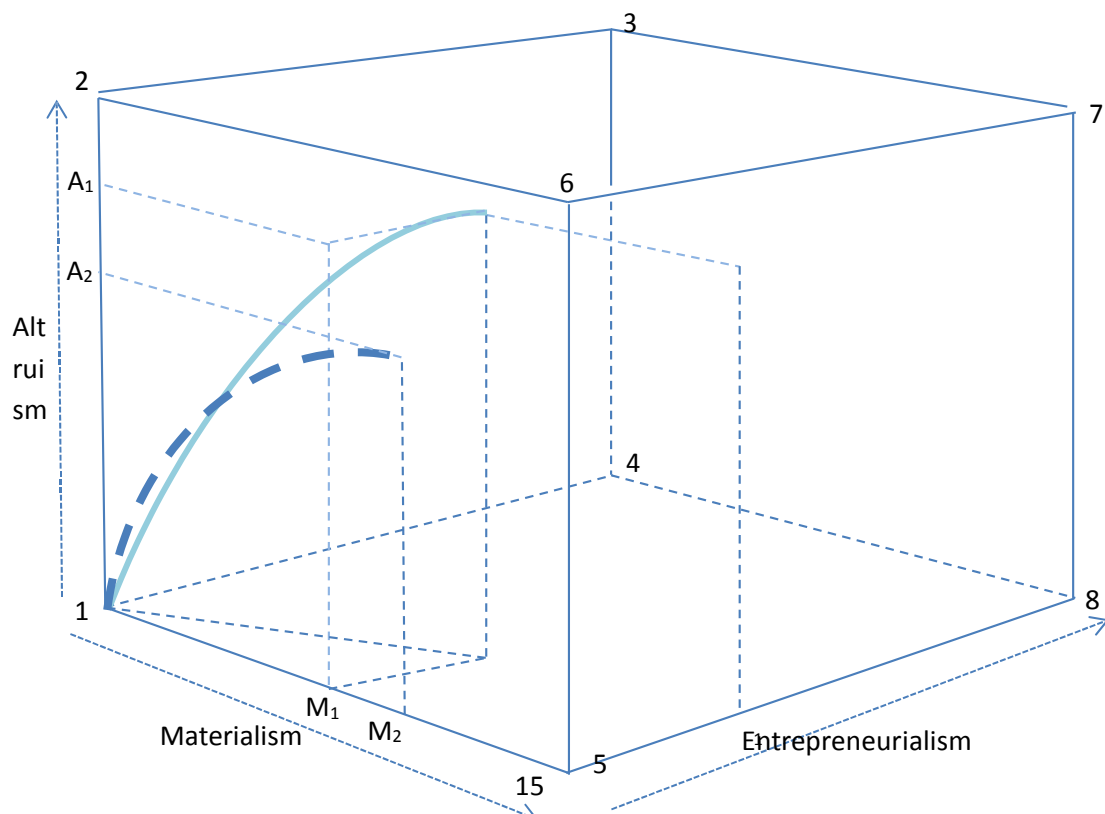


Table 2: Socially-oriented and Self-oriented Entrepreneurial Intention Scales

<i>Item</i>	<i>How likely it is that you would ever want to start and manage a new business venture that would allow you to:</i>	<i>Other-oriented</i>	<i>Self-oriented</i>
8	make disadvantaged people happier by giving them a better life experience	0.8750	0.1341
12	help underprivileged people achieve what they are unable to achieve on their own	0.8670	0.1830
20	help poor people get enough food, clothing and shelter	0.8431	-0.0698
15	take care of people who are less fortunate than you are	0.8113	0.1196
1	serve as a volunteer to help people who have social and/or economic problems	0.7434	0.0293
5	earn little income but gain great satisfaction because you are helping others in need	0.6658	-0.3452
17	fix social problems even if you did not make much money	0.6419	-0.2171
19	be your own boss and make all your own decisions	0.0342	0.8045
9	enjoy the lifestyle and benefits of an independent business owner	0.0461	0.7568
21	Have the flexibility to decide where you do business, your hours, product lines, and so on	0.2561	0.7070
7	grow the firm to be very large and quite profitable	-0.0684	0.6406
10	pursue a high-risk opportunity that has the very real possibility of very high profits	-0.0050	0.6121
	<i>Cronbach's Alpha</i>	0.9079	0.7958
	<i>Kaiser-Meyer-Olkin test of sampling adequacy = 0.7869</i>		

EXPLORING LOCAL ENTREPRENEURSHIP AS A FUNCTION OF A COUNTRY'S POSITION IN THE GLOBAL ECONOMY

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ABSTRACT

Entrepreneurship levels across countries vary significantly. Previous research has shown that these differences can be explained by assessing the economic, institutional and cultural differences among those countries. Globalization processes, however, have brought the interdependences among countries to the forefront of theoretical, policy and practitioner discussions. Notwithstanding this realisation of the importance of how countries are linked to each other, research focused on explaining the cross-country differences in terms of entrepreneurial activities have not formally explored whether and how the 'position' of a country within the global commerce network might affect the level of the local entrepreneurial activities and its international orientation. Our tests show significant relationships between entrepreneurial activities and variables that reflect advanced economies, regional trade blocks, the use of English as a common language and the composite of cultural, administrative, geographic and economic distances. Some of our hypothesized relationships were in the opposite direction of what we have expected.

INTRODUCTION

The creation of new business has been an important economic activity for countries and regions as they strive for job and wealth creation (Baumol & Strom, 2007; Malchow-Møller, Schjerming, & Sørensen, 2011). Although entrepreneurs as individuals are at the heart of this process, the economic and institutional environments in which they build their new companies also play a critical role in shaping these new ventures and their eventual success or failure. In fact, previous studies have shown that several factors explain differences in entrepreneurship rates across countries. These factors include cultural differences, country-level variables such as economic freedom and corruption perception (Gohmann, 2012), the presence of skilled labor force and feeder industries, the countries' institutional profiles in terms of regulatory, cognitive and normative dimensions (Busenitz, Gomez, & Spencer, 2000; Manolova, Eunni, & Gyoshev, 2008; Stenholm et al., 2013). What this literature have failed to explore so far is whether the 'position' of a country within the global networks that channel the economic activities of local entrepreneurs may impact these activities. In this paper, we explore this challenge by developing a series of arguments predicting how the position of a country within the global networks of economic activities might affect its local entrepreneurship rates through the effect of exploiting opportunities of similar culture, language or commercial preferences. In testing our arguments, we analyze the relationship between the entrepreneurship rates (for relatively new businesses and nascent entrepreneurship) as well as the international orientation of these types of activities, over 62 countries covered by the Global Entrepreneurship Monitor data over three waves of data collection from 2003 to 2011. The arguments and their empirical evaluation are discussed in the ensuing sections respectively. We finish with a discussion of the limitations of this study and with a discussion of the implications of these ideas and evidence for the entrepreneurship and international business literature as well as the potential consequences of these ideas for policy and entrepreneurs.

CONCEPTUAL FRAMEWORK

Globalization processes have transformed the economic world, making countries and their economies more and more interdependent (Gomez, Torgler, & Ortega, 2013; Newman & Posner, 2011). Along the way, driven by technological advances in terms of communication and transportation as well as changes in the political and economic order, countries have been striving to enhance their economic development and wealth creation. One key way in which many of these countries have hoped to jumpstart their economies is via the contributions of entrepreneurial endeavors. In other words, entrepreneurship is seen as a vital part of the process of innovation within a country's economic system and thus, has received significant attention from the academic community within multiple scientific fields, from economics to psychology, from organizational theory to international business (Audretsch, 2012; Oviatt & McDougall, 2004; Shane & Venkataraman, 2000; Spinelli & Adams, 2011).

This large body of research has uncovered important insights regarding the drivers, internal dynamics and even the local, regional and country level outcomes linked to entrepreneurship activities (Baker, Gedajlovic, & Lubatkin, 2005; Bruton, Ahlstrom, & Li, 2010; Freytag & Thurik, 2010). In particular, when studying entrepreneurship across countries, this literature has elucidated multiple factors explaining why entrepreneurship rates vary significantly across the globe (Baker et al., 2005; Jones et al., 2011; Kiss et al., 2012). For instance, some have argued that the propensity of a country to generate autonomous, risk-taking, proactive entrepreneurs depends significantly of specific cultural characteristics, likely shared by most, if not all, local potential entrepreneurs (Begley & Tan, 2001; Freytag & Thurik, 2010; Thomas & Mueller, 2000). Others scholars, have built upon these ideas suggesting that is not only culture what explain the different entrepreneurship rates across countries, but other environmental or contextual factors, also play a pivotal role. They singled out economic, political, legal and social institutional conditions as equally important contingencies to consider when explaining entrepreneurial propensities across countries (Busenitz et al., 2000; Gohmann, 2012; Lee & Peterson, 2000; Manolova et al., 2008; Pekka Stenholm et al., 2013; Stenholm et al., 2013).

Taken together, this literature does a great job linking the differences among entrepreneurial activity across countries to specific factors (cultural, economic or institutional) at the country level. In other words, entrepreneurial propensity in a specific country, we have learned, is shaped by this set of contextual variables (e.g., cultural, economic, institutional) that somehow describe how the focal country is different (in different dimensions) than others. However, this literature says little, if anything, about whether the "position" of a country in the world (economy) may also affect the propensity of entrepreneurial activity within the focal country. Also, nothing is said about whether these entrepreneurial activities might be more or less focused on the local (vs. the foreign) market. This research seeks to address these important theoretical gaps by developing and testing a cogent framework linking the entrepreneurial propensity (as well as the international orientation of these entrepreneurial activities) within a country to its "position" in the world (economy). In developing these ideas, we focus on two important aspects of the country's position in the world (economy): 1) its place in the formalized regional blocs who dominate the world trade; and 2) its 'distance' (culturally, administratively, and economically) from key economic nodes in the global economic networks. We develop these two basic arguments in the sections below.

Entrepreneurship Propensity and Country's Positioning in World Trade Flows

In the last few decades, as a consequence of technological and policy changes, the flow of trade has evolved constantly. According to several longitudinal studies, it seems fair to conclude that the trade flow across the globe is not randomly dispersed, nor is only and

exclusively associated with the activities of individual countries (Asmundson, 2012; Maurer & Degain, 2012). In other words, research in international trade flows suggest that the world trade has become more intensely interconnected with an increasing heterogeneity in countries' choice of trade partners (De Benedictis & Tajoli, 2011). Additionally, regionalization efforts in the form of regional trade agreements have also significantly changed the world's trade flow. These formal arrangements have amplified the bargaining power and the centrality of certain regions within the global trade network (Crawford & Fiorentino, 2009; Freund & Ornelas, 2010 and Urata & Okabe, 2010). These changes imply that countries that become part of these formal trade agreements (assuming that these agreements work effectively) may enjoy some trade advantages over countries that do not sign these agreements. In this line of thought, Macho-Stadler and Xue (2007) showed that countries who are members of a trading bloc are better off than members who were originally excluded. In fact, Baier and Bergstrand (2007) have estimated that trade agreements may double on average trade flows between member countries. However, there is now enough evidence to suggest that not all the regional trade agreements (RTA) established around the world have achieved these outcomes. Indeed, Gray and Slapin (2012) recently identified specific trade blocs that were effective using a multi-dimensional assessment by experts...If one considers seriously these late developments identifying specific regional trade agreements as effective tools in significantly improving the trade flows within (and perhaps even beyond) the countries who sign these agreements, one could argue that is logical to expect that the economic activities within the focal (at least those activities somehow linked to the production and/or service to be delivered internationally) country is likely to grow, and thus, one would expect that entrepreneurial activities would grow concomitantly (Kumar & Liu, 2005). In other words, if one considers that entrepreneurial activities are somehow a reflection of the potential opportunities entrepreneurs face, generating entrepreneurial activities that might take advantage of this potentially larger market (a market of the combined inhabitants within the RTA) would then be more likely. Additionally, following this argument, one would expect not only that the overall entrepreneurial activity would increase, but particularly; that the local entrepreneurs would act appropriately to take advantage of these expanded set of potential customers by having higher orientation toward international sales. Formalizing these ideas we propose:

H_{1a}: Entrepreneurial activities will be higher in countries that belong to effective RTAs.

H_{1b}: The international orientation of the entrepreneurial activities of any countries will be higher for countries that belong to effective RTAs

Entrepreneurship Propensity and Country's Positioning in the World Economy

Trying to be a part of the world economy, beyond simply trading products and services from a focal/home country, is a seemingly mandate for businesses of all sizes nowadays. So much so, that multiple scholars have found evidence of how much new ventures and start-ups (especially those linked to web-services, software and more generally the IT sector) strive to become global from their inception, sometimes referred as born-global (Crick, 2009; Freeman, Hutchings, Lazaris, & Zyngier, 2010; Gabrielsson & Gabrielsson, 2011; Leonidou & Samiee, 2012). However, for those entrepreneurs who are involved on enterprises that are not so easily scalable worldwide, the relative "position" of their home country vis-à-vis his/her potential foreign customers might be critical. This "position" in the world economy does not refer only to a mere physical distance between the entrepreneur and its potential foreign customers, but perhaps more importantly, it also consider other differences (language, religion, culture, economic development, etc.) between the entrepreneur's home and the home of his/her potential customers. Empirical research measuring these issues from a

variety of angles seems to consistently support this idea. For instance, Frankel (2010) estimated that a common border improve economic exchanges across countries by 80% whereas a common language enhances it by 200%. Other scholars have found similar results when considering cultural proximity between countries (Disdier, Tai, Fontagné, & Mayer, 2010; Felbermayr & Toubal, 2010; Slangen, Beugelsdijk, & Hennart, 2011), while others have stressed the role of administrative/historical links (Ellis, 2007; Ricart, Enright, Ghemawat, Hart, & Khanna, 2004). All this evidence seems to suggest that it is logical to expect that countries that are distant (physically, culturally, and administratively) from potential commercial partners would likely find more difficult than proximate countries to engage in international commerce and cross-border activities. If this is the case, entrepreneurs establishing new ventures in these distant countries would have to face more challenging conditions to access these distant foreign markets. If these markets (and their potential customers) seems difficult (e.g., too costly, to risky) to reach the potential profitability of these new ventures would be smaller and thus, less likely to emerge. Following the same logic, even those entrepreneurs who end up engaging in new ventures will likely focus more in the local market, rather than trying to cope with all the challenges that reaching these “distant” potential customers may entail. These ideas imply that we would formally expect:

H_{2a}: Countries that are farther away (e.g. distant) from key potential foreign markets will have fewer entrepreneurial activities than those of the proximate countries

H_{2b}: The international orientation of the entrepreneurial activities of countries that are farther away (e.g., distant) from key potential foreign markets will be lower than those of the proximate countries

Language (English) as driver of Entrepreneurial Propensity

Nascent ventures (and their entrepreneurs founders) have a limited set of resources and capabilities (Gruber, Heinemann, Brettel, & Hungeling, 2010; Kaleka, 2011). Given these limitations, being able to efficiently navigate the world of international commerce is a pivotal capability to own for these nascent enterprises. If one considers that numerous studies have shown that a common language (in particular, the English language) plays a significant role in increasing commerce across borders (Egger & Lassmann, 2012; Nitsch, 2000; Welch, Welch, & Marschan-Piekkari, 2001) It seems logical to argue that whether the entrepreneurial activity associated with new ventures is performed in a context (i.e., country) where English is a ‘lingua franca’ may have an impact in the ultimate success of these nascent enterprises, and thus, for their potential profitability and creation propensity, and international orientation of these activities. Thus, we formally propose:

H_{3a}: Entrepreneurial activities will be higher in countries where English is used as official language or lingua franca

H_{3b}: The international orientation of the entrepreneurial activities will be higher for countries that have English as official language or lingua franca

DATA AND METHODS

In order to test these hypotheses, we contrast the different levels of entrepreneurial activities (i.e., propensities) across countries and to explore which factors might explain those differences. The Global Entrepreneurship Monitor (GEM, 2012) is a commonly used

(Anokhin & Wincent, 2011; Fernhaber, Gilbert, & McDougall, 2007) dataset that meets this overarching goal. This dataset contains several variables related to entrepreneurial activities in many countries. The most relevant measures for this study (Dependent Variables) are:

- a) **Total early-stage entrepreneurial activity (TEA):** Percentage of 18-64 population who are either a nascent entrepreneur or owner-manager of a new business
- b) **New Businesses (NB):** Percentage of 18-64 population who are currently owner-manager of a new business, i.e., owning and managing a running business that has paid salaries, wages, or any other payments to the owners for more than three months, but not more than 42 months
- c) **International Orientation early-stage Entrepreneurial Activity (TEAint):** Percentage of TEA who indicate that at least 25% of the customers come from other countries

In this project, we will rely on TEA & NB as alternative proxies (measures) of the entire entrepreneurial activities in each of the countries in our sample. TEAint will reference the overall international orientation of these entrepreneurial activities.

Data on these three measures were collected from the Global Entrepreneurship Monitor web site for 2003, 2007 and 2011 (www.gemconsortium.org/key-indicators). Unfortunately, this dataset present information for a different set of countries in each of these waves of data collection. Considering the dependent variables of interest, we choose to include countries that have data across our 3 DVs for more than one wave of data collection, finally including 21 countries with all three waves (see *Appendix 1* for a list of countries and data collected) an 17 countries with data for two waves (total countries 38). This means that our dataset is composed of alternatively either 96 or 97 observations depending on the focal dependent variable being assessed (e.g., $21 \times 3 + 17 \times 2 = 97$).

The data related to whether each of these countries belongs to a particular RTA was defined by a two-step process. First, the effective RTAs during the period were identified following research by Gray & Slapin (2012). According to this study, only OECS, CEFTA, NAFTA, EFTA & the EU¹ are singled out as effective RTAs. Once these RTAs were identified, their official websites were tracked down and the membership evolution was matched (via a dummy variable that represents whether each country is a signee of these agreements during the period under study) to the set of 38 countries within our sample.

In order to test our arguments with relation to the position of a country in the world economy beyond their formal participation in RTAs, we need to consider how distant (physically, culturally, economically, administratively) a country is of the world commerce network, or at least of key nodes within this network. In so doing, we rely on the theoretical development of Ghemawat and colleagues (Ghemawat, 2001 and 2007; Ricart et al., 2004). These scholars developed a dataset with “CAGE distance” (analogous to physical distance but a proxy that takes into account Cultural, Administrative, Geographic, and Economic factors) adjusting or discounting measures from the perspective of a particular home country. Thus, this metric provides a rigorous method to identify and rank foreign countries according to their similarity or difference from a particular home country. The main problem to use this proxy for our case is that the CAGE distance matrix gives us the ‘distances’ from each home country to a

¹ OECS: Organization of Eastern Caribbean States; CEFTA: Central European Free Trade Agreement; NAFTA: North-American Free-Trade Agreement; EFTA: European Free Trade Association; the EU: European Union.

set of other 163 countries, but not to the global network of commerce. For this reason, we decided to reference the distance of each of the countries in our sample to three pivotally important nodes within the global network of commerce during the period under study: i.e., the USA, China and France (as a centrally located country within the EU). When then calculated for each country four different operationalization of this distance (in order to use them alternatively for robustness tests), as described below:

CAGE₁: calculated as the median CAGE distances from home country to the USA, China and France

CAGE₂ calculated as the sum (or cumulative) CAGE distances from home country to the USA, China and France

CAGE₃ calculated as the minimum of the CAGE distances from home country to the USA, China and France

CAGE₄ calculated as the minimum CAGE distance from home country to the USA, China and France.

Following the same logic we also calculated the physical distances from each home country to these three important global nodes in order to also analyze the role of simple physical distance in our analyses. Each of the respective calculations were:

D₁: calculated as the median physical distance from (the capital of) home country to (the capital of) the USA, China and France

D₂ calculated as the sum of the physical distances from (the capital of) home country to (the capital of) the USA, China and France

D₃ calculated as the average physical distance from (the capital of) home country to (the capital of) the USA, China and France

D₄ calculated as the minimum CAGE distance from home country to the USA, China and France.

Finally, relying on the CIA WorldFactbook (2013) we coded (dummy variable 1=English) for each country in our sample whether English was the official language or the lingua franca of usage. . Lastly, we code relying on the International Monetary Fund (World Economic Studies Division, 2013) whether each country in our sample was classified as advanced economy (dummy=1) in order to control for overall economic development in our models. We also collected data from the World Bank's World development indicators (World Bank, 2013) for the GDP for each country in our sample.

Results

In order to test our hypotheses, we set up a dataset in a pooled format including the alternative dependent variables (DVs), the key independent variables (IVs) and some control variables for three time points (2003, 2007 & 2011). The first action to take is to test for normality of each of these variables (Bera, Jarque, & Lee, 1984). Since the variables did not indicate a normal distribution in the skewness & kurtosis tests, we decided to use simple transformations of each of them. We used using simple logarithm transformations for TEA and NB and the square root for TEAint. Following the same logic we applied analogous transformations to the control variable (GDP; logGDP) and to our IV related to multidimensional distance CAGE (square root of CAGE). Summary statistics and a correlation table across variables are shown in Tables 1 & 2.

Insert Tables1 & 2 around here

We considered that the most direct way of starting to assess these ideas would be to use an ordinary least square regression analysis (Boeh & Beamish, 2012). However, given that we have repeated values for three waves gathered by GEM, it was pivotal to test whether there was any time-related changes that would need some kind of panel (e.g., longitudinal) specification. For this reason we tested whether our DVs show any change over time via one way ANOVA and a non-parametric Kruskal–Wallis tests (Hamilton, 2009). Overall these tests for the transformed variables: NB (ANOVA: Bartlett’s $\chi^2=4.38$ - Prob $\chi^2>0.112$; Kruskal-Wallis -- $\chi^2_{(2)}= 2.06$ - Prob $\chi^2=0.357$), TEA (ANOVA: Bartlett’s $\chi^2=2.07$ - Prob $\chi^2>0.355$;

Kruskal-Wallis-- $\chi^2_{(2)}= 5.40$ - Prob $\chi^2=0.07$) and TEAint (ANOVA: Bartlett’s $\chi^2=0.21$ - Prob $\chi^2>0.902$; Kruskal-Wallis -- $\chi^2_{(2)}= 0.10$ - Prob $\chi^2=0.953$) allows us to argue that entrepreneurial activities or their international orientations have not shown a significant change over the three waves (2003, 2007, 2011). This lack of change over time for our DVs supports a ‘pooled’ approach for our dataset. Taking advantage of the nature of this dataset, it seems reasonable to use ordinary least square regression models. We did so, using log(NB) and log(TEA) as alternative proxies for the DVs in our H_{1a}, H_{2a} and H_{3a}. These models are shown in Table 3

Insert Table 3 around here

Model 1 in Table 3 represents a base line considering the effect of the overarching size of the economic system in each country (GDP) and a categorical variable measuring whether a country is considered an Advanced Economy (e.g., developed country). It is important to note here that in this model the coefficient shows that countries considered Advance Economies have a lower level of local entrepreneurial activity, regardless of how we measure it. Model 2 represents the test for our H_{1a} related to whether countries within effective trade blocks end up generating higher levels of local entrepreneurial activities. Either considering new business or early-stage entrepreneurial activities as DV, we found significant effect for the dummy representing countries belonging to these effective RTAs. However, the signs of these coefficients are negative, contrary to our predictions. Model 3 represents the test for our H_{2a} related to whether countries distant from key nodes of the global commercial network (CAGE₃) end up suffering lower levels of local entrepreneurial activities. Again, we found significant effects for the respective coefficient, but again, with the opposite sign to the one we predicted. Model 4 represents the test for our H_{3a} related to whether countries that have English as its official language or lingua franca enjoy higher levels of local entrepreneurial activities. The corresponding coefficients show no significance. Model 5 shows a full model combining all these effects. This model shows only one coefficient is significant (CAGE₃) and positive, meaning that those countries that are farther away (multidimensional-ly) from key nodes of the global commercial networks show higher entrepreneurial activities.

In testing our international orientation H_{1b}, H_{2b}, H_{3b} hypotheses, we again relied on ordinary least square regression models. We did so, using the simple transformed variable assessing the international orientation of the local entrepreneurial activities [$\sqrt{\text{TEAint}}$] as DV. They are shown in Table 4.

Insert Table 4 around here

Model 6 in Table 4 represents a base line considering the effect of the overarching size of the economic system in each country (GDP) and a categorical variable measuring whether a

country is considered an Advanced Economy (e.g., developed country). It is important to note here that contrary to the previous models focused solely on the overarching local entrepreneurial activity, countries considered Advance Economies and the overarching size of their economies (GDP) have a significant effect over the International Orientation of the local entrepreneurial activity. While the coefficient for Advance Economies is positive, the coefficient for GDP is negative in this model. These effects are therefore, exactly the opposite to the ones in the corresponding base line models for Table 3. Model 7 represents the test for our H_{1b} related to whether countries within effective trade blocks end up generating higher levels of local entrepreneurial activities oriented internationally. The respective coefficient is significant and positive, supporting our prediction for this hypothesis. Model 8 represents the test for our H_{2b} related to whether countries distant from key nodes of the global commercial network ($CAGE_3$) end up suffering lower levels of international orientation of the local entrepreneurial activities. Again, the respective coefficient is significant and negative consistent with our prediction. Model 9 represents the test for our H_{3b} related to whether countries that have English as its official language or lingua franca enjoy higher levels of international orientation of the local entrepreneurial activities. The respective coefficient is significant and positive, again, consistent with our predictions. Model 10 shows a full model combining all these effects. This model shows only a minor change of the effects shown in previous models. Only the coefficient related to the belonging to an effective trade blocks became insignificant when consider concomitantly with all the others. In other words, the coefficients for language and positioning in the global commercial network remain significant and consistent in sign with our predictions.

DISCUSSION AND FURTHER RESEARCH

The objective of this paper is to examine the link between a country's entrepreneurial endeavors and its economic activities and relationships to other countries. Although economic, institutional and cultural differences among those countries have been studied, research focused on explaining the cross-country differences in entrepreneurial activities have not examined whether and how a country's global commerce network might affect its local entrepreneurial activities and the international orientation of these activities. Our hypotheses yielded interesting results that are described in the next section.

The relationship between new businesses (NB) and advanced economies is significant at the 0.000 level but it has the opposite sign indicating that more entrepreneurial activities are expected in the developing economies rather than the ones with high levels of development. One of the possible explanations on this is that citizens in developing economies are more likely to develop entrepreneurial activity due to the necessity of earning a livelihood for their families rather than develop entrepreneurial activities based on opportunities which are more likely in the developed countries but are usually more technologically based and are therefore harder to initiate. When we add other independent variables such as the effective trade bloc, CAGE or English as the primary language in table 3, we see that these factors become significant with the effective trade blocs and $CAGE_3$ significant at the 0.01 level. The effective trade bloc has a negative coefficient indicating that an effective trade bloc decreases the incidence of entrepreneurship. The $CAGE_3$ relationship is significant at the 0.01 level and positive indicating that countries that have closer ties in the cultural, administrative, geographic and economic domain have more entrepreneurial endeavors. English use or the lack thereof did not affect entrepreneurial activities. Our first hypothesis H_{1a} of the effect of RTAs on entrepreneurial activity is not supported and that raises a major question as to the economic reasoning of this result. More analysis is obviously needed to test whether

countries that belong to successful RTAs have more traditional large businesses rather than small entrepreneurial firms. More work is needed to explain this result. The fact that effective blocs were significant and positive in international entrepreneurial orientation, thus supporting our hypothesis H_{1b} is easily explained by the observation signifying that entrepreneurs with international orientations take advantage of tariff and other economic benefits that come with trade blocs and thus effectively reducing their cost and increasing profits.

Our second set of hypotheses starts with H_{2a} where we hypothesize a positive relationship between distance and entrepreneurial activities. New business and nascent entrepreneurial endeavors have a significant positive relationship to $CAGE_3$ indicating that countries that are farthest in terms of cultural, administrative, geographic and economic similarities exhibit more entrepreneurial activities. This can be explained by the fact that countries with greater distances to other countries have to work harder and be more entrepreneurial to earn their money. The international orientation hypothesis H_{2b} is significant and negative indicating that shorter distances increase international orientation and that is intuitive since countries that have closer CAGE distances have more similar markets and customer preferences.

Our third set involves the use of English as the primary language. In the hypothesis relating the use of English for new business formation and nascent entrepreneurial activity, we did not find significance whereas international orientation was definitely enhanced by the use of English as the primary language. This is also in line with the intuition that entrepreneurial activity in a country does not require English whereas if one is to deal with markets in other countries the use of a common language is preferable to be able to communicate on business matters.

The hypotheses on the CAGE distances and the use of English have been supported by the study whereas there are questions that require further research into the effect of trade blocs on entrepreneurial activity in general and with an international focus. Another limitation of this study is the need to include more countries and a number of other variables that better explain some of our results.

In table 4, we find that the international orientation of entrepreneurs is significantly and positively $CAGE_3$ distance was significant but negatively related to international orientation and the explanation for this might come from the realization that technology products might not require cultural, administrative, geographic or economic proximity. It is worthy to note that international orientation is significantly but negatively related to GDP. This is somewhat counterintuitive since the relationship to advanced economies were significant and positive.

Although some of the stated hypotheses were not confirmed, more research is needed to establish these links in a more robust way. Areas such as regional trade blocks as contrasted to bilateral or multilateral trade agreements require further investigation. Also, more research into these relationships is necessary to reach definitive conclusions using a larger number of countries than was possible with this study possibly using the more recent data from GEM where there are more countries that have provided data on their activities albeit with less historical perspective.

TABLES & FIGURES

Table 1- Summary Statistics for Selected Variables

Variable	Obs	Mean	Std. Dev.
log(NB)	97	1.18	0.75
log(TEA)	97	2.05	0.62
Sqrt(TEAint)	96	4.01	1.38
DADVEC	114	0.55	0.50
logGDP	114	5.78	1.52
DEFFTRABLOC	114	0.55	0.50
log(D ₃)	114	8.80	0.36
Srt(CAGE ₃)	114	80.03	16.78
D _{ENGLISH}	114	0.24	0.43

Table 2- Correlation Matrix for Selected Variables

#	Variable	1	2	3	4	5	6	7	8
1	logNB	-							
2	logTEA	0.90*	-						
3	SqTEAint	-0.47*	-0.47*	-					
4	DADVEC	-0.48*	-0.53*	0.32*	-				
5	logGDP	-0.00	-0.09	-0.33*	0.28*	-			
6	DEFFTRADBLOC	-0.53*	-0.51*	0.41*	0.57*	-0.03	-		
7	logD ₃	0.55*	0.59*	-0.33*	-0.47*	-0.11	-0.83*	-	
8	Srt(CAGE ₃)	0.63*	0.68*	-0.47*	-0.63*	-0.09	-0.80*	0.95*	-
9	D _{ENGLISH}	0.03	0.01	0.34*	0.25	0.05	-0.12	0.15	-0.00

Significance levels: * 10% (with Šidák correction)

Table 3-Regression Coefficients for OLS Regressions for Local Overall Entrepreneurial Activity (NB & TEA as alternative DVs)

Variables	Base Model-M1		H _{1A} Model-M2		H _{2A} Model-M3		H _{3A} Model-M4		Full Model-M5	
	logNB	logTEA	logNB	logTEA	logNB	logTEA	logNB	logTEA	logNB	logTEA
D_{ADVEC}	-0.78***	-0.68***	-0.41**	-0.42***	-0.20	-0.20	-0.83**	-0.41**	-0.26	-0.24
logGDP	0.06	0.02	0.02	0.01	0.03	0.03	0.06	0.02	0.04	0.00
D_{EFFTRADBLOC}			-0.55**	-0.39***					0.03	0.24
Srt(CAGE₃)					0.02***	0.02***			0.02***	0.03***
D_{ENGLISH}							0.27	0.22	0.15	0.14
Intercept	1.29***	2.35***	1.63***	2.35***	-0.81	0.43	1.27***	2.34***	-0.81	-0.09
Adj. R²	23.0%	26.7%	30.1%	31.7%	38.3%	45.8%	24.4%	27.9%	37.6%	46.2%
N	97	97	97	97	97	97	97	97	97	97

Significance levels: * 10%; **5%; ***1%

Table 4-Regression Coefficients for OLS Regressions for Entrepreneurial International Orientation (TEAint)

Variables	Base Model-M6	H _{1B} Model-M7	H _{2B} Model-M8	H _{3B} Model-M9	Full Model-M10
	sqrtTEAint	sqrtTEAint	sqrtTEAint	sqrtTEAint	sqrtTEAint
D_{ADVEC}	1.22***	0.82**	0.45	1.03**	0.02
logGDP	-0.42***	-0.37***	-0.38***	-0.42***	-0.38***
D_{EFFTRADBLOC}		0.60*			0.13
Srt(CAGE₃)			-0.03***		-0.04***
D_{ENGLISH}				0.98***	1.22***
Intercept	5.75***	5.38***	8.65***	5.69***	8.90***
Adj. R²	27.4%	29.3%	35.7%	35.2%	47.0%
N	96	96	96	96	96

Significance levels: * 10%; **5%; ***1%

APPENDIX 1

#	Countries included with 3 Data Points [2003, 2007, 2011] across 2 DVs [TEA & NB, TEAintl]	Countries included with fewer than 3 Data Points [2003, 2007, 2011] across 2 DVs [TEA & NB,
		TEAintl]
1	Argentina	Australia
2	Brazil	Colombia
3	Belgium	Hong Kong
4	Chile	Hungary
5	China	Iceland
6	Croatia	Italy
7	Denmark	Latvia
8	Finland	Peru
9	France	Portugal
10	Greece	Romania
11	Ireland	Russia
12	Japan	Singapore
13	Netherlands	South Africa
14	Norway	Thailand
15	Slovenia	Turkey
16	Spain	U.A.E.
17	Sweden	Uruguay
18	Switzerland	
19	U.K.	
20	U.S.A.	
21	Venezuela	

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EVIDENCE ON INDIGENOUS ENTREPRENEURS—THE ROAD TO ECONOMIC INDEPENDENCE?

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Evidence on Indigenous entrepreneurs—the road to economic independence?

Introduction

Indigenous Australians are; ‘the most socially, economically and culturally disadvantaged group in Australian society’ (Commonwealth of Australia 1992: 1). Similar statements have been repeated regularly in almost every government report pertaining to Aboriginal Australians since the 1991 findings of the Royal Commission into Aboriginal Deaths in Custody. Indigenous Australian disadvantage has its origin in the dispossession but this act has been compounded by many interconnected historical, social, economic and political factors that have been repeatedly identified. The independent hunter and gatherer society of pre-colonial Australia has been replaced by a marginal role in modern Australian economy with many Indigenous people being largely dependent on welfare payments and other transfer payments. Of course the limited recognition of Native Title has given a minority of Indigenous Australians some leverage over resources; however in a modern capitalist economy, most citizens derive economic independence from wages from having a job or by setting up a successful business. This paper focuses on the second of these roads to economic independence by outlining some recent theoretical insights into Indigenous entrepreneurs and then attempting to construct an empirical test of that theory using recent survey data from the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS).

In the early days of the colony, exclusion from the labour market arose from the fact that Aborigines and colonists were often in open conflict (Butlin 1994). Institutional constraints on participation in the Australian economy became more prominent in the second half of the 19th century with the establishment of Aboriginal protection boards that controlled many aspects of daily life and regulated wages received (or rather not received). The excessive regulation of the lives of Indigenous Australians continued well into the 1970s which limited opportunities for education, and the often physical separation of races, limiting the prospects for economic engagement.

Notwithstanding these substantial impediments, after less than a decade of contact with the first settlers, Aboriginal people in the Eurobodalla region were already engaged in reciprocal relationships of labour and in-kind or cash payment. Their extensive knowledge of the coastal hinterlands and the correct timing for stripping bark made them valuable to the tanning industry. Wattle bark was the first legume cash crop in Australia and provided an extract used for tanning throughout the colonies. By 1823, the tannin yielded from the bark-stripping labour of ‘bush workers’ was being shipped to Britain (Davidson and Davidson 1993: 215). Indigenous people were clearly engaging with the market economy in an entrepreneurial fashion from the earliest days of the Australian colony.

Crucially in the context of an analysis of Indigenous entrepreneurship, the opportunity to accumulate capital has been severely circumscribed. In colonial Australia, Aborigines were legally dispossessed of their land in 1770, followed by a prolonged process of physical dispossession. Nevertheless, in the 1860s a group of Aborigines lead by Simon Wonga ‘squatted’ on a property near Melbourne they called ‘Coranderrk’, which was developed as a farm that generated considerable revenue (Pascoe 2008). While the local community initially gained some autonomy in the operation of the enterprise, financial control remained with the Aboriginal Protection Board. The appropriation of profits by the colonial authorities meant that there was no monetary incentive to develop the business; and hence

after initial promise, the venture lapsed. Instead of the independent community enterprise envisaged by these Aboriginal proto-entrepreneurs, dependency on the state was perpetrated by bureaucratic control over their day-to-day lives.

Protection Boards, and related authorities, were eventually dismantled in the mid-20th Century, but they have left several legacies that ensure that Indigenous disadvantage has considerable inertia. The historical restrictions on Indigenous freedoms have limited the possibility for potential entrepreneurs to acquire an adequate education or secure employment (Klyver and Foley 2010). Having been dispossessed of land, and limited in the opportunity for capital accumulation and acquisition of labour market skills, it is not surprising that until recently relatively few Indigenous people have attempted to become entrepreneurs (Hunter 2013).

In order to understand how policy might encourage Indigenous entrepreneur, we need to provide evidence about the situation facing modern Indigenous entrepreneurs. In addition to the long-standing historical disadvantages identified above, Indigenous entrepreneurs may be fundamentally different from other entrepreneurs because of cultural and social considerations. Accordingly, it may be inappropriate to analyse evidence in terms of mainstream theories of entrepreneurs, and hence this paper outlines an Indigenous-specific theory that one of the co-authors has developed over more than a decade (Foley 2000, 2005a, 2005b, 2006a, 2006b). Having outlined these theories, some of the predictions can be tested using available survey data.

The remainder of this paper is structured as follows. The next section discusses the concept of entrepreneurship in the context of Indigenous Australia. After outlining an Indigenous theory of entrepreneurship, we then identify a few key predictions of the theory so that they might be tested against available data. The 2008 National Aboriginal and Torres Strait Islanders Social Survey (NATSISS) is an omnibus survey that includes a range of data that can be used to test this theory. The empirical model uses multivariate quantitative techniques on this data to estimate the main factors that predict the probability of an Indigenous person being entrepreneurial. In addition to the educational and social factors associated with mainstream economic participation, Indigenous specific factors are also found to be significant. The final section concludes with a brief discussion of the implications of the analysis.

Indigenous entrepreneurship: Establishing some definitions and theoretical perspectives.

An entrepreneur is an economic agent who organizes and operates a business, taking on financial risk to do so. The term was first defined by Richard Cantillon (1730) as a person who bears relatively certain production costs in order to sell or resell a good at an uncertain price. Entrepreneurs play a central role in economic history because they facilitate innovation largely through their willingness to bear risk inherent in economic systems especially in capitalist society (Schumpeter 1987).

The research on Indigenous entrepreneurs is constrained by the fact that we do not have universally accepted definitions of what constitutes an Indigenous business or entrepreneur. Individuals can choose to identify as Indigenous, and may be accepted as such by the rest of the community, but a business can only be characterised as Indigenous if Indigenous people can be said to have substantial ownership or equity and control. Even if the concept of an

Indigenous business was easy to define and measure, the debate would be held back by the lack of reliable information on potential Indigenous businesses (Foley & Hunter 2013; Hunter 2013).

Many existing studies focus on Indigenous self-employed because that data is often collected in censuses and surveys even though the number of self-employed Indigenous respondents has been rather small historically (Daly 1993; Hunter 1997). The self-employed bear the risk of their economic activities and hence are by definition entrepreneurial. Foley's extensive case studies on Indigenous entrepreneurs indicated that self-employment is often a prelude to formal business structures (2000, 2005). One crucial advantage of using data on self-employment is that it allows some clarity about who is identified as Indigenous. That is by focusing on Indigenous self-employment, researchers can abstract from the intrinsically difficult issue of determining the extent of Indigenous people have equity and control of the business.

Of course this sort of pragmatic reasoning is often necessary in empirical studies, however in order to develop a theoretical insights we have to rehearse the arguments about Indigenous entrepreneurs using a definition constructed from first principles. Hindle and Lansdowne (2005) provide a broad philosophical definition of Indigenous entrepreneurship in the context of Canada:

Indigenous entrepreneurship is the creation, management and development of new ventures by Indigenous people for the benefit of Indigenous people. The organizations thus created can pertain to either the private, public or non-profit sectors. The desired and achieved benefits of venturing can range from the narrow view of economic profit for a single individual to the broad view of multiple, social and economic advantages for entire communities. Outcomes and entitlements derived from Indigenous entrepreneurship may extend to enterprise partners and stakeholders who may be non-Indigenous (Dana and Anderson 2007: 9; Hindle and Lansdowne 2005: 9).

Foley's (2000) definition, however, is based on qualitative research specific to Australian circumstances:

The Indigenous Australian entrepreneur alters traditional patterns of behavior, by utilising their resources in the pursuit of self-determination and economic sustainability via their entry into self-employment, forcing social change in the pursuit of opportunity beyond the cultural norms of their initial economic resources. (Foley 2000: 25)

The second definition based on empirical evidence that explicitly links self-employment to entrepreneurial activity (Foley 2000). The differences between these definitions are less important than their common emphasis. Both definitions stress the importance of new economic enterprise, by and for the benefit of Indigenous people as a means of overcoming disadvantage through active participation in an economy on a competitive commercial basis. Both of these definitions insist that factors—particularly cultural and social norms—associated with 'Indigeneity' are so important that much of the received wisdom of mainstream entrepreneurship may well be inapplicable in Indigenous circumstances. In summary, the definitions of Indigenous entrepreneurship are culturally and context specific and hence they

require a distinctive theoretical underpinning for understanding and analysing Indigenous business and self-employment. The remainder of this section develops an Indigenous-specific theory.

Theory Development

Researchers have been attempting to understand entrepreneurship for a long time. Before outlining an Indigenous specific theory of entrepreneurship, we need to understand the factors that drive mainstream theories of entrepreneurship. Cantillon's original notion of entrepreneurship places risk and the ability to deal with risk at the core of the concept. The ability to bear uncertainty will involve access to good quality information about supply (or production) and demand for goods and services and the capacity to process this information. Access to resources and financial capital are also essential if the underlying uncertainty is resolved so that the worst case scenario eventuates. Clearly, an appropriate education, which provides the skills necessary to interpret and use the information about inherently uncertain processes of supply and demand, is crucial. Financial literacy and the financial capability of entrepreneurs are likely to be particularly important because ability to manage and accumulate capital, and access to stored wealth when economic circumstances are temporarily adverse, is essential to running a business.¹

While education is likely to be important for securing any form of employment, including self-employment, there is no substitute for experience when a person is attempting to deal with an inherently complex and uncertain endeavour of being an entrepreneur.

Entrepreneurs that lack of basic business skills are unlikely to be successful in a competitive marketplace. Foley (2000) emphasises the need for experience in business, budgeting, cash-flow projections, market evaluation, product diversification, social capital issues and even the ability to access government supports. Education may provide some understanding of such issues, but most entrepreneurs will have to learn by doing either through employment in someone else's business or through attempts to run their own business. Baguley (2007) argue that low levels of human and social capital combine with other social and economic problems, such as welfare dependence and substance abuse, to undermine the incentive for individuals to engage in entrepreneurial activity.

Institutional structures, which set up business peak bodies or government policy, may also play a role in the establishment phase. For example, Foley (2000) emphasises the importance of adequate mentoring business advisory support.

Barrett et al (1996) identified several factors are claimed to influence ethnic minority business development in general. The first set of factors could be described as reflecting the alternative opportunity structure facing potential entrepreneurs of various ethnicities: racist labour market and depressed employment opportunities, discrimination in business by consumers and other corporations, and the existence of niche markets where ethnic businesses may have a comparative advantage. A second set of factors is ethnic resources: personal motivation, family and communal support. The latter could be classified as encompassing bonding social capital (Woolcock and Narayan 2000). The third and final set of factors that influence the success of ethnic minority businesses are classified as class resources: business family background, educational qualifications and 'artisan skills'. To

1. Note that the concept of financial capability is broader than financial literacy in that encompasses the ability to manage money, plan ahead, make choices as well as keep informed about financial matters.

such factors we would probably add the existence of bridging social capital (ability to build links with other classes) to provide useful contacts (Foley and Hunter 2008).

As alluded to above, capacity building involves skill accumulation that includes business skills, people skills and life skills. A broad interpretation and exposure to education is therefore central to any theory of entrepreneurs. Social capital development and accumulation, be it bridging or bonding (or both), is crucial to Australian Aboriginal entrepreneurial success (Klyver & Foley 2012; Foley & O'Connor 2013).

The importance of social capital for Indigenous entrepreneurs revolves around the nature and extent of social networks. Social capital can involve the complex interaction of networks that channels and filters information regarding cultural identity (Bourdieu 1986). However, it can also determine the allocation of the meagre resources available to Indigenous entrepreneurs. As social capital shapes behaviour (Fernandez-Kelly and Schauffler 1994), one would expect a positive interaction with cultural values; the stronger the presence of social capital the stronger the level of cultural values. Literature supports that ethnicity is a distinct form of social capital constructed on the cultural endowments, obligations and expectations, information channels and social norms (Coleman 1988; Zhou and Bankston 1994; Giorgas 2000).

Barrett's et al (1996) work, when read in conjunction with both Foley (2005) and Garsombke and Garsombke's (2000) research of Native American entrepreneurs, provides insight into why Indigenous entrepreneurs may differ systematically from non-Indigenous entrepreneurs. Foley (2005) clearly illustrates that the intrinsic motivator for the Indigenous Australian entrepreneur is to provide for their children. The lack of formal business education, increased discrimination and reduced levels of communicative ability are also seen as particular problems for potential Indigenous entrepreneurs. Foley (2006) also emphasise the role of racial and gender discrimination from mainstream society as a factor pushing people towards the choice to pursue entrepreneurial activities (also see Australian Taxation Office (ATO) 2009).

Research with Māori's however indicates a reversal to some aspects of both Foley (2005) and Garsombke and Garsombke (2000) findings. For Māori networking and communicative ability is both effortless and natural; this is supported by the New Zealand Global Entrepreneurial Monitor 2005 study (GEM) (Frederick and Chittock 2005) in which 'social-cultural norms such as positive and confident attitude actually assist in meeting social-economic expectations' (Reihana, Sisley et al. 2007: 637). Even in the absence of support from traditional social networks, such as in the case of the urban Māori or the entrepreneurial Māori, they create their own networks and development of new forms of social institutions (Barcham 1998; Walker 1995).

Other researchers have grappled with the factors that facilitate how Indigenous people may become entrepreneurs. Peredo, Anderson, Gailbraith, Honig and Dana (2004) considered three broad theoretical perspectives in an attempt to understand Indigenous entrepreneurship: modernisation theory, dependency theory and regulation theory. This research objective illustrates a way to negotiate Indigenous people's constructive participation into the global economy in a way that allows them to preserve their Indigenous values.

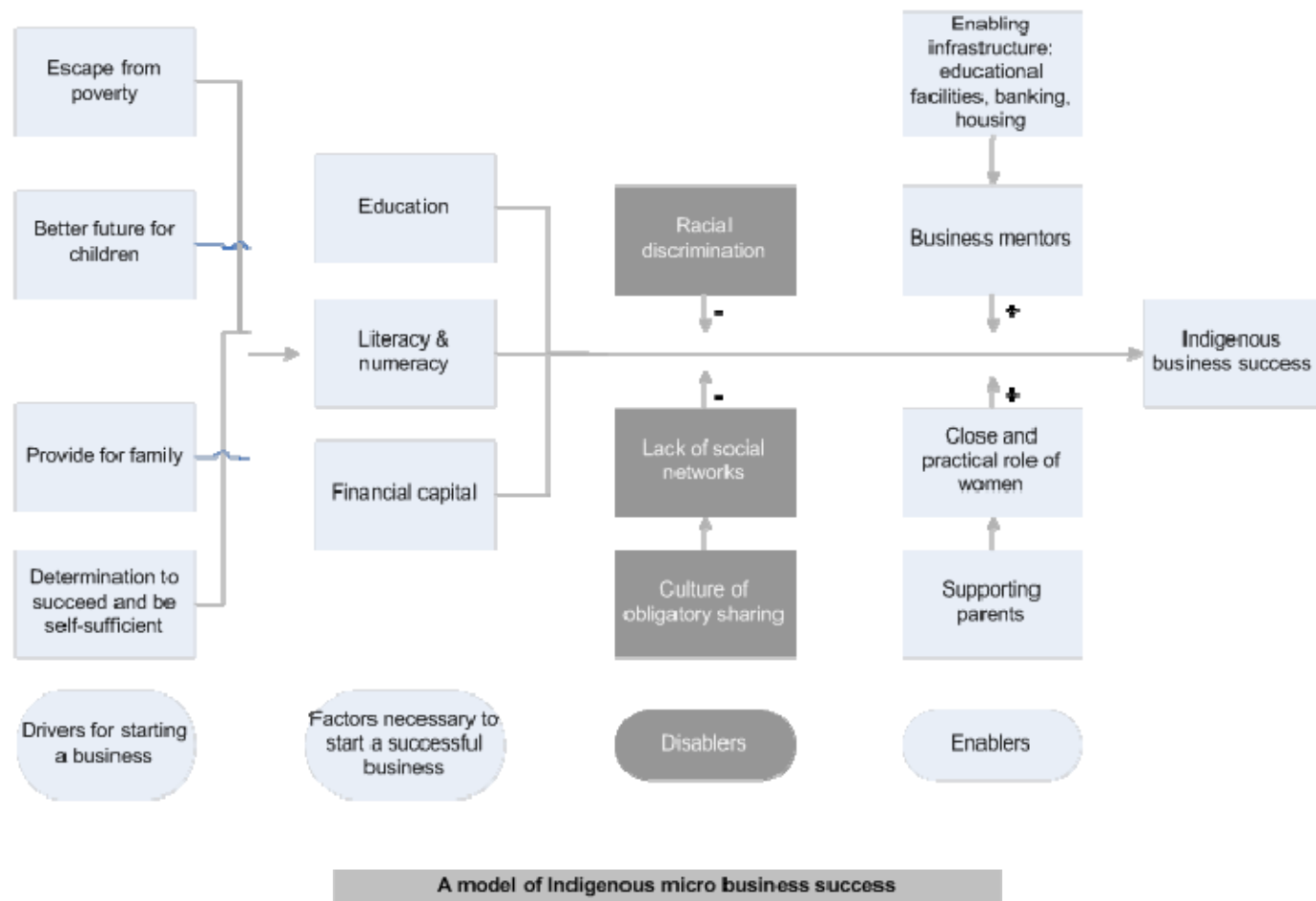
Overall there have been relatively few attempts to operationalize theory for testing and quantitative evaluation of best practices and processes for Indigenous businesses, which is indicative of the nascent stage of growth within the field of Indigenous entrepreneurship

(Edmondson and McManus 2007; Hindle & Moroz 2010; Van Maanen et al. 2007). The diversity of insight offered by the emergence of Indigenous entrepreneurship as a defined and focused discipline (Hindle & Moroz 2010) will, in time, expand the horizons and relevance of entrepreneurship scholarship, yet it does not formulate progressive developments in related theory.

Qualitative research often starts with some basic theoretical concepts and then proceeds to the construction of a new theory based on observations and interviews. Foley's research (2000, 2005) does this using the grounded theory method (Glaser & Strauss, 1967) and Indigenous Standpoint Theory (Foley 2002), which ensures that the new theoretical constructs are consistent with Indigenous cultural perspectives (Foley 2002, 2005).

The theory of entrepreneurship tested in this paper is specific to Indigenous Australians and is largely based on the Foley's 770 qualitative case studies which are collected over a fifteen years of research (see Fig. 1). To be successful, an Aboriginal entrepreneur must overcome disadvantage, gain business, people and life skills by formal or informal education processes. They need to rebuild social capital levels, network, and maintain cultural capital wherever possible through formal or informal networks or associations. The result will be increased financial, social and cultural capital resources that lead directly or indirectly to better family health, increased financial capital and in general better housing opportunities for the entrepreneur's family together with increased education attainment for the entrepreneurs children, thus building a future bank of capital reserves in future successive generations to overcome the current and past policies of disempowerment. Indigenous Australian entrepreneurship theory results in self-determination for the entrepreneur who attains financial independence. With increased social well-being, simultaneously improved life skills are attained through education. The simplified result for the Indigenous entrepreneur is independence in their choices in life, choices that non- Indigenous Australian people often take for granted (Foley 2005).

Figure 1. Diagrammatic representation of Foley ‘Tax model’



Source. ATO (2009).

The theoretical model outlined in this Figure simplified a streamlined interpretation of Foley’s thesis (2005). It was arrived at following a simultaneous independent study by the ATO staff Melizza Chua and Nick Housego in 2008, and extensive consultation with the co-author Foley. Thus, this relatively simple diagrammatic model of the processes that support success among Indigenous Australian businesses was derived.

The objective of this paper is to test the theory of Indigenous entrepreneurs presented in Figure 1, and hence we highlight a few predictors of which Indigenous Australians choose to become an entrepreneur. Firstly, the ‘drivers for starting a business’ are largely focused on the anticipated positive outcomes from being a successful entrepreneur. Of course many, if not all, people want to provide economic security for themselves and their family, so these motivators are not particularly good predictors of whether a person becomes an entrepreneur. While it is not impossible to estimate a structural model that teases out the direction of causation, or what outcomes came first, it imposes technical challenges for the empirical analysis that can only be overcome with specific assumptions that are contestable. The empirical model estimated below is deliberately modest in order to provide relatively straightforward estimates of the effect of the factors examined.

The ‘factors necessary to start a successful business’ however, are more useful in constructing a test of who may become entrepreneurs. We expect that people with more

education, higher literacy and numeracy and greater amounts of financial capital will start and successfully run a business.

In contrast, the factors listed as disablers are more likely to inhibit becoming entrepreneurs. Racial discrimination leads to adverse economic outcomes for individual entrepreneurs as customers and other businesses may refuse to deal with the Indigenous business. However, experience of racial discrimination in labour market could conceivably push potential Indigenous entrepreneurs to set up businesses to ensure that they are independent of the whims of discriminating employers. Discrimination may either increase or decrease the incidence of Indigenous entrepreneurs; however discrimination experienced when someone was previously in the labour market (either employed or looking for work) may increase numbers while more contemporaneous discrimination from customers and other businesses may decrease the number of Indigenous entrepreneurs. In summary we have no clear prediction of how the experience of discrimination will affect the incidence of Indigenous entrepreneurs. Other disablers are the lack of social networks (social capital) and the culture of obligatory sharing that is evident in customary Aboriginal society. Remote areas have a shorter history of European settlement and may be more subject to such obligations. Access to social networks may increase the incidence Indigenous entrepreneurs, but it may depend on the nature of the social networks involved.

The final set of factors in Figure 1 is the ‘enablers’ of Indigenous business success. Access to infrastructure is crucial and such infrastructure is more likely to be found in more accessible (less remote) areas. If business mentors are effective, then access to them would enhance Indigenous entrepreneurship. Foley argues that a close and practical constructive role for women in the business and supportive parents are important. While there is some information about the gender of entrepreneurs, little is difficult to characterise the role of women in the business and the supportive efforts of parents. All these enablers may increase the incidence of Indigenous entrepreneurs, but the next challenge is to find data that is suitable to test the hypothesis that arise from the theory.

Data and method for empirical analysis of theory

Hunter (2004) provided a detailed profile of Indigenous self-employment in the census shows that most Indigenous entrepreneurs were involved in small-scale businesses that did not employ any other people. Furthermore Indigenous self-employed were more likely than non-Indigenous self-employed to be involved in construction and retail sectors while there was also a disproportionate number in agriculture industries in remote areas. Indigenous self-employed were also less likely to be managers than other entrepreneurs (especially in remote areas), while they were less likely to be tradespersons in metropolitan areas. One explanation for these observations was the ongoing educational deficits with Indigenous self-employed being almost half as likely to have Year 12 education as other self-employed. Another feature of Indigenous self-employed was that they tend to be younger than non-Indigenous self-employed, but older than the average Indigenous people.

Census data was also used by Hunter (2013) to illustrate how the number of Indigenous self-employment has increased substantially since the 1990s, both in absolute terms and as a proportion of Indigenous employment. While the options for Indigenous Australians to set up businesses have been historically constrained, there has been some marked increase in the prevalence of Indigenous entrepreneurs in recent years, albeit improving from a low base. Indigenous entrepreneurs have always been more likely to live in urban areas,

although the numbers of Indigenous entrepreneurs in remote areas has increased marginally in recent years.

Like most studies of Indigenous entrepreneurs and business the following focuses on self-employment. Census data can be used to identify the Indigenous self-employed, but it has inherent limitations in terms of evaluating any theory of Indigenous entrepreneurs. While census data collects information on a population and hence provides the most finely grained information for cross-tabulations; it is only provided for individuals in a unit record level based on a '5 per cent' sample. It is technically possible to test some theoretical predictions of the above theory; however the power of empirical analysis severely circumscribed using aggregated data categories reported in the census sample. The grouped nature of many explanatory variables in the census means that there is less variation to explain the incidence of Indigenous self-employed. Another important limitation is that census only collects information on a limited range of factors and hence cannot be used to test most predictions of the theory of Indigenous entrepreneurs.

Some tentative empirical analysis was attempted in Hunter (1999), but the robustness of that analysis was undermined by the small numbers of Indigenous self-employed in the 1994 National Aboriginal and Torres Strait Islander Survey data collected in 1994. The large recent increase in Indigenous self-employment means that recent survey data can a more powerful test of the theory because representative survey data should include more self-employed (all else being equal).

ABS now provide individual level or unit record data for surveys such as the 2008 NATSISS, a multi-faceted social survey of Indigenous Australians, covering 13,307 persons. The survey was conducted in remote and non-remote areas in all States and Territories, collecting information on various topics that are often not taken into account for empirical analysis of Indigenous self-employed, including: discrimination, educational attainment, financial stress, health, housing, language and culture, labour force status, and access to social networks. This list of data covers most of the factors theoretically associated with Indigenous entrepreneurship.

Unfortunately Indigenous self-employment in the 2008 NATSISS is only identified in non-remote areas. Clearly this constrains the ability to generalise any resulting analysis. Readers should note that Indigenous self-employed are disproportionately concentrated in non-remote areas (Hunter 2013), and hence there is not too much information lost by restricting our attention to non-remote area. Of course, remoteness of local area is still implicated by the theory but we are cannot test that aspect of the theory. Notwithstanding, we can include some broad measures of accessibility to services in an area.

This paper presents a multivariate logistic analysis of whether a working aged person living in non-remote areas is self-employed along with a supplementary analysis of the incidence of cash flow issues from Indigenous self-employed. This supplementary analysis is necessary as cash flow measure in NATSISS is derived from a question on financial stress that many researchers would view as an outcome of self-employment rather than a pre-determined predictor of self-employment. While our preferred empirical strategy is to estimate separate logistic models of self-employment and cash flow issues, we also estimate a model of self-employment that includes cash flow problems as an explanatory variable, but it is not a significant predictor of Indigenous self-employment. Given that we have strong theoretical reasons to expect that cash flow is significant for self-employment, this

result is likely to be a result of what econometricians call ‘endogeneity bias’ and possibly issues with the initial specification (Borland and Hunter 2000). Hence we estimate the predictors of cash flow separately to illustrate the likely avenue by which access to liquid assets might affect the propensity to be self-employed.

The main advantage of using logistic regression is that uses a logit transformation of (i.e., log-odds or natural logarithm of the odds) which means that the results can be easily presented in terms of the odds ratio. The interpretation of the coefficients of a logistic regression (β) is that it is the additive effect on the log of the odds for a unit change in the respective explanatory variable. In the case of a dichotomous explanatory variable, for instance gender, Euler's number (commonly referred to as the mathematical constant e) is raised to power β to derive an estimate of the odds of having the outcome for, say, males compared with females. The odds ratio is convenient as it allows us to easily compare the magnitude of the effects of all explanatory factors

Appendix A provides the descriptive statistics for all the variables used in the specification. The final sample for the main analysis is 4,315 which represent the NATSISS respondents who answered all the relevant questions. Only 3.6 per cent of the sample used identified themselves as self-employed. Note that this includes both employers and self-employed who do not employ other workers. It is consistent with the census data note in Hunter (2013).

The regression analysis also models cash flow problems as access to liquid assets allow businesses to deal with risks to income and production. Using factor analysis Bray (2001) identified 3 categories of financial stress: hardship – missing meals and heating, seeking external assistance and having to sell or pawn items; missing out – largely being unable to have or do things; and cash flow difficulties. The cash flow problems are identified as households in NATSISS by situations where people could not pay bills; could not pay the mortgage; or where a householder asked help from friend. Appendix A indicates that 36.7 per cent of the sample identified cash flow problems.

The specification includes explanatory variables designed to capture factors identified in the theory. Given that we cannot test the effect of living in remote areas, the accessibility is captured by a variable that indicates whether a person lives in a major city (11.4% of final sample). Females were slightly over-represented in the sample; but the discrimination variable used, based on whether an individual respondent experienced discrimination in the previous 12 months, is very close to the population average (see Biddle et al 2013).

As argued above, discrimination can either increase or reduce the likelihood that a person will be self-employed. Discrimination experienced in looking for work in the distant past may push people to become more entrepreneurial. Discrimination experienced by customers and other businesses will decrease the likelihood that a respondent to 2008 NATSISS is self-employed person. Given that available survey data is cross-sectional and cannot be used to track individual labour force status over time we cannot test whether previous discrimination is driving self-employment. While some information on the reason for experience of discrimination is provided in the NATSISS data, the reasons are highly correlated with one another and it is difficult to separately identify the effect of the various forms of discrimination (Biddle et al 2013). Notwithstanding the lack of information on historical discrimination and the difficulty in distinguishing separate types of discrimination the regression analysis includes the broad measure where 28.6 per cent of the sample reported they had experienced discrimination.

Labour economics emphasises the role of the history of employment in the determining labour market outcomes (McConnell and Brue 1992). Ben-Porath (1967) model highlighted how an individual continues to invest in his human capital after a worker starts employment. These investments can be thought of as ‘training’ provided and funded either by the firm, including on-the-job instruction, or acquired by the worker through accredited vocational training programs. Some of these skills may be firm-specific or of limited use outside the industry in question. Following a long tradition in labour economics, our analysis includes a measure for experience, or the number of years in employment, and experienced squared (Mincer 1958). The squared term is included to take into account that more experience increases employment and labour market prospects, but these increases occur at a diminishing rate as a person gets a lot of experience.

The specification also includes some detailed measures of education used in socioeconomic analysis of Indigenous Australians (Biddle et al 2013). Broad social marital status is also included in the form that captures whether a person is married or living in a de facto relationship with another person (55.8% of sample used).

Living with another potential income earner is a way of spreading the risk, as is living in large households with many people. However, if the large household includes many dependents, then the competing demands could enhance risk faced by an entrepreneur wanting to start a business. The average household size in the sample is just over 3 people, but there is substantial variation in the number for individuals.

Social capital is measured in NATSISS by the types of social networks that a respondent has access to. The proportion of friends who are Indigenous could be thought of as capturing ‘bonding’ social capital; however it may also capture the effect of having excessive social obligations that may make it difficult for individuals to accumulate capital to establish and run a successful Indigenous business. Over 40 per cent of the sample used is respondents for whom at least half their friends are Indigenous (i.e., including people who report that all their friends are Indigenous). Another measure of bonding social capital, which is not necessarily related to social obligations that characterise customary Indigenous social practice, is the proportion of friends who have a similar level of education.

One explanatory variable, which is arguably related to social capital, is whether a household includes non-Indigenous people. If the non-Indigenous residents are more likely to be employed or have other family with networks into other social classes, then this variable can be characterised as a measure of bridging social capital. However, it can be argued that such households have a lower burden of obligations arising from ‘demand sharing’ (Peterson and Taylor 2003). That is, this variable can be characterised as another proxy for bonding social capital.

The regression specification also includes the experience of arrest in the previous 5 years and whether a person was taken from one’s family as a child as these have been found to be a good predictor of Indigenous labour market disadvantage (Hunter and Daly 2013). The latter variable is sometimes interpreted in terms of being a member of the ‘stolen generation’ where Indigenous children were routinely taken from their family before the early 1970s; however, technically children can still be taken from their families if they are deemed to be at risk by relevant government agencies. The incidence of both these variables is consistent with the population estimates.

The final explanatory variable is whether a household is purchasing or own their home (37% of the sample). This variable is included in the specification as an indication of access to assets and wealth that could be important for managing risk in a business situation. It also acts as proxy for liquidity, especially for those with access to redraw facilities that are now relatively common for many home loan arrangements.

Before we move to the regression analysis some selected cross tabulations by labour force status (including self-employment) are reported to illustrate some important stylised facts in the data (Table 1). In the case of discrimination this cross-tabulation arguably provides some insight into a factor that cannot be easily observed in a cross-sectional regression analysis.

Table 1. Selected characteristics by Indigenous labour force status, 2008 non-remote areas

	Self-employed	Other Non-CDEP	Unemployed	Not in the Labour Force (NILF)
Degree level education	0.139 (0.05)	0.087 (0.01)	0.029 (0.01)	0.023 (0.01)
Households with non-Indigenous residents	0.702 (0.06)	0.542 (0.02)	0.355 (0.04)	0.369 (0.02)
Years in employment over life-time	20.2 (1.20)	15.7 (0.30)	7.2 (0.60)	11.2 (0.40)
Discrimination in last 12 months	0.181 (0.05)	0.253 (0.02)	0.466 (0.04)	0.280 (0.02)

Note. Standard errors are reported in brackets.

Self-employed have more likelihood to have a degree level qualification, especially when compared to the Unemployed and NILF (Table 1). The self-employed groups are significantly more likely to live in a household with non-Indigenous residents. For example, around 70 per cent of these entrepreneurs live in such households compared to 35.5 per cent of the unemployed group.

The proxy for labour market experience, the number of years spent in employment over a respondent's life-time, is also significantly higher for the self-employed compared to other Indigenous people. This observation is even true when compared to the other employed group who has four and a half years less experience than the self-employed. Clearly it takes many years to accumulate the experience in the workforce necessary to start up an Indigenous business. This pattern is likely to be associated with the fact that many Indigenous self-employed tend to be older relative to the rest of the Indigenous population. Unfortunately, the analysis is unlikely to be powerful enough to distinguish the effects of age from that of experience and hence we have chosen the experience variable for the

regression because that better captures the opportunity to pick up useful labour market skills.

Finally, there is considerable variable in the reporting of discrimination among the labour force states in Table 1. Unemployed clearly have significantly higher rates of reporting discrimination than other labour force states, but the self-employed appear to have relatively low rates of discrimination. All else being equal, analysis that uses this broad measure of discrimination is likely to indicate that higher rates of discrimination are associated with lesser prospects for being self-employed. However, it is still possible that people have chosen to start a business because they are trying to avoid the experience of discrimination when they looked for a job or worked for someone else previously. As indicated above, we would need access to longitudinal data to identify any heterogeneous effects of discrimination on the propensity to set up a business or rather be self-employed.

RESULTS Multivariate modeling of who is self-employed (HUNTER)

This section reports the logistic regression analysis to explain what sort of Indigenous people are likely to be self-employed after controlling for other major factors. Table 2 reports three columns of odds ratios: the first containing the extended specification with all variables in the initial model and the next two columns that eliminate those estimates that were not significant in first column. The second column includes home ownership which is excluded from the final specification on the grounds that it is an outcome of being self-employed rather than a factor which increases self-employed. The inherent uncertainty about the direction of causation is the reason why financial stress (associated with cash flow) of self-employed and other Indigenous groups are analysed separately in Table 3. As we speculated above, we expect that the home ownership variable is likely to be associated with better access to capital and fewer problems with cash flow. We will demonstrate this in Table 3.

Table 2. Predictors of Indigenous self-employment, 2008

	Extended specification		Parsimonious specification + home ownership		Final specification	
	Odds ratio		Odds ratio		Odds ratio	
Lives in a Major city	1.021					
Female	0.585	***	0.492	***	0.495	***
Reported discrimination in the last 12 months	0.806					
No. of years in employment	1.181	***	1.145	***	1.157	***
No. of years in employment squared	0.997	***	0.998	**	0.997	**
Holds a degree level qualification	1.511		1.774		2.036	*
Other post-secondary qualification	2.389	***	2.536	***	2.657	***
Educated to year 12	1.837		2.118	**	2.341	**
Educated to year 10 or 11	2.424	***	2.641	***	2.750	***
Married	1.345					
No. of people in household	0.862	*	0.973		1.001	
All friends are Indigenous	0.168	*	0.249	**	0.209	**
Half or most friends are Indigenous	0.582	**	0.489	***	0.439	***
All friends have a similar level of education	1.051					
Half or most friends have similar level of education	0.811					
Non-Indigenous people live in household	1.362					
Individual arrested in the last 5 years	1.522					
Taken from natural family as a child	0.732					
<u>Own or purchasing home</u>	<u>1.409</u>		<u>1.737</u>	<u>***</u>		
Pseudo R ²	0.1166		0.1064		0.0994	
No. of observations	3,768		4,315		4,315	

Notes, *, **, *** indicates that the odds ratio is significantly different from zero at the 10%, 5% and 1% levels respectively. The estimated effects should be interpreted relative to the reference person which is defined by the omitted variables in the respective regressions. For the extended specification the reference person is a single male living outside a major city who had not reported discrimination, who left school before year 10, had social networks where less than half were Indigenous or had the same educational status, lived in a household with non-Indigenous people, had not been arrested in the last 5 years, were not a member of the stolen generation and lived in a house which was not owned and had not been purchased.

Taking each estimate in turn, living in a major city is not significantly associated with being self-employed and hence it only appears in the estimates for the extended specification. However, females are significantly less likely to pursue self-employment in all models estimated.

Experience is significantly positively associated with Indigenous self-employment. That is, consistent with economic theory, increasing the amount of experience when a person is younger will lead to larger increases in the propensity to be self-employed. However, as a person gets more experience the propensity to become self-employed increases at a lower rate (i.e, indicated by the result for the squared term for years of experience).

Another important set of factors also driven by the level of the skills of the individual, which is positively associated with self-employment, is the educational attainment variables. In the final specification, all of the education variables more than double the odds of being self-employed. This is clearly the largest positive effect on Indigenous entrepreneurs.

Being married or defacto is positively associated with self-employment, but the increase in the odds ratio is not significant compared to a single person. Hence it is omitted from the final specification.

Living in a household with more people is significantly associated with a lower likelihood of being self-employed for the extended specification. However, when the non-significant factors are eliminated in the more parsimonious specifications this significance disappears. Given that the result for the extended specification was only marginally significant (at the 10% level), we should not over-emphasise this result as it is probably driven by spurious correlations with factors that, in retrospect, should not have been included in the original specification.

The social capital variable that measures the proportion of friend who is Indigenous is significantly and negatively associated with self-employment. Relative to those with relatively few friends who are Indigenous having all friends identified as Indigenous reduces the odds of being self-employed to around one fifth of what it is for the reference person.

In contrast, the other bonding social capital variables that focus on the proportion of social networks with similar level of education are not significant. Even living in a household with non-Indigenous people is not a significant factor, which may indicate that any effect is being captured by other factors. The parsimonious specifications drop these factors.

Taken together the results for these social capital variables seem to indicate that the main factor is living in a situation where Indigenous socialising influences and networks are strong. This result is likely to be driven by the culture of obligatory sharing identified in Foley (2005) or what anthropologists sometimes call ‘demand sharing’ (Peterson and Taylor 2003).

In contrast to most studies of Indigenous labour force status, having been arrested in the last five years or being a member of the stolen generation is not significantly associated with self-employment (cf, Hunter and Daly 2013). We believe that this result is probably driven by the fact that these factors depress the prospect of being employed, but is correlated with other factors not fully controlled for in the models. It is difficult to demonstrate this directly, however one possibility is the difficulty in directly measuring the access to capital. Indeed, that is why the rest of this section reflects on the role of such factors and attempts to model financial stress experienced by self-employed and other groups.

Before analysing financial stress related to cash flow problems, we should discuss the last factor in Table 2, whether a home is owned or is being purchased. In the extended specification, home ownership is not significant, but it becomes so in the second column when other non-significant factors are excluded. This is consistent with the speculation that at least some of these extraneous factors are interacting with one another. Clearly the access to cash and other forms of liquid assets are crucial to the successful operation of a business so we now turn to estimate an analogous logistic model of whether an individual reports living in a household with financial stress often characterised as a ‘cash flow problem’ (Table 3).

Table 3. Predictors of having a cash flow problem, 2008

	Extended specification		Final specification parsimonious	
	Odds ratio		Odds ratio	
Self-employed	0.608	**	0.517	***
Other employed	0.834	**	0.795	***
Lives in a Major city	1.209	*	1.219	*
Female	1.130		1.289	***
Reported discrimination in the last 12 months	2.003	***	2.066	***
No. of years in employment	0.997			
No. of years in employment squared	1.000			
Holds a degree level qualification	1.088		1.073	
Other post-secondary qualification	1.398	***	1.509	***
Educated to year 12	1.183		1.421	***
Educated to year 10 or 11	1.387	***	1.517	***
Married	0.842			
Children	1.083			
Married with children	0.989			
No. of people in household	1.029			
All friends are Indigenous	0.905			
Half or most friends are Indigenous	1.083			
All friends have a similar level of education	0.928			
Half or most friends have a similar level of education	0.940			
Non-Indigenous people live in household	0.910			
Individual arrested in the last 5 years	1.236	**	1.523	***
Taken from natural family as a child	1.342	***	1.243	**
Own or purchasing home	0.436	***	0.395	***
Pseudo R ²	0.099		0.086	
No. of observations	3,768		4,529	

Notes, *, **, *** indicates that the odds ratio is significantly different from zero at the 10%, 5% and 1% levels respectively. The estimated effects should be interpreted relative to the reference person which is defined by the omitted variables in the respective regressions. For the extended specification the reference person is a non-employed single male without children living outside a major city who had not reported discrimination, who left school before year 10, had social networks where less than half were Indigenous or had the same educational status, lived in a household with non- Indigenous people, had not been arrested in the last 5 years, were not a member of the stolen generation and lived in a house which was not owned and had not been purchased.

Readers should note that the number of self-employed in the 2008 is too small to allow an adequate multivariate analysis of cash flow issues specific to that group. Given that we want to understand the overall factors associated with having cash flow problems and not just examine cash flow issues of the self-employed, the logistic regression includes extra variables not included in the earlier analysis: whether a person was self-employed or otherwise employed. Accordingly, the reference person for the results reported in Table 3 is also conditioned on being non-employed in addition to the criteria listed in above logistic analysis of self-employment (see notes to Table 2).

Table 3 demonstrates that being self-employed reduces the odds of having cash flow issues. In the final specification, self-employment is associated with about half as likely to report

cash flow problems compared to the non-employed. The self-employed are even less likely than other employed to report cash flow problems.

Living in a major city is significantly associated with more cash flow problems, a fact that is likely to be explained by the higher cost of living in such areas (especially with respect to housing costs). Being female is also associated with a higher incidence of cash flow issues, although this is only significant for the parsimonious specification.

One particularly noteworthy finding in Table 3 is that discrimination is strongly associated with cash flow problems—it more than doubles the odds of having such problems. Therefore even though we could not find a direct effect of discrimination on self-employment, this is likely to be due to the fact that discrimination takes many forms and may occur at various times over the life time of an Indigenous person. For example, discrimination in the labour market could constrain employment and hence wage income, while discrimination by banks and other financial services will constrain Indigenous people's access to liquid assets and finance which will in turn inhibit potential entrepreneurs from setting up a business.

Neither of the experience variables is significantly associated with reporting a cash flow problem, and accordingly they are dropped from the final specification.

Somewhat surprisingly, the education variables are generally associated with a higher level of reporting cash flow problems. Increasing education is associated with higher employment and income, but this is often accompanied by changed expectations about lifestyle and associated expenditure. Unless the education is specifically addresses financial literacy or builds general capacity to manage finances, it is not inconsistent with a higher incidence of cash flow problems. Interestingly, respondents with degrees are not significantly different from the reference person (who has not completed year 10). It may be that a degree level qualification may impart sufficient knowledge to deal with the more complex expenditures associated with higher incomes.

With three notable exceptions, none of the other variables in the extended specification are significant. For the variables that capture the size and composition of a household, this may indicate that Australia's tax and welfare system are relatively efficient in addressing many situations where households might otherwise experience financial stress (e.g., having large numbers of dependents).

Arguably it is surprising that the social capital variables are not significant predictor of having cash flow issues which are defined in terms of whether a householder asked financial help from friends. Clearly, it would be reasonable to expect that the composition of one's social networks would be important in determining whether you have access to cash. While Indigenous friends may tend to have less income and resources on average, they may be more willing to share what they have. That is, these countervailing influences of having Indigenous friends may offset one another, at least with respect to the prospect of reporting a cash flow problem.

The last three explanatory factors in Table 3 are particularly interesting. The experience of arrest and being a member of the stolen generation are associated with significantly higher prospects of having cash flow problems. Therefore even though neither of these factors directly affected the prospect of being self-employed, they are likely to have an indirect effect through the access to finance.

The home ownership variable is the largest factor explaining whether cash flow problems are reported. If a house is owned or is being purchased, then the odds of having cash flow issues are about 40 per cent than for other households. Equity in the home is clearly crucial

for accessing finance. Given that home ownership was not significantly related to self-employment in the extended specification in Table 2, it is likely that home ownership is affecting self-employment through access to finance. Unlike cash flow problems, which are likely to be caused in part by having a business, home ownership is not necessarily associated with self-employment. Accordingly, our preferred specification for Table 2 is the parsimonious specification that includes this variable (estimates in the second column of results). Home ownership in that specification is acting as an instrument for access to finance when explaining Indigenous self-employment as it is not possible to control directly for that factor in our regression analysis.

Concluding remarks

This paper has outlined a theory of Indigenous entrepreneurs developed from recent literature and Dennis Foley's extensive research in the field. Another important feature of this paper is that this theory is tested using the latest survey data that is best suited for this purpose. Given the historical difficulty in analysing Indigenous self-employment using quantitative techniques, it is a remarkable achievement that we have managed to generate plausible and interpretable finding. The empirical analysis broadly confirms almost all prediction of Foley theory. Where the theory is not confirmed directly there are either plausible pathways for indirect influences of the factors in question or manifest data limitations. One example of the later is that the role of females in Indigenous businesses is not documented in survey data, only the gender of the respondents.

The other manifest issue data issue is in measuring discrimination which is self-reported and difficult to identify the specific form of discrimination (especially for a small population of respondents such as the self-employed). Notwithstanding, the above empirical findings identify that discrimination probably plays an indirect role in Indigenous self-employment through the constraints it imposes on the ability to raise finance. Home ownership also appears to play an indirect role in Indigenous entrepreneurship through facilitating greater access to liquid financial assets and capital.

Like almost all studies of labour force status, education and experience are clearly important factors in Indigenous self-employment. A more noteworthy finding is that Indigenous social capital one of the most important factors. Having social networks with substantial connections into the non-Indigenous community appears to be a crucial factor for Indigenous entrepreneurs.

One thing that this paper has not done is to draw out the analogies with non-Indigenous entrepreneurs or business. Amongst other things, there are no comparable survey data for the rest of the Australian population on a range of factors when there is also information on self-employment status. Having said that the finding that education and experience are major drivers is replicated in general studies of overall Australian self-employment and economic engagement. Other significant factors identified in this paper are likely to be important drivers for non-Indigenous business, especially access to financial capital, and cash-flow. However, these contentions will only be confirmed when the non-Indigenous data is provided in a similar way to that provided for the 2008 NATSISS.

In constructing the testable hypothesis used in this paper, Foley's research has taken into account the lived experience of Indigenous entrepreneurs—770 in-depth interviews were collected over a number of years from Aboriginal Australian enterprises. By tracking individuals involved in particular Indigenous enterprise over a ten period, he has illustrated the main theoretical issues as well as other factors identified in the literature review. This

has allowed us to refine the hypothesis about the theory of Indigenous entrepreneurs which we then tested.

This longitudinal dimension of Foley's research is a considerable contribution in its own right. NATSISS provides unique cross-sectional survey data on a range of socioeconomic factors such as those used in this paper, but Foley's data, and any future longitudinal data collections, are likely to be powerful information to further the research agenda for Indigenous entrepreneurs. This paper has identified that the role of discrimination is likely to evolve over time depending on the type of discrimination experienced and when the (alleged) discrimination occurred. Of course the reporting of discrimination is different from the experience of discrimination or indeed the act of discrimination. Given the covert nature of much discrimination, it is possible that people are often not aware when they are being discriminated against. Future research could attempt to tease out the likely complex effect of discrimination on Indigenous and other entrepreneurs.

Indigenous business is important in its own right, not only to the extent that facilitate Indigenous employment in a culturally appropriate workplace (Hunter and Gray forthcoming). For example, having a robust middle class is integral to the achievement of sustainable and independent Indigenous development. This paper demonstrates that building the capacity of Indigenous entrepreneur and Indigenous business is a high policy priority. Policies that facilitate Indigenous business success will foster Indigenous economic independence of all those associated with the enterprise, the entrepreneurs themselves and the employees, a disproportionate number of whom tend to be Indigenous (Hunter 2013).

Appendix A. Descriptive Statistics for the regression analysis

	Mean	Standard deviation
Self-employed	0.036	(0.187)
Cash flow problems identified	0.367	(0.482)
Lives in a Major city	0.114	(0.318)
Female	0.576	(0.494)
Reported discrimination in the last 12 months	0.286	(0.452)
No. of years in employment	14	(11)
No. of years in employment squared	318	(353)
Holds a degree level qualification	0.073	(0.260)
Other post-secondary qualification	0.284	(0.451)
Educated to year 12	0.119	(0.324)
Educated to year 10 or 11	0.285	(0.451)
Married	0.558	(0.497)
No. of people in household	3.324	(1.733)
All friends are Indigenous	0.074	(0.262)
Half or most friends are Indigenous	0.344	(0.475)
All friends have a similar level of education	0.099	(0.299)
Half or most friends have a similar level of education	0.542	(0.498)
Non-Indigenous people live in household	0.471	(0.499)
Individual arrested in the last 5 years	0.141	(0.348)
Taken from natural family as a child	0.113	(0.317)
Own or purchasing home	0.370	(0.483)
No. of observations	4,315	

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COMMON CULTURE: A VALUABLE PREREQUISITE FOR INNOVATION-FOCUSED INTERACTIONS BETWEEN SCIENCE AND ECONOMY

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Common Culture: A Valuable Prerequisite for Innovation-Focused Interactions between Science and Economy

Abstract: Successful collaborations between universities and companies work only in a few individual cases. In general, the diversity of cultures prevents the implementation of interactive knowledge transfer and actually reduces the potential innovation performance. This finding contrasts the recognition of the Organization for Economic Co-operation and Development published in 1996 on „The Knowledge-Based Economy“ (OECD, 1996) that stated clearly: „Knowledge is now recognised as the driver of productivity and economic growth, leading to a new focus on the role of information, technology and learning in economic performance.“ Regarding the reasons for such a collaborative deficit more closely it becomes apparent that not a lack of purpose, benefits or requirements are the cause for it, but rather different ways of dealing with it. This results primarily from a different cultural conditionality in universities and companies. However, the resulting questions still has to be discussed how the science system can contribute to knowledge transfer, in order to disseminate knowledge and to provide inputs for problem solving and innovation. Especially the process of knowledge transfer has been prominently discussed during the last decade after neoliberal tendencies in politics, particularly in North America and the European countries demanded the economic benefits of science and its institutions (c.g. Mansfield, 1991).

Keywords: knowledge and technology transfer, organizational culture, entrepreneurial university

1. Introduction

While the responsibility for the creation and dissemination of new knowledge typically lies with leading research institutions, such as universities, the transfer of this knowledge into economic value is performed outside of universities. Since universities increasingly depend on additional funds for new and expensive research, research groups are more and more considered to be ‘quasi firms’ – a process that already has been described as “the invention of the entrepreneurial university” (Etzkowitz, 2003). In this context the logic of value creation within the university through its business model has recently be examined and developed as a general business model of the university (G., R., 2013). The knowledge transfer as the “third mission” was suitable to change the income structure, transfer affects, as well as the objective and incentive structure. But as it turns out more and more, the prospects for achieving these objectives are dominated by the question of a common cultural understanding between the various actors in the knowledge transfer process.

In attempting to implement the business model of the university and to perform concrete company transfers it turns out very quickly that cultural differences in the scientific and practical work environments lead to serious tradeoffs on both sides. This cultural aspects of innovation-focused interactions between science and economy is a part of the knowledge transfer discussion that has not yet been embedded into the newer research on the entrepreneurial university and its integration into the, mostly, regional economy. However, universities and enterprises are both understood as social systems of production. This describes the way how they are integrated into a social configuration, e.g. the industrial relation system; the system of training of workers/scientists and managers; the internal structure of corporate firms; the structured relationship with other enterprises/universities, customers and suppliers; the financial markets and their conceptions of fairness. Since each of these components is autonomous and may have targets that are contradictory it is necessary to find out about possible reasons. Our previous studies suggest that any kind of institution is

embedded in a culture in which their functions are attitudinal grounded, organizationally structured and technically and materially constrained.

Against this background, it is even more surprising that the research literature on knowledge and technology transfer, organizational development in institutions and enterprises as well as the political science discussions of this topic have not dealt intensively with the importance of the 'cultural factor' for almost a decade. There are only a few authors who have stressed the importance of cultural influence in educational organizations and its impact to both, internal and external communication, since the 1970s (Maasen, 1995). One of the early protagonists whose research in this field was fundamental for a long time was especially Clark (1970; 1972; 1983) who developed the concept of 'organizational saga' and its effects on academic beliefs. It was Becher (1981) who claimed that the academic discipline has the power to develop a specific set of values that are constitutive for the emergence of a disciplinary culture, whereas Dill (1982) highlighted the importance of academic culture and its dependence on symbolic management. For Masland (1985) it was crucial to find methods that should be used to capture the suspected relationship between organizational culture and the system of higher education as a whole. Tierney (1988) also uses the term 'organizational culture' and introduces concepts as an "initial attempt to establish a framework for describing and evaluating various dimensions of organizational culture" in order to achieve that "administrators will be in a better position to change elements in the institution that are at variance with the culture." However, he refers not so much to Becher (1981), but rather to Ouchi and Wilkins (1985), which he quotes to highlight the relevance of the research topic: "Few readers would disagree that the study of organizational culture has become one of the major domains of organizational research, and some might even argue that it has become the single most active arena, eclipsing studies of formal structure, of organization-environment research and of bureaucracy".

Now, while the theory lacks an overall view of the topic in the political, economic, psychological and educational sciences as well as in sociology of 'culture' as a factor influencing organizations of higher education, the practical effects on the developing knowledge and technology transfer are becoming clearer. Schein (1996) described the status quo of the research situation 17 years ago with the title of his essay "Culture: The Missing Concept in Organization Studies." The relevance of his critique of a terra incognita in research was: "Inattention to social systems in organizations has led researchers to underestimate the importance of culture – shared norms, values, and assumptions – in how organizations function. Concepts for understanding culture in organizations have value only when they derive from observation of real behaviour in organizations, when they make sense of organizational data, and when they are definable enough to generate further study." Actually it turned out in the parallel and ongoing management research that interactions in the area of knowledge and technology transfer between researchers and managers of enterprises was extremely rare (Porter and McKibbin, 1988; Abrahamson, 1996; Mowday, 1997) as well as the other way round (Sackett and Laarson, 1990; Rynes et al, 1999). These results have led gradually to the conviction in much of the research that there are barriers of communication and interaction between practitioners and academics that lead to a 'research-practise gap'. The reasons for this are quite essential due to the difference in academics' and practitioners' assumptions and beliefs (cf. Shrivastava and Mitroff, 1984), because of their fundamentally unlike frames of reference. Such referential differences are to be classified culturally, because they determine the particular self-understanding of the researcher as well as the practitioner. Etzkowitz (1983) justified this in terms of the scientists' dignity as a basic researcher, who, from the time of the pre-modern era until well into the 20th century, would have denied

profiting from a commercialization of his own pure research. As an early example of the 19th Century, he refers to the French chemist Louis Pasteur, who, according to Bernal (1953), answered the question of Napoleon III why he does not “turn his discoveries to legitimate profit: “In France scientists would consider they lowered themselves by doing so.” The reason that this self-understanding of the researcher changed slowly during the late 20th and early 21th century is, so Etzkowitz (1983), to be seen in the successive elimination of the distinction between basic and applied research. The politically driven commercialization of research and development and the consequent abolition of the distinction between basic and applied research made it easy for researchers, if necessary or intended, to combine scientific reputation and financial reward with each other.

2. Towards a derivation of the term 'common culture'

This new concept of overcoming cultural barriers for researchers to exploit their research could even use a more theoretically derivable rationality. A central argument in literature on the economics of research and innovation says that there is private underinvestment in incentives due to the imperfect appropriability of knowledge (Hirshleifer, 1971, p. 573). While within the scientific community repeatedly criticism is raised that research results must be patented and licensed to use it, which brings no reward for the researcher, Hirshleifer shows that “there will be, aside from the technological benefit, pecuniary effects (wealth redistributions due to price revaluations) from the release to the new information. The innovator... is able through speculation or resale of the information to capture a portion of these pecuniary effects. This fact is useful in motivating release of the information. Even though practical considerations limit the effective scale and consequent impact of speculation and/or resale, the gains thus achievable eliminate any a priori anticipation of underinvestment in the generation of new technological knowledge.” Following Hirshleifer, a crucial implication of his proven assumption is that private information that is kept private is of no social value, meaning that redistribution does not lead to an improvement in productive arrangements.

First of all, ‘social value’ as motivation for releasing information seems to be part of organizational culture like economic or academic institutions. Both may be understood as ‘value-rational organizations’ (Satow, 1975). They are both bound to the belief in the values of their organization. While the authority of the enterprise rests on obedience to a set of values or ideological norms the legitimacy of rules within academic institutions is determined by their consistency with the goals of academic ideoplogy. As a consequence of this one of the cultural core beliefs within academic institutions is ‘the pursuit of truth’. In consideration of the cultures of economic and academic institutions Clark (1981) considers the latter to be the more complex. His analysis finds at least traditions and symbolics (e.g. academic language, titles and degrees, curricula, examinations) that lead to what he referred to as a ‘saga’, “a collective understanding of current institutional character that refers to an historical struggle and is embellished emotionally and loaded with meaning to the point where the organization becomes very much an end-in-itself” (Clark, 1981, pp. 12-13).

Although Becher (1981) stands in contrast to Clark concerning the concept of culture with reference to ‘distinctive ideologies of academic disciplines’, he tends to comprehend academia more likely as a ‘system’ that, however - and that is the parallel to Clark - depends on shared belief. It consists of specific symbols of status and authority in forms of awards, grants, publications and academic honorary titles (e.g. Dr. h.c., honoris causa). Against this background of a highly differentiated, academic value-rational structure or system would - in comparison with non-academic value-rational systems would always find more structural

differences than similarities. This is basically why Dill (1982) concludes in his consideration of the above, that a 'common culture' is as absent in American academic organizations as in American business corporations.

Thus, we hold that in the relevant literature on the term culture until well into the 1980s there was the largely common understanding that both academic institutions and economic institutions can be regarded as value-rational organizations (Satow, 1975; Clark, 1981; Becher, 1981; Dill, 1982). However, they differ structurally and systemically so much from each other that one cannot speak of a 'common culture'.

With this in mind only a couple of years later Barley et al. (1988) came up with a study on 'Cultures of Culture', examining closely the pragmatics of normative control concerning academics and practitioners. The authors used linguistic indicators to determine whether academics and practitioners or members of any two subcultures, may have influenced each other's framing of a problem. In this case academics and practitioners were identified as 'members of two subcultures'. To consider language as a cultural formative indicator and to use it as a subject of investigation in the analysis of the organizational form of cultures was not new. Like Mills (1972) before it was Pettigrew who had already stressed the meaning of the "system of vocal signs we call language (...) By acquiring the categories of a language we acquire the structured 'ways' of a group, and along with the language, the value implication of those ways" (Pettigrew, 1979, p. 575). Barley et al. took up this idea (Pettigrew, 1985) and found in their study that the relationship between academics and practitioners will allow the greatest room for interpretation, if one assumes that there exist two worlds, separated but also interdependent as a social system characterized by traditions like language, interest and norm so that the degree of influence possibly varies from issue to issue.

This description of two subcultures taken from empirical evidence finally have been structurally examined by analysing the basic 'concept(s) of culture' in contemporary academic discourse being held in different scientific disciplines (Sewell jr., 2005). Interesting enough, an interdisciplinary look on the subject offers a different option of conceptual distinction. Consequently, it makes sense to talk about 'culture' in the singular when referring to a theoretically defined category. 'Culture' in this sense is always a theoretical reflection of social life, like it is done in academic disciplines such as anthropology, ethnology, cultural studies and alike. Claude Lévi-Strauss is regarded as one of the prominent representatives of the view that meaning is structured by oppositional cultural systems and their conflict-related dispute (Lévi-Strauss, 1963, 1966), whereas Ruth Benedict (1934) and her Idea of 'Patterns of Culture' stands for a concrete and bounded agenda of practices and beliefs. This different conception of what constitutes the essence of the culture as a concept is assumed be combined with social life in a society or subsocietal groups like e.g. middle-class or upper-class cultures. So as a consequence we speak of 'cultures', in plural, which are different from each other, but, however, can never be in a culture-less space because the latter does not exist. Hence, all theoretically defined category of 'culture', as well as all 'cultures' are essentially analyzable and describable.

In summary it can be pointed out that culture research, as conducted by various scientific disciplines, agree upon the fact that cultural conditionings have a significant influence on the interaction of people both within different but also similar cultures and subcultures. The success of a communication or interaction among members of different cultures or subcultures is mainly dependent on the ability to interpret so called 'Patterns of Culture' (Benedict, 1934) in order to understand them. Since it is the expression of cultures to create 'saga' as a system of collective understanding of unique accomplishment in a formally

established group (Selznick, 1957; Clark, 1972) those ‘Patterns’ “can be studied by specific changes in the language that members of different subcultures use to frame a topic or issue” (Barley et al, 1988, p. 53). Consequently, Barley et al. consider academics and practitioners as “members of two subcultures”, who have “influenced each others interpretations”, proved by the observation that rhetorical styles between communicating members of two subcultures have had converged (op. cit). A preliminary brief conclusion of this section is that any successful and therefore valuable interaction between members of subcultures implies a mutual understanding of the respective cultural patterns. It has been shown that this understanding can be learned so that it depends on the nature of the incentive that decides about whether one guess it is worth to start a learning process.

3. The ‘gap’ between organizational research and managerial practice

During the 1980s and 1990s researchers especially from the political, sociological and economic sciences commented on politics’ uprising interest in commercializing scientific knowledge as a driving force for innovation in an increasing knowledge society (Slaughter, 1997; Soete, 1999; Stephan, 2012). At the same time, as economy globalized, industry pushed the state governments to devote more resources to the enhancement of innovation to be better prepared to compete in world markets (Jessop, 1993). Notably, the estimates in literature go significantly apart about how extensive and intensive the new collaboration between science and industry had to be assessed; or, to put it at the operational level, between academics and practitioners. Some prominent researchers in the field argue that the ‘entrepreneurial academic model’ (Etzkowitz, 2003, p. 110) was introduced and going to be established at universities in the western civilization in the early and mid-20th century. At the same time the “US research university developed as series of research groups, quasi-firms which were just a step away from becoming full-fledged firms as opportunities arose” (cit. op). In fact, universities in the US were receiving about a twelfth of their research funds from industry in the 1950s, but already during the 1960s and through the entire 1970s industry’s financial support for R&D decreased down to 3-4 percent. It reached its peak in the late 1990s with about seven percent of all university funding, declined again and remained constant since then (Stephan, 2012). A very different picture emerges in contemporary literature of the 1980s and 1990s, specifically when dealing with the issues of interaction between academics and practitioners as well as against the background of organizational collaborations and in matters of how to set up and managing an exchange process. The main finding suggests that there is a research-practise gap that prevents academics to cooperate with practitioners and vice versa. The reason for this they suspected in culturally determined entirely different conceptions of frames of reference with respect to types of information believed to constitute valid bases for action (Shrivastava and Mitroff, 1984), or notable differences in terms of goals they want to influence, time frames for addressing and solving problems and last not least how different from each other the social systems are designed in which they operate on a professional basis (Thomas and Tymon, 1982; Johns, 1993). This finding led to a deep scepticism among scientists who dealt with the question of how a successful knowledge and technology transfer between science and industry is to develop with respect to the design of a research-practice interface (Gillespie, 1991; Hakel, 1994; Garland, 1999; Fagenson-Eland, 1999; Earley, 1999). Moreover, the identified gap between organizational research findings and management practises is by no means limited to the organizational sciences but relevant for the scientific community as a whole (Glaser et al., 1983; Rogers, 1995). Very specific and tailored suggestions as to bridge the 'gap' finally were developed by Rynes et al. (2001). In addition to recommendations for editors of science-based journals how a profitable exchange of basic and applied knowledge could be supported a further going suggestion was due to academic-practitioner interaction in person. Referring to the highlighted importance of knowledge transfer as a social contact (e.g. Rogers, 1995) is recommended by the authors that “the

format of new interactions be designed with practitioners not just in mind, but also in attendance” for the reason that “good social relations, mutual empathy, and some sort of common ground are prerequisites for achieving optimal outcomes in cross-boundary knowledge creation” (Ryan et al., 2001, p. 349).

4. Common culture among research-oriented academics and academic practitioners

If one looks at the numbers that document the actual knowledge transfer process from universities to companies by example in the United States of America, one could get the impression as if the critical role of different 'organizational cultures' between academics and practitioners as a barrier for exchange processes appears to be a luxury problem, exclusively debated by intellectuals who have lost contact with reality. When regarding the numbers of the development of successful patent applications of U.S. research universities as an indicator for commercialising research resources, it shows that they have been permanently increasing during the time period from 200 in 1969 to 2.000 in 1995, which corresponds to an increase by a factor of ten. After all, by 2008 praeter propter 3.000 patents were issued to universities. Compared with the total volume of successfully registered patents in the United States, the proportion of university patents corresponds to 2.0 percent (Mowery et al, 2004). Accordingly the number of licences increased almost 12-fold since 1990 and the annual licensing revenue has increased from about US\$ 160 million in 1990 to US\$ 862 million in 1999.

In literature, this development is referred to as a dynamic growth development, which is partly attributed to the 'Patent and Trademark Act', also known as 'Bayh-Dole Act', that says that patentable inventions arising from federal funding are considered university property rather than property of the US government (Thursby et al, 2001). However, two relativistic aspects must be pointed out: Although it appears that Bayh-Dole has indeed brought research universities closer to practitioners by successfully commercializing university's own technologies an important role to operationalize the entire transfer process played the newly established 'Technology Transfer Offices' (TTO). It also has to be noted that attributing the increase exclusively to Bayh-Dole would ignore changes that independently from legislative Decree took place with blockbuster patents in galloping developing fields of new scientific basic knowledge like in molecular biology (e.g. Cohen-Boyer patent for gene splicing generated US\$ 255 million in licensing royalties by 2001) or pharmacy (e.g. Emory University, Atlanta, sold its royalty in 'emtricitabine', needed for the treatment of human immunodeficiency virus to big pharma and received US\$ 525 million), (Bera, 2009). Other fields with pronounced patent activity are chemicals (19 percent), semiconductors and electronics (6 percent) but further blockbuster-candidates come from medically and life sciences related patents (76 percent), (AUTM, 1996, 2000).

Up to this point of the discussion the picture shows that in fact there is an amazing development due to an increasing amount of revenues coming from patents and licences being sold from research universities to smart science- and technology-savvy companies. On closer inspection it is clear that the scientific disciplines involved on the side of research universities have all historically conditioned, industrial and application-related bonds. These include the life sciences with biology, physics and chemistry as well as medicine and engineering. In other words, these disciplines have not only an empirical approach to their research, but have, because of the historical development of their specific scientific field direct access to applied research in industry, in the case of medicine, the clinical application with support from the pharmaceutical and medical technology. Following this hypothesis it becomes obvious that the attested different subcultures to which academics and practitioners belong, do not fit concerning this special group of people. The academics on the side of the University meet –

in the process of technology transfer – with academics from the side of industry who themselves were socialized during their training in the natural sciences and mathematics as well as in engineering in the same way in the sense of a ‘common culture’. The border between different subcultures is separating other groups from each other. It is likely that rather executives of companies, belonging to the group of practitioners, do not turn to academics or academic research findings in order to develop modern management strategies and practises (Mowday, 1997; Abrahamson, 1996). Likewise, researchers do not apply to practitioners to be inspired for developing their research questions or to discuss their results (Pfeffer, 1998).

5. How culture-related effects affect knowledge transfer between university and industry

Although the area of knowledge and technology transfer from various literatures is wide, voluminous and dynamic (Zhao and Reisman, 1992; Kumar et al, 1999) the topic ‘organizational culture’ as such recently has been hardly further investigated, especially what the question is concerned how involved actors in organizational institutions – like research universities and companies – influence the knowledge transfer process that is more often than not called ‘technology transfer process’, two concepts that are distinguished by some researchers (Gopalakrishnan and Santoro, 2004), not by others (Kogut and Zander, 1992, 1993; Sinani and Meyer, 2004) like in the political economics-oriented literature (Bozeman, 2000; Agrawal, 2001; Sazali et al., 2012). One of the few recent empirical studies on this topic examines the ‘commercial knowledge transfer’, in particular the role of researchers, managers / entrepreneurs and the ‘technology transfer offices’ (TTO) at universities. The transfer itself is understood as a ‘university / industry technology transfer’ (UITT). The study is based on a total of 55 interviews of 98 UITT stakeholders associated with five US research universities and found – just to mention the findings referring to the topic of this paper – cultural and information barriers among the three previously named types of stakeholders (Siegel et al, 2004).

Specifically, results of the study confirm the suspected importance of the cultural factor in the entire transfer process. Thus, the actual success or failure of a transfer is determined decisively. The authors of the study have summarized their results in ten ‘propositions’. Three of which directly affect the cultural impact (three, four, five) and seven indirectly do. These three propositions and its extensions find that:

- “... the pervasiveness of cultural misunderstanding within sub-cultures “that weaken the extent to which values are indeed shared. Specifically, university scientists reflect one sub-culture, while university administrators reflect another. Managers and entrepreneurs need to understand that they are actually dealing with these to sub-cultures, which reflect conflicting goals, values and beliefs.”
- “Cultural misunderstanding reduces the effectiveness of the university’s efforts to market university-based technologies to firms.”
- “Cultural misunderstandings impedes the negotiation of licensing agreements (...) unfortunately, many TTOs are not actively recruiting licensing officers who possess such skills. Respondents who had relationships with numerous TTOs noted that those managed by directors with substantial business experience had a much firmer grasp on how to assess the market potential of a given technology... They also had a better understanding of the complexity of negotiations and how to remain flexible enough to consummate transactions”.
- “One implication of the possibility that knowledge transfer flows in both directions is that the alleged tradeoff between basic and applied research may not be as severe as

commonly perceived... Universities that become involved in formal and informal UITT will experience an increase in basic research activity.”

- “... university inflexibility has led many firms and scientists to completely avoid working with the TTO. That is when an invention is publicly disclosed, firms may contact the scientist and arrange to work with him/her and engage in informal commercialization and knowledge transfer, through consulting or a sabbatical leave... so that when inflexibility is high, university scientists will attempt to circumvent more formal UITT processes” (Siegel et al., 2004, p. 137, 139-140).

Barriers	Type of interviewee	
	Managers & Entrepreneurs	University Scientists
Lack of understanding regarding university, corporate, or scientific norms and environments	90.0	75.0
Insufficient rewards for university researchers	31.6	70.0
Bureaucracy and inflexibility of university administrators	80.0	70.0
Insufficient resources devoted to technology transfer by universities	31.6	20.0
Poor marketing/technical/negotiation skills of directors/administrators	55.0	25.0
University too aggressive in exercising intellectual property rights	80.0	25.0
"Public domain" mentality of universities	40.0	5.0
Number of interviews	20	20

Note: The values presented in the columns are the percentages of respondents who identified a particular item as a barrier to university/industry technology transfer.

Barriers	Type of interviewee	
	Managers & Entrepreneurs	University Scientists
Participation Requirements	57.5	44.0
Intellectual Property/Copyright	62.5	64.0
Confidentiality of new results	70.0	74.0
Process Controlling	60.0	40.0
Performance Controlling	67.5	52.0
Coordination of workloads	40.0	50.0
Long research processes	47.5	78.0
Number of interviews	20	20

Note: The values shown in the column are the calculated percentages of respondents who identified a particular item on a scale from 1 (strong) to 10 (not at all) as a barrier to university/industry technology transfer.

Figure 1: Barriers for UITT (acc. to Siegel et al, 2004) **Figure 2:** Barriers for UITT (G. et al, 2013)

Inspired by the survey of Siegel et al. (2004), the authors of this article revised and extended the existing questionnaire for more culturally relevant attributes. The figures 1 and 2 are introducing the barriers of understanding by experience as well as prejudices among managers/entrepreneurs and university researches. The table in figure 1 reflects the findings taken from the study of Siegel et al. (2004). Figure 2 shows the results of a pretest by the authors which were generated from interviews with 20 German scientists and 20 German managers/entrepreneurs in parallel. TTOs have not included at all since they are often bypassed by scientists and managers (cf. Siegel et al., 2004, p.139).

The results are very interesting. Firstly, the data demonstrates that the cultures of science and industry obviously continue to differ in many ways although there are noticeable intersections also. Hence, it becomes evident that managers and scientists are able to identify existing barriers by themselves which is also important for being able to empathize with someone belonging to a different sub-cultural group (compare Figure 2).

Figure 3 examines in more detail what difficulties or barriers the interviewed managers and researchers expect from the moment on they decide for a tangible co-operation with each other.

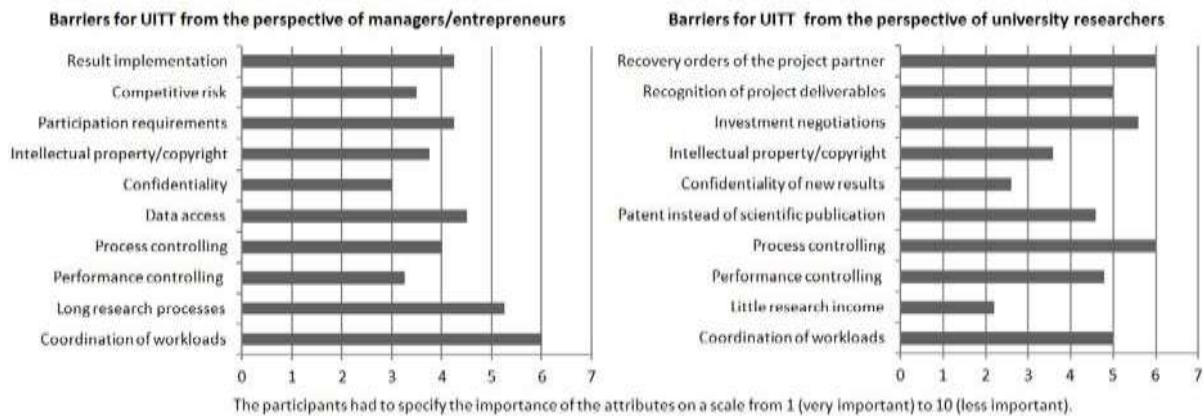


Figure 3: Importance of transfer barriers from the perspective of managers and researchers

Although it has been recognized by members of both groups that the barriers in case of co-operations are existing, there is still a large gap between the perceived characteristics of each co-operation partner and the actually encountered attributes as well as really existing personal attributes. In so far managers expect researchers to have a high critical ability, but almost never find these to occur in the character of their academic partners. On the other hand many researchers would like their research results coming from the co-operation with industry to be published, e.g. in scientific journals. This, however, in most cases is not possible due to reasons of confidentiality or conflicts of interest with protecting rights registrations.

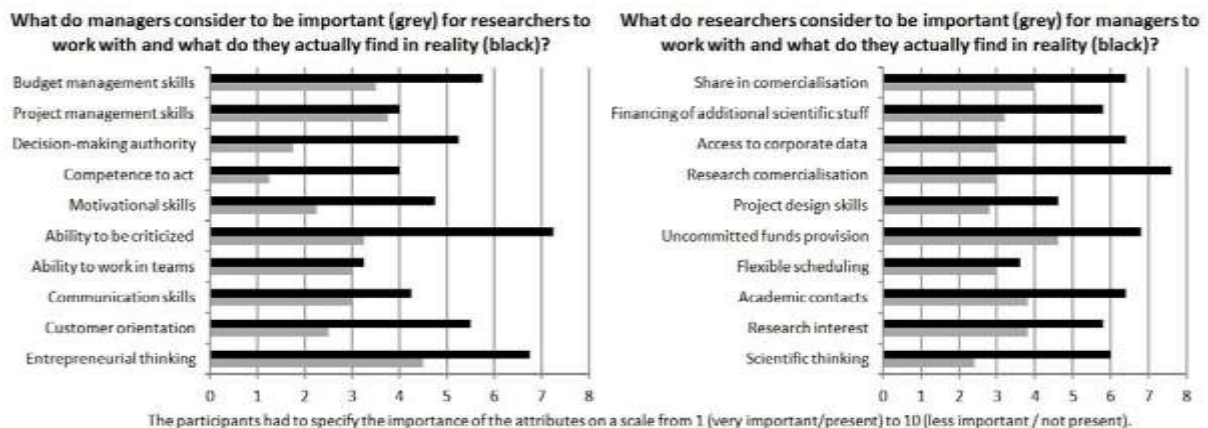


Figure 4: Expectations and real findings of predominantly personal characteristics of managers and university researchers

6. Cultural driven process of innovation-focused interaction

After it has been now analysed what the crucial cultural impacts are and how they influence the technology and knowledge transfer, mainly from research universities to firms and enterprises, especially in industry, it would be most helpful to try to allocate at what particular parts of the process it would make sense to integrate or optimize procedural approaches to overcome culture-related barriers. In figure 5, below, Siegel et al. (2004) already integrated new fields of competences which he took from the outcomes of his study and integrated them into the classical technology transfer process. By incorporating the results of the findings (Proposition one to ten = P1-P10; cf. paragraph 5 of this paper) the authors have chosen a static rather than a dynamic display, although the importance of dealing with culturally based communication problems has been recognized and integrated (cf. P3, P4, P5), but has not yet been successful in highlighting the exchange between the subcultures involved interactively.

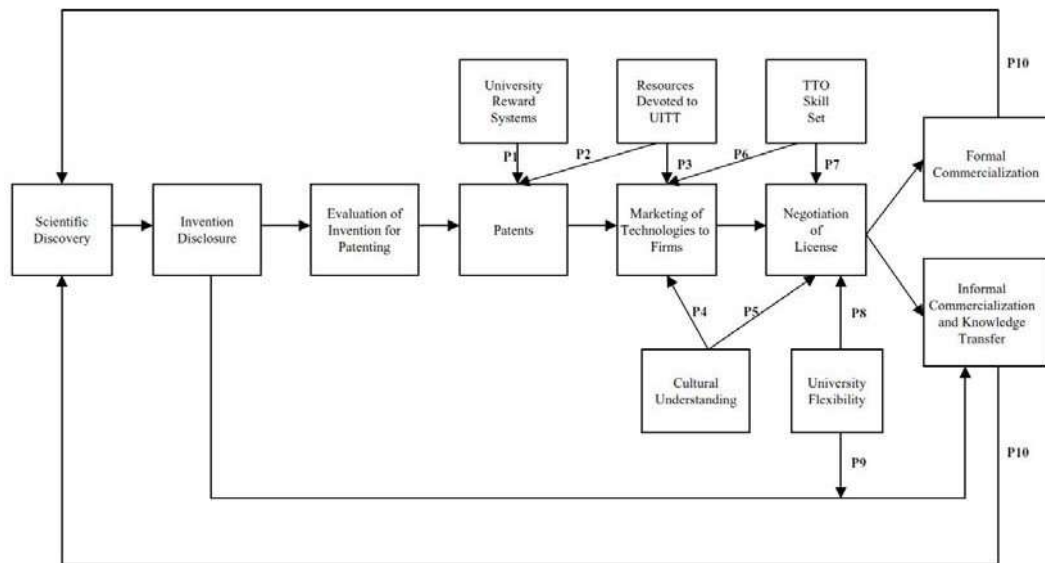


Figure 5: Organizational and managerial issues in the university/industry technology transfer process (Fig. taken from: Siegel et al., 2004, p. 138).

An attempt to represent the interactivity and the importance of the associated joint learning to become literate in all involved sub-cultures (e.g. scientific, managerial, technical literacy) is presented in Figure 6, in which the actors within 'science' and 'economy' are always integrated in a common process. They are aware of the direct exchange process phases of the actors that consciously provoke the confrontation with cultural differences in order to prevent misunderstandings. Towards a model of 'common culture', the phases of the suggested dynamic process of interaction are especially those lying on the barriers the negotiating parties were separated by in the past, such as 'value simulation', 'proof of concept', 'marketing of technology & know-how' and last not least the 'negotiation of licences'.

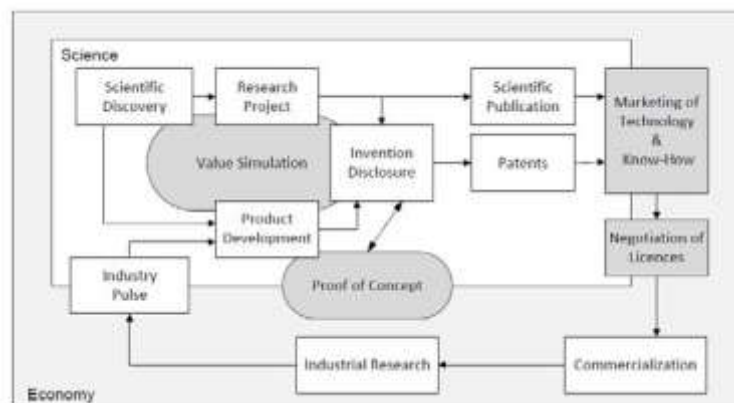


Figure 6: Organizational and managerial issues due to common culture in the university/industry knowledge and technology transfer process (Fig. taken from: G. et al., 2013, forthcoming)

Conclusion

The literature on 'organizational culture' has changed since the 1980s more and more to the mainstream opinion that in scientific institutions and companies we collaborate with actors who have been socialized in different sub-cultures and therefore have noticed that barriers of beliefs and understanding are hard to overcome. After the interest in knowledge and technology transfer has grown steadily over the past 30 years and as it had turned out that this interdisciplinary and intercultural action field is only successfully to be tackled in collaboration among actors from different subcultures, it began to make sense to take the risk

of the painful exchange across sub-cultures. However, the process has only just begun. Research universities in the U.S. and technical universities in Europe have started to become 'entrepreneurial universities' and even though most of them have the money to set up a transfer process they still have not yet comprehended that a necessity to bridge the gap between organizational research and managerial practise consists of establishing a 'common culture' among research-oriented academics and practitioners. By discussing this process it has become evident that a 'common culture' is a valuable prerequisite for innovation-focused Interactions between, generally spoken, science and economy.

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ACADEMIC ENTREPRENEURS AND BUSINESS ANGELS: EXAMINING THE FACTORS INFLUENCING INVESTMENT DEAL OUTCOMES

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ACADEMIC ENTREPRENEURS AND BUSINESS ANGELS: EXAMINING THE FACTORS INFLUENCING INVESTMENT DEAL OUTCOMES

ABSTRACT

The low level of private equity investment supporting university spinouts (USO) has attracted much attention in recent years. While literature suggests “poor investor-readiness” and commercial inexperience on the part of the academic entrepreneur as key constraints to investment, few studies have examined the effects of the *deal making process* itself on investment deal outcomes. This study examines the USO investor readiness profile prior to investment negotiation and assesses the deal negotiation tactics deployed by academic entrepreneurs, during negotiation with both universities and business angel (BA) investors, to consider how they influence investment deal outcomes. Findings lend support to previous studies suggesting a weak investor-readiness profile of university spin-outs. However, we observe a much more prominent role played by academic entrepreneurs in contributing to weak investor-readiness and identify adverse effects of poor negotiating tactics on investment deal outcomes with BAs. We suggest the need for third-party “term-sheet” coaching for academic entrepreneurs and earlier deployment of independent legal intermediation on deal structuring and deal negotiation.

INTRODUCTION

Academic entrepreneurs face a daunting task in securing private equity investment for their university spin-out enterprises (USO). Literature identifies poor ‘investor readiness’ as a key factor impeding access to investment, which may include: a lack of commercial expertise of the entrepreneur; incomplete technology development; poor understanding of the market for the product or technology; and unrealistic expectations on the venture’s market value (e.g. Mustar et al, 2008; Lerner, 2005; Lockett and Wright, 2005; Binks et al, 2004; Di Gregorio and Shane, 2004). Another factor relates to contentious issue of IP ownership and equity positioning between academic entrepreneurs and universities that may negatively impact negotiations and deal terms between academic entrepreneurs and investors (Bradley *et al* 2004; Lambert 2003).

This paper distinguishes itself from previous studies by suggesting another factor affecting access to investment – the active role of the academic entrepreneur in the investment deal making process. Few studies have examined private equity investment in a research setting or with the academic entrepreneur as a central focus (Lerner, 2005; Clarysse and Moray, 2004). The paper also distinguishes itself from studies on private equity investment that have focused on flows of investment (Wright et al, 2006; Mason and Harrison, 2004) or on investment criteria used by investors (Kollmann and Kuckertz, 2009). We suggest that investment negotiation and deal-making have received little attention from researchers, given the confidential nature of investment deal negotiations.

The paper draws upon findings from a study where access to the legal files of USO investment deals has been made possible. The study involves collaboration with a prominent legal firm actively engaged in legal intermediation of investment deals involving academic entrepreneurs, universities and private equity investors. The study focuses attention on the final phase of the investment decision process that intersects deal negotiation, deal structuring and deal conclusion.

Three research themes guide the paper. First, what are the pre-investment characteristics of successfully concluded USO investment deals and how do these characteristics affect deal

outcomes? We define a “successful” deal to include: the transfer of intellectual property (IP) from the university to the USO; full independence of the USO from the ‘parent’ university; and formal agreement (i.e. legally-intermediated) between a USO and private equity investor to investment deal terms. Second, what is the role of the academic entrepreneur in deal negotiation with both universities and investors, and what is the effect on deal outcomes? Third, we wish to establish the role of legal intermediation in a USO deal and how legal advice affects deal terms between entrepreneurs and investors.

The next section provides a review of relevant literature and theoretical constructs, followed by discussion of the research methodology and discussion of research findings. In the final section, we present a summary of results, study limitations and suggestions for future research.

REVIEW OF LITERATURE

University Spin-outs

University spin-out enterprises (USO) are widely acknowledge as a mechanism for transferring university-generated technology and intellectual property (IP) to the market, amongst other mechanisms that include licensing IP, university-industry research collaborations, consulting and property initiatives such as incubators and science parks (Rothaermel and Thursby, 2005b; Clarysse and Moray, 2004). Pirnay *et al.* (2003; p. 356) defines a USO as “a new firm created to exploit commercially knowledge, technology or research results developed within a university.”

Despite the high profile of USO, evidence suggests that USO activity yields poor results. Lerner (2005), in an assessment of US spin-off activity over two decades (1985-2005), identifies that most USOs yield poor returns, with a small sub-set generating the bulk of returns. Mustar et al (2008) in their examination of European USO activity (1995-2005), suggest two factors contributing to USO under-performance: 1) an underestimation of various difficulties in commercialising research through the USO route; and 2) the multiple actors involved in USO - at national, regional, institutional and spin-off firm levels – that have difficulties in defining their strategies.

Lockett and Wright (2005) suggest that the nature of the non-commercial academic environment of universities poses serious issues regarding the level of support available for academic entrepreneurs to create and develop such ventures. Vohora et al (2004) found that academic entrepreneurs are challenged in moving from scientific networks to commercial networks, where they have little experience or credibility.

A number of large cross-university studies highlight contentious issue of IP ownership, transfer and equity positioning between academic entrepreneurs and universities that may contribute to poor USO performance (Howells et al, 1998; Cripps et al, 1999). A commonly cited issue relates to the lack of uniformity and standardisation among universities regarding their IP transfer and ownership policies and practices which may act as a disincentive for academics to create spin-outs or limit their ability to attract external investment (Bradley et al, 2004; Lambert, 2003). Overemphasis on generating high numbers of USO to improve output statistics is also suggested as a contributing factor as to why many European USO originate as and remain small enterprises (Heirman and Clarysse, 2007). Mustar et al (2008) suggest that many European universities need to develop IP and patent strategies to ensure that IP is clean, well defined and protected before trying to raise commercial interest.

USOs and Investment

A common complaint of private investors seeking to fund USO is the lack of *investor readiness* compared to other early stage ventures (Mustar et al, 2008; Lockett and Wright, 2005; Binks et al, 2004; Douglas and Shepherd, 2002). Investor readiness may include generating a prototype technology, securing an experienced management team and demonstrating early sales (Wright et al, 2004). Weak investor readiness is identified with a poor understanding of the market value of the technology and unrealistic expectation on the company's value (e.g. Binks et al, 2004; Di Gregorio and Shane, 2004). Lerner (2005) suggests that many academic entrepreneurs lack realistic expectations about their ventures arising from their general lack of commercial experience. Weak investor readiness is also associated with a "resource-based perspective", which suggests that a lack of resources and capabilities to deploy in the market limit universities and academic inventors in successfully commercialising IP and attracting private investment (Hoang and Antoncic, 2003; Douglas and Shepherd 2002).

Wright et al (2004) suggest that an academic entrepreneur's ability to reduce the risks for investors and to generate sufficient credibility early on may facilitate greater commitment by investors and result in more substantial initial resource endowments. They identify four factors that determine the ability of USO to attract sustainable returns: the level of resources; level of capabilities; level of social capital (networks) and the level of involvement by investors. They suggest that the amount of financing which new USO initially receive acts to facilitate or constrain future growth and development strategies.

Wright et al (2007) suggest that many investors perceive that universities fail sufficiently to understand their requirements or to present investor-ready proposals for the funding of USO; thus few investors, particularly VC firms, have developed links with universities and even fewer with more than one university. Lerner (2005) suggests that the best TTO are able to play an "honest broker" role, where relationships with investors are cultivated and where the TTO reaches out to particular investors with investor-ready opportunities.

Theoretical Constructs

In this paper, we identify the absence of appropriate theoretical models to explain the USO deal making process and USO investor readiness. Private equity investors commonly following a "cycle" of investment activities that include deal origination, screening, evaluation and deal structuring (Kollmann and Kuckertz, 2009; Wright et al, 2003; Gompers and Lerner, 2000). Tyebjee and Bruno (1984) suggest that investors deploy five steps: deal origination, where promising investments are discovered; deal screening, where an overabundance of opportunities are reduced; deal evaluation, where opportunities are critically assessed; and finally, deal structuring, where the investor and entrepreneur clarify and negotiate the terms of the deal. One question relates to where the investor first engages the academic entrepreneurs and/or university in the cycle and where engagement shifts from informal, non-committed chat to more formal, committed discussions leading to a deal.

We suggest that the notion of investor readiness relates not only to the particular characteristics of the USO (e.g. technology/product, founding team, market, investment requirements, etc.) but also to the strategies, intentions and actions of the academic entrepreneur(s) in negotiating with universities and investors and securing investment. All three sets of actors are often involved in the final phase of the investment decision process that intersects deal negotiation, deal structuring and deal conclusion (Kollmann and Kuckertz, 2009; Wright et al, 2003; Gompers and Lerner, 2000).

Drawing on the concept of moral hazard, we suggest that asymmetrical information related to the value and potential value of intangible resources (e.g. specialised skills, knowledge, future plans on product development, etc.) may favour the academic entrepreneur in negotiating with investors (Dean et al 1998; Chandler and Hanks 1994; Penrose, 1959). However, without access to external investment, most USO may be unable to deploy such resources, favouring the investor to negotiate on the existing value and future value of such resources, in the context of potential follow-on investment in uncertain future market conditions (e.g. Amit and Schoemaker 1993). The value of investors experienced in USO deals is likely to further favour investors in deal negotiation.

We suggest other theories, such as agency theory and theories of the firm: e.g. institutional theory, resource-based theory, nexus of contract theory and neo-institutional theory; that may be relevant in explaining the entrepreneur-university relationship. For example, we suggest that the deal-making process involves at least one social institution, the university, which undertakes particular practices and deploys specific rules, norms and activities that can enable or constrain the USO deal-making process, such as in negotiating IP rights (e.g. Langlois 1991). It is unclear whether or not a university can generate market influence and power, as suggested in neo-institutional theory, to influence a USO investment deal.

The role of the university in relation to the academic entrepreneur may also generate a “co-ordination problem” (e.g. Casson, 1990) when considering the need to establish a single negotiating partner for the investor. Nexus of contract theory would suggest that any adversarial relationship or incomplete legal arrangement between academic entrepreneur and university creates a co-ordination problem affecting investor readiness of the USO which may signal to the investor greater risk and uncertainty (e.g. Jensen and Meckling 1992; Langlois 1991).

We also suggest that academic entrepreneurs face an “agency problem” when attempting to spin-out and seek investment, given that the university is their employer, usually owns the IP, may be a potential negotiation adversary when spinning the IP out of the university and then may be a negotiating partner on behalf of the entrepreneur with the investor. A summary of these theoretical constructs is shown in Figure 1.

Figure 1: USO investment Relationships: Theoretical Constructs

Relationship	Theoretical construct	Description	Potential effect on investment deal
Entrepreneur-university	Neo-institutional	University policies on equity stake, IP transfer, USO support directly affecting USO deal	Positive (+) or negative (-)
	Nexus of contract	Coordination of activities between entrepreneur and university to prepare USO for investment	+ or -
	Agency	Relationship between entrepreneur and university that affects level of support by university in attracting external investment	+ or -
Entrepreneur-investor	Resource-based	Extent to which private equity investment is essential to deployment of other resources, e.g. technology, knowledge, IP)	+ or - (favours investor)
	Information Asymmetry	Known value or potential value of IP, technology, intangible resources	+ or - (favours entrepreneur)

Background to Research

We identify four problematic limitations in previous research that we wish to address in our study. First, few studies have examined the investment deal-making process for USO; in part because of the confidential nature of such information and because much data from universities are available primarily as measurable outputs, i.e. number of spin-outs, number of patents generated, number of technology licenses (Mustar et al, 2008; Wright et al, 2007; DiGregorio and Shane, 2003; Thursby and Thursby 2002). Second, various attempts at extrapolating investment deal data have relied primarily on self-disclosed survey data (e.g. Mason, 2009; Wright et al, 2006). Third, little attention has been paid to the academic entrepreneur and the effect of his/her deal negotiating activities on deal outcomes. Fourth, little attention has been paid to the influence and effects of legal intermediation in the USO deal-making process. In consideration of these observations, we identify the need to examine evidence on the deal-making process to establish the scale and scope of USO deal-making activity and to consider the relationship between academic entrepreneurs, universities and investors as active participants in the deal-making process. To guide the research, we posed five interrelated research questions:

Q#1: What are the 'pre-investment' characteristics of university spin-out enterprises and what affect do these characteristics have on investment deal outcomes?

Q#2: What are the investment negotiation tactics deployed by academic entrepreneurs in deal negotiations with universities and with investors and what affect do these tactics have on investment deal outcomes?

Q#3: What are the most 'contentious' terms in negotiation between academic entrepreneurs, universities and investors and what affect do these tactics have on investment deal outcomes?

Q#4: How do academic entrepreneurs make use of legal advisors and what role does formal legal intermediation play on deal outcomes for the academic entrepreneur?

Q#5: What are the common contract terms agreed upon by academic entrepreneurs and investors in concluding investment deals?

To address these questions, we undertook an investigation of a prominent legal firm active in legal intermediation between USO, universities and private investors (to be referred to as LWS). The private investors were exclusively described as “business angels”, private investors who provide risk capital to new and growing businesses in which they have no family connection (Mason and Harrison, 2004). Business angels invest in what is termed the “equity gap,” providing amounts of finance often beyond the ability of entrepreneurs to raise from their own resources but usually below the minimum investment threshold of venture capital funds; a figure suggested that is in excess of £1m in the UK and \$5m in the U.S. (Sohl, 2003).

The next section provides an overview of the qualitative research method used in this study. We then present our findings and discuss the practical implications of our results. Finally, we offer conclusions to the paper and recommendations along with limitations to the research.

METHODOLOGICAL APPROACH

To answer the research questions and address the methodological problems outlined above, two stages of data collection are deployed which represent different sources of empirical data from which to better examine the investment deal-making process (Strauss 1997; Van de Ven et al 1984). We follow guidelines suggested by Miles and Huberman (1984) and Glaser and Strauss (1967) and engage in sequential data generation and analysis. Our first

data are generated from examining the legal case files of 17 investment deals brokered by a prominent legal firm engaged in the study; 7 deals where the client is an academic entrepreneur and 10 deals where the client is an investor. A ‘deal template’ is developed to review each file and to facilitate comparisons between investment deals.

The template includes USO profile, identified shareholders and directors, contracts, financial and investment criteria, intellectual property (IP) and other assets, professional service provision and fees, management structure, deal structure and ‘contentious issues’. Legal file analysis included interviews with two senior partners who were actively engaged in the legal intermediation process of these deals. To ensure confidentiality of its clients, LWS requested that no detail of client profiles (USO founders and investors) would be reported in the study; therefore, profile characteristics are not included.

Our second stage of data collection seeks to survey a wider sample of 33 academic entrepreneurs and to generate a broader data from which to explore our research questions. In particular, we examine the investment deal making process involving the three sets of actors (academic entrepreneur; university; investor) and seek to identify contentious issues in the deal making process. The sample was generated from a list of 150 active (i.e. trading) spin-outs from universities across the UK, with spin-outs identified from lists supplied by 13 member universities of the Russell Group¹ in the UK (response rate of 22%). The survey asks spin-out founders to make explicit the actual spin-out deal, post-deal activity and subsequent performance of the spin-out. The survey’s 60 questions also examine factors contributing to spin-out formation, professional service provision, the deal structure and contentious issues, with issues ranked using a Lickert Scale (1 being least contentious, 5 being most contentious).

FINDINGS

Stage 1: Legal Files

Figure 2 identifies the common “pre-investment” characteristics of 7 investment deals mediated by the legal firm LWS on behalf of USO entrepreneurs. We postulate that five “pre-investment” characteristics are likely to have a positive effect on deal outcomes, as noted on the far right column of Figure 2 and suggest that “informally” negotiated deal terms between USO founder and investor could have a negative effect on the actual deal outcome. We find that all USO entrepreneurs in the sample had already decided on the spin-out as a preferred route to exploitation of their technology before instructing LWS to conclude the legally-mediated deal (LMD). Findings show that all “pre-investment” USO were recipients of seed funding. Some evidence suggests the potentially negative effect of imposed seed funding deadlines on deal outcomes. In Case 2 of Figure 2, the deadlines imposed by public funding acted as a driver for the date of deal conclusion and in turn contributed to the founder accepting less favourable deal terms proposed by the university, according to legal file notes.

Figure 2: ‘Pre-Investment’ Characteristics of USO: Client as USO Founder (n=7)

USO Characteristics (Pre-LMD*)	1	2	3	4	5	6	7	Affirmative Response %	‘Expected’ Effect on Deal Outcome (for USO)
USO has been incorporated prior to LMD	-	-	-	-	-	-	-	0	Positive

¹ Russell Group: the leading 20 research-intensive universities in the United Kingdom.

USO received seed funding prior to LMD	Y	Y	Y	Y	Y	Y	Y	1	Positive
USO founder chosen “spin-out” as preferred route before LMD	Y	Y	Y	Y	Y	Y	Y	1	Positive
Deal terms between founder & university discussed & negotiated before LMD	Y	Y	Y	Y	Y	Y	Y	1	Positive
Deal terms between founder and investors discussed & negotiated before LMD	Y	Y	Y	Y	-	Y	Y	0.86	Uncertain

(*LMD refers to legally-mediated deal)

In 86% of cases, USO entrepreneurs had negotiated deal terms, albeit informally, with investors prior to legal advice. In all cases, informal deal terms between founder and university, including licensing terms, were negotiated before the LMD. While we expect that such negotiations between entrepreneur and university are likely to have a positive effect on deal outcome, we are uncertain as to the effect of informal founder-investor negotiations on deal outcome, given that legal intermediation may influence negotiation positions.

Figure 3 identifies key negotiation issues and outcomes of the 7 investment deals. We postulate the expected effect of response results on the deal outcome in the far right column. Findings show that equity stake is the most prominent negotiation issue for USO entrepreneurs in a legally-mediate investment deal, with 86% seeking to negotiate a more favourable equity stake and/or royalty rate with universities. However, no universities negotiated away from their original positions. Not surprisingly, LWS was requested to negotiate on behalf of entrepreneurs to improve the terms of licensing provisions with universities. Figure 3 shows that over half (57%) of universities did negotiate with entrepreneurs on “other” terms of licensing. In 71% of cases, LWS was requested by entrepreneurs to negotiate for a larger equity stake with investors. However, no investors were willing to negotiate on equity. In all cases, LWS was requested to negotiate on behalf of entrepreneurs to reduce their level of liability with investors and in 71% of cases, investors negotiated away from original positions to reach a compromise position.

Figure 3: Key Negotiation Issues and Outcomes: Client as USO Founder (n=7)

Negotiation Issues & Outcomes (at LMD)	1	2	3	4	5	6	7	Affirmative Response %	‘Expected’ Effect on Deal Outcome (for USO)
Founder-University Founder seeking to negotiate more favourable equity, royalty with University	Y	Y	Y	Y	Y	Y	N	0.86	Negative
University willing to negotiate away from position on equity stake or royalty rates	-	-	-	-	-	-	-	0	Negative
Universities willing to negotiate on ‘other’ terms of licensing	Y	-	Y	Y	-	-	Y	0.57	Positive
Founder- Investor Founder seeking to negotiate more favourable equity stake with investor	Y	Y	Y	-	Y	Y	-	0.71	Uncertain
Investors willing to negotiate away from position on equity stake	-	-	-	-	-	-	-	0	Negative
Founder seeking to reduce level of liability downward with investor	Y	Y	Y	Y	Y	Y	Y	1	Uncertain
Investors willing to negotiate on ‘other’ terms of deal	Y	-	Y	Y	-	-	Y	0.71	Positive

Length of Negotiation LMD was concluded in agreed time period (as proposed by founder)	-	-	-	-	-	-	-	0	Negative
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Figure 3 shows that none of the deals were concluded in the originally agreed time period (as proposed by entrepreneurs). Legal file notes identify that in all cases, LWS was required to provide more extensive legal work beyond “*simply arranging necessary legal documentation for signature.*” Additional legal work included: 1) putting in place appropriate service contracts with entrepreneurs; 2) securing IP assignments from 3rd parties involved in IP development. In each case, entrepreneurs proposed to LWS a minimal time period, on occasion as little as four days, between the date that LWS was instructed by the entrepreneurs to work on the deal and the anticipated and/or actual data of deal conclusion.

Figures 2 and 3 identify two potential issues regarding the level of investor readiness of USO that may adversely impact investment deal outcomes. Findings show that entrepreneurs significantly underestimate the amount of legal advice they require to conclude a deal. This may reflect a degree of over-optimism on the part of entrepreneurs to secure a deal as well as a lack of commercial awareness on what is entailed in completing a legally mediated investment deal. The second issue is that entrepreneurs appear to set unrealistic expectations on enhancing their equity stakes during formal negotiations that may impact final deal terms - even after “informal” deal discussions have been undertaken (in all cases with universities; in 86% of cases with investors).

Figure 4 identifies investment deal characteristics of 10 spin-out deals mediated by LWS on behalf of investors (affirmative responses shown). We postulate the “expected” effect of response results on the deal outcome in the far right column.

Figure 4: Investment Deal Characteristics: Client as Investor (n=10)

Investment Deal Characteristics (LMD)	1	2	3	4	5	6	7	8	9	10	Affirmative Response %	‘Expected’ Effect on Deal Outcome (for Investor)
USO has been incorporated prior to *LMD with investor	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1	Positive
USO has received private equity university	-	-	-	-	-	-	-	-	-	-	0	Positive
USO adequately secured IP (either from university or by legal assignment)	-	-	Y	-	Y	Y	-	Y	-	-	0.40	Negative
University legal team is involved in LMD	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1	Uncertain
LMD concluded in agreed time period	-	-	Y	-	Y	-	-	-	-	-	0.20	Negative
Investor has requested “extensive legal provisions” in Investment document	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	0.90	Negative

Figure 4 shows that all USO were incorporated prior to the legally mediated deal and that none had received private investment at time of spin-out. Findings show that only 40% of USO possessed “adequately secured IP”, meaning that IP ownership and/or IP assignment terms had not been concluded between the USO and university prior to the legally mediated

deal (with LWS acting on behalf of investors). Figure 4 shows that universities were represented in all deals, only 20% of deals were concluded in the agreed time period (as proposed by investors) and that 90% of investors requested extensive additional provisions in the investment document.

Comparison between entrepreneur and investor legal files reveal that investors demand more legal service provisions *a priori* in terms of drafting of additional provisions and agreements. We suggest a number of reasons for this. First, in 60% of cases, IP was not properly secured, either from the university and/or in terms of complete and legal assignation of original IP. Second, documentation provided by USO entrepreneurs varied in terms of completeness, requiring further review by investors and their legal advisors, contributing to delays in concluding the deal.

All 17 legal files were then examined to identify the most frequently cited investment contract terms that investors required from USO entrepreneurs and potentially contentious issues between investors and entrepreneurs. Compulsory transfer provisions (CTP) are identified by both entrepreneurs and investors as the most contentious issue. CTPs are usually drafted to: allow founder to retain shares or percentage of shares after a defined period of time (providing that these shares become non-voting shares); and/or set the price of shares being transferred dependent on the length of time the founder has been with company, calculated on sliding scale or otherwise. The majority of USO entrepreneurs (71%) found it inequitable to be forced to transfer their shareholdings when they are no longer involved with company. Investors, on the other hand, were not willing to compromise on this contract term. However, different approaches to CTPs were taken in two cases due to resistance to these provisions from the entrepreneurs in question.

The second contentious management-related contract term are warranties, which involve provisions binding entrepreneurs to spin-out performance. The majority of entrepreneurs (76%) were concerned with being warranted “in so far as they are aware” or “to the best of their knowledge and belief” in the running and performance of the company. The implications of granting such warranties were more directed to those who would have little actual involvement in day-to-day activities of the USO. Investors were generally willing to accept revision of warranty terms in the Investment Agreement. On this issue, investors appeared more willing to negotiate away from their preferred position, such as by excluding certain individuals from certain warranties to be granted or renegotiating the limit of the liability of the warrantors.

An analysis of legal fees generated from the 17 file cases reveal poor financial returns to LWS in representing either spin-out entrepreneurs or investors. Indeed, LWS “wrote off” a significant amount of time in dealing with entrepreneurs and investors; on average, equivalent to between 12% and 30% of the total fee charged. In the majority of cases, the final terms of the deal altered from the terms originally envisaged by either party. We asked LWS why it continues to provide legal services for university spin-out deals despite a financial loss. LWS states it is because of the intangible benefits to its reputation. LWS provides legal services to three prominent UK universities, from where the majority of USO clients have emerged. Most investor clients are also involved in other businesses in which they retain LWS services. This suggests a certain level of “additional” support around the deal-making process offered to university spin-outs and investors that is not captured by formal market exchange.

We find that the majority of contract term conditions between investors and USO entrepreneurs are not contentious (Figure 5). Most terms are elements of a standard legal investment agreement. However, we suggest that the overall level of contract terms place considerable conditions on USO entrepreneurs, particularly those with limited commercial experience. Entrepreneurs appear willing to make concessions on a number of issues in order to secure investment for the USO. In almost all cases, entrepreneurs conceded on contract terms during deal negotiation rather than investors.

Findings suggest that the private equity investor possesses a stronger bargaining position than USO entrepreneurs in negotiating and concluding an investment deal, even when USO entrepreneurs are represented by competent and reputable legal advisors. While investors are always able to walk away from negotiations if terms are not conceded, investors appear willing to negotiate away from their preferred position on warranties to secure a deal, but are not willing to concede on compulsory transfer agreements.

Stage 2: USO Survey

Figure 5 provides a summary of USO survey responses around three sets of relationships in the deal-making process: entrepreneur-university, entrepreneur-investment, and entrepreneur-legal service provision. A description of these relationships is offered below.

Figure 5: USO Survey Results (n=33)

<i>% of spin outs that....:</i>	Response
(Founder-university)	%
obtained legal advice prior to USO deal being formally agreed with university (i.e. prior to heads of terms)	0.63
amount of equity that they expected founders to collectively get was the amount of equity they collectively obtained in the spin-out company	0.79
amount of equity that they expected the university to obtain was consistent with the amount of equity that the originating university actually obtained at conclusion of the spin-out deal.	0.89
university did not seek to protect its equity interest against dilution when external investment was secured	0.65
information/guidance made available by universities to academic inventors needs to be improved	0.89
(Founder-investment)	
sought/obtained public grant funding	0.86
received equity investment at time of spin-out	0.70
disagreed that direct contact by the TTO to investors contributed to spin-out securing external investment	0.95
(Founder-legal service provision)	
disagreed that legal advisers should lead deal negotiations	0.74
would instruct legal advisers with the same advice in connection with the spin-out company formation	0.93
agreed that legal advisers could usefully assist founders in other matters of relevance (introductions to investors)	0.81
agreed that legal advice obtained was excellent	0.40

Entrepreneur-university: One set of questions asked entrepreneurs about their use of legal advice; 63% of respondents obtained legal advice prior to the spin-out deal being formally agreed with the university (21% prior to discussions over IP; 21% during initial discussions with university over IP commercialisation options; and 21% the stage of their negotiation of heads of terms (heads of terms, referred also as letters of intent, memoranda of understanding or heads of agreement, sets out the terms of the commercial transaction agreed in principle between entrepreneur and the university). This suggests that a certain amount of

discussion regarding spin-out deal terms will already have taken place between the university and entrepreneur prior to legal advisers being instructed to conclude a deal. We find that a large proportion of entrepreneurs that obtained legal advice in the latter stages of the spin-out process consider, on reflection, that legal advice should be obtained at an earlier stage in the process, costs permitting. By comparison, the legal file analysis found that 100% of entrepreneurs had chosen “spin-out” as the preferred commercialisation option prior to legal advice and that 83% of those seeking investment had negotiated deal terms with investors and licensing terms with the university, albeit informally, prior to employing legal advice.

We find that the majority of entrepreneurs indicated they concluded an equity-only deal with the university and obtained a full exclusive licence of the IP. In 65% of cases, universities did not seek to protect their equity interest against dilution where investment was secured at spin-out. While 79% of entrepreneurs report that their expectations regarding equity were met, entrepreneurs identify equity between themselves and the university and the terms upon which the IP was to be transferred to the spin-out company as the two most contentious issues in deal-making (Figure 6). We suggest that equity issues are contentious because of the level of uncertainty over TTO equity positions and associated need for case-by-case negotiation. Entrepreneurs identify the need for universities to be more transparent in respect of their policies and procedures relating to spin-out company formation; 89% of respondents consider that information/guidance made available by universities needs to be improved.

Entrepreneur-investment: Findings reveal that 70% of spin-out companies secured equity investment at spin-out. While 86% of entrepreneurs indicate that they first sought to secure or had secured grant funding prior to seeking external equity investment, the effect of successful receipt of grant funding on securing private equity investment cannot be confirmed here. Entrepreneurs identify that direct contact between the company and investors is the most effective way of securing equity investment. This finding offers strong evidence that the TTO is not perceived to be an effective medium to securing external investment. The factor rated highest by those securing external investment was “*direct contact by the spin-out to investor*” (57%), followed by “*direct contact by investor to spin-out*” (38%).

Founder-legal service provision: We find that 74% of entrepreneurs disagree that legal advisers should lead deal negotiations. At the same time, 65% of respondents disagreed that the role of legal advisers is only to draft the deal documentation. This suggests that founders are looking for legal advisers to take a proactive role with respect of the services they provide, but wish to retain control of the deal negotiation process. An interesting result is that 93% of founders, in hindsight, would again instruct legal advisers with the same advice in connection with the original spin-out company formation process. This is in contrast to findings from the legal files, which revealed that, during deal negotiation, entrepreneurs were instructing legal advisers to negotiate more favourable deal terms. One explanation is the influence of reflective hindsight in the survey (and that respondents are successful USO), while the legal files reported deal processes at the time they occurred.

The two most contentious issues for entrepreneurs in deal-making with universities are over: 1) the equity stake to be granted to the university; and 2) whether the university would grant an assignment or a license of the technology to the spin-out. Identification of equity stake as the key contentious issue supports findings from the legal file review on entrepreneur clients. The two most contentious issues with investors are over: 1) warranty provisions; and 2) the

equity stake to be granted to investors. Warranty provisions as the most contentious issue with investors supports findings from the legal file review. However, compulsory transfer provisions (CTPs) are not identified as a contentious issue by entrepreneurs in the survey (as it is for investors in the legal file review). For entrepreneurs in the survey, equity stake and three other investor-driven conditions are rated more contentious than CTPs. Figure 6 summarises entrepreneur perceptions of the most contentious issues arising during their negotiations with both universities and investors.

Figure 6: ‘Contentious Issues’ in Deal-making: Perceptions of Spin-out Founders (n=33)

Extent to which respondents considered the following to be a ‘contentious issues’ in USO negotiations (5-most, 1-least):	Weighted average
equity stake to be granted to the university and founders	3.70
assignment vs. licence to the spin-out company	3.16
Warranty provisions	3.00
equity stake to be granted to investors	2.80
Royalty rate payable to the university	2.41
Management remuneration	2.39
Consent of investors/investor director to certain issues	2.26
Composition of the board	2.08
The founder(s) leaving the university (e.g. secondment terms)	1.63
Compulsory transfer provisions	1.48
Other factors in the spin-out deal negotiations	1.18

CONCLUSIONS

Our findings lend support to previous studies suggesting a weak “investor-readiness” profile of university spin-outs (e.g. Mustar et al, 2008; Wright et al, 2006). However, we find a much more prominent role played by academic entrepreneurs in contributing to the weak investor-ready status of their enterprises. First, the majority of USO in the legal file analysis had IP ownership issues at time of negotiation with investors, resulting in higher liabilities placed on entrepreneurs during deal negotiation. Second, IP/patent value was not as strong a bargaining tool with investors during deal-making as suggested in the literature (e.g. Mustar et al, 2008; Hoang and Antoncic, 2003). We find that entrepreneurs overestimate the value of their IP and that investors negotiate on the basis that neither universities nor academic entrepreneurs can commercially apply IP without investor support. Third, entrepreneurs set unrealistic targets for concluding an investment deal; significantly underestimating the amount of legal support required.

An important contribution of the study is evidence of adverse effects of poor negotiating tactics on investment deal outcomes. Attempts by most academic entrepreneurs to re- negotiate or enhance their equity stake during legal intermediation - beyond that discussed during informal discussions with investors - provides concessions on other less important deal terms but fails to move investor positions on equity during formal (i.e. legally intermediated) deal negotiation. Informal deal discussion appears to have negative consequences on the most important deal terms with investors. Expectations by academic entrepreneurs to complete a deal quickly (e.g. arising from public funding deadlines) were shown to result in less favourable deal terms from universities, which in turn affected valuations and deal terms from investors. In most cases of the legal files, incomplete or improper legal assignment of IP and incomplete documentation provided by academic entrepreneurs required legal advisors to respond to investor demands for more legal service provisions *a priori*, which includes the drafting of additional provisions and deal terms.

Thus, another contribution of the study is evidence of a “crowding out” of effective legal mediation for USO entrepreneurs in negotiating favourable deal terms with investors.

The study supports our original postulation that USO investment deal-making is investor-driven. We suggest four factors that contribute to investors strengthening their deal negotiation position during legal intermediation: 1) attempts by academic entrepreneurs during legal intermediation to enhance their equity stakes beyond that agreed informally; 2) incomplete IP assignment from university to USO; 3) low level of competition for USO deals from other investors; and 4) delays in concluding investment deals, requiring time extensions from investors.

A further contribution of the study is evidence of adverse effects of deal negotiation between academic entrepreneurs and their respective universities on deal outcomes (e.g. Mustar et al, 2008). We observe a weak understanding of the deal making process by academic entrepreneurs that is manifest in negotiations not only with investors but with their own universities. We find that universities are more rigid in negotiating equity stakes with academic entrepreneurs than investors.

We suggest that recommendations made by Lockett et al (2002) some time ago that further development of a mutual understanding of the needs and skills of each party in an investment deal - academic entrepreneur, university and investor - remains an issue. Our findings suggest the need for third-party coaching of academic entrepreneurs in deal negotiation, negotiation tactics and deal structuring. We recommend that legal advice should be sought by academic entrepreneurs *at term sheet* rather than later, i.e. *post-term sheet* with investors. Early advice appears important prior to negotiations with investors, although this might not be practical given USO resource constraints.

We recommend that universities increase the transparency of terms, i.e. establishing written policies upon which the university transfers IP. Universities may wish to re-consider negotiating spin-out deal terms with academic entrepreneurs directly. If universities did not negotiate deal terms directly with academic entrepreneurs, this would ensure that entrepreneurs would seek appropriate and timely independent advice. Consideration should be given to the feasibility and benefits of introducing a memorandum of understanding between legal advisers and universities, setting out the terms upon which parties would contract in relation to USO deals.

In summarizing contributions of our study, we suggest that the micro-dynamics of the USO deal-making process are strongly influenced by the relative bargaining power of investors, academic entrepreneurs and universities. We find that the weak bargaining power of academic entrepreneurs is more the result of poor deal-making strategies rather previously acknowledged in the literature, where resource limitations and commercial capabilities have been emphasised.

Our theoretical contributions establish the importance of neo-institutional and nexus of contract theories in explaining the USO deal making process. Incomplete legal arrangements between one set of actors (i.e. USO and university) appear to signal a coordination problem affecting another set of actors (USO and investors), and a higher perceived risk by investors results in more restrictive deal terms for academic entrepreneurs. University policies and the indirect role of the university in investment deal-making (i.e. neo-institutional) appear to negatively affect USO investment deal outcomes. Two other theoretical constructs, resource-

based and asymmetrical information, are also relevant in explaining the USO deal making process. We observe that IP is not as strong a bargaining tool with investors as suggested in the literature (i.e. information asymmetry: does not favour the entrepreneur), while investors negotiate under non-competitive conditions where IP commercialisation is highly reliant on private equity investment (i.e. resource-based theory: favours investors).

We acknowledge several limitations to our study. First, we acknowledge the difference between “real-time” data from legal files and “reflective” survey data in interpreting our findings. Second, we did not investigate the effect of business angel syndication of investments. Syndication diversifies the risk of the angel investors involved and thus may play a role in the investment decision making process. Finally, we acknowledge country differences in how universities may support USO.

We suggest promising lines of inquiry for future research. Comparing unsuccessful investment negotiations with successful ones would be expected to refine the distinction on how USO investor-readiness and particular negotiation tactics affect deal outcomes. Research that compared the type of science or IP possessed by the USO could identify differences in deal making processes and outcomes. Finally, future research could examine whether or not the nature of the deal negotiation process and/or particular deal terms influence the post-investment relationship and ability to secure follow-on investment.

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DO MALE AND FEMALE ENTREPRENEURS DIFFER IN GETTING ADVICE FROM NETWORK CONTACTS?

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Do male and female entrepreneurs differ in getting advice from network contacts?

Abstract

Female and male entrepreneurs differ in the way they make use of their networks, especially in the different development stages of their businesses, from start-up to young and to established businesses. The networks they use contribute to their ability to access additional resources, gather information, reduce uncertainty and identify business opportunities. Using data from 1,668 entrepreneurs in Thailand, we explore if men and women use different networks for doing business in a country with an equal proportion of women and men entrepreneurs. Do they use their networks in the same way and to the same extent before starting a business and after having established a business?

Previous research did not use data stemming from a country with an equal proportion of female and male entrepreneurs. It was found that the overall use of networks seems to be rather similar for men and women entrepreneurs, but not entirely. We found differences in the use of entrepreneurial networks: potential female entrepreneurs were less inclined to ask for advice in the idea generation phase than their male counterparts. Even though male entrepreneurs in general number more entrepreneurs among their networks, the effect of gender on advice-seeking was independent of this fact.

Introduction

General agreement exists among scholars that network activities of entrepreneurs provide them with resources they need to establish and run their businesses (Aldrich & Martinez, 2001; Greve & Salaff, 2003; Renzulli, Aldrich, & Moody, 2000). Clearly, there is consensus about the importance of networks and of network heterogeneity for start-up firms and young businesses (Hite & Hesterly, 2001).

Information and access to knowledge and advice are among the most important resources for entrepreneurs provided by their networks (Klyver & Hindle, 2007). An individual's decision to enter entrepreneurship is influenced by information from others (Levesque et al, 2009). Possessing information may further lead to the identification of opportunities (Shane & Venkataraman, 2000). Therefore, the use of networks for entrepreneurs is an important activity enabling an entrepreneur to generate necessary information and knowledge as well as to detect opportunities.

Literature also discusses gender-related differences in structure and in use of social networks. Though men and women entrepreneurs are similar in many demographic terms, they differ in their approach to venture creation (Brush, 1992). There is also broad agreement that men and women use different types of networks to reach similar career goals (Ibarra, 1997). Women tend to form smaller and more local networks and usually have different ways of networking. They rely more on extended family bonds as their often main social network, especially in rural settings (Minniti & Naudé, 2010). Women also spend less time networking than men because of their additional tasks in household and social context, and because networks in general are less accessible for women than for men (Verheul & Thurik, 2001).

Challenges and requirements for entrepreneurs vary by the phase of their entrepreneurial activities. They differ for potential entrepreneurs, intending to start a business, over just starting up, to running a new and later an established enterprise. Entrepreneurs adapt their networks to meet those different challenges. Start-ups and new businesses have a more extended network due to the need for higher resources and for growth, whereas established entrepreneurs reduce the size

of their social networks (Greve & Salaff, 2003). Not much is known about gender related differences in how networks are used throughout the phases of entrepreneurial networks. In early start-up phases women tend to use more extensive networks than men, mainly directed towards family, whereas men tend to ask for advice from their friends. How their search for information and opportunities and their advice-seeking behavior changes or adapts over time when they run their businesses and become established business owners, is less investigated. Since the use of networks or being part of a network generates resources and is finally related to a firm's growth and its survival, further insights about networks through the different entrepreneurial phases can lead to a deeper understanding which specific networks are used as resource generation at a specific business phase. Knowing about differences or similarities of genders in their network use over time can help fostering them through the challenges in the various business phases by supporting their access to relevant network groups. There is also a gap in literature on everyday social interaction and networks which facilitate the formation of new and the support of existing small and medium-sized enterprises specifically with regard to Asia (Belton, 2012). There is especially little previous research on the network use of established business owners, who encounter for the majority of enterprises in many countries, also in Thailand. Information about the networks of established business owners – female and male- may help to understand and to support businesses in the transformation from the entrepreneurial intention to become a business startup and finally a sustainable mature enterprise.

The purpose of this study is to explore if the use of networks over time -before starting a business and after having established a business- differs for women entrepreneurs compared to their male counterparts. Do they use their networks in the same way and to the same extent before starting a business and after having established a business? This study examines data from the 2012 Global Entrepreneurship Monitor (GEM) study in Thailand; we investigate this question by comparing networks of Thai male and female entrepreneurs in three different phases of entrepreneurship: potential entrepreneurs¹, nascent and young entrepreneurs² and those running established businesses³.

The following sections provide a brief literature review on the relation between entrepreneurs and their network activities for idea generation and opportunity identification with a focus on gender-related activities and on the Thai context, followed by a description of the methodology, the data and variables used, and the analysis. In the last section we summarize the findings and draw conclusions.

Background

Three entrepreneurship phases: potential – nascent and young - established

Entrepreneurship is not defined consistently; some researchers emphasize factors such as growth and innovation; others argue that “the term ‘entrepreneur’ is also used as a kind of generic shorthand for any individual who starts-up, runs and possibly, but not inevitably, grows a new business venture” (Taylor & Walley, 2004). One main source of measuring entrepreneurial activities in a global context is the Global Entrepreneurship Monitor consortium GEM; their definition is used in this paper. Entrepreneurship according to GEM is defined as “any attempt at new business or new venture creation, such as self-employment, a new business organization, or

¹ Potential entrepreneurs are defined as those expecting to start a new business within the next three years.

² Nascent and young entrepreneurs are defined as entrepreneurs whose businesses are not older than 42 months.

³ Established entrepreneurs operate their businesses for more than 42 months.

the expansion of an existing business, by an individual, a team of individuals, or an established business” (Bosma et al, 2012) .

The entrepreneurship phases in GEM are viewed as a process starting with potential entrepreneurs, mainly led by their beliefs and attitudes and intending to start a business within the next three years, over just starting up (nascent) to running a new and later an established enterprise. GEM assesses this process at the different points in the enterprise’s life. Challenges and requirements for the business owners vary during the three phases and are influenced by a variety of factors, network resources being one of them. This paper refers to potential entrepreneurs with the intentions to start, young business owners (either nascent or new), and established entrepreneurs. The three phases-approach to firm development is useful to frame the different stages a firm passes through, since each entrepreneurial phase represents a specific strategic context in which the entrepreneur operates; influencing the needs for resources and the nature and extent of his/her contacts (Hite & Hesterly, 2001; Larson & Starr, 1993). Transformation from one phase to another is a risk to existing networks as well as an opportunity for new networks (Bogren et al, 2013), and for entrepreneurs the “successful transition from one phase to another appears to depend on the ability to develop their network and on the initial network position” (Greve & Salaff, 2003).

We choose this approach to investigate differences in network use because business phases correspond to different needs: potential entrepreneurs might seek information leading to opportunity identification, whereas young and established business owners might be inclined to ask for advice in uncertainty situations. The different phases can help to highlight different characters of private and entrepreneurial networks that might benefit the female or male entrepreneur and his business in its specific development stage.

The role of networks at different stages of business

One assumption in entrepreneurship research with regard to social networks is that networks of entrepreneurs differ in the various phases of the entrepreneurial process. Literature on the development of entrepreneurial networks during growth phases and start-up activities is extensive, as is on social contacts in an entrepreneurial context. It is generally recognized that entrepreneurial activities are socially embedded through business networks. By using their contacts, entrepreneurs are linked to people and to organizations, thus complement their own personal resources (Aldrich & Martinez, 2001; Greve & Salaff, 2003; Hansen, 1995). Social networking is one important factor affecting business success in Thailand, facilitating access to resources for different entrepreneurial phases (Chittithaworn et al, 2011) with informal channels proving to be more successful for knowledge transfer than official attempts of technology transfer (Belton, 2012).

There is a gap in the literature on the development of the networks over time from a gender perspective. Networks of entrepreneurs change over time in the firm’s development phases during which firms strategically adapt their networks to receive necessary access to resources and information for their entrepreneurial progress and success (Greve & Salaff, 2003); they can be relations to family and friends, to organizations, to work colleagues, external advisors as well as to others who help them do their business (Hansen, 1995). Hite and Hesterly (2001) argue that for start-up firms networks with important relationships to the individual person matter more for the entrepreneurial outcome than the economic function of this tie. These network connections, mostly family or social ties, are already prevalent a longer time before the intentions to start a business arise. In contrast, early growth and young businesses use more calculative-based

connections which concentrate more on the purpose and the function than on the individual identity, in series providing greater resources and reducing uncertainties in these phases.

The role of networks for information search, opportunity identification and uncertainty reduction

There is consensus that social networks of entrepreneurs differ in the stages of business development. Gathering sensible and non-sensible as well as divers and non-divers information and gaining access to knowledge and advice are among the most important resources provided by networks (Klyver & Hindle, 2007). Arguments around the entrepreneurial process of information search and opportunity recognition emphasize the importance of networks, besides giving access to tangible resources like finance, they also provide access to intangible resources such as knowledge, advice and external skills, all of which add competency and thus reduce uncertainties for future entrepreneurs. These informal support sources derive from strong ties with frequent contacts and seem to be more important than support from weak formal sources. First-hand information from other recent start-ups helps to deliver a clearer picture of the until date uncertain future for the potential entrepreneur. Compliance exists that knowing an entrepreneur is an important source of information for potential entrepreneurs in the early phase of venture creation where they are searching for opportunities (Davidsson & Honig, 2003; Evald, Klyver, & Svendsen, 2006; Klyver & Hindle, 2007). The ability to identify and to access opportunities is regarded as an important entrepreneurial capability (DeTienne & Chandler, 2007; Hanson & Blake, 2009; Shane & Venkataraman, 2000).

Using networks generally increases the probability of survival and growth for young start-ups and new businesses but is less important in the actual start-up phase where entrepreneurs tend to rely more on extended family and social ties (Brüderl & Preisendörfer, 1998; Greve & Salaff, 2003; Klyver & Hindle, 2007; Larson & Starr, 1993). For entrepreneurs in their young business phase knowing an entrepreneur becomes increasingly important again. (Hite & Hesterly, 2001; Klyver & Hindle, 2007; Larson & Starr, 1993). These findings imply that potential and young entrepreneurs should especially make use of informal networks such as family, friends, and other entrepreneurs to search for information and filter opportunities. Since some individuals who intend to start up number entrepreneurs among their networks and others do not, and since knowing an entrepreneur increases the probability of becoming an entrepreneur, entrepreneurial networks in general and those who include entrepreneurs themselves specifically, are of high relevance in searching for information and advice. Female entrepreneurs in general are less likely to know other entrepreneurs than men (Kelley et al., 2013). Again there is a research gap on the importance on knowing an entrepreneur in later business phases for established business owners.

The role of networks and gender

Previous research highlights gender-related network differences for the different business phases. Social identity, such as gender, affects the entrepreneur's access to entrepreneurial networks, their composition and their effectiveness (Blake & Hanson, 2005). Women entrepreneurs overall tend to have smaller networks than male entrepreneurs. The female network is targeted preferably at family and spouses within their personal relationships and private environment, whereas men -despite also using this network- tend to seek advice mainly from their friends. Moreover, men use additional network resources like their work environment or professional advisors (Donna Kelley, Bosma, & Amorós, 2011). In the early phase of their emerging ventures, women tend to have significantly larger networks than men but also comprise fewer males in their networks. Female established business owners again make more use of family network (Klyver & Terjesen, 2007). They might use advice from family and friends more

often, because these network contacts are available to them and because they do not rely on additional professional contacts as men (Robinson & Stubberud, 2009). In contrast to the research of Kelley et al (2011), Ibarra (1997) highlights the importance of friendship for women within their excessive network relationships. Women networks tend to be more homogeneous during nascent and new business phases, while men in these phases use heterogeneous networks (Renzulli et al., 2000) and women entrepreneurs with developed networks recognize this social capital (Bogren et al., 2013). In general, women-owned firms in Thailand lag in formal networking (APEC, 2013). These findings imply that the networks of female entrepreneurs change during the different business phases and that they differ from those of their male counterparts, typically being smaller, mainly consisting of family and friends.

Regarding the influence of culture on social networks, opinions differ. (Minniti & Naudé, 2010). A study from Vietnam shows that social capital at the micro family level in rural regions is an important source of information for female entrepreneurs in developing countries, but can also be a limiting factor, if social ties put strain on time and obligations for the female entrepreneur (Poon, Thai, & Naybor, 2012). Thai female entrepreneurs articulate, that being an entrepreneur deals with combining personal opportunity with responsibility for others, which in turn leads to a network on connections with staff, vendors, and other people that are attached to the business (Hatcher & Terjesen, 2007). There is a gap in literature about the network characteristics of women and men entrepreneurs with respect to the country-specific prevalence of women entrepreneurship, such as in Thailand with a slightly higher number of female than male entrepreneurs.

Data and Methodology

Data for this study were collected by the GEM Thailand team between May and July 2012 in Thailand in connection with the GEM 2012 Global Study on Entrepreneurship. The survey group consisted of a representative sample of 3,000 adults of the national population between the age of 18 and 64. A total of 48.6% of the Thai population was engaged in entrepreneurial activities, either as nascent or new business owners (total early-stage entrepreneurial activity TEA⁴), or as established entrepreneurs, ranking first in Asia (Xavier et al, 2013). 54.4% of them were women; 45.6% were men. TEA accounted for 18.9% (21% female/17% male), and 29.7% were established business owners (15.6% female/14.1% male), each business phase showed more female than male participation. Female participation in entrepreneurial activities varies across the member countries of GEM. Male and female total early-stage entrepreneurial activity (TEA) differ less in innovation-driven economies while female TEA rates are relatively higher in efficiency-driven economies. Thailand as an efficiency-driven economy is notable for the high and equitable share of female to male TEA. The GEM 2012 Women's Report found that an equal or slightly higher female to male entrepreneurship ratio is prevalent only in seven out of 69 economies: Thailand in Asia, Ecuador, Mexico and Panama in Latin America, and Ghana, Nigeria and Uganda in Sub-Sahara (Kelley et al, 2011).

The sample of the Thai entrepreneurs distinguishes the different developmental phases of entrepreneurial ventures. We survey 307, 300, and 1061 entrepreneurs in the phases as potential entrepreneur, young and established business owner, respectively. We do not find a significant difference between genders in the number of business owners. A majority of businesses are

⁴ Total early-stage entrepreneurial activity (TEA) is composed of nascent and new entrepreneurs

owned by one person - the sole entrepreneur, both in young businesses (72.0% of the male and 73.5% of the female entrepreneurs) and in established businesses (78.1% of the male and 78.0% of the female entrepreneurs). We therefore argue that the entrepreneur who responded to the study is also the person using the network, and is either male or female. This does not necessarily mean that more family members might be involved in the business, but our study only uses the answers of entrepreneurs who responded on having used advice from different groups, not those of additional non-owner family members.

We analyze the total number of network contacts used to ask for advice and further follow the superior network classification of (Donna Kelley et al., 2011). Our model focuses on what can be considered to be the most important group for information: entrepreneurial networks (other start-up business, other experienced business, investor, researcher, advising service, somebody abroad, somebody from abroad). Entrepreneurs were asked if they had used different sources of advice for their entrepreneurial activities, including the information, if they knew an entrepreneur who had started a business during the previous two years. This was done for three stages of business activities “intending to start up within the next three years” (potential entrepreneurs); “starting a business”(nascent) and “running a firm for not more than 42 months” (new) – combined to “young entrepreneurs” in our analysis and “running a firm for at least 42 months” (established entrepreneurs).

We used regression analysis to analyze the data. We controlled for education, age, household size and also if the respondents claimed to know another entrepreneur or what their motivation was: were they opportunity-driven or were they starting an enterprise out of necessity, because they did not have another choice for work? Furthermore we grouped them into regions for our comparison. Thailand is divided into five regions: the greater Bangkok area (Greater BKK), including the inner city of Bangkok and outer areas of Bangkok Nonthaburi, Samutprakarn, and Patumthani, the Central, which covers the areas in the west, the east and the central part of Thailand excluding Greater Bangkok, the North, the Northeast and the South. In all regions we have respondents from both urban and rural areas.

Results

Table 1 presents the descriptive statistics and correlations of the study variables. It is clear that advice-seeking is most intense for potential entrepreneurs, and nascent entrepreneurs. Established entrepreneurs seek less advice.

Table 1. Descriptive statistics (Mean, standard deviation, and range), and correlations between study variables.

			(1)	(2)	(3)	(4)	(5)	(6)	(7)
	M (SD)	Range							
1. Advice potential phase	.81 (1.10)	0-5	na						
2. Advice nascent phase	.83 (1.23)	0-5	na	na					
3. Advice established phase	.53 (1.07)	0-5	na	na					

4. Gender	.48 (.50)	0-1	.15**	.06	.03				
5. Age	39.49 (13.01)	18-64	-.06	-.07	-.05	-.05*			
6. Knowing another entrepreneur	.34 (.48)	0-1	0.18**	.07	.14***	.11***	-.04*		
7. Opportunity recognition	.43 (.49)	0-1	.01	-.01	.11**	.02	-.14	.24***	
8. Household size	4.93 (1.66)	0-15	.14*	.14*	.06*	-.01	-.07***	.03	.01

* = $p < .05$; **= $p < .01$; *** $p < .001$

The results of the regression analysis are shown in Table 2. It is clear that only potential male and female entrepreneurs differ in their advice seeking. Male entrepreneurs are more likely to seek advice, especially advice from other start-up businesses (male 34.1%/female 21.9%) and from experienced business owners (male 33.3%/female 23.6%). In the other two stages, nascent and established, there is no difference between males and females.

Male entrepreneurs, potential, nascent and established, know more other entrepreneurs than their female counterparts. On average 30% of females know an entrepreneur, 40% of the males know an entrepreneur. We checked whether the effect of gender on advice-seeking is mediated by the variable “knowing another entrepreneur” by removing this variable from the regression model. The effect of gender hardly changes. We also redid the analysis selecting only those entrepreneurs who know another entrepreneur. The effect of gender on advice seeking does not change, although the effect is less significant (because of the smaller sample size).⁵

Although rural entrepreneurs in general ask less advice than urban entrepreneurs, there is no gender-related difference, which contradicts previous research that in rural settings women might feel time constraints due to other obligations, tend to use networks less and rely more on extended family.

Table 2. Regression analysis of advice seeking in three entrepreneurial stages.

	Advice-seeking potential stage	Advice-seeking nascent stage	Advice-seeking established stage
Gender (0=female, 1=male)	.36** (.12)	0.14 (.14)	.00 (.07)
Age	-.00 (.00)	-.01 (.01)	-.00 (.00)
Knowing another entrepreneur	.41** (.14)	.23 (.14)	.26*** (.07)
Opportunity recognition	-.03 (.13)	.00 (.14)	.16* (.07)
Household size	.09** (.03)	.11* (.04)	.04* (.02)

⁵ We were not able to control for the motivation to start up a business, this information is available for nascent and established entrepreneurs, but not for potential entrepreneurs. Including it in the equations for nascent and established entrepreneurs did not change results.

Greater BKK	-.26 (.22)	-.46 (.29)	.00 (.13)
North	-.13 (.24)	-.79** (.28)	.24* (.11)
Northeast	-.08 (.22)	-1.17*** (.24)	0.17 (.10)
Central	-.47 (0.22)	-.99*** (.29)	-.06 (.11)
R-square	.09	.13	.04
No. of observations	307	300	1016

Summary and Conclusions

The focus of this study was on differences between female and male entrepreneurs with respect to the use of networks during three stages of entrepreneurial activities. Using data from 1,668 entrepreneurs in Thailand, a country with entrepreneurial gender equality, we investigated if men and women use their networks in the same way and to the same extent before starting a business and after having established a business.

We find that the use of advice networks only differs between males and females in the potential idea generating phase of entrepreneurship.

In line with previous research, our study shows that advice seeking differs between male and female potential entrepreneurs. However, in our analysis we find that generally females especially in early business phases make less use of the networks, contradicting previous findings that women use larger networks than men during early venture creation (Klyver & Terjesen, 2007).

Men and women entrepreneurs have different entrepreneurial networks, with men knowing more entrepreneurs than women in all business stages. However, advice-seeking does not differ between male and female nascent and established entrepreneurs, contradicting previous findings (Greve & Salaff, 2003; Ibarra, 1997; Minniti & Naudé, 2010; Verheul & Thurik, 2001). So especially in the early idea generating stage of business creation, males are more prone to talk to other entrepreneurs, both start-ups and established, about their ideas. Potential female entrepreneurs are less inclined to ask for advice in the idea generation phase than their male counterparts. Moreover, the effect of gender on using the network is the same if we control this for potential entrepreneurs who claim to know an entrepreneur, meaning that they have access to at least some entrepreneurial network, or for those who recognize opportunities in starting up. Previous studies emphasize the relevance of knowing an entrepreneur especially in the idea generation phase of a start-up business (Davidsson & Honig, 2003; Evald et al., 2006; Klyver & Hindle, 2007). With regard to the prevalent high female start-ups in Thailand, which are higher for women than for men, our study does not support the relevance of knowing an entrepreneur, at least not for potential female entrepreneurs. In addition, our findings do not support previous assumptions how the use of networks differs, and which networks are used in the different entrepreneurial phases.

Finally, again contradicting previous research: in later business phases we cannot confirm that the use of networks differs greatly for men and women entrepreneurs. There is also no significant change of networks in the business development phases. The results suggest that over the time of running a business, challenges and requirements for advice become similar for men

and women, since the network use also means access to additional resources. As a new aspect in women entrepreneurship research our research also highlights the possibility, that –in countries with gender equality in entrepreneurship- no prevalent differences in the use of networks of men and women entrepreneurs exist, once businesses are started and running.

Explanations why a different and gender-related use of networks can be found in entrepreneurial networks during the phase in which they intend to start a business might evolve around additional questions: might women have less access to this type of resource or do they not prefer to use these networks at this stage? When taking into account that using networks and asking for advice can be regarded as input factors in businesses, it can be questioned if women intend to start their businesses with less effort or input or if they make more efficient use of their networks compared to male entrepreneurs. Networks of female and male entrepreneurs at the intention phase might also be shaped by their previous and current work experiences which might differ. After starting-up and in further entrepreneurial development phases, when men and women have similar resource requirements, their networks in series might also adjust and become more similar.

It might be argued that the study is limited because it only uses Thai data. Further research might also need to explore how networks are embedded in a larger cultural context. Certainly one main difference to previous research is, that earlier studies were not aimed at data stemming from a country with an equal proportion of female and male entrepreneurs including the different stages of business development as the regional settings. An understanding of social capital in terms of which networks are necessary and actually used by entrepreneurs can help to aim at the right triggers for start-up rates. Our findings may give insight to an explanation of gender equality in entrepreneurship and outline the importance of the entrepreneurial process of networking for entrepreneurship rates. The results could propose implications to encourage entrepreneurship in countries with a relatively smaller number of women entrepreneurs, fostering specific networks in specific entrepreneurial phases.

Our preliminary findings are useful for future research on network development over the stages of the business, evaluating further how networks might evolve differently in countries with a high female participation in entrepreneurship. New insights could derive from a comparison between countries with a similar high female/male ratio in entrepreneurship and their networks and in contrast to countries with a low ratio and their networks. Same insights are helpful for gender-related research, where the Thai specific findings could be used to evaluate gender-related networking issues more detailed for those economies where outstanding prerequisites as to female entrepreneurship are prevalent and well reputed.

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INCUMBENTS RESPONSES TO DISRUPTIVE TECHNOLOGY-DRIVEN AND DISRUPTIVE MARKET-DRIVEN BUSINESS MODEL INNOVATIONS

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Incumbents Responses to Disruptive Technology-Driven and Disruptive Market-Driven Business Model Innovations

Abstract: Current research argues that incumbents should respond to disruptive innovation by setting up a separate business unit. This recommendation stems from research predominantly carried out on disruptive technologies in high-tech industries but whether incumbents respond differently to other types of disruptive business model innovations has not been empirically analysed. By collecting data from 88 strategic business units (SBUs) and dividing the sample into incumbents responding to disruptive technology against those responding to disruptive market-driven innovations, the result of this study show that the latter type of firms can succeed in managing both disruptive and sustaining innovations without setting up structurally separated business units.

1 Introduction

Is creating a disruptive business model innovation in a separate organizational structure a panacea for incumbents to respond to disruptions induced by entrants? Christensen (2006) challenged academics to find true anomalies to his disruptive innovation model; that is can incumbents succeed by integrating disruptive innovation within the same business unit that simultaneously exploits sustaining innovation? In this study, we embark to take this challenge. Extant disruptive innovation theory suggests incumbents can exploit sustaining innovations within the established business unit, whereas they need to set up a structurally differentiated business unit to explore disruptive business model innovation (Christensen and Raynor, 2003). This recommendation seems to originate from research that viewed disruptive innovation only in terms of technology change and where the business model implicitly was assumed to be of little importance. This view was enriched overtime by successive research conducted mainly on disruptive technologies in high-tech industries (e.g. Christensen, 1997: the disk-drive industry, Adner and Zemsky, 2005: the computer industry, Ferrary, 2011: Silicon Valley, the telecommunication equipment industry). More recent studies attempted to generalize the theory to all types of disruptive innovations by shifting the unit of analysis from technology change to a business model change (Dewald and Bowen, 2010; Christensen, 2006; Christensen and Raynor, 2003; Gilbert, 2003).

Markides (2006: 19) noted that disruptive technological product and disruptive business model innovations “create different kinds of markets, pose radically different challenges for established firms, and have radically different implications for managers.” Habtay (2012) further expanded this categorization into ‘market-driven disruptive business model innovation’ vs. ‘technology-driven disruptive business model innovation’. While these studies provide useful insights about the different antecedents of disruption, there seems no systematic research that has investigated whether and how incumbents’ *responses* vary between technology-driven and market-driven disruptive business model innovations and whether there is a systematic difference in terms of performance between the two groups.

To examine this question, this paper tests three key established constructs of the separation theory across the two groups of firms. The first deals with strategic orientation that refers to the firm’s underlying philosophy and embedded set of values which guide the firm’s strategic direction in its pursuit to achieve industry leading positions (Gatignon and Xuereb 1997). Prior research establishes that incumbents with entrepreneurial orientation (EO) are more likely to pay attention to emerging market (Govindarajan et. al., 2011), environmental turbulence (Miller, 1983) and do well to compete in disruptive and sustaining innovations simultaneously (Zhou et. al., 2005) and show the propensity to simultaneously engage in “the pursuit of new market opportunities and the renewal of existing areas of operation” (Hult and Ketchen 2001: 901). In contrast, incumbents with market orientation give the highest priority to the profitable creation and maintenance of superior customer value to existing customers

(Slater and Narver, 1994). Getting closer to existing customers may influence managers to miss an emerging disruptive market (Christensen, 1997).

The second deals with accumulated core capabilities. When incumbents respond to disruptive innovation, while maintaining sustaining business models, the question of how to simultaneously develop exploration and exploitation capabilities arises (Tushman and O'Reilly, 1996; Duncan, 1976). Exploitation configures and coordinates current knowledge, processes and routines, allowing greater efficiency and improvements to foster sustaining business model innovation. Exploration, in contrast, involves development of new skills, seeking variety and experimentation with new projects to enable disruptive innovation (March, 1991; Atuahene-Gima, 2005).

The key problem senior management encounter is how to develop explorative capabilities: Should it leverage and exploit internal accumulated competencies or acquire disruptive specific external competencies from the market? The third interrelated issue is about organizational structure. Should incumbents integrate within disruptive innovation existing business unit that commercializes sustaining innovation or differentiate it in a separate business unit? Our answer is that contextualizing the nature of disruptive threat from the entrants can help incumbents to frame their responses in a better way. While emphasizing that disruptive innovation is about a business model change, we argue one way to contextualize a disruptive threat is to categorize between *disruptive technology-driven business model innovation* and *disruptive market-driven business model innovation* (Habtay, 2012; Markides, 2006).

2 Technology-Driven vs. Market-Driven Disruptive Innovations

Recent studies identified variations of disruptive innovations, for example, 'low-end' vs. 'new market disruption' (Christensen and Raynor, 2003); 'low-end encroachment', 'fringe-market low-end encroachment', 'detached-market low-end encroachment' (Schmidt and Druehl, 2008); 'disruptive technological product', 'disruptive business model innovation' (Markides, 2006). Using the business model concept as a framework of analysis, Habtay (2012) showed the differences between the latter two types of disruptive innovations in terms of antecedents and disruptiveness potential from the disrupting entrant perspective. The study showed that first, technology-driven disruptive innovation typically emerges from start-up firms that focus on upstream R&D exploration activities and unfolds through uncertainties, intermittent evolutionary and complex processes (Adner and Zemsky, 2005) that involve multiple actors including inventors, universities, research laboratories, public institutions, venture capital firms and others (Ferrary and Granovetter, 2009). A disruptive business model unfolds when a market emerges for the technology and downstream firms begin to exploit market opportunities (Ferrary, 2011).

In contrast, the source of market-driven disruptive business model innovation is design of a business model that results from specializing and minimizing complexity in the old model, particularly from deconstruction of traditional downstream industry value chain systems. Existing market opportunities allow disruptive market-driven entrants to introduce value propositions that are close to a 'good enough' point from the start (Habtay, 2012). Contrasting with disruptive technology, Charitou and Markides (2003: 55) defined business model innovation as "a fundamentally new way of competing in an existing business" or "an innovation in one's business model that leads to a new way of playing the game." It frequently emerges in mature markets where competition through a new business model becomes critical (Moore, 2004). But it needs to be emphasized that the key difference is that market-driven disruptive business model innovations do not involve major upstream technological product innovation. In the following, we develop the study's conceptual model to address our question.

3. Conceptual Model

Entrepreneurial – Market Orientation: Current studies consider organizations to be inherently entrepreneurially orientated (EO) or market orientated (MO). While internal organizational culture and embedded senior management's orientation are important, whether the nature of external disruptive threat influence senior management to be entrepreneurial or market orientated is not known in disruptive innovation research. Previous entrepreneurship research found that corporate entrepreneurial risk-taking was relatively higher in high-tech industries relative to those in low-tech industries (Zahra and Covin, 1995; Covin et al., 1990). Similarly, technology change studies showed radical technology triggered high managerial attention because its imminent threat of obsolescence to existing core capabilities was obvious *ex ante* (Henderson and Clark, 1990). Investigating 71 mobile communications firms, Kaplan (2008) found that the effect of external technology change on managerial attention increased when prior competencies were not relevant to the new opportunity. Conversely, when prior core competencies were relevant to new opportunities, the effect of change on managerial attention was moderated. We extend Kaplan's (2008) view to argue that disruptive technology-driven is more likely to trigger entrepreneurial orientation relative to disruptive market-driven innovation.

Our case studies showed that the original technological capabilities that were 'ticket to entry' of disruptive technologies for the entrants often failed but the business model that succeed unfolded over a longer time period (Brink and Holmén, 2009). Once however, the entrants crossed the chasm, the disruptive threat increased and the disruptive trajectory continued without intersecting with the sustaining trajectory (Christensen, 1997). The disruptive technology entrants increased the rate of disruption through two ways. First, the disruptive technology allowed to disintegrate previously integrated value propositions where a number of entrants specialized on few competencies, for example in the mobile communications industry, some focused only on VoIP and others only on data disintegrating the previously packaged cellular voice calls and SMS communications. Second, the constant disruptive technological advancements allowed the incremental costs to fall into the bottom line of the disruptive low-cost business model amplifying asymmetric motivation between the sustaining and disruptive business models (Adner, 2002).

In contrast, the market-driven disruptive innovation entrants captured a small portion of mainstream market share quickly in the short-run (Markides, 2006) due to business model specialization and lower-cost advantage but its long-term disruptive threat stagnated, moving closer towards the sustaining trajectory because of intensified competition, rising input costs and marketing expenditure. The incremental rising costs were absorbed into overheads, limiting the market-driven entrants' further disruptiveness potential. The same market conditions forced incumbents to counter-attack disruption using old business models. Concerning differences in cost patterns, Trott (2012) shows differences in new product development (NPD) processes between technology-intensive and market-intensive industries. In the market-intensive industries, the costs of (NPD) rise as it moves closer to launch stage due to intensive marketing expenditures. In contrast, the cost curve for technology or science-intensive industries is inverse, where high costs are initially invested on R&D activities but overtime costs decrease due to low-cost promotional activities towards the end of the development.

Given the relatively high threat coming from disruptive entrants, incumbents facing disruptive-technology are more likely to be entrepreneurial. But because disruptive market-driven innovation tends to grow at a declining rate during its life cycle and that incumbents are capable to fight back using their sustaining business models, they are more likely to be more market orientated in face of disruptive innovation.

H1: Incumbents facing disruptive technology innovation are more likely to be entrepreneurially orientated relative to incumbents facing disruptive market-driven business model innovation in face of disruptive innovation.

Acquisition – Leverage Prior Core Competences: One perspective argues that because of inertia of the engrained and intertwined strategic orientation, values and capabilities that made the firm successful in the past, leveraging prior capabilities is difficult (Ferrary, 2011; Chesbrough and Rosenbloom, 2002; Leonard-Barton, 1992). Therefore, acquisition can renew the incumbent by breaking from the past, creating variety and fostering its long term survival (Vermeulen and Barkema, 2001; Sanchez et. al., 1996). Acquisition strategy can range from acquiring disruptive start-ups (Ferrary, 2011; Vermeulen and Barkema, 2001), acquiring technology (Tidd and Trehwella, 1997) or acquiring competence (Malmström and Wincent, 2012). In responding to disruptive innovation, acquiring disruptive specific competence can not only minimize the time needed to develop and establish a position quickly in the new market (Oviatt, and McDougall, 1994) but also provides a solution to overcome rigidities in routines and processes (Ferrary, 2011). On the other hand, it can raise costs and increase tensions especially when the acquired firm or competencies are managed under the acquiring parent organization (Vermeulen and Barkema, 2001).

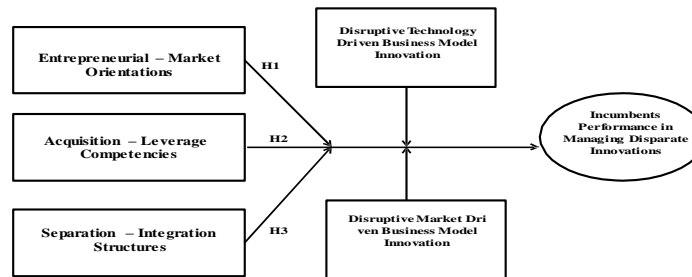
The alternative perspective is that firms have absorptive capacity (Cohen and Levinthal, 1990) that allows them to integrate and reconfigure skills and resources to adapt to market and technological shifts (Lavie, 2006; Teece et. al., 1997) and renew their prior accumulated knowledge and experiences to manage new opportunities (Shane, 2000). Leveraging prior competencies by way of appointing internal CEOs with greater tenure in the parent corporation may increase incumbent's effectiveness because they have relatively more power than an outsider to negotiate for resources and are likely to have more freedom to take risks (Garvin, 2004). The downside is that the incumbents' embedded organizational orientation and values may migrate to the disruptive innovation via internal transfer of competencies (Christensen and Overdorf, 2000) and it can influence negatively the development and outcome of the disruptive business model innovation (Chesbrough and Rosenbloom, 2002).

Firms, of course, can do both simultaneously; acquiring external competencies and leveraging internal prior experiences depending on their circumstances. In this study, we are concerned specifically on the context that influences senior management's to do more of the other, i.e. to acquire more relative to leverage, vice versa. Our second stage case studies revealed incumbents responding to disruptive technology acquired competences from the disruptive market to develop the new business model. For example, the Mobile Network Operators (MNOs) hired outsider managers who were the founders of information and computer technology (ICT) start-ups or software developers that included VoIP, data and a range of multimedia broadband communication applications. In contrast, the airlines, insurance and banking companies assigned senior managers from inside, simply because they had similar core operational capabilities required to develop the disruptive market-driven innovations.

Technology change studies demonstration that radical (Dewar and Dutton, 1986), competence-destroying (Tushman and Anderson, 1986) or architectural technological innovations (Henderson and Clark, 1990) depart significantly from the incumbent's prior established core technological capabilities and create misfits in technical learning and product development. This suggests that while disruptive technology entrants are more likely to shift the core competence base compared to disruptive market-driven entrants. In the latter case, incumbents will have the opportunity to leverage their core capabilities.

H2. *Acquisition strategy is more positively related to incumbent's performance adapting to technology-driven disruptive innovation relative to incumbents adapting to disruptive market-driven innovation.*

Figure 1: A Conceptual Model



Structural Differentiation – Integration: Related studies suggest multiple paths to manage the paradox of disruptive and sustaining innovations simultaneously as described in autonomous organization (Christensen and Raynor, 2003) and contingency models (Markides and Charitou, 2004). The first theory underlines creating a structurally separated autonomous unit (Christensen and Raynor, 2003) or acquiring a disruptive start-up (Ferrary, 2011) is key to develop disruptive business model innovation by the incumbent. Markides and Charitou (2004) proposed four strategic approaches; ‘separation,’ ‘phased separation,’ ‘integration’ or ‘phased integration’ depending on whether there are (a) internal misfit between the new and old models and/or (b) market disparity between the two models. This study provides a foundation for our argument that it is not always necessary for incumbents to separate. Our case studies suggest that disruptive technology introduces double threat in (i) the upstream accumulated core technical capabilities and (ii) the established business model. Whereas market-driven disruptive innovation entails a single threat that affects only the established business model but provides incumbents the opportunity to leverage their prior core technical capabilities. Therefore, incumbents adapting to disruptive technology are more likely to separate relative to incumbents embracing market-driven disruptive innovation.

H3: *Differentiation structure is more positively related to incumbent's performance adopting disruptive technology-driven innovation relative to incumbents adopting disruptive market-driven innovation.*

4. Research Method

We adopted a multi-method research approach over three stages. In the first state, using comparative multiple case studies, we explored four pioneering entrants that introduced technology-driven and market-driven disruptive innovations. In the second stage, we developed six cases in which we examined whether incumbents responding to market-driven disruptive innovation behave differently to those responding to technology-driven disruptive innovation. This study is the third stage and our approach was to build a conceptual model from case studies and related literature review and test the generalizability of the model across a large sample of firms at the business-unit level. 128 responses (SBUs) were obtained including 71 incumbents responding to disruptive technology-driven innovation and 57 from the second group. 40 responses were excluded for a number of reasons including (1) multiple responses from a single business unit within the corporation, (2) small speciality firms that cannibalized previously established business model to adopt disruptive innovation, (3) firms that did not respond at all, (4) firms that diversified into disruptive markets but did not operate previous related sustaining business models, (5) firms that responded but were rated

unsuccessful in managing disruptive and sustaining innovations simultaneously under any organizational form, and (6) incomplete information and inconsistencies. By removing these data, we excluded other possible alternative strategic responses to disruptive innovation, outside of managing disparate business models concurrently. 88 usable responses were obtained that represented 61 large regional and global corporations operating in South Africa. The sample covered mobile and fixed communications 26%, fixed-line 20%, insurance companies 24%, banking 18% and airlines 11%.

Measures: *Disruptive technology-driven vs. market-driven innovation:* Following the *a priori* approach used by Dewar and Dutton (1986) to distinguish between incremental and radical, and Zhou et. al., (2005) to differentiate between technology-based and market-based innovations, we distinguished the responses data into incumbents responding to disruptive technology-driven vs. disruptive market-driven innovations based on Markides (2006) and Habtay (2012) categorizations. All MNOs and fixed line operators were classified as incumbents responding to disruptive technology-driven innovation. The rest respondents from banking, insurance and airlines incumbents were grouped into incumbents responding to disruptive market-driven innovation. We used moderated regression analysis (MRA) to test our hypotheses by setting up technology-driven (coded 1) and market-driven innovations (coded -1) in subgroups.

Incumbent's performance in managing disparate innovations. We used two sources to measure performance. The first was managers self-reporting responses. By adapting Markides and Charitou (2004) scales to measure incumbents performance in managing paradox innovations, we developed 7 scales and asked managers to rate their corporations performance in managing the new and traditional businesses simultaneously (1 = very ineffective, 7 = very effective). Although self-reporting scales have common weakness of bias, such measures can also be important in absence of objective financial measures (Dess and Robinson, 1984). To control such bias, we contracted strategy analysts with expertise in each industry to rate each of the responding incumbent on two scales of overall performance in (1) managing contradictory innovations and (2) competing in traditional and new markets simultaneously (1 = "very ineffective" to 7 = "very effective")

Entrepreneurial orientation (EO): We used 7 established items scale and asked managers to rate their senior management's orientation (involvement) in face of technology or market change (Covin and Slevin, 1989; Zhou et. al., 2005; Cooper et. al., 2003; O'Reilly and Tushman, 1996; Christensen and Raynor, 2003). *Acquisition – Leverage:* Incumbents are generally capable to acquire disruptive start-up company or disruptive technology from the market. Our measure rather focused on human competences required to develop and manage disruptive innovation capabilities. Participants were asked to indicate whether the top managers and core technical team that developed and managed the disruptive innovation were appointed mainly from the parent company or hired from outside (Malmström and Wincent, 2012).

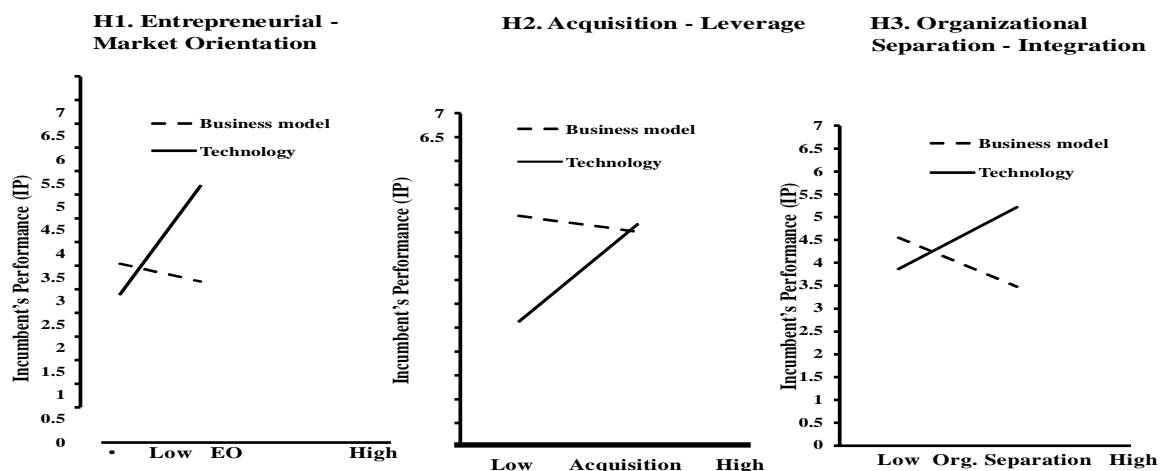
Organizational Separation – Integration: This construct was measured by asking respondent how different was the new organizational structure for the disruptive innovation from the parent company on eight organizational components (Markides and Charitou, 2004; Christensen and Raynor, 2003)

5. Results

Correlation matrix result showed significant correlations (r) between the hypothesized constructs at $p < .001$ and $p < .05$, showing adequate construct validity for the operationalization of the underlying conceptual model. Multicollinearity is modest as most of the predictor variables have correlations less than $r = .50$. Cronbach Alpha for the constructs ranges from 0.750 the lowest to 0.90 the highest, indicating sufficient reliability. A Principal

Component Analysis (CPA) was conducted. All factors were with Eigen values equal to 1. The percentage of variance explained by each factor is above 0.5. None of the items was found loading on more than one factor, and all manifest items loaded greater than 0.5 on their respective latent constructs (see Appendix B), indicating significant discriminant validity (Nunnally, 1978). The statistical results supported the three hypotheses. The result shows a significant statistical difference between incumbents responding to technology-driven and market-driven innovations on the relationship between EO and incumbent's performance (IP) in managing disparate innovations ($B = 0.316, p < 0.001$). It reveals significant difference on the relationship between acquisition and incumbents' performance in the two subgroups ($B = 0.147, p < 0.001$). The result indicates statistical difference between the two groups on the relationship between organizational separation and incumbents' performance ($B = 0.168, p < 0.001$). When we plotted the MRA results into the interaction effect graphsⁱ to determine the strength of effects between subgroups (Figure 2), EO, acquisition and organizational separation tend to be positively related to incumbents performance under the conditions of disruptive technology-driven innovation. But these relationships tend to be negatively sloped in incumbents responding to disruptive market-driven innovation. We interpret these in that the second group tend to be more market orientated, leverage prior competencies and tend to integrate disruptive innovations.

Figure 2: The interaction effect graphs



6. Discussion

This paper has showed that, on average, incumbents responses significantly vary between technology-driven and disruptive market-driven disruptive business model innovations along three measures namely, entrepreneurial orientation, acquisition and organizational separation. The result suggests that the greater the extent of double threat (typically emanating from disruptive technology), the higher the entrepreneurial orientation (EO), the more important it is to acquire disruptive specific external competences and differentiate the disruptive unit structurally from the established organization. In contrast, when incumbents confront a single threat (coming from disruptive market-driven innovation), they tend to be market oriented (MO), leverage prior core capabilities and integrate disruptive innovation within the established

organizational structure.

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ⁱ The interaction effect graph is plotted by entering the slope coefficients of (a) the intercept, (b) independent variable (IV), (c) moderator and (d) interaction in a given excel worksheet. First, the categorical innovation (moderators) are assigned values as Technology = 1 and business model = -1. Second, the worksheet has a given formula that calculates the values of these variables, and that plots the moderator and interaction slopes on a graph. For example, the Business Model (low level of moderator -1) is calculated by the following formula: (Intercept = IV slope) x (IV low score + Moderator slope) x (Moderator low score + Interaction slope) x (IV low score x Moderator low score).

INSTITUTIONS, CORRUPTION AND ENTREPRENEURSHIP

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Institutions, Corruption and Entrepreneurship

Abstract This paper analyzes the effect of formal and informal institutions quality on different categories (bribing and non-bribing) of productive entrepreneurship, across industrial subsectors and regional districts of Indonesia. Entrepreneurs in emerging countries bribe due to failing institutions and the harassment of corrupt bureaucrats, but they are not necessarily unproductive and this justifies acknowledging the heterogeneity of productive entrepreneurs.

We argue that productive and unproductive entrepreneurial functions may be embodied in a same person and the same formal and informal institutions quality impact differently categories of productive entrepreneurs characterized by different mixes of these functions. Our results show that poor quality of business permits delivery, of access to formal banks and transport facilities, excessive taxation, strong local community traditional rules, and ethnic fragmentation, affect differently the cohorts of bribing and non-bribing productive entrepreneurs. We support a ‘grease-the-wheel’ effect of bribing on entrepreneurship, and we discuss implications for scholars, entrepreneurs and policymakers.

1 Introduction

Corruption is a response to a void in existing institutions (Méon and Weill, 2010; Preveser and Estrin, 2010). The complexity and unpredictability of regulations, the unreliability of bureaucrats and a lack of trust, abnormal risks and excessive costs, increase an entrepreneur’s inclination to pay bribes (Puffer et al., 2010; Zhou and Peng, 2010). Productive entrepreneurs may be forced by their institutional environment to bribe so as to be able to start and develop their venture, and this is a central argument in this paper. This contrasts with Baumol’s (1991) famous theory which considers that bribing entrepreneurs are unproductive, and that productive and unproductive entrepreneurship are two different categories that are mutually exclusive.

Here, we consider productive entrepreneurship (creating a new firm), and bribing as two functions (Drouhan and Henrekson, 2010) that can be undertaken simultaneously by the same person. This has strong implications for the empirical literature addressing the effect of institutions on entrepreneurship. Our main conjecture is that a same quality of institution – either formal or informal – has different effects on bribing productive entrepreneurship and non-bribing productive entrepreneurship. This is in particular because bribing is an answer to failing institutions. This recognition is likely to unveil the true effects of institutions on productive entrepreneurship, whereas analyses that make a clear distinction between productive and unproductive entrepreneurship and treat the former as a homogenous population, are likely to result in biased observations.

We thus acknowledge that entrepreneurs do not form a homogenous population, but have characteristics (cognitions, capabilities, intentions) that are shaped by the institutional context in which their venture is embedded (Drouhan and Henrekson, 2010; Stenholm et al., 2013; Vecciana and Urbano, 2008). This renews (refresh) Baumol’s (1990) theory as well as the theoretical (Acemoglu, 1995; Mehlum et al., 2003; Murphy et al., 1991; Sanders and Weitzel, 2010) and empirical (Mitchell and Campbell, 2009; Sobel, 2008; Tonoyan et al., 2010) subsequent literatures, which consider that different qualities of institutions generate different types of entrepreneurship in society: high quality institutions foster productive entrepreneurship, whereas failing institutions trigger unproductive entrepreneurship such as lobbying, rent-seeking and corruption. Here, we assume that failing institutions, detrimental to (non-bribing) productive entrepreneurship, foster bribing productive entrepreneurship.

Our analysis thus sheds light on the debated question as to whether corruption fosters entrepreneurship when regulative institutions are deficient (Dreher and Gassebner, 2013;

Klapper et al., 2006), bringing some efficiency gains ('greasing the wheels') (Méon and Weill, 2010; Vial and Hanoteau, 2010; Zhou and Peng, 2012).

A nascent literature urges for more research regarding the role of entrepreneurship in the development of emerging countries (Bruton et al., 2008; Naudé, 2010; Peng and Zhou, 2005; Stenholm et al. 2013). It shall address in particular the effect of regulative and resource-allocative institutions, presented as a key binding constraint to entrepreneurship's contribution to development (Naudé, 2010), as their failure is more apparent in emerging countries setting. This is why we frame our study in this context, and we focus on Indonesia, one of the largest and most populated emerging countries. We use a unique dataset that merges two databases, the *Statistik Industri* from the Indonesian Bureau of public statistics (BPS) and the Indonesian Family Life Survey (IFLS) from the Rand Corporation. It enables us to analyze the effect of varying formal and informal institutions quality, across regional districts (190), on the subsectors-level (321) entry rates of bribing and non-bribing new ventures. Although cross-country studies are more robust (Bruton et al., 2010), Indonesia compensates with its institutional features (administrative inefficiency, pervasive corruption, ethnic diversity...) that are common to many emerging countries (Miguel et al., 2005) while presenting large within institutional quality variations, and will therefore allow an easier generalization of our findings. Analyzing patterns across districts within a single country permits a finer analysis of the subtle interactions (between institutions and economic activity) (Estrin and Prevezer, 2010). It enables to use homogenous survey instruments of institutions and consistently available data on the unproductive (bribing) component of entrepreneurship, which is rarely the case for cross country regressions and reduces some of their problems of measurement and omitted variables (Miguel et al., 2005; Sobel, 2008).

The next section derives our propositions linking formal (regulative and resource-allocative) and informal institutions quality and productive (bribing and non-bribing) entrepreneurship. Section 3 briefly depicts the context of entrepreneurship, failing institutions and corruption in Indonesia, whereas section 4 describes the data and methodology employed to test the propositions. Our results are presented in section 5, and section 6 discusses them and draws their implications for scholars, entrepreneurs and policymakers.

2 Hypotheses

Formal institutions refer mainly to codified and enforced rules and structures of laws, originating from governments and industrial agreement and standards (Ahlstrom and Bruton, 2006; Bruton et al., 2010; Manolova et al., 2008). By setting incentives and sanctions to individuals and organizations, regulative institutions are a key institutional factor governing business transactions (La Porta et al., 1997) and there is large evidence that they are an important determinant of entrepreneurial activity (Tybout, 2000). Indeed, they shape the levels of cost and risk associated with the start and development of a new business, and they also condition the access to the necessary resources.

Underdeveloped and inefficient regulative institutions resulting in uncertainty and excessive costs and difficulties, discourage potential entrepreneurs from registering their business (Bruton et al., 2010; Djankov et al., 2002; Tonoyan et al., 2010) and distort the allocation of entrepreneurial talent towards alternative activities (Baumol, 1990).

This is the case when obtaining a business authorization requires going through a multitude of bureaucratic authorities and agencies, and complying with long and complex administrative procedures and requirements (Bowen and De Clercq, 2008; Bruton et al., 2010; Soto, 2000). It has been observed that such a 'red tape' is a barrier to entry of new ventures (Desai and Acs, 2007; Dreher and Gassebner, 2013).

Similarly, excessive and arbitrary indirect taxation, such as business taxes, licenses, establishment fees and inspection costs, levied by national and local authorities, participate to

the cost and uncertainty of starting a business (Bowen and De Clercq, 2010; Brutton et al., 2010; Djankov et al., 2002; Desai and Acs, 2007;).

H1a Inefficient regulative institutions are detrimental to the entry of new ventures.

Deficient regulative institutions characterized by inefficiencies, uncertainty, weak enforcement of laws, overwhelming red tape and excessive taxes and time spent dealing with bureaucrats, increase an entrepreneur's likelihood of becoming involved in corruption (Tonoyan et al., 2010). He is likely to pay bribes in order to obtain reduced taxes and fees (Park and Luo, 2001) and to navigate more easily through inefficient bureaucracies (Ghomann, 2012). Recent empirical evidences indicate that in presence of inefficient and/or excessive regulations, country-level corruption is associated with a higher level of entrepreneurship (Dreher and Gassebner, 2013; Klapper et al., 2006).

This is not inconsistent with the fact that corruption is fundamentally detrimental to the economy in general (Mauro, 1995), and entrepreneurship in particular (Anokhin and Schulze, 2009; Bowen and De Clercq, 2008; Campos et al., 1999). Corruption can bring some positive effects by mitigating some of the gross negative costs imposed by excessive and inefficient regulations on entrepreneurship (Dreher and Gassebner, 2013; Drouhan and Henrekson, 2010; Klapper et al., 2006). Such efficiency gains occur primarily at the individual level, through micro-mechanisms, as suggested by the early literature on the 'grease the wheels' hypothesis (Huntington, 1968; Leff, 1964; Lui, 1985), and as recently observed (Dreher and Gassebner, 2013; Méon and Weill, 2010; Vial and Hanoteau, 2010). In presence of excessive regulatory barriers, or poorly efficient bureaucracies, individual bribes offered to public officials and to bureaucrats can increase their incentive, and the speed and efficiency at which they issue and deliver business permits, licenses, and authorizations (Méon and Sekkat, 2005).

Corruption can also be initiated by predatory bureaucrats who manipulate regulations and administrative procedures, create delays and uncertainty and use harassing techniques for the only purpose of racketing firms and extorting bribes (Shleifer and Vishny, 1993). The entrepreneurs who pay bribes can expect avoiding these harassments, thereby at least partially removing barriers to entrepreneurship.

H1b Inefficient regulative institutions are relatively less detrimental to the entry of bribing new ventures.

Additionally, a precondition to entrepreneurship, both at the individual and national levels, is the efficiency of formal resource-allocative institutions. This conditions the availability and access to necessary resources such as infrastructures provision (Campos and Estrin, 2008; Estrin and Preveser, 2010; Stenholm et al., 2013; Verheul et al., 2002), as well as financial capital (Barnerjee and Newman, 1993; Evans and Jovanovic, 1989; Schumpeter, 1911).

Emerging countries often suffer from the underdevelopment and non-proper establishment of the banking sector and bonds market, leading to liquidity constraints (Ghani et al., 2011; La Porta et al., 2002; Naudé et al., 2008). This is exacerbated by a discriminatory allocation of credit in favor of the existing large firms, thereby raising small businesses and new ventures' incentive to offer bribes to public officials and bureaucrats from financial institutions so as to obtain preferential access to liquidity and/or below-market interest rate (Tonoyan et al., 2010; Zhou and Peng, 2012). The phenomenon holds for the access to infrastructures facilities and services, such as transportation, telecommunication, energy or water. In order to get access to these facilities and services, firms (including new ventures) may have to pay bribes to predatory bureaucrats and agents. In addition, where the provision of these infrastructures is of a poor quality, firms pay bribes in order to obtain a better and privileged access (Mauro, 1995, Shleifer and Vishny, 1993; Wei, 2000).

H2a Inefficient resource-allocative institutions are detrimental to the entry of new ventures.

H2b Inefficient resource-allocative institutions are relatively less detrimental to the entry of bribing new ventures.

Institutional trust and certainty are essential to the development of entrepreneurial activities (Bowen and de Clercq, 2008), and they are normally ensured by good quality formal institutions. Where formal institutions are failing, institutional trust and certainty are weak. This is exacerbated if corruption develops and prospers as an informal answer to an institutional void (Estrin and Prevezer, 2010). In a corrupt system, public officials tend to have poor integrity, civil servants and economic actors have unfair practices and there is low guaranty on the protection of property rights. This context increases distrust, with a business environment changing frequently and becoming unpredictable, thus discouraging entrepreneurs to engage in risky activities (Baumol, 1990; Campos et al., 1999; Stenholm et al., 2013).

In such a context of failing formal institutions and corruption system, managers of productive firms and new ventures have the incentive to pay bribe as a compensation to distrust and lack of predictability of rules and bureaucrats. It is rational to expect that business managers (including potential entrepreneurs) are looking for reducing the costs, risk and uncertainty induced by failing formal institutions and the corruption system, and they do so in particular by relying on informal networks (Puffer et al., 2010). They are interested in developing 'managerial ties' and strong relationships with bureaucrats and officials to reduce uncertainty, and a common way to do so is by offering gifts and paying bribes (Peng and Luo, 2000; Zhou and Peng, 2010). In addition, in societies (and local communities) characterized by weak institutional trust, there is more rent-seeking and corruption (Bjornskov and Méon, 2012), and as a result, productive entrepreneurs are more likely to pay bribes, as being victim of the harassment and racket by corrupt bureaucrats.

Informal institutions also develop as an answer to a formal institutional void and economic actors rely on them as a provision of trust and social networks (Puffer et al., 2010). This is a reason why informal institutions are a relevant determinant of the entry of new ventures (Estrin and Prevezer, 2010; Tonoyan et al., 2010).

If there are strong informal institutions generating high (the necessary) levels of trust and social networks, productive entrepreneurs have a lower incentive to use bribes as a compensation mechanism for failing formal institutions. In addition, since higher level of trust reduces the level of rent-seeking and widespread corruption, it is less likely that productive entrepreneurs are victim of bribe extortion. This leads us to the following hypothesis:

H3 Informal institutions that ensure trust have differentiated effects on bribing and non-bribing productive entrepreneurship, being favorable to the latter, and discouraging and reducing the former.

3 Business and corruption in Indonesia

The apathetic dynamic (rate) of firm entry in Indonesia during the 2000s, results from the conjugation of several business impediments (Aswicahyono et al., 2010; de Mello, 2008; Moccero, 2008; Vial, 2008): the scarcity of financings, amplified by an economic turmoil for the banking and financing sectors; the poor level of infrastructures development (energy, transportation, telecommunication, clean water...); the very numerous local (district level) taxes and regulations falling on firms, partly due to a lack of accountability of local governments towards the central authorities (Moccero, 2008). This is best illustrated by the numerous locally-set business permits and licenses, such as licenses to start and operate a business, to export, to import, to invest, to use particular types of machinery, to make noise, to

create traffic congestion, to pollute (Henderson and Kuncoro, 2011). In addition, firms have to pay levies for example to operate an escalator, a water pump, etc.

The multiple local regulations complicate and slow further federal bureaucratic procedures. As an example, forming a legal entity in Indonesia (authorization to start a new business) requires 151 days that are necessary so as to obtain authorizations from 12 different ministries and local and national agencies (McLeod, 2006). In comparison, it takes in average only 56 days in the World, 54 days in East Asian and Pacific countries and 20 days in OECD countries (World Bank, 2006).

Another business impediment is the pervasive corruption at the federal and local levels, which is a source of business uncertainty (Aswicahyono et al., 2010). The numerous local regulations are often justified only by local governments and civil servants' willingness to raise money formally through taxes, levies and license fees, and informally by eliciting bribes. "The phenomenon is called 'overgrazing the commons', because it involves officials from all level of government and many agencies preying on the same economic activities" (Kuncoro, 2008, p. 3).

As an example, a common form of harassment used by officials of the local ministries of industry and labor, in order to elicit bribes payments, is to inspect firms to monitor if they have all the necessary safety equipments and disposals, and if they comply tightly with all the labor legislations (Henderson and Kuncoro, 2011).

In this system, firms pay bribes to local bureaucrats and officials, so as to shorten the waiting time for the issuance or renewal of licenses and permits, to reduce their taxes, for the procurement of public projects, to get the authorization to buy land or to build a new plant, to shorten the duration of inspections by bureaucrats, or in order to avoid that such inspections result in new 'windfall' levies (Henderson and Kuncoro, 2011).

This leads us to consider, in this study, bureaucratic (or petty) corruption, which refers to bribes paid in order to reduce the red tape, administrative inefficiencies, excessive taxes or the harassment of corrupt bureaucrats, as opposed to 'grand' (or political, large scale) corruption (Tanzi, 1998). This is illustrated by a survey conducted by Transparency International (2009) on Indonesian business persons who declare that one of their four main motives for paying bribes is to obtain business permits.

4 Data, measures and method

4.1 Data and sample

We use a unique dataset which combines two data bases. The first, the *Statistik Industri*, is a census of Indonesian industrial plants, with an average of 22,000 plant-level observations per year over the period 1993-2007. It covers 371 5-digits subsectors of the manufacturing industry, located in 430 districts of Indonesia. The data originates from an annual survey, anonymous, conducted by the Indonesian bureau of public statistics (BPS), covering all establishments with 20 employees and more. Data include detailed plants' characteristics such as age, output, inputs use, accounting and finance, expenditures, etc. This enables us to compute the entry rate of new ventures, as well as industry characteristics, for each of the 371

5-digits subsectors in each of the 430 administrative districts. Several of the establishments surveyed could, in theory, belong to the same firm. In reality, multiple plants belonging to the same firm amount to less than 5% of the sample (Blalock and Gertler, 2005; Narjoko and Hill, 2007). Given that the effect of firms owning several plants is marginal, it is reasonable to treat plants, and in particular new ventures, as firms in the analysis.

This dataset is merged with the Indonesia Family Life Survey (IFLS) (Frankenberg and Thomas, 2000; Strauss et al., 2004) which is a household and community surveys that went in four waves (1993, 1997, 2000 and 2007) in 261 districts accounting for 83% of the total Indonesian population. In addition to socio-demographic characteristics of the population, it

provides with detailed information on the institutional context at the community level (villages and quarters), such as availability and quality of collective services and infrastructures, ease of doing business, governance, and traditional rules and customs.

Merging these two data sets enables us to analyze the entry rate of firms at the level of the 371 5-digits industry subsectors in each of the 261 administrative districts, using institutional features measured at the district, subsector-district and province levels across Indonesia, for the two periods 2000 and 2007. After removing all observations for which there are missing data on relevant variables, we end with a panel dataset of 9,547 observations, covering 321 subsectors in 190 districts.

4.2 Estimation method

To study the effects of institutions on bribing and non-bribing entrepreneurship, we consider three categories of entrepreneurship as alternative dependent variables. We compute the rate of entry of firms at the 5-digits industry subsector level in each district. We name it *Total entry rate* as it corresponds to the whole cohort of new ventures in each subsector-district. Then, we decompose it into two distinct types (Stenholm et al., 2013), the entry rate for the cohort of non-bribing new ventures, and the entry rate for the cohort of bribing new ventures. These three alternative dependent variables (*Total*, *Bribing* and *Non-bribing rates of entry*) are then regressed on institutional quality variables and a set of control variables that are standard in the literature. We use panel data Ordinary Least Square (OLS) regressions model with fixed effects in order to estimate the following relation:

$$Entry\ rate_{i,k,t,t+2}^{A,NB,B} = a_0 + a_1 RI_{k,t} + a_2 RAI_{k,t} + a_3 II_{i,k,t} + a_4 Controls + \gamma_i + \mu_{i,k,t}$$

Entry rate is the dependent variable and the superscripts *A*, *NB* and *B* stand for the three categories of entrepreneurship considered alternatively: *Total* (*A*), *Non-bribing* (*NB*) and *Bribing* (*B*). The subscripts *i*, *k* and *t* stand respectively for industry subsectors ($i = 1; \dots 371$), districts ($k = 1; \dots 261$) and years ($t = 1; 2$).

RI, *RAI* and *I* are vectors of explanatory variables testing our hypotheses, standing respectively for Regulative Institutions (RI), Resource-allocative Institutions (RAI) and Informal Institutions (II). *Controls* is a vector of covariates taken at the subsector-district or district levels. a_1 , a_2 , a_3 and a_4 are vectors of estimated parameters. The parameter γ_i stands

for an industry subsector fixed effect. The panel structure of our dataset enables to account for the heterogeneity across individuals, industry subsectors in different districts in our case. In spite of the explanatory and control variables used, there may remain some unobservable industry characteristics that are not taken into account and may be source of bias in the analysis. Panel data approach offers to treat such unobserved effects, using either fixed or random effects estimations. The fixed effects estimation is appropriate in our case of fixed numbers of districts and subsectors, as the inferences can only be based on this set (Wooldridge, 2001).¹ Our choice, justified theoretically, is further confirmed by the results of a Hausman specification test (Wald test).² Our main regressions use a fixed effects estimation specified at the 5-digits sector level, as the regional determinants of new ventures formation may differ across industries (Armington and Acs, 2002; Audretsch and Fritsch, 1999; Nyström, 2007). But for robustness checks, we also run regressions that include district fixed effects. μ_{it} is the error term.

The dependent variables $Entry\ rate_{i,k,t,t+2}^{A,NB,B}$ are computed as three years average over the period

t , $t+1$ and $t+2$, when independent variables are observe in t . We adopt this structure for three

¹ The random effect model is preferred when the observations are drawn randomly from a population. See Wooldridge

(2001), Angrist and Pischke (2009) for further details on panel data analysis and Nystrom (2007) for an application to the regional determinants of entry.

² The results, not shown here, are available from the authors.

reasons. First, the institutional independent variables, observed for the years 2000 and 2007, evolve slowly over time and are therefore unlikely to explain the potential short run variations in the dependent variable that are due to other cyclical factors (e.g. economic growth) not captured in the model. Taking the three years average of the dependent variable enables to smooth these short run variations and to mitigate the corresponding potential inference (Bowen and de Clercq, 2008).

Second, we introduce a lag component as the decision to start a new venture is a medium term project, and variables, such as *wages*, are likely to impact entrepreneurship with a delay (Dreher and Gassebner, 2013). The lag structure of the model is also justified so as to treat potential reverse causalities, as the entry of new firms in a district may increase the demand for labor and push up salaries (Mitchell and Campbell, 2009) and/or influence market structures (size and competition) as well as institutions. For example, predatory bureaucrats may reply to the entry of new firms by raising institutional barriers to entry so as to extort bribes payments (Shleifer and Vishny, 1993). Using a lag structure in order to treat the endogeneity of covariates is appropriate in our case with multiple potential reverse causalities, but we acknowledge also its limits.³ As the clustered structure of the data can be a source of bias in the inference, we run regressions with cluster robust standard errors (Huber-White treatment) (Angrist and Pischke, 2009).

4.3 Measures

4.3.1 Dependent variables

In order to compute the dependent variables, we take the proportion of new ventures of each category (*Total*, *Bribing*, *Non-bribing*) in the population of firms for a given year. We thus have three different *Entry rates* that are observed at the 5-digits subsector-district level. The decomposition of the *Total entry rate* into the *Bribing* and *Non-bribing entry rates* is made possible in the BPS database thank to a variable labelled ‘gifts, charities and donations’ (in the section ‘others expenses’) which records, for each individual firm, the annual value of bribes (Behrman and Deolalikar, 1989; Vial and Hanoteau, 2010). Behrman and Deolalikar (1989) explain that these ‘gifts, charities and donations’ are clearly rewards for favors from bureaucrats and top officials. These favors can be preferential tariffs, import quotas, and tax benefits from government agencies, grease money to reduce taxes, administrative delays, red tape, and harassment by civil servants (Henderson and Kuncoro, 2004; McLeod, 2000). Two factors explain the robustness of this firm-level measure of bribe payments. First, the Indonesian census of industrial statistics is based on anonymous annual surveys, since the beginning in 1975, in order to ensure the reliability of answers. Second, firms’ payment of bribes in the form of ‘gifts, charities and donations’ has been institutionalized in a corruption and rent extortion system settled since the 1970s by the former Indonesian president Suharto (McLeod, 2000; Robertson-Snape, 1999). The corruption system and its bribes channeling mechanisms have survived and even developed after the fall of Suharto, with decentralization and liberalization (Dieleman, 2008; Henderson and Kuncoro, 2011; King, 2006).

We take zero as the cut-off to distinguish between bribing and non-bribing firms. Our choice is justified by a finer analysis of the sample. Over the period 2000 – 2009, it contains 33,972 entrants from which we retrieve 1,189 observations due to missing data (variable “gifts, charities, donations” which is the bribe measure). Of the remaining 32,783 entrants, about one third (11,257) reported zero bribe payment during the year of entry. Among the remaining two thirds (21,256), bribe payment amounts to more than 10% of the value added for only 3 entrants, more than 0.5% for only 28 entrants, more than 0.1% for 262, and more than 0.01%

³ A more robust approach to treat endogeneity is generally to instrument the one or two endogenous covariates, but in the case of several, it faces several technical barriers, starting with the difficulty to find appropriate orthogonal excluded instruments.

for 4,345. 5 entrants declared paying bribes exceeding 200 millions Indonesian Rupiah (IDR), 354 declared more than one million IDR, 3,631 declared more than 50 thousands IDR, and 10,034 entrants declared bribes exceeding 10 thousands IDR. The Graphic 1 in annex (not shown here) reports the distribution of the 11,222 entrants reporting bribes lower than 10 thousands IDR during their year of entry. The quite ‘smooth’ distribution of bribing entrants per size of bribes confirms that bribe equal to zero is the best choice as a cut-off value.

The fact that the BPS database covers only plants with 20 employees or more might have been a problem for the computation of entry rates. In fact, checking with plants’ age reveals that new entrants in the database are new-born plants, except for a very little number of exceptions. The sources and the construction of the variables are detailed in Table 1 (not shown here).

4.3.2 Hypotheses-related explanatory variables

4.3.2.1 Regulative institutions

We take the average of *Indirect taxes* paid by plants of a subsector in a district and the quality of the *Business permits delivery* as perceived in a province, as indicators of bureaucratic burdens and of the red tape. The quality of delivery of business permits by the administration is based on community heads’ perception. As a higher value means lower quality in the original dataset, we take the inverse of it for ease of interpretation. The variable is weighted at the regional level, using community population as weighting parameter. In the BPS dataset, the variable ‘indirect taxes payment’ encompass sales taxes, establishment licenses, building and land taxes, annual motor vehicle taxes, import duties, as well as custom fees.

4.3.2.2 Resource-allocative institutions

To account for the access to formal bank credit, we follow Naudé et al. (2008), and construct a proxy indicator of the quality of access to *Formal banking* finance. It is measured as the number of categories of formal banks (private, cooperative, public/semi-public and agricultural banks) that are present in the area, as perceived by households heads. A higher value means a more diverse, and thereby more competitive and richer supply of banking services supply.

To account for the access to infrastructures facilities and services, we construct an indicator on the perceived quality of *Infrastructures provision* in the area. Higher values mean higher quality of provision.

4.3.2.3 Informal institutions

We account for informal institutions that generate (ensure) trust, using two variables taken at the district level, *Traditional rules* and *Ethnic fragmentation*. The first is a proxy indicator of the strength of local *Traditional rules*, “Adat” in Indonesian. “Adat laws” are a set of local customs and norms, ruling household and community life (Pal, 2010), and their strength accounts for the level of institutional trust (Miguel et al., 2005)⁴. *Traditional rules* is measured using community heads’ opinion on the local respect and strength of traditional rules, ‘Adat’. It is then averaged at the province level, using population as a weighting parameter. The second variable, *Ethnic fragmentation*, reflects the degree of polarization of local communities. Previous studies have shown empirically that social polarization, in the form of ethnic diversity, reduces trust (Bjornskov, 2007) and promotes corruption (Glaeser and Saks, 2006, JPE; Eaterly and Levine, 1997; Bin Dong and Torgler, 2013; Bjornskov and Méon, 2012). *Ethnic fragmentation* is the standard deviation, at the district level, of the

⁴ *Adat* communities are autonomous groups of indigenous people, managing their lives with their own regulations and social control over property rights, dispute resolution systems, inheritance, marriage, divorce, etc. (Pal, 2010).

ethnicity of households heads. *Traditional rules* and *Ethnic fragmentation* are expected to have respectively negative and positive effects on bribing productive entrepreneurship.

4.3.3 Control variables

From the literature on entrepreneurship, we take a series of standard covariates that are recognized as determinants of entry of new ventures. The structural characteristics of the population (Freytag and Thurik, 2007; Verheul et al., 2002) justify our use of indicators of *Education* level and *Urbanization* rate of the population. The average *Education* is expected to have a positive effect (Gohman, 2010; Sobel, 2008), as it was already observed (Bowen and De Clercq, 2008; Verheul et al., 2002), in emerging countries in particular (Ghani et al., 2011; Naudé et al., 2008). The new economic geography literature (Krugman, 1991) explains that agglomeration effect (spillovers, co-operation between firms) is an important factor in the location choice of an entrepreneur. It is approximated with the *Urbanization* rate of the population in a district (Nyström, 2007).

We include *Market size*, measured as the aggregate output at the subsector-district level. Being a talented entrepreneur pays more in a larger market than in a smaller one, and therefore, large markets are expected to attract more talents which raises entry (Murphy et al., 1991). The level of industry *Competition* is expected to have a positive effect on entry, as in more concentrated industries, markets are less contestable, with dominant incumbent eventually acting strategically so as to deter new entry. We measure industry *Competition* using the log of the inverse of the Herfindahl-Hirschman Index (Huiban, 2011) at the subsector-district level.

We use the average (province level) of *Public* and *Private wages* so as to capture the influence of the structure of activities' relative payoffs on talent allocation (Baumol, 1990; Murphy et al., 1991). Higher *Public* or *Private wages* offered to employees are expected to reduce incentive to entrepreneurship (Sanders and Weitzel, 2010). All variables are taken as log, except those that are percentages and indexes.

The Table 2 (not shown here) provides some descriptive statistics and the matrix of correlations. The latter indicates that the coefficients of correlation between independent variables are generally low. There are nonetheless noticeable exceptions, and this is particularly the case for the variable *Private wage*. This leads us to remove it from the main empirical model, and to re-introduce it as a substitute to *Public wage* in a series of regressions in the Robustness checks part. So as to reduce the risk of multicollinearity, we test separately the main explanatory variables, as well as all together.

5 Results

The Table 3 presents results of regressions with institutional quality variables taken separately (hypothesis H1, H2, H3) as well as for the full version of the model (relation 1).

The first six columns report the results of regressions testing the effect of regulative institutions only. When *Total entry rate* is the dependent variable (column 1), the estimated parameters of the main explanatory variables are significant with the expected signs. This supports Hypothesis H1a that a lower quality of *Business permits delivery* (positive sign) and higher level of *Indirect tax rate* (negative sign) are detrimental to entrepreneurship. The columns (5) and (6) reveal that the quality of *Business permits delivery* has differentiated effects on *Non-bribing* and *Bribing entry rates*. It is null and non-significant for the former, and positive significant for the later. This means that bribing new ventures obtain a better access, than other entrepreneurs, to bureaucrats and to good quality regulations, thus supporting our hypothesis H1b.

Table 3
Results of OLS regressions with industry subsectors fixed effects

		<i>dependent</i>											
<i>Explanatory</i>		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Total	Non-bribing	Bribing	Total	Non-bribing	Bribing	Total	Non-bribing	Bribing	Total	Non-bribing	Bribing
Indirect tax rate	H1	-0.005*** (0.008)	-0.002*** (0.006)	-0.003* (0.084)									
Business permits delivery	H1				0.036*** (0.001)	0.000 (0.934)	0.032*** (0.000)						
Formal banking	H2							-0.006 (0.132)	0.001 (0.801)	-0.007** (0.042)			
Transport infrastructures	H2										0.364*** (0.000)	0.074*** (0.000)	0.279*** (0.000)
Traditional rules	H3												
Ethnic fragmentation	H3												
<i>Control variables</i>													
Competition (log)		-0.003 (0.245)	-0.003** (0.013)	0.001 (0.624)	-0.003 (0.316)	-0.003** (0.014)	0.001 (0.503)	-0.003 (0.239)	-0.003** (0.015)	0.001 (0.654)	-0.006** (0.040)	-0.004*** (0.005)	-0.001 (0.710)
Market size (log)		-0.0128*** (0.000)	-0.002*** (0.000)	-0.010*** (0.000)	-0.013*** (0.000)	-0.002*** (0.000)	-0.010*** (0.000)	-0.013*** (0.000)	-0.002*** (0.000)	-0.010*** (0.000)	-0.012*** (0.000)	-0.002*** (0.000)	-0.009*** (0.000)
Education (log)		-0.038*** (0.000)	-0.006 (0.200)	-0.035*** (0.000)	-0.041*** (0.000)	-0.006 (0.197)	-0.038*** (0.000)	-0.0363*** (0.000)	-0.00- (0.186)	-0.033*** (0.000)	-0.038*** (0.000)	-0.006 (0.202)	-0.035*** (0.000)
Urbanization (%)		0.110*** (0.000)	0.021** (0.004)	0.081*** (0.000)	0.099*** (0.000)	0.021** (0.004)	0.071*** (0.000)	0.108*** (0.000)	0.021*** (0.004)	0.079*** (0.000)	0.023 (0.163)	0.003 (0.736)	0.014 (0.299)
Public wage (log)		-0.012*** (0.000)	-0.004** (0.010)	-0.008*** (0.000)	-0.011*** (0.000)	-0.004** (0.010)	-0.007*** (0.001)	-0.0117*** (0.000)	-0.004** (0.011)	-0.007*** (0.001)	(0.005) (0.082)	-0.002 (0.118)	-0.002 (0.312)
Constant		0.477*** (0.000)	0.127*** (0.000)	0.345*** (0.000)	0.444*** (0.000)	0.127*** (0.000)	0.315*** (0.000)	0.476*** (0.000)	0.127*** (0.000)	0.344*** (0.000)	0.260*** (0.000)	0.083*** (0.001)	0.178*** (0.000)
Observations		9547	9547	9547	9547	9547	9547	9547	9547	9547	9547	9547	9547
adj. R ²		0.048	0.008	0.041	0.05	0.008	0.043	0.049	0.008	0.041	0.06	0.009	0.05

Robust standard errors. Regressions include an industry subsectors fixed effect. p-values in parentheses

* significant at 10%. ** significant at 5%. *** significant at 1%

Table 3 continued
Results of OLS regressions with industry subsectors fixed effects

		<i>dependent</i>											
<i>Explanatory</i>		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)
		Total	Non-bribing	Bribing	Total	Non-bribing	Bribing	Total	Non-bribing	Bribing	Total	Non-bribing	Bribing
Indirect taxes (log)	H1							-0.005** (0.017)	-0.002*** (0.009)	-0.003 (0.102)	-0.005** (0.012)	-0.002*** (0.009)	-0.003* (0.076)
Business permits delivery	H1							0.010 (0.286)	-0.005 (0.256)	0.013* (0.094)	0.010 (0.286)	-0.005 (0.264)	0.013* (0.093)
Formal banking	H2							-0.015*** (0.000)	-0.001 (0.506)	-0.014*** (0.000)	-0.007* (0.064)	-0.001 (0.742)	-0.007** (0.043)
Transport infrastructures	H2							0.370*** (0.000)	0.081*** (0.001)	0.288*** (0.000)	0.276*** (0.000)	0.075*** (0.001)	0.201*** (0.000)
Traditional rules	H3	-0.046*** (0.000)	-0.007 (0.159)	-0.034*** (0.000)				-0.018** (0.049)	-0.002 (0.751)	-0.011* (0.076)	-0.020** (0.022)	-0.001 (0.792)	-0.014** (0.024)
Ethnic fragmentation	H3				0.001*** (0.007)	0.000 (0.548)	0.001** (0.011)	0.001*** (0.005)	0.000 (0.451)	0.001*** (0.009)	0.001*** (0.002)	0.000 (0.446)	0.001*** (0.004)
<i>Control variables</i>													
Competition (log)		-0.004 (0.145)	-0.003** (0.011)	0.001 (0.825)	-0.003 (0.226)	-0.003** (0.014)	0.001 (0.668)	-0.007** (0.014)	-0.004*** (0.003)	-0.002 (0.46)	-0.009*** (0.001)	-0.004*** (0.002)	-0.003* (0.089)
Market size (log)		-0.013*** (0.000)	-0.002*** (0.000)	-0.010*** (0.000)	-0.013*** (0.000)	-0.002*** (0.000)	-0.010*** (0.000)	-0.011*** (0.000)	-0.002*** (0.000)	-0.009*** (0.000)	-0.009*** (0.000)	-0.002*** (0.001)	-0.007*** (0.000)
Education (log)		-0.040*** (0.000)	-0.006 (0.177)	-0.036*** (0.000)	-0.052*** (0.000)	-0.007 (0.164)	-0.046*** (0.000)	-0.050*** (0.000)	-0.007 (0.183)	-0.044*** (0.000)	-0.037*** (0.000)	-0.006 (0.263)	-0.032*** (0.000)
Urbanization (%)		0.108*** (0.000)	0.020*** (0.000)	0.079*** (0.000)	0.116*** (0.000)	0.021** (0.004)	0.086*** (0.000)	0.019 (0.263)	0.003 (0.729)	0.008 (0.553)	0.058*** (0.001)	0.007 (0.422)	0.042*** (0.007)
Public wage (log)		-0.012*** (0.000)	-0.004*** (0.009)	-0.008*** (0.000)	-0.013*** (0.000)	-0.004** (0.009)	-0.008*** (0.000)	-0.004 (0.191)	-0.002 (0.160)	-0.001 (0.650)			
Private wage (log)											-0.023*** (0.000)	-0.003* (0.057)	-0.019*** (0.000)
Constant		0.495*** (0.000)	0.130*** (0.000)	0.359*** (0.000)	0.473*** (0.000)	0.127*** (0.000)	0.342*** (0.000)	0.247*** (0.000)	0.083*** (0.002)	0.161*** (0.000)	0.492*** (0.000)	0.094*** (0.000)	0.392*** (0.000)
Observations		9547	9547	9547	9547	9547	9547	9547	9547	9547	9547	9547	9547
adj. R ²		0.051	0.008	0.043	0.049	0.008	0.041	0.063	0.009	0.053	0.068	0.009	0.058

Robust standard errors. Regressions include an industry subsectors fixed effect. p-values in parentheses

* significant at 10%. ** significant at 5%. *** significant at 1%

The columns (2) and (3) indicate that the average *Indirect tax rate* has a negative and significant effect on both *Bribing* and *Non-bribing entry rates*. However, the Table 3b (columns 2 and 3) reveals that the effect, per unit percentage of entry rate, is stronger in magnitude on bribing new ventures (-0.079) than on non-bribing ones (-0.052). The indirect tax rate is more detrimental on the former than on the later which seems to contradict our assumption H1b.

The next six columns (7 – 12) exhibit the results of regressions testing only the effect of resource-allocative institutions (H2). The estimates for the variable quality of access to *Formal banking* indicate non-significant effects on the *Total* and *Non-bribing entry rates*

(columns 7 and 8), and a significant negative effect on *Bribing entry rate*. In presence of a lower quality of access to *Formal banking*, bribing new ventures obtain a higher rate of entry and other ventures do not, suggesting that corruption enables the former to secure a better and privileged access to financial institutions and resources. This supports hypothesis H2b, which is further supported with the variable quality of access to *Transport infrastructures*. It has a positive and significant effect on all rates of entry, supporting hypothesis H2a, but with different magnitudes. Indeed, as reported on Table 3b, the effect per unit (%) of entry rate is 3.77 more important for bribing new ventures (0.721, column 12) than for non-bribing (0.191, column 11). Corruption buys a better access to infrastructures facilities and services.

Table 3b

Effect of institutions per unit (%) of entry rate^a

Explanatory dependent	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Total	Non-bribing	Bribing	Total	Non-bribing	Bribing	Total	Non-bribing	Bribing	Total	Non-bribing	Bribing	Total	Non-bribing	Bribing	Total	Non-bribing	Bribing
Indirect tax rate	-0.132	-0.053	-0.079															
Business permits delivery				0.042	0.000	0.037												
Formal banking							-0.004	0.001	-0.005									
Transport infrastructures										0.941	0.191	0.721						
Traditional rules													-0.175	-0.027	-0.129			
Ethnic fragmentation																0.001	0.000	0.001

^a ratio of the estimated parameter (Table 3) over the mean value of the corresponding dependent variable (Table 2).

Columns (13 – 18) present results of tests on informal institutions variables. Columns (13) and (16) indicate that stronger *Traditional rules* and more *Ethnic fragmentation* have significant effects on the *Total entry rate*, respectively negative and positive. As previously, this results for the whole cohort of new ventures hides differentiated effects on bribing and non-bribing ones. The signs and significance of estimates for *Bribing entry rate* are similar to those obtained for *Total entry rate*, whereas they are non-significant for *Non-bribing entry rate*. This suggests that informal institutions generating higher level of trust (stronger traditional rules and less polarized community) reduce new ventures' incentive to pay bribes as a compensation for uncertainty and distrust. We thus support hypothesis H3.

The columns (19, 20, 21) of Table 3 present results of the full regression model that includes all explanatory variables and thereby, tests all hypotheses simultaneously. The results remain roughly unchanged. The estimate for *Indirect tax rate* (column 21) is close to significance ($p=10,2\%$).

The negative sign for *Public wage* is consistent with predictions of the occupational choice model. The estimates for *Competition* are always negative and significant for *Non-bribing entry rate* and non-significant for *Bribing entry rate*. This suggests that *Competition* deters entry but that bribing new ventures do not face this constraint. *Market size*, measured with local subsector output has always a negative and significant impact on all categories of entrepreneurship. The percentage of the population living in urban area (*Urbanization*) always has a positive significant effect on all categories of entrepreneurship. *Education* has no significant effect on non-bribing entrepreneurship, and a negative and significant effect on bribing entrepreneurship.

Robustness checks

As a first robustness check, we replace the covariate *Public wage* by *Private wage* and the results presented on Table 3, columns (22), (23) and (24), remain similar.

Then, we specify and run the estimation model with a district fixed effects, and the results remain roughly unchanged (Table 4, columns 1 – 15, not shown here).

Analysis of the Variance Inflation Factor (VIF) indicates that it exceeds the 'rules of thumb' threshold value of 10 for some of the covariates, revealing that multi-collinearity might be a problem (results not shown here but available from the authors) (Hair et al., 1995; O'Brien, 2007). As a robustness check, we drop covariates until we obtain an empirical model with the maximum VIF strictly inferior to 10. The regression results for this reduced empirical model

are presented on Table 5 (not shown here). They are roughly similar (sign and value of estimates) thus confirming the stability and robustness of the results.

We remove potential severe outliers from the sample following the Hadi multivariate outliers detection method (Hadi, 1992). Using the standard 5% significance level for outliers cutoff leads us to exclude 736 observations (7.71% of total) and regressions results with the new sample (8811 observations), not shown here, remain robust. There is no theoretical reason to exclude these observations but this procedure provides a good robustness check.

6 Discussion and conclusion

In this paper, we use a unique dataset that merges the Indonesian census of industrial statistics with the RAND IFLS households and community surveys. It enables us to analyze, across 190 regional districts of Indonesia and 321 industry subsectors, the effect of formal and informal institutions quality on the entry rates of total, non-bribing and bribing cohorts of new ventures.

The results show that informal and formal regulative and resource-allocative institutions are significant factors impacting the rate of entrepreneurship. Moreover, the results confirm our main conjecture that these institutions have differentiated effects on bribing and non-bribing entrepreneurship, taken at the local and subsector level. On the one hand, deficient regulative (low quality of business permits delivery and excessive indirect taxations) and resource-allocative institutions (poor quality of access to transport infrastructures and services) are detrimental to entrepreneurship (total and/or non-bribing cohorts), in support of hypotheses H1a and H2a. On the other hand, we find that bribing new ventures benefit more than other ventures, from a better access to business permits delivery and transport infrastructures and services, in support of hypothesis H1b and H2b. Our results also show that in districts and subsectors with a poor supply of banking services, bribing entrepreneurs have a better entry rate than others, suggesting that they have a better access to financings through corruption. This is also in support of H2b. We find that informal institutions (traditional rules and less polarized local communities) strengthening the level of institutional trust, have a detrimental effect on bribing entrepreneurship, and no significant effect on others. This suggests that the incentive to bribe is reduced by a higher level of institutional trust and this support our hypothesis H3.

Our results show however that bribing entrepreneurs are slightly more harmed than others by excessive indirect taxes, contrary to our hypothesis H1b. An explanation may originate from the complex nature of corruption. Supporting Shleifer and Vishny (1993) and Barnerjee (1997) theoretical assumption, Kuncoro (2004) and Henderson and Kuncoro (2011) have described in the case of Indonesia, that predatory bureaucrats abuse their power to manipulate indirect taxes so as to extort bribes, and that they customize taxes according to firms' ability to pay: "the more profitable the firm, the higher the bribes it will pay" (Kuncoro, 2004; p.336). This suggests that the most profitable new ventures pay bribes and face more indirect taxes than others.

Given its large within variation of institutions quality (across districts and province), Indonesia offers a good generalizability of these results, also because its institutional features (bureaucracy weak efficiency, red tape, excessive taxation, poor access to resources, pervasive corruption and lack of accountability, ethnicity...) are common to many emerging and least developed countries. In these countries, bribing is a widespread informal answer to institutional void. Entrepreneurs bribe in order to be able to start, develop and operate their business. Thus, our results give support to a 'grease-the-wheel' effect of bribing on entrepreneurship (Dreher and Gassebner, 2013; Zhou and Peng, 2012).

This study has practical implications for scholars, entrepreneurs and policymakers. First, on a theoretical span, this study justifies considering entrepreneurs as forming a heterogeneous

population, and this goes beyond Baumol's (1990) traditional distinction between productive, unproductive and destructive entrepreneurship. Indeed, results confirm that productive and unproductive (bribing) entrepreneurship are not necessarily mutually exclusive, and that unproductive entrepreneurship must be considered also as a function undertaken by productive entrepreneurs willing to be able to start and develop their venture. Within the category of productive entrepreneurs, a distinction has thus to be made between those undertaking or not unproductive function, given that productive-bribing entrepreneurship is not necessarily unproductive.

Our results have significant implications for empirical research. They reveal that the effects of formal and informal institutions on the entry rate computed for the total cohort of new ventures (subsector-district level) may hide different, eventually diverging, effects on entry rates computed for subcategories. This is an important contribution as the literature on the effects of institutions on entrepreneurship has mainly focused on explaining the level of entrepreneurship (Blanchflower and Oswald, 1998) whereas much less attention has been devoted to the effects on the nature, the types or the characteristics of entrepreneurial activities that are undertaken within a country (Bowen and De Clercq, 2008; Stenholm et al., 2013).

By supporting the assumption that bribes can 'grease-the-wheel' of inefficient rules and bureaucracies, this study points out the importance for entrepreneurs of integrating these costs in their strategy to start and develop their venture. It also indicates to entrepreneurs that the intensity of investments in informal ties (through bribes) varies with the institutional context in which their ventures are embedded.

Policymakers concerned with entrepreneurship development should reform and improve poor quality institutions as this constitutes an impediment to entrepreneurs and incurs them extra costs through bribe payments, as evidenced in this study. This gives additional arguments to anti-corruption policies focusing on the roots of the problem (institutional void) in order to cure the disease.

The complexity of corruption systems calls for adequate and innovative measures. This concerns particularly bribes that are 'grease' money for entrepreneurship. In addition to the 'extra business cost' of bribes, entrepreneurs face the risk of being caught and sanctioned by the judicial system in countries punishing bribing by law.

The World Bank chief economist Basu (2011) suggested, when he was adviser to the Indian ministry of Finance, a new law that would grant immunity to bribe payers victim of petty corruption. He proposed that they also get repaid for their bribe as a reward for denouncing corrupt officials and bureaucrats.⁵ This would have strong implications for entrepreneurs in particular, as this would reduce their costs (bribes) and (judicial) risk induced by corruption system.

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⁵ There would be no immunity and increased judicial risk and sanction in the case of bribes for political and grand corruption.

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**INFORMATION & COMMUNICATION TECHNOLOGIES AND
ENTREPRENEURSHIP.**

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Information & Communication Technologies and Entrepreneurship.

Abstract

This paper shows how the falling cost and greater quantity of information, resulting from the development of the Information and Communication Technologies (ICT) increases aggregate entrepreneurship in national economies.

The standard ‘occupational choice’ model of management, based on individuals’ talent for managing, completed by the explicit consideration of the managerial use of information is explicitly presented and empirically tested to explain entrepreneurship development.

We present corroborating evidence on the link between ICT prices and availability, and the number of entrepreneurs in the economy using country-level data on entrepreneurship and on the prices and development level of ICT, for a sample of 92 countries over a period of six years between 2007 and 2012. Panel data regressions support the hypotheses, showing that a better access to ICT fosters formal entrepreneurship, but not the ‘necessity entrepreneurship’ as defined in the literature.

Introduction

What can explain that the aggregate level of entrepreneurship as measured by the *New business density* (the number of new limited liability corporations registered in the calendar year per 1,000 people ages 15-64)¹ varies significantly among national economies, from 0.64% in Australia to 1.55% in New Zealand in 2010, and from 0.14% in Colombia to 1.83% in Costa Rica? For long, scholars have attempted to explain this variance in the rates of entrepreneurship, putting forward the role of countries’ economic and institutional contexts (Wennekers et al., 2005). However, these explanations remain incomplete to fully understand the determinants and dynamics of entrepreneurship (Stenholm et al., 2013). In this paper, we put forward the role of managerial use of information, through the price and availability of Information and Communication Technologies (ICT) in Society.

Since entrepreneurs are not just creators of new firms, but obviously also managers of these firms (as in Cantillon, 1755), an adequate theory must account for the creation of new businesses (the dynamics of industrial organization) that depends, as shown by Lucas in his seminal 1978 paper, on the occupational choice of individuals who decide, in a labor economics perspective, to become manager-entrepreneurs and supply a stream of managerial services to the firm they created. Suppliers of labor can choose between creating an enterprise and other options, most of which are positions of wage earners. And they do so within a utility maximization framework. The dynamics of the industrial organization and the occupational choice of individuals are thus two sides of a same coin, the first aspect resulting from the total sum of the individuals’ decisions relative to the second aspect.

¹ The World Bank Development Indicators (WBDI) database.

Standard occupational choice theory however relies on a single explanatory variable, the “talent for management” of individuals, the distribution of which in the population is assumed to be stable, at least in the short term. To explain variations in the number of decisions to become an entrepreneur, the model depends on variations of the ratio of profits to wages, that is, the ratio of benefits to opportunity costs, for wage earners, of becoming an entrepreneur. Lucas then concludes from this model that economic growth being linked both to capital accumulation – thus falling profits - and rising wages leads to a reduction in the number of entrepreneur-managers, thus larger firms and falling new businesses creation, which is counterfactual, at least since the 1970s when the average size of firms began to decline.²

In order to explain the trend towards smaller firms (and thus to an increase in the number of firms, thus new firms creation) since the 1970s, Rosa (2000, 2006 (a)) and Rosa & Hanoteau (2012) have emphasized the role of the increase in the quantity of information and decrease of its price resulting from the development of the Information and Communication Technologies. The explanation is that managers need information to coordinate resources within firms³ and can spread the cost of a given amount of that information by expanding the volume of output they control. It follows that when the cost of information is high firms should be large, and when it becomes cheaper, firms can become smaller. Obviously, for a given size of GDP, smaller firms’ size implies a larger number of firms, and thus a larger number of managers. New firms are created and new entrepreneurs emerge.

This analysis relies on the Coasean theory of the existence of firms as devices for economizing on transaction costs, and especially information costs, and proceeds by developing the comparative analysis of information/output ratios of small and large firms, expressed in a “Coase-Rybczynski” theorem. This is the ‘industrial organization approach’ to entrepreneurship, seen as an increase in new businesses creation as a consequence of a changing average firm size under the effect of competition between firms of different sizes.

Another approach is possible within the occupational choice framework, but seen from the point of view of the manager’s optimization. In the existing ‘occupational choice’ theory of the economics of management literature,⁴ the contribution of the manager to production (the managerial productivity) is reduced to its simplest expression: it is the talent level of the manager that multiplies the traditional production function linking output level and input (capital and labor) factors. And in this type of model it is not necessary to specify what managers do.⁵ It is sufficient to assume that their activity increases the output level of a given combination of labor and capital, and the more so given their talent level.

The analysis and models of Rosa (2006(a) and 2006(b)) consider however that managers of hierarchies (firms) are productive not solely due to their talent but also in that they reduce the costs of collecting the information that is necessary to any production process. Accordingly, the information used as an input by managers is introduced as a second factor of production,

²Recent studies have evidenced a general downsizing of firms in several industrialized countries (Baldwin, Jarmin & Tang, 2002; Monnikhof & van Ark, 1996).

³Indeed a manager has to collect various kinds of information in several domains (marketing surveys, engineering innovations, finance, labor relations). He is in the words of Lazear (2004) a “jack-of-all-trades”.

⁴Lucas (1978), Kihlstrom and Laffont (1979), Holmes and Schmitz (1990), Murphy et al. (1991).

⁵Lucas (1978).

besides their own human capital, in a Lucas-type ‘production of management function’. But the production of managerial services is now an information-augmented version of the Lucas concept. The ‘occupational choice approach’ is thus completed by an emphasis on the fact that the ability to manage firms (including newly created ones) requires two inputs: talent (the human capital of managers) and information (see note 4 above)⁶. These two inputs jointly condition the ability of the manager to combine optimally the firm’s ‘traditional’ production factors (labor and capital) in order to maximize the firm’s profit. And increased profits also increase the incentives for non-managers to choose to become entrepreneur-managers. It follows that a higher quantity of cheap information due to a new abundance of ICT, fosters entrepreneurship seen both as an increase in the number of entrepreneurs, and as the proportion of newly created firms in the economy.

In the present paper we present the neoclassical marginal conditions of the above ‘production of management model’ that determine the expected positive correlation between the quantity of information (as measured by ICT) and the level of entrepreneurship. And we test empirically the validity of that effect.⁷ A lower cost of ICT raises the managers’ productivity, thus the profitability of all firms, and increases the incentive to become an entrepreneur rather than a salaried employee. This result, however, doesn’t hold when the opportunity cost of entrepreneurship is low, meaning that ICT and the quantity of information do not foster ‘necessity entrepreneurship’.

The next section presents the model and the hypotheses, while the third one describes the data and the empirical methodology. We explain a country’s level of entrepreneurship, measured as the *New business density* (from the World Bank Entrepreneurship Survey), and of necessity entrepreneurship (from the GEM database) with indicators of ICT price and development level (data originating from the International Telecom Union - ITU) and several covariates suggested by the literature. We use panel data regressions on a sample of 92 countries over the period 2007-2012. The fourth section shows the results and finally, we conclude and discuss our main findings, with implications for theory, practice and for future research.

The Manager-Entrepreneur Model

An individual’s optimal choice between occupations is simplified as between being a wage earner and becoming a manager-entrepreneur. In this latter capacity the individual optimizes the standard production choices of the firm, volume of production as well as input choice. When the management function includes the information used by the manager as an input,

⁶ The labor contract specifies a division of labor such that the manager decides on the basis of her information about product and factors’ markets and technology, and paid employees execute her orders, thus require no more information than that already included in her directives. The extreme example of that specialization is observed in the Fordist value chain where the base level producers perform extremely simplified and repetitive tasks that require almost no information at all. In a simplified model, we consider the middle managers as enforcers of the CEO’s directives, since in fact the manager is the ultimate decider in the firm.

⁷ Using the analytical framework of Bajona and Locay (2009) who construct a simplified version of the Lucas general equilibrium model.

alongside his human capital, the change in the amount (and cost) of information available in the economy changes the profitability of the firms and thus the number of wage earners that decide to become managers-entrepreneurs.

There are N individuals in the populations and they can be either production workers or entrepreneurs, in which case they employ other workers. Each individual holds an ability level a , that is constant over time. The population is heterogeneous in that ability levels differ across individuals. The ability levels are distributed, exogenously, among the population according to a distribution function $G(a)$ with continuous density $g(a)$ and defined on the interval (domain of integration) $S \subseteq \mathbb{R}_+$. The distribution function does not change over time.

Only people with the highest ability levels become entrepreneurs and then earn their firm's profit. Otherwise, they get paid as production workers with a salary w_t . We thus define a 'manager-entrepreneur' as an individual who decides to start (or has already started in the previous period) his own business and now is running it. In this simple model, each firm is thus characterized by its single manager-entrepreneur and by its size, the number of hired workers. Consistent with the literature (Rosen, 1982, Murphy et al., 1991), the ablest managers run the largest firms.

The managerial output function

Entrepreneurs 'produce' a managerial output which is the outcome of a management function $(a, I_t) = F(a^\beta, I_t^{1-\beta})$, with the parameter β such that $0 \leq \beta \leq 1$. It is a function of the talent a and of a quantity of information I_t that is necessary for managing the firm and its various operations. This information is costly, with a cost z_t that is assumed to decrease as the price of ICT goes down or as ICT level of development increases. The development of Internet and of fixed and mobile telephones technologies and infrastructures, and a cheaper access, foster the diffusion of all the information relevant to managers, thus increasing the total quantity of information available and reducing search and gathering costs.

Given the ability level of its entrepreneur, a firm produces an output $y(a, I_t)$ according to the following relation:

$$y_t(a, I_t) = \lambda_t (a^\beta I_t^{1-\beta})^{1-\theta} H_t^\theta \quad (1) \text{ The}$$

first bracketed term is the "managerial technology" or the "managerial production function", and the second term is the "production technology" or "traditional 'entrepreneurless' production function". For ease of presentation, this latter function admits only one production factor, H_t which is the number of workers employed by the entrepreneur at cost w_t , with $\beta, \theta \in [0, 1]$. λ_t is a technology factor.

Since we model the production of managerial output as a function of information gathered, besides the individual's ability level, the occupational choice now depends on the cost of information in the economy, thus on the technologies of information production and exchange (ICT). A lowered cost of information gathering enhances the managerial productivity of all

existing and potential managers and thus increases the number of wage earners that enter the managerial business.

The optimal entrepreneurship solution

The optimal number of managers is given by a threshold level at which the profit earned by a manager is just equal to the opportunity cost of the individual, that is, the wage he can earn in a salaried position. The threshold \tilde{a}_t is defined as the level of ability of an individual who is indifferent between entrepreneurship and becoming a production worker.

$$\pi(\tilde{a}_t, z_t) = w_t \quad (2)$$

People with ability higher than \tilde{a}_t become entrepreneurs, and below \tilde{a}_t they become production workers.

We assume that output price is normalized to one, and input prices are relative prices. The potential entrepreneur considers in particular the maximum profit of the firm such that:⁸

$$\pi_t(a) = \max_{L_t, H_t} \left\{ \lambda_t (a^\beta L^{1-\beta})^{1-\theta} H_t^\theta - z_t L_t - w_t H_t \right\} \quad (3)$$

From the first order conditions, we obtain the labor-information ratio employed by an entrepreneur of ability a , such that:

$$\frac{H_t}{L_t} = \frac{\theta}{(1-\theta)(1-\beta)} \frac{z_t}{w_t} \quad (4)$$

Note that this input ratio does not depend on the level of ability a , but only on the relative prices of inputs just as in Lucas (1978). This means that during each given period, entrepreneurs use the same ratios of inputs.

From here, we obtain the entrepreneur's demand for factors in equilibrium:

$$L_t(a) = a \lambda_t^{\frac{1}{\theta(1-\beta)}} \Delta_t \quad (5)$$

$$H_t(a) = a \lambda_t^{\frac{1}{\theta(1-\beta)}} \Delta_t \frac{\theta}{w_t (1-\theta)(1-\beta)} \quad (6)$$

With
$$\Delta_t = \left[\frac{z_t}{(1-\theta)(1-\beta)} \right]^{-1/\beta} \left[\frac{w_t}{\theta} \right]^{\frac{\theta}{\theta(1-\beta)}}$$

Note that from (5), we have $\frac{\partial L_t(a)}{\partial z_t} < 0$, a higher cost reduces the use of information as a factor. We can then derive the equilibrium levels of output and profit for an entrepreneur with an ability level a :

⁸ For ease of presentation, the model is simplified assuming no tax. Introducing taxes on labor cost and/or on profit would not change the results.

$$y_t(a, z_t) = a \left(\Delta_t \lambda_t^{\frac{1}{\beta(1-\theta)}} \right)^{1-\beta+\beta\theta} \left(\frac{c}{w} \frac{z_t}{(1-\beta)(1-\theta)} \right)^\theta \quad (7)$$

$$\pi(a, z_t) = \left[1 - \lambda_t \left((1-\beta)(1-\theta) + \frac{\theta}{w} \right) \right] y_t(a, z_t) \quad (8)$$

As mentioned earlier, each individual chooses the most rewarding activity, and this depends on the level of its own private ability a . An individual with the threshold level of talent \tilde{a}_t is just indifferent between the two activities as they offer him the same rewards as written in relation (2).

Given that profit is an increasing function of ability level a , at each period, all individuals with an ability level superior to \tilde{a}_t decide to be entrepreneurs and all individuals with ability levels below \tilde{a}_t become production workers. Using (7) and (8) in (2), we obtain this threshold:

$$\tilde{a}_t = \frac{w_t}{\left[1 - \lambda_t \left((1-\beta)(1-\theta) + \frac{\theta}{w} \right) \right]} \left[\lambda_t \right]^{\frac{1}{\beta(1-\theta)}} \left(\frac{z_t}{(1-\beta)(1-\theta)} \right)^{\frac{1}{\beta}-1} \left(\frac{w}{\theta} \right)^{\frac{\theta}{\beta(1-\theta)}} \quad (9)$$

We can see from (9), that $\frac{\partial \tilde{a}_t}{\partial z_t} \geq 0$, whenever $w_t \geq \frac{\lambda\theta}{1-\lambda(1-\beta)(1-\theta)}$. This condition is always satisfied if we assume that $\lambda \geq \frac{1}{(1-\beta)(1-\theta)}$. This means that \tilde{a}_t is increasing in z_t when the opportunity cost (wage of employees) of being an entrepreneur is high enough. If this opportunity cost is too low, there is no incentive to be worker and therefore, z_t would have no impact on \tilde{a}_t (equal to zero in that case).

A drop in the price of ICT (or equivalently, a higher development level of ICT), reducing the cost of information, raises firms' profit, everything else being constant. This induces additional individuals, with lower ability levels, to become entrepreneurs.

Hypothesis 1: A better access to managerial information, through a higher development or lower cost of ICT, raise entrepreneurship.

From the relation (9), we obtain that $\frac{\partial \tilde{a}_t}{\partial z_t} < 0$ for $w_t < \frac{\lambda\theta}{1-\lambda(1-\beta)(1-\theta)}$. This means that when the opportunity cost w_t of being an entrepreneur is low (equal to zero in the limit), a lower (higher) price of ICT has a negative (positive) impact on the number of entrepreneurs in the economy. This condition refers to the situation of necessity entrepreneurship where poor people are pushed into micro-entrepreneurship and self-employment because they are excluded from the well paid formal employment sector, and salaries in the informal and casual job sectors are insufficient (Fields, 2011; Rosa, Kodithuwakku & Balunywa, 2006). A higher quantity and better access to information has no or very limited direct effect on this category of micro-entrepreneurs. Indeed, street-vendors of food and street shoe repairs in Jakarta use a limited and constant amount of managerial information. Due to poverty, they don't have the conditions for obtaining and using managerial information to seize business

opportunity and upgrade their situation towards a higher category of entrepreneurship in terms of returns. According to La Porta and Shleifer (2008), people that are forced into informal micro-entrepreneurship and self-employment, as it is their unique ‘safety net’, have little chance to progress towards more productive formal entrepreneurship.

On the other hand, there may be an indirect effect. Higher quantity and better access to information, induced by ICT lower prices and higher development level, by fostering formal registered entrepreneurship (Hypothesis 1) and thereby the entire economy, is likely to reduce the motives for necessity entrepreneurship. Therefore, we hypothesize that:

Hypothesis 2: A better access to managerial information, through a higher development and/or lower cost of ICT, has a negative impact on necessity entrepreneurship.

Data and methodology

In order to test our hypotheses, we investigate empirically to which extent the level of development and prices of ICT, used as proxies for the conditions of access to managerial information, can explain entrepreneurship.

We use indicators of aggregate level of entrepreneurship from the *New business density* (from the World Bank Entrepreneurship Survey), and of necessity entrepreneurship from the GEM database. Indicators of ICT price and development level come from the International Telecom Union – ITU data, and several control variables are also used as suggested by the literature.

We perform panel data regressions on a sample that includes 92 countries over a period of six years (2007-2012).

For this purpose, we run econometrics regressions on a panel of country-level measures of entrepreneurship, ICT prices and development, and control variables that are taken from the literature. We consider a sample covering 92 countries (see list in annex 1) with annual observations over the period 2007-2012. We test a relation of the following reduced form:

$$y_{i,t} = a + bx_{i,t-1} + cZ_{i,t} + \mu_{i,t} \quad (10)$$

The dependent variable $y_{i,t}$ stands for the level of entrepreneurship in country i during the period t . The main explanatory variable $x_{i,t-1}$ is the measure of ICT price or development-level and Z is a vector of controls. $\mu_{i,t}$ is the error term.

Dependent variable

In the models of talent allocation, the opportunity cost incurred by those wage earners who decide to become entrepreneurs is their wage. This theoretical framework is appropriate in the formal registered sector, where most people are wage earners. But in the informal sector of

the economy the decision to become entrepreneur (mainly self-employment and micro-entrepreneurship) is not the result of such an arbitrage between two rewarding activities.

People become entrepreneurs as an alternative to inactivity (i.e. no salary) or precarious employment with very low and insufficient salary (Fields, 2011; Rosa et al., 2006).

Therefore, we are constrained to limit our explanation to the formal registered sector and this is why we borrow our measure of entrepreneurship from the World Bank Group Entrepreneurship Survey (WBGES). Indeed, Acs, Desai and Klapper (2008) explain that this source of measure of entrepreneurship is appropriate for studying the rate of entry in the formal economy. We use the *New business density* which is the number of new limited liability corporations registered in the calendar year per 1,000 people ages 15-64. We take the data series from the World Bank Development Indicators (WBDI) database, but it originates from the WBGES. An alternative measure of entrepreneurship such as the Total entrepreneurial activity from the Global Entrepreneurship Monitor (GEM) database would not be appropriate in this case as it captures also the informal part of entrepreneurship.

We try nevertheless to test our second assumption, using data on *Necessity entrepreneurship* from the GEM database, data that incorporate necessity micro-entrepreneurship and self-employment taking place for a large part in the informal sector (de Soto, 2000, La Porta & Shleifer, 2008). We also use the data series on *Opportunity entrepreneurship* as a robustness check.

Main explanatory variables

For robustness, our intent is to use alternatively price and development-level measures of ICT equipments taken from the International Telecom Union (ITU) and its reports *Measuring Information Society* (ITU, 2009, 2010, 2012).

We first take the *ICT basket price* which is a price index built by ITU using the country-level prices of three ICT technologies: the price of a three-minute local call using fixed telephone lines; the price of a standard package for mobile phone monthly usage (30 outgoing calls per month and 100 sms); the price of an entry-level Internet fixed-broadband subscription plan. All these prices are taken as percentage of a country's average GNI per capita. We also consider, as a separate variable, the *price* (as percentage of GNI) of *Internet fixed-broadband* subscription plan.

We take two measures of the ICT development-level. We first consider ITU's *ICT Development Index*. It is based on 11 sub-indices accounting for the access to and usage of ICT, as well as skills. Sub-indices on access are measures of the proportions of the population having access to fixed-telephone, mobile-cellular, internet-broadband and computer. Sub- indices on usage measure the proportions of individuals using internet, having subscriptions to wired- and mobile-broadband subscriptions. The skills are accounted for by the gross enrollment ratios in the secondary and tertiary educations. ITU aggregate the 11 indicators using the Principal Component Analysis. Second, we consider as a separate variable the number of *Internet fixed-broadband subscribers* per 1,000 inhabitant in one country.

Covariates

There is a rich empirical literature on the determinants of entrepreneurship, from which we borrow the control variables. This literature put forward in particular the significant role of income per capita, the domestic growth rate, starting business regulation, the presence of foreign firms, the nature and quality of legal institutions (Bowen & de Clercq, 2008; Dreher & Gassebner, 2012; Van Stel, Storey & Thurik, 2007; Acs et al. 2008).

Income per capita. The previous literature underlines the prominent role of income per capita, although its real impact on entrepreneurship is still debated. Some studies find a negative relationship, arguing that a higher income per capita raises the opportunity cost to entrepreneurship (Bjornskov & Foss, 2008; McMullen et al. 2008; Valdez & Richardson, 2013; Wennekers et al. 2007). Others put forwards a positive relationship (Parker and Robson, 2004; Verheul et al. 2004) arguing that higher income per capita means higher education and human capital, larger and more diverse markets, and transformation of the economy's structure towards the services sectors (Wennekers et al. 2005). Recent studies suggest a quadratic form to the relationship (inverted-U) (Bowen and de Clercq, 2008; Dreher and Gassebner, 2012). This would justify introducing GDP per capita (GDPpc) with a quadratic form in the empirical relation (GDPpc and its square) which we can't do due to multicollinearity problems revealed by correlation matrix.

This measure is expressed in constant 2005 USD and is taken from the World Bank Development Indicators (WBDI) database. In order to avoid potential reverse causality (endogeneity) with entrepreneurship, we take *GDPpc* with a one year lag (Bowen & de Clercq, 2008; Dreher & Gassebner, 2012).

Domestic growth rate. Prior studies have observed a significant effect of GDP growth on entrepreneurship, but here also, the sign of the relationship is debated. Some authors find a positive effect (Van Stel et al. 2007) whereas others observe a negative relation (Bowen and de Clercq, 2008). Our intent is not to investigate this relationship in particular, and as explained later, we use *Domestic Growth rate* as a substitute to *Income per capita*, in order to avoid multicollinearity problems between *GDPpc* and other variables (controls and main explanatory). To measure *Domestic growth rate*, we take the GDP per capita growth rate (Dreher & Gassebner, 2012; Van Stel et al., 2003) from the WBDI and with a one year lag to alleviate simultaneity biases.

Starting business regulation. Following Acs et al. (2008), Van Stel et al. (2007) and Dreher and Gassebner (2012), we take data on starting business regulations from the World Bank Doing Business (WBDB) Database. We use the number of procedures necessary to start a business, which is assumed to have a detrimental effect on entry.⁹

Foreign firms presence. Globalization and the presence of foreign-owned enterprises are considered to influence positively a country's level of entrepreneurship development (Bowen & de Clercq, 2008; Valdez & Richardson, 2013; Verheul et al., 2002). Following Bowen and de Clercq (2008), we accounts for the *Foreign firms presence*, using the stock of inward

⁹ We choose this indicator on the 'number of procedures' necessary to start a business rather than those on the 'cost' or 'time', as the later show multicollinearity with other explanatory variables. Data are retrieved from <http://www.doingbusiness.org/>

Foreign Direct Investment (FDI) as a percentage of GDP. Data are from the United Nations UNCTAD (www.unctad.org).

Legal origin. The literature indicates that a country's legal origin affects entrepreneurship. In particular, countries which are currently or were formerly centrally planned economies, exhibit significantly lower entrepreneurship development (Aidis, Estrin & Mickiewicz, 2010; Bjornskov & Foss, 2008; Bowen & de Clercq, 2008; Dreher & Gassebner, 2008, Van Stel et al., 2007). Specific entrepreneurial traditions and underlying institutions are due to decades of communism and centrally planned economy. The variable *Legal origin* is a dummy taking the value one if the country was previously or is currently a centrally planned economy, zero otherwise.

The empirical literature on the country-level determinants of entrepreneurship puts forwards additional variables such as the degree of corruption (e.g. Transparency International's Corruption Perception Index) (Dreher & Gassebner, 2012), Economic Freedom (e.g. Economic Freedom Index from Freedom House) (Bjornskov & Foss, 2008; Valdez & Richardson, 2013), education (e.g. secondary school enrollment from WBDI) (Bowen and De Clercq, 2008; Verheul et al., 2002; Wennerkers et al., 2007). Preliminary investigations revealed strong correlations between these variables and our main explanatory, the various measures of ICT prices and development level. Indeed, one may expect a reverse causality between education and the access and use of ICT.

We also discard variables such as access to credit (Share of domestic credit to private sector from WBDI) (Acs et al., 2008; Aidis et al. 2010, Dreher & Gassebner, 2012; Van Stel et al., 2007), structure of the economy (share of the services sector in GDP) (Aidis et al., 2010; Van Stel et al., 2007) as they happen to be strongly correlated with other controls (*GDPpc*, *GDPpc growth rate*) and with the main explanatory. We therefore end up with a relatively limited set of controls and we acknowledge this in the discussion part.

The Table 1 presents descriptive statistics and the matrix of correlations. It indicates that the variables measuring ICT prices (*ICT basket price* and *Internet fixed-broadband price*) are negatively correlated with entrepreneurship (*New business density*) whereas variables accounting for ICT level of development (*ICT development index* and *Internet fixed- broadband subscribers*) are positively correlated with entrepreneurship. It also shows that *GDPpc* is highly correlated with *ICT basket price*, *ICT development index* and *Internet fixed- broadband subscribers*, with coefficients ranging between 0.5 and 0.88. This justifies that in a first set of regressions including *GDPpc* as a control, we use only *Internet fixed-broadband price* as the main explanatory. In a second set of regressions, we replace *GDPpc* with *GDPpc growth rate*.

Table 1. Descriptive statistics and correlation matrix

[insert here]

Results

Following Dreher and Gassebner (2012), we estimate the empirical relation (10) using panel OLS regressions with standard errors corrected for panel level heteroscedasticity (panel-corrected standard errors). We also correct for the first-order autocorrelation AR(1) of the error term within panels (Beck & Katz, 1995).

The Table 2, column 1, presents the results of regression including *GDPpc* as covariate. It shows that *Internet fixed-broadband price* impacts negatively and significantly *New business density*. The Table 3 (columns 1-4) reports the results of regressions in which *GDPpc* is replaced by *GDPpc growth rate* in order to reduce multicollinearity. It shows that *ICT basket price* and *Internet fixed-broadband price* have negative and significant effects on *new business density*, whereas *ICT development index* and *Internet fixed-broadband subscribers* have positive significant effects. These results confirm our first hypothesis that a better access to managerial information, through cheaper and more developed ICT, induces a higher development of entrepreneurship within a country.

Table 2. Results OLS regressions, panel corrected standard error

[insert here]

Table 3. Results OLS regressions, panel corrected standard error

[insert here]

The Table 2 (column 3) and Table 3 (columns 9-12) present results of regressions in which the dependent variable is *Necessity entrepreneurship* (GEM database). The estimated coefficients for the main explanatory variables (ICT) are always significant and reveal that *ICT basket price* and *Internet fixed-broadband price* have positive effects on *Necessity entrepreneurship*, whereas *ICT development index* and *Internet fixed-broadband subscribers* have negative impacts. This supports our second hypothesis, that ICT lower prices and higher development level do not foster necessity entrepreneurship.

The bottoms of Tables 2 and 3 present the mean values of the Variance Inflation Factors (VIF) which are always close to the value of 2. In addition, the maximum VIF value (not shown here) is always lower than 5. This leads us to consider confidently that multicollinearity is not a problem here.

Robustness checks

As a robustness check, we use *Opportunity entrepreneurship* (GEM database) as the dependent variable. Results of regressions presented on Table 2 (column 2) and Table 3 (columns 5-8) show that the estimated parameters are negative significant for *ICT basket price*, negative for *Internet fixed-broadband price* and positive significant for *ICT development index* and *Internet fixed-broadband subscribers*. This confirms our support to

hypothesis 1, and the different effects of ICT prices and development indicators on necessity and opportunity entrepreneurship confirm our support to hypothesis 2.

As outliers can be a problem, the Hadi (1992) multivariate outliers elimination method is used. It leads to cuts of 3% to 5% in the number of observations, depending on the specification. The results of regressions without outlier, not shown here, are robust.

Conclusion

Our results have implications for both academics and policy makers. We contribute to the theory of entrepreneurship by complementing the ‘occupational choice’ approach of Lucas (1978) and Murphy et al. (1991) among others by the ‘information as a factor of production in the managerial production function’ analyzed by Rosa (2000, 2006 (a), 2006 (b)). In that two-factors approach to management functions, the cost of information matters in the individual choice of becoming a manager-entrepreneur. Using this neoclassical analytical model of the optimal number of entrepreneurs in the economy, we explicitly derive a positive relationship between information and entrepreneurship and vindicate empirically earlier results on the positive impact of ICT development on industrial organization dynamics. Further research should introduce the effect of other institutional and policy variables in this framework to gain more detailed and specific insights into the development of entrepreneurship, and especially at a more micro level.

This study also has practical implications for policy makers concerned with the development of entrepreneurship as a tool for fostering economic development and growth. Our empirical results open a possible avenue for development policy: increasing and facilitating the access to ICT, through the development of infrastructures and new technologies, allowing a reduction in the cost of access. Although it appears that information does not impact the poorest, those who become entrepreneurs by necessity, ICT growth can foster formal entrepreneurship in the registered sector of all economies, either developed or developing, and in the process help absorb on the margin more necessity entrepreneurs into the official economy.

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Annex 1: list of countries

1 Algeria	24 El Salvador	47 Latvia	70 Serbia
2 Angola	25 Estonia	48 Lebanon	71 Singapore
3 Argentina	26 Ethiopia	49 Lithuania	72 Slovak Republic
4 Australia	27 Finland	50 Macedonia	73 Slovenia
5 Austria	28 France	51 Malawi	74 South Africa
6 Bangladesh	29 Germany	52 Malaysia	75 Spain
7 Barbados	30 Ghana	53 Mexico	76 Sweden
8 Belgium	31 Greece	54 Montenegro	77 Switzerland
9 Bolivia	32 Guatemala	55 Morocco	78 Syria
10 Bosnia & Herzegovina	33 Hong Kong	56 Namibia	79 Thailand
11 Botswana	34 Hungary	57 Netherlands	80 Tonga Islands
12 Brazil	35 Iceland	58 New Zealand	81 Trinidad & Tobago
13 Canada	36 India	59 Nigeria	82 Tunisia
14 Chile	37 Indonesia	60 Norway	83 Turkey
15 China	38 Iran	61 Pakistan	84 Uganda
16 Colombia	39 Ireland	62 Panama	85 United Arab Emirates
17 Costa Rica	40 Israel	63 Peru	86 United Kingdom
18 Croatia	41 Italy	64 Philippines	87 United States of America
19 Czech Republic	42 Jamaica	65 Poland	88 Uruguay
20 Denmark	43 Japan	66 Portugal	89 Vanuatu
21 Dominican Republic	44 Jordan	67 Romania	90 Venezuela
22 Ecuador	45 Kazakhstan	68 Russia	91 Yemen
23 Egypt	46 Korea (South)	69 Saudi Arabia	92 Zambia

Table 1. Descriptive statistics and correlation matrix

	Mean	sd	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) New business density	3.397	4.335	1.000										
(2) Opportunity entrepreneurship	47.356	13.13	0.127	1.000									
(3) Necessity entrepreneurship	25.814	11.811	-0.280*	-0.709*	1.000								
(4) ICT basket price (lag)	6.181	10.583	-0.239*	-0.211*	0.324*	1.000							
(5) Internet fixed-broadband price (lag)	52.976	338.326	-0.099	-0.146*	0.233*	0.548*	1.000						
(6) ICT development index (lag)	4.588	1.965	0.425*	0.399*	-0.507*	-0.622*	-0.235*	1.000					
(7) Internet fixed-broadband subscribers (lag)	11.784	11.496	0.391*	0.482*	-0.542*	-0.482*	-0.162*	0.925*	1.000				
(8) GDPpc (lag)	16897.32	13076.29	0.401*	0.545*	-0.616*	-0.518*	-0.187*	0.869*	0.870*	1.000			
(9) GDPpc growth rate (lag)	0.032	0.045	-0.166*	-0.090	0.137*	0.352*	0.198*	-0.443*	-0.397*	-0.326*	1.000		
(10) Foreign firms presence	0.491	0.594	0.564*	0.142*	-0.259*	-0.150*	-0.072	0.311*	0.311*	0.388*	-0.055	1.000	
(11) Legal origin	0.185	0.389	0.040	-0.282*	0.288*	-0.183*	-0.071	0.115*	0.032	-0.087	-0.084	0.004	1.000
(12) Starting business regulation	7.882	3.563	-0.384*	-0.328*	0.418*	0.220*	0.085	-0.515*	-0.523*	-0.492*	0.237*	-0.339*	-0.073

Table 2. Results OLS regressions, panel corrected standard error

Dependent variable:	New business density	Opportunity ent.	Necessity ent.
(source)	(WBGES)	(GEM)	(GEM)
Internet fixed-broadband subscribers	-0.0003** (0.028)	-0.007 (0.696)	0.019** (0.031)
GDPpc	0.000* (0.053)	0.001*** (0.000)	0.000*** (0.000)
Foreign firms presence	3.207*** (0.000)	-1.774 (0.199)	-0.040 (0.973)
Starting business regulation	-0.182* (0.074)	-0.523* (0.067)	0.517** (0.014)
Legal origin	0.645 (0.296)	-7.704*** (0.000)	8.330*** (0.000)
Constant	2.269* (0.060)	45.10*** (0.000)	27.96*** (0.000)
Obs.	192	215	215
R ²	0.385	0.407	0.556
Wald chi2	155.79 (0.000)	97.60 (0.000)	167.92 (0.000)
VIF (mean value)	1.70	1.66	1.66

*p-values in parentheses. * significant at 10%. ** significant at 5%. *** significant at 1%*

Table 3. Results OLS regressions, panel corrected standard error

Dependent variable:	New business density				Opportunity ent.				Necessity ent.			
(source)	(WBGES)				(GEM)				(GEM)			
(GEM)												
ICT basket price (lag)	-0.037** (0.017)				-0.291*** (0.000)							
Internet fixed-broadband price (lag)	-0.001*** (0.002)				-0.0252 (0.239)				0.035*** (0.004)			
ICT development index (lag)	0.489*** (0.000)				2.132*** (0.002)				-2.370*** (0.000)			
Internet fixed-broadband subscribers (lag)	0.081** (0.000)				0.376*** (0.000)				-0.377*** (0.000)			
GDPpc growth rate (lag)	-0.536 (0.881)	-1.692 (0.651)	7.901 (0.323)	7.430 (0.348)	7.608 (0.608)	0.916 (0.950)	27.78 (0.226)	28.907 (0.238)	-3.294 (0.750)	5.375 (0.610)	-26.34* (0.087)	-24.44 (0.137)
Foreign firms presence	3.433*** (0.000)	3.468*** (0.000)	3.056*** (0.000)	3.092*** (0.000)	0.605 (0.673)	0.934 (0.527)	-1.229 (0.330)	-1.308 (0.276)	-2.087 (0.104)	-2.531* (0.058)	-0.314 (0.768)	-0.348 (0.733)
Starting business regulation	-0.221** (0.028)	-0.243** (0.012)	-0.126 (0.188)	-0.120 (0.239)	-1.006*** (0.000)	-1.041*** (0.000)	-0.925** (0.003)	-0.835*** (0.006)	0.934*** (0.000)	0.985*** (0.000)	0.972*** (0.000)	0.932*** (0.000)
Legal origin	0.279 (0.621)	0.394 (0.466)	0.179 (0.717)	0.480 (0.320)	-11.01*** (0.000)	-10.37*** (0.000)	-11.77*** (0.000)	-10.751*** (0.000)	11.77*** (0.000)	10.90*** (0.000)	10.80*** (0.000)	9.752*** (0.000)
Constant	3.456*** (0.000)	3.399*** (0.000)	0.145 (0.904)	1.341 (0.263)	57.82*** (0.000)	56.84*** (0.000)	46.52*** (0.000)	50.731*** (0.000)	15.70*** (0.000)	17.04*** (0.000)	28.13*** (0.000)	22.30*** (0.000)
N	192	192	198	198	215	215	199	199	215	215	199	199
R ²	0.393	0.387	0.421	0.423	0.3671	0.3631	0.5553	0.534	0.507	0.475	0.509	0.498
Wald chi2	72.14 (0.000)	144.24 (0.000)	80.28 (0.000)	66.04 (0.000)	49.55 (0.000)	46.72 (0.000)	77.10 (0.000)	89.35 (0.000)	114.42 (0.000)	91.39 (0.000)	160.50 (0.000)	171.34 (0.000)
VIF (mean value)	1.54	1.36	2.89	2.36	1.55	1.36	2.62	2.10	1.55	1.36	2.62	2.10

*p-values in parentheses. * significant at 10%. ** significant at 5%. *** significant at 1%*

INNOVATION IN NEWLY PUBLIC FIRMS: THE INFLUENCE OF GOVERNMENT GRANTS, VENTURE CAPITAL, AND PRIVATE EQUITY

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Innovation in newly public firms: The influence of government grants, venture capital, and private equity

We investigate the influence of government grants, venture capital (VC), and private equity (PE) on innovation. Grounded in the logic of information economics and the knowledge-based view, this study takes a fine-grained perspective by examining innovation inputs (R&D), and innovation outputs (patents), and the quality of outputs (patent citations). We analyze a cross-sectional sample of 436 Australian newly public companies. We find that grants are associated with innovation inputs, outputs, and the quality thereof. VCs increase innovation inputs whereas PEs increase innovation outputs and the quality thereof. Importantly, grants encourage VC investment but not PE investment. Grants and VC/PE backing are generally complements regarding innovation except grants substitute for VC backing on innovation inputs. We also investigate the attributes of VC/PEs that are associated with innovation.

We investigate the differential impact of funding sources on innovation. New venture firms tend to pursue a strategy of innovation to enhance their competitive advantage, performance, and valuations (Terziovski, 2010). At the same time new venture firms tend to be resource poor, so they seek resources, including funding, to enhance their knowledge base and capability to innovate (Yli-Renko et al., 2001). Three prominent sources for such funding are government grants, venture capital (VC) firms, and private equity (PE) firms (Rind, 1981; Bruton et al., 2010). While there is a large literature on the relationship of VC and PE backing on financial performance (eg. Bruton et al, 2010; Fitza, Matusik, Mosakowski, 2009), there is a limited literature on the influence of VC and PE backing on innovation. Similarly, the influence of government grants on innovation has received limited attention (for an exception see; Clausen, 2009), notwithstanding the significant government expenditure devoted to grants. For example, despite Ireland spending €802 million on innovation-incentives in 2012 (Ferguson, 2013), and the Australian government budgeting AUD 332.7 million for the 2012 financial year (Innovation Australia, 2012, p158), it is unclear whether such grants are value-creating. Overall, the lack of research on the combined influence of grants, VC backing, and PE backing, leaves us with an incomplete knowledge of the determinants of innovation in new venture firms. Specifically, the literature lacks clarity on whether government grants provide a signal to encourage subsequent VC/PE investment and whether grants supplement or complement VC and PE investment with regards to innovation.

To address these gaps in our understanding, we offer a theoretical explanation and empirical investigation of how government grants, VC backing, and PE backing influence innovation. To build our arguments, we draw upon the logic of information economics (Akerlof, 1970; Spence, 1974; Riley, 2001) and the knowledge-based view of the firm (Kogut and Zander, 1992; Grant, 1996a, 1996b). Following the knowledge-based view, we take the perspective that new venture firms will seek knowledge resources and capabilities to increase competitive advantage through innovation. We similarly view VC/PE firms as seeking investment opportunities in companies that have a knowledge-based advantage, that they can add their own knowledge and management skills, thereby helping to facilitate growth (Matusik and Fitza, 2012). However, following information economics, information asymmetries can limit the ability of VC/PEs to identify portfolio companies that have such a knowledge-based advantage. Thus, we examine how credible, externally validated, signals of quality (i.e. grants) can encourage VC/PE investment and the extent to which such signals can influence the

nature of that investment. We also argue that such signals influence the ability to procure capable knowledge-resources such as top research staff. We examine whether government grants, VC backing, or PE backing, individually or in combination, encourage firms to increase innovation inputs (as proxied by R&D expenditures) and whether they help firms to translate those inputs into innovation outputs (as proxied by patents). We further examine whether such funding and backing improves the quality of those outputs (as proxied by the citations that the patents receive).

We undertake our empirical investigation of innovation in the Australian market. Analyzing the Australian market provides several advantages. Latent macroeconomic factors that could drive innovation (see e.g. Anokhin and Wincent, 2012) are subdued. In high-innovation regions (i.e. the U.S. and Europe), it can be relatively more difficult to identify whether funds cause an increase in innovation, or whether innovativeness arises due to other macroeconomic factors. That is, it is relatively more difficult to eliminate macroeconomic factors as an alternative explanation for observed high innovation levels. By contrast, Australia is a country that has strong sovereign governance and well developed principles of corporate governance (Humphery-Jenner and Powell, 2011; Gallagher et al., 2012), but has historically featured relatively low levels of innovation (Gans and Stern, 2003; Gans and Hayes, 2010). Thus, in Australia, a relation between VC/PE backing and innovation is likely to reflect the impact of this backing; by contrast, in high-innovation countries the relationship between VC/PE backing and innovation may reflect other latent economic-growth factors. Further, the government grants in Australia are competitive, in contrast to semi-automatic R&D subsidies, assuring that the grants possess market-based characteristics.

We test our theoretical arguments on a sample of 436 firms that list on the Australian Stock Exchange (ASX) between January 1995 and December 2005. As in Bruton et al (2010), we examine newly public companies at the point of their IPO (initial public offering). We analyze the level of innovation inputs (R&D expenditure) and outputs (patents), and the quality of those outputs (patent citations) and distinguish whether the company had a government grant, VC backing, or PE backing at the time of listing on the Australian Stock Exchange. We ensure that the results are robust to using propensity score matching and 2SLS techniques. The empirical results generally support our hypotheses. We find that grants increase innovation inputs, outputs, and output quality. VC backing increases innovation inputs. PE backing increases innovation outputs and the quality thereof. We find grant-recipients who receive VC or PE backing produce more innovation outputs and outputs of higher quality than do grant-recipients who do not receive VC or PE backing, suggesting that VC and PE backing complement government grants regarding innovation outputs and output quality. Interestingly, we find that grants substitute for VC backing regarding innovation inputs while they complement PE backing. The receipt of a grant encourages a VC, but not a PE, to invest in a new venture firm. Additionally, our model control variables provide insight on the types of VC/PE firms that encourage innovation. We find that large and domestically-based VC/PEs are associated with higher levels of innovation, whereas syndicated VC/PE investments, and VC/PEs based overseas, or having a higher portfolio spread are associated with lower levels of innovation.

We contribute to two literatures. First, we contribute to the information economics literature by theoretically arguing and empirically demonstrating that government grants provide an externally validated signal to encourage subsequent VC but not PE investment. To our knowledge, government grants have not been previously considered as a signaling mechanism. Second, we contribute to the literature on

innovation. The prior literature indicates that VC backing increases innovation; however, we provide a more complete, and fine grain, analysis by additionally examining PE backing and grants as drivers of innovation, and by examining innovation inputs, outputs, and quality of the outputs. We find general support for the idea that VC and PE backing complement grants regarding innovation. Further, we provide insights that directly apply to policy-makers, managers of new venture firms, and managers of VC/PE firms.

PRIOR LITERATURE AND HYPOTHESES

The theoretical basis for our analysis is information economics (Akerlof, 1970; Spence, 1974; Riley, 2001) which we supplement with perspective from the knowledge based view (Kogut and Zander, 1992; Grant, 1996a, 1996b). Unlike prior studies on the influence of VC and PE backing that generally consider the resultant valuation or performance of the firm, we investigate innovation. Innovation is an important strategic outcome for new venture firms, especially prior to IPO (initial public offering). Innovation is generally sought because it is a path to competitive advantage and higher performance (McGrath et al., 1996).

Scholars have long acknowledged that innovation has an important influence on firm performance (Jaffe, 1986; Teece, 1986; DeCarolis and Deeds, 1999). The interest in innovation has prompted scholars to examine innovation inputs as well as innovation outputs. Since we are interested in innovation as a resultant of firms receiving funding from varying sources, we consider three distinct aspects of innovation. First, we use the company's level of R&D expenditure as a proxy for its *innovation inputs* (Lavie and Rosenkopf, 2006; He and Wang, 2009). Next, we examine the results of these innovation inputs, specifically the firm's patents as *innovation outputs* (Kotha et al., 2011). Then, we examine the quality of those outputs – *innovation quality* – indicated by the citations that those patents have received (Ahuja and Katila, 2001; Joshi and Nerkar, 2011).

Information economics addresses the problem of market inefficiencies and adverse selection that can arise from asymmetric information between buyers and sellers (Akerlof, 1970; Spence, 1974; Riley, 2001). The adverse selection problem arises where information asymmetry exists between counter-parties such as during the investment selection process regarding new venture firms. VC/PEs are anticipated to investigate potential investees. Yet, such investigations are costly and may not result in accurate quality determinations. One of the remedies to this asymmetric information problem is a credible signal of quality (see review by Stiglitz, 2000). Quoting Ragozzino and Reuer (2011, p. 878), "... signals are activities by an economic actor that are positively related to an unobserved attribute that an exchange partner values and whose cost is negatively related to that unobserved attribute." The VC literature highlights the value of signals. For example, VC backing can be a signal of quality at the time of the IPO (Krishnan et al., 2011), when the firm is subsequently looking for an acquirer (Krishnan et al., 2011; Ragozzino and Reuer, 2011), and when the firm is subsequently attempting to borrow money (Huang et al., 2012; Basu et al., 2013). Additionally, the literature indicates that VC backing can be a signal of quality to knowledgeable employees when the firm is seeking top talent (Lee et al., 2001). However, within this VC literature, there has been limited analysis of the role of government grants as a credible signal of subsequent VC investment, PE investment, or talent acquisition.

In the knowledge-based view (KBV) of Kogut and Zander (1992) and Grant (1996a, 1996b), proprietary knowledge is the fundamental source of competitive

advantage. The overarching logic is that firms can extract rents by exploiting knowledge that is proprietary and rare (Arend et al., Forthcoming). Thus, firms can obtain a competitive advantage by generating knowledge through innovation. In general, firms seeking to grow knowledge will benefit from additional funding. Such funding can enable investment in a larger stock of strategic assets (Dierickx and Cool, 1989), complementary resources (Barney, 1991), and/or individuals that possess specialized knowledge (Grant, 1996a, 1996b). Companies can thus use cash-funding to obtain knowledge and resources, that they can then transform into innovation-outcomes by combining this specialized knowledge (Grant, 1996a, 1996b). As a result, financial resources may lead to value-creating knowledge and competitive advantage (c.f. Lee et al., 2001). In the KBV, knowledge can also be relation-specific in addition to firm-specific (Arend et al., Forthcoming).

The influence of grant funding on innovation

We predict that government grants will positively influence innovation inputs (R&D expenditure), outputs (patents), and output quality (patent citations). While there is some evidence that government grants can encourage innovation inputs and outputs in both the United States (Lerner, 1999; Toole and Czarnitzki, 2007), and in Europe (Aerts and Schmidt, 2008; Clausen, 2009; Colombo et al., 2011), the literature does not address innovation output quality. Thus, our arguments focus on output quality but also address innovation inputs and outputs.

Governments award a variety of grants. We limit our discussion to government grants to fund ‘research’ rather than to fund ‘development’ and that are competitive rather than semi-automatic. The distinction between research-grants and development-grants is important as Clausen (2009) shows that the impact of subsidies depends on their purpose; grants for ‘research’ complement existing R&D whereas grants for ‘development’ substitute for existing R&D.

We argue grants contribute to innovation. While grant funds almost necessarily lead to innovation inputs (earmarked for that purpose), they will not directly provide innovation outputs. However, we contend that grants are likely to do so because the grant is competitively judged by a panel of experts. This engenders the firm with an externally validated signal of quality that reduces the uncertainty associated with new venture firms by informing others of its favorable prospects (Lee et al., 2001). This enhances the firm’s ability to procure capable knowledge-resources such as top research staff (Podolny, 1993). Top research staff are generally expected to produce more innovation outputs and those outputs are anticipated to be of higher quality. As a result, we expect that grant-recipients will have increased financial-capital and human-capital that will enable them to achieve higher innovation inputs, outputs, and output quality. Hence:

Hypothesis 1: Government grants are positively associated with innovation inputs (R&D), and outputs (patenting), and the quality of those outputs (patent citations).

The influence of VC/PE firms on innovation

There are several reasons why VC/PE firms encourage innovation. First, new venture firms typically seek VC/PE backing to enable capability enhancement, further development of nascent innovations, commercialization, and growth (Rind, 1981). Since innovation is a key path to competitive advantage and financial success (Arend et al., Forthcoming), funding will have a high probability to be invested in a manner to increase knowledge and innovation. VC/PE backing can also generate a credible signal of quality with which to attract innovative personnel. Second, VC/PEs ordinarily take

an active management role in their portfolio companies, as evidenced (in part) by the complex contracts they make (Gompers and Lerner, 1996; Masulis and Nahata, 2009). Effective management is critical to generating innovation (Wallace et al., Forthcoming). Thus, VC/PEs can direct the company to engage in such activities – which they would do based on the expectation that VC/PEs could achieve more favorable exit outcomes by encouraging innovation. Third, VC/PEs can improve governance in portfolio companies in order to encourage innovation (Krishnan et al., 2011; Hochberg, 2012). In so doing, they can direct organizational action toward innovation. Fourth, VC/PEs can learn from their portfolio companies (De Clercq and Sapienza, 2005) and can facilitate knowledge sharing between portfolio companies (Humphery-Jenner, Forthcoming). This external knowledge can help portfolio companies to increase their know-how (Kogut and Zander, 1992) and provide improved organizing principles (Galunic and Rodan, 1998). This logic follows the KBV, as such support can foster increased integration of knowledge (Grant, 1996b) thereby enabling the company to engage in greater innovation.

This prior literature suggests that PEs mainly contribute to innovation outputs (patents) whereas VCs mainly focus on increasing the firm's innovation inputs (R&D). This is because PEs tend to invest in later-stage companies and fulfill a role of providing support necessary to capitalize on latent innovation. In contrast, VCs tend to invest in younger companies with nascent innovativeness and high potential (see e.g. Metrick and Yasuda, 2010). Such companies will increase their knowledge base, competitive advantage, and value by further investment in innovation. However, in addition to VCs and PEs focusing on innovative growth and applying management capability to a portfolio company, they also provide signaling value. Analogous to our arguments for a government grant, VC/PE backing also engenders the firm with a credible signal of quality and, in this case, legitimacy (Lee et al., 2001). This signal informs others and enables procurement of highly capable resources (Podolny, 1993; Kaplan and Stromberg, 2004). Due to this quality signal, VC backing will result in the procurement of top research staff and an increase in innovation inputs, output, and output quality; following our previous arguments for grants. However, PE backing will have a different outcome based on the quality signal they provide. PE funds often focus on contributing to the management of their portfolio companies (see e.g. Kaplan and Stromberg, 2004), with a focus on capitalizing on the latent innovation of portfolio companies. Such management skill is essential for producing quality innovation (Bantel and Jackson, 1989). Thus, PE funds are likely to increase innovation-outputs. This is because, the knowledge-based resources they attract will tend to have commercialization capabilities rather than research and invention capabilities. Therefore, we propose:

Hypothesis 2a: VC backing leads to an increase in innovation inputs, outputs, and the quality thereof in portfolio companies.

Hypothesis 2b: PE backing leads to an increase in innovation outputs and the quality thereof in portfolio companies.

Grants as a substitute or complement of and signal for VC and/or PE backing

Following Hypothesis 1, firms with a government grant will, in the due course of time, acquire a higher knowledge base and innovation potential. This will be evidenced by higher innovation inputs, outputs, and output quality (R&D expenditure, patents, and patent citations). At this stage, after government grant, many new venture firms will be seeking VC/PE backing to further increase their knowledge base, competitive advantage, and financial value. At the same time, following Hypotheses 2a and 2b, VC/PEs are anticipated to encourage innovation in their portfolio companies in

order to achieve more favorable exit-outcomes (Rind, 1981). VC/PEs seek capital appreciation as this increases the eventual value at which the VC/PE can sell their portfolio companies. While capital appreciation may be achieved by growing innovation, it may also be achieved in some cases by cutting costs. Costs could be cut by limiting further investment in innovation (i.e. R&D) and focusing on commercialization. For example, Engel and Keilbach (2007) find that German VC/PEs focus on bringing a company's existing innovations to the market. This possibility has a higher probability for firms having a strong pre-existing knowledge and patent base – such as firms in prior receipt of a government grant. So, while government grants may provide support to build knowledge or to expedite its building, we are left with two related questions. Will having been awarded a government grant increase the selection probability for subsequent VC/PE backing? Will government grants substitute for VC/PE backing regarding innovation?

VC/PEs are known to screen investments in order to “cherry-pick” potentially profitable portfolio companies (Croce et al., 2013; Rosenbusch et al., 2013). This is because VC/PEs seek investment opportunities with high potential that will ideally lead to an IPO event (Matusik and Fitza, 2012). However, there is limited evidence on how grants may influence the VC/PE investment decision. We contend that, in this decision process, VC/PEs will seek to reduce the adverse selection problem arising from asymmetric information. A large literature in information economics indicates that credible signals of quality have substantial influence on a firm's strategic interactions with other firms and market-participants (Akerlof, 1970; Spence, 1974; Riley, 2001; Ragozzino and Reuer, 2011).

We argue that one such credible signal of quality is the receipt of a government grant. The logic of governments offering research grants follows the traditional market failure argument (Arrow, 1962). The policy intent is to fund socially beneficial activity where returns to private investors are viewed inadequate due to incomplete appropriability and knowledge spillovers (Mahoney and Qian, Forthcoming; Arrow, 1962; Clausen, 2009). While a grant is relatively costless to the recipient, it could provide a credible signal with which the company can attract subsequent VC/PE investment. First, a government grant, by being awarded in a competitive process with expert referees, provides an external validation that the firm has innovation *potential* (see e.g. Link and Scott, 2010). Second, the grant signals that the firm was *already* innovative at the time of the grant (Takalo and Tanayama, 2010). Further, the grant could provide *extra* resources to further build the firm's innovation and knowledge base, as suggested above. These arguments indicate that a government grant provides an externally validated signal that the firm has a high level of innovativeness; and thus, potential for future value. We contend that such credible signals of quality will positively influence the investment decision of VC/PEs.

We argue that VC/PEs will be attracted to new venture firms having previously been awarded a government grant. This is an important extension to the idea that VC investment can then provide a signal to future potential financiers (Ragozzino and Reuer, 2011). Further, to the extent that VCs (more than PEs) tend to focus on innovative startups (see e.g. Metrick and Yasuda, 2010), we expect that government grants will encourage VC investment more than they encourage PE investment. This is because VCs tend to invest in early-phase start-ups, which typically feature high levels of information asymmetry and for which the signaling benefits of grants are likely to be salient.

Hypothesis 3a: The presence of a government grant (strongly) encourages VC investment.

Hypothesis 3b: The presence of a government grant encourages PE investment.

Building on Hypotheses 3a and 3b, we next consider if VC/PEs will continue investing in innovation in their portfolio companies that previously received a grant. In other words, will government grants substitute or complement VC/PE backing regarding innovation? We present two arguments for complementarity.

We first expect that the quality signal of a grant stimulates earlier VC/PE investment in a portfolio company than would normally be made. This earlier investment enables VC/PEs to contribute their skills and expertise at an earlier stage, when such skills may be especially useful, thereby complementing the receipt of a grant. A government grant provides an externally validated signal that the firm has a high level of innovativeness and potential for value. As indicated above, this signal enables VC/PEs to identify new venture firms by mitigating issues of information asymmetry that might otherwise deter VC/PE-investment. The impact of a grant will be greatest for companies in which the information-asymmetry-problem is greatest: relatively innovation-intensive new venture firms. Thus, by ameliorating information-asymmetry-based barriers, the grant will encourage earlier investment by VC/PEs. The earlier investment suggests the VC/PE will need to continue to invest in R&D. Further, one of the main benefits of VC/PE involvement is the contribution of management expertise. The contribution of such expertise, especially at an early stage in the company's life-cycle, should help to increase innovation outputs and quality following the arguments of Hypotheses 2a and 2b. So, while grant recipients already have received capital to invest in innovation and knowledge building, this argument suggests that VC/PEs will further increase innovation inputs, outputs, and output quality.

In a similar manner to the argument for earlier investment, we contend that the pre-screening and credible signals of quality of a government grant reduce perceived investment risk, thereby encouraging VC/PEs to continue to invest in innovation in these firms. The receipt of a grant helps to mitigate information asymmetry. Reducing information asymmetry enables VC/PEs to make decisions that are more informed, thereby reducing investment-risk by reducing the likelihood of miscalculating the expected returns (and riskiness thereof) associated with an investment. Thus, reducing information-asymmetry in companies will increase VC/PE investment in innovation inputs. We further contend that a VC or PE will invest in a grant-recipient company and then provide the management resources necessary to capitalize on the company's latent innovative potential. In this way, they support the company to convert its knowledge and resources into innovation outputs of high quality (c.f. Bena and Li, Forthcoming). In total, the follow-on VC/PE investment will be larger and will benefit from the management resources of the VC/PE resulting in increases in innovation inputs, outputs, and output quality following the arguments of Hypotheses 1, 2a, and 2b. In sum, VC/PE investment complements the receipt of a grant in relation to innovation:

Hypothesis 4a: VC backing complements government grants regarding innovation inputs, and outputs, and the quality of those outputs.

Hypothesis 4b: PE backing complements government grants regarding innovation inputs, and outputs, and the quality of those outputs.

DATA AND VARIABLES

We examine the impact of government grant, VC, and PE backing on firms at the time of listing on the stock exchange. We focus on newly public companies so that we can examine companies at a similar stage in their life cycle and so that we can obtain

data on the company's financials and innovation portfolio. Our sample is comprised of 436 IPOs that listed on the Australian Stock Exchange (ASX) between January 1995 and December 2005. There are 61 VC/PE backed IPOs. We identify the VC/PE backed firms from Thomson VentureXpert, SDC platinum and shareholder information in prospectuses. SDC platinum contains a flag to indicate the presence of VC backing at the time of the IPO. We use Thomson VentureXpert to supplement and correct any flags in SDC platinum. We obtain IPO prospectuses from the Connect 4 and FinAnalysis database. We hand-collect firm characteristics (e.g. size, age, cash flow to sales, ROE, and number of employees) from each company prospectus. We source data on patents from the database held by IP Australia and patent citations from the European Patent office, where we manually search each database. We obtain VC and PE attributes from VentureXpert. Sample composition information is available upon request.

Dependent variables

We examine innovation inputs, outputs, and output quality. We measure innovation inputs by R&D expenditures. We examine the log of one plus the firm's R&D expenditures, $\ln(R\&D + 1)$, *R&D spend*. We measure innovation outputs by examining the number of *patents* and the quality of innovation outputs by the number of *patent citations* at the time of IPO event. We acknowledge that the use of patents as a measure of innovative behavior has received some criticism for being both under-inclusive and over-inclusive (Engel and Keilbach, 2007).

Independent variables

Grant is an indicator (dummy) variable with a value of one if the company received a government grant at a time when it did not have VC/PE backing. In all cases where the firm receives both a grant and VC/PE backing the grant can be seen to pre-date the VC/PE backing. We similarly create indicators for whether the company is *VC backed* or *PE backed*.

Control variables: Our control variables are in two main groups - VC/PE attributes and general firm-level variables. Detailed information on control variables is available upon request. VC/PE controls include: *Overseas Location*, *Syndicate*, *VC/PE size Top 25%*, and *Portfolio spread*. Firm-level controls are: *firm size* (total assets), *return on equity* (net income/book value of equity), *leverage* (debt/assets), *firm age*, *high tech* (dummy), *Founder is CEO*, *Blockholder*, *CEO % Owned*, *Top 20 - % Owned* (concentrated ownership).

ANALYSIS AND RESULTS

The correlation statistics are in Table 1. In testing our hypotheses we note, in all cases where the company receives both VC or PE backing and a grant, the grant precedes the VC/PE backing. Thus, a positive coefficient on the interaction term of grants and VC/PE backing indicates that VC/PEs are able to build upon the latent innovative capability of the portfolio company. The models for Hypotheses 1, 2, and 4 are Tobit models with a lower bound of zero. All models cluster standard errors by industry group. The results are in Table 2.

We find support for Hypothesis 1, see Columns 1 through 9. These results follow our arguments and add to the literature on government grants.

Hypothesis 2a is strongly supported for innovation inputs with mixed support for output and output quality (see Columns 1, 4 and 7). Supporting Hypothesis 2b, PE backing significantly increases patenting and patent citations (Columns 2, 3, 5, 6, 8, and 9); however, are associated with lower levels of R&D.

Hypothesis 4 (a and b) is supported for innovation outputs and output quality but findings are mixed for innovation inputs. Thus, VC and PE backing are generally found to be complements to government grants.

[Insert Table 1, 2, and 3 About here]

To examine Hypothesis 3 (a and b), we analyze the factors that determine VC/PE backing. We use logit models where the dependent variable is an indicator that the company is VC backed or PE backed. The results are in Table 3. Overall, these results provide support for Hypothesis 3a but lack support for Hypothesis 3b, government grants do not significantly influence the likelihood of PE investment.

We perform numerous additional robustness tests (available upon request). We address concerns that endogeneity and/or sample-selection-effects might drive the results using instrumented 2LS methods. That is, we want to test whether VC/PE backing is causally linked to an increase in innovation. We further take steps to mitigate concerns over the modeling method and issues with interpreting coefficients in non-linear models, such as Tobit (Hoetker, 2007; Wiersema and Bowen, 2009). In total, our results hold in numerous robustness tests, increasing our confidence in the findings.

DISCUSSION

The purpose of this investigation was to examine the influence of three funding sources – government grants, VC backing, and PE backing – on innovation in new venture (pre-IPO) firms. By utilizing the logic of information economics and the knowledge-based view, we hypothesized that grants, VCs, and PEs provide several non-pecuniary resources that encourage innovation. Overall, we find general support for our hypotheses. Specifically, VC backing is associated with increases in R&D expenditure. PEs are associated with reduced R&D expenditure and increased patenting and patent citations. The presence of a grant also encourages VC, although not PE, investment. In our observations, government grants act as a credible signal of the firm's innovativeness and quality and this signal has a powerful influence.

Beyond our hypothesized relationships, our controls for the attributes of VC/PEs also provide salient insight. An explanation of these results are available upon request.

This study has limitations. First, we use patent data. Second, our data is cross-sectional.

In total, this research increases understanding of the determinants of innovation in new venture (pre-IPO) firms. Our investigation of grants, VC backing, and PE backing in combination with our examination of innovation inputs, outputs, and output quality adds unique insights into the literature.

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Table 1: Correlation statistics[illegible]

I	VC/PE Size Top 25%	[0.2 0]	[0.1 2]	[0.4 5]	[0.0 1]	[0.0 0]	[0.0 0]	[0.0 0]										
		-	-	0.0	-	0.0	0.4	0.4	0.2	1.0								
		0.0 5	0.0 1	0 5	0.0 5	0 5	9 9	0 0	4 4	0 0								
		[0.3 4]	[0.8 3]	[0.9 8]	[0.2 6]	[0.9 2]	[0.0 0]	[0.0 0]	[0.0 0]									
J	Portfolio Spread	0.0 0	- 0.0	- 0.0	0.0 8	0.5 9	0.0 2	0.5 6	0.3 6	0.0 0	1.0 0							
		1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1						
K	Founder is CEO	[0.9 9]	[0.9 1]	[0.8 1]	[0.0 9]	[0.0 0]	[0.6 8]	[0.0 0]	[0.0 0]	[0.9 8]								
		0.0 2	0.0 5	0.0 8	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	- 0.0	0.0 5	1.0 0					
		6 6	1 1	5 5	4 4	3 3	8 8											
L	Blockholder	[0.6 9]	[0.3 0]	[0.1 0]	[0.2 0]	[0.8 9]	[0.3 4]	[0.3 6]	[0.5 3]	[0.1 2]	[0.3 0]							
		- 0.0	0.0 3	0.0 3	0.0 4	0.0 9	0.0 7	0.0 6	0.0 6	0.0 0	0.0 7	0.0 3	1.0 0					
		3 3	3 3	3 3	4 4	9 9	7 7	6 6	6 6	0 0	7 7	3 3	0 0					
M	CEO % Owned	[0.5 5]	[0.6 0]	[0.5 7]	[0.4 4]	[0.0 5]	[0.1 7]	[0.2 0]	[0.1 9]	[0.9 7]	[0.1 7]	[0.5 9]						
		0.0 4	- 0.0	- 0.0	- 0.0	- 0.1	- 0.1	- 0.1	- 0.1	- 0.1	- 0.1	- 0.0	0.4 2	0.0 7	1.0 0			
		3 3	2 2	7 7	4 4	3 3	0 0	2 2	2 2	4 4								
N	Num VC/PEs in Mkt	[0.4 4]	[0.5 4]	[0.7 2]	[0.1 3]	[0.0 0]	[0.0 1]	[0.0 4]	[0.0 1]	[0.0 1]	[0.3 8]	[0.0 0]	[0.1 7]					
		0.0 1	0.0 0	- 0.0	- 0.0	0.0 4	- 0.0	0.0 1	- 0.0	- 0.0	0.0 6	0.0 8	0.0 5	0.0 8	1.0 0			
		1 1	0 0	0.0 0.0	0.0 0.0	4 4	0.0 0.0	1 1	0.0 0.0	0.0 0.0	6 6	8 8	5 5	8 8	0 0			
O	Leverage	[0.9 2]	[0.9 8]	[0.8 5]	[0.1 8]	[0.4 4]	[0.2 0]	[0.8 4]	[0.3 6]	[0.7 4]	[0.2 1]	[0.1 2]	[0.3 2]	[0.1 0]				
		- 0.0	0.0 0	0.0 1	- 0.0	0.1 2	0.0 2	0.0 1	- 0.0	0.0 1	0.0 0	- 0.0	0.0 1	- 0.1	- 0.0	1.0 0		
		7 7	0 0	1 1	0.0 0.0	2 2	2 2	1 1	0.0 0.0	1 1	0 0	0.0 0.0	1 1	0.1 0.1	0.0 0.0	0 0		
		[0.1 5]	[0.9 2]	[0.8 2]	[0.6 3]	[0.0 1]	[0.6 7]	[0.8 9]	[0.8 4]	[0.8 5]	[0.8 9]	[0.9 9]	[0.1 9]	[0.7 6]	[0.0 4]	[0.7 4]		

P	High Tech	0.1 0	0.0 0	0.0 9	0.0 0	0.0 3	- 0.0 3	- 0.0 4	- 0.0 9	- 0.0 7	0.0 5	0.1 2	0.0 7	0.1 2	0.1 7	- 0.0 7	1.0 0				
Q	Top 20 - % Owned	[0.0 4]	[0.9 5]	[0.0 8]	[0.9 9]	[0.6 0]	[0.5 0]	[0.4 5]	[0.0 6]	[0.1 5]	[0.2 9]	[0.0 1]	[0.1 2]	[0.0 2]	[0.0 0]	[0.1 5]					
		0.0 6	0.0 1	0.0 6	0.0 6	0.0 5	- 0.0 4	0.0 7	0.0 3	0.0 3	0.0 2	0.1 4	0.2 7	0.2 9	0.0 9	0.0 0	0.1 4	1.0 0			
		[0.2 5]	[0.7 8]	[0.2 6]	[0.2 3]	[0.2 8]	[0.4 4]	[0.1 2]	[0.5 8]	[0.5 8]	[0.7 4]	[0.0 0]	[0.0 0]	[0.0 0]	[0.0 7]	[0.9 9]	[0.0 0]				
R	Firm Size	0.2 2	0.0 6	0.0 9	- 0.0 1	0.1 1	0.1 9	0.1 7	0.1 5	0.2 3	0.0 0	- 0.0 4	0.0 8	- 0.0 2	0.0 4	0.1 1	0.0 4	0.3 2	1.0 0		
S	Return on Equity	[0.0 0]	[0.2 4]	[0.0 6]	[0.8 0]	[0.0 3]	[0.0 0]	[0.0 0]	[0.0 0]	[0.0 0]	[1.0 0]	[0.4 6]	[0.0 9]	[0.6 4]	[0.3 6]	[0.0 3]	[0.4 3]	[0.0 0]			
		- 0.0 8	- 0.1 4	- 0.0 6	- 0.1 7	- 0.0 8	0.1 2	0.1 4	0.0 6	0.0 5	- 0.0 2	0.0 3	0.0 9	0.0 9	- 0.0 6	- 0.0 1	0.0 0	0.1 5	0.2 0	1.0 0	
		[0.1 2]	[0.0 0]	[0.2 2]	[0.0 0]	[0.1 0]	[0.0 1]	[0.0 0]	[0.2 5]	[0.3 1]	[0.7 3]	[0.5 2]	[0.0 7]	[0.0 5]	[0.2 0]	[0.9 2]	[0.9 7]	[0.0 0]	[0.0 0]		
T	Firm Age	0.1 0	0.0 2	0.0 5	- 0.0 3	- 0.0 7	0.1 6	0.1 1	0.0 6	0.1 2	0.0 1	- 0.0 3	0.0 4	0.0 5	- 0.1 3	0.0 0	- 0.0 6	0.1 2	0.2 6	0.2 3	1. 00
		[0.0 4]	[0.7 1]	[0.3 2]	[0.5 0]	[0.1 4]	[0.0 0]	[0.0 2]	[0.2 1]	[0.0 1]	[0.8 2]	[0.5 8]	[0.4 6]	[0.2 9]	[0.0 1]	[0.9 4]	[0.1 9]	[0.0 1]	[0.0 0]	[0.0 0]	

This table contains the pairwise correlation statistics for the variables. Figures in brackets are p-values.

Table 2: Multivariate regressions for innovation inputs, outputs, and output quality

Dependent Variable	R&D Spend	Patents	Patent Citations	R&D Spend	Patents	Patent Citations	R&D Spend	Patents	Patent Citations
Column	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Grant: Hypothesis 1	1.198*** [0.000]	7.314*** [0.000]	7.804*** [0.000]	1.199*** [0.000]	7.844*** [0.000]	10.811*** [0.000]	1.219*** [0.000]	3.536*** [0.000]	3.474*** [0.000]
VC Backed: Hypothesis 2a	0.069*** [0.000]	1.083*** [0.001]	-3.421*** [0.001]	0.183*** [0.000]	7.755*** [0.000]	11.713*** [0.000]	0.286*** [0.000]	-0.394 [0.605]	-125.536*** [0.000]
PE Backed: Hypothesis 2b	-0.510*** [0.000]	12.629** * [0.000]	41.695*** [0.000]	-0.481*** [0.000]	13.214** * [0.000]	48.407*** [0.000]	-0.652*** [0.000]	12.909** * [0.000]	43.635*** [0.000]
VC Backed x Grant: Hypothesis 4a							-0.278*** [0.000]	21.525** * [0.000]	167.198*** [0.000]
PE Backed x Grant: Hypothesis 4b							0.796*** [0.000]	5.048*** [0.002]	22.752*** [0.000]
Fund Size Top 25%				-0.216*** [0.001]	7.494*** [0.000]	10.031*** [0.003]	-0.092 [0.168]	7.021*** [0.000]	14.211*** [0.000]
Syndicate				0.411*** [0.000]	- [0.000]	-1.069 [0.452]	0.299*** [0.000]	- [0.000]	-4.786*** [0.001]
Overseas Location					3.075*** [0.000]			4.122*** [0.000]	
Portfolio spread				0.080** [0.041]	- [0.000]	3.397 [0.168]	0.128*** [0.008]	- [0.000]	-3.691 [0.217]
R&D Spend		5.124*** [0.000]	-0.615 [0.221]		6.707*** [0.000]			8.690*** [0.000]	
Founder is CEO	0.117*** [0.000]	2.929*** [0.000]	-0.899** [0.012]	0.154*** [0.000]	4.905*** [0.000]	-2.120*** [0.000]	0.158*** [0.000]	4.810*** [0.000]	-3.422*** [0.000]
Blockholder	-0.340*** [0.000]	3.410*** [0.000]	-5.206*** [0.000]	-0.360*** [0.000]	3.408*** [0.000]	-5.377*** [0.000]	-0.347*** [0.000]	3.358*** [0.000]	-3.932*** [0.000]
CEO % Owned	0.540*** [0.000]	- 4.683***	-22.983*** [0.000]	0.493*** [0.000]	- 4.968***	-25.715*** [0.000]	0.500*** [0.000]	- 5.104***	-27.302*** [0.000]

Num VC/PEs in Mkt	[0.000] 0.612***	[0.000] 2.254***	[0.000] 18.183***	[0.000] 0.623***	[0.000] 3.512***	[0.000] 23.078***	[0.000] 0.614***	[0.000] 2.562***	[0.000] 21.610***
Leverage	[0.000] -0.400***	[0.000] - 0.742***	[0.000] -15.144***	[0.000] -0.402***	[0.000] - 1.060***	[0.000] -16.328***	[0.000] -0.400***	[0.000] - 1.194***	[0.000] -19.880***
High Tech	[0.000] 0.490***	[0.000] 1.939***	[0.000] 7.191***	[0.000] 0.478***	[0.000] 1.383***	[0.000] 5.959***	[0.000] 0.476***	[0.000] 1.863***	[0.000] 8.464***
Top 20 - % Owned	[0.000] -0.711***	[0.000] - 4.387***	[0.000] 34.784***	[0.000] -0.646***	[0.000] - 4.437***	[0.000] 39.600***	[0.000] -0.662***	[0.000] - 4.052***	[0.000] 44.517***
Firm Size	[0.000] 0.310***	[0.000] 0.141***	[0.000] 6.109***	[0.000] 0.294***	[0.000] 0.174***	[0.000] 5.672***	[0.000] 0.298***	[0.000] 0.178***	[0.000] 5.043***
Return on Equity	[0.000] -0.860***	[0.000] - 17.960** *	[0.000] -39.739***	[0.000] -0.870***	[0.000] - 17.862** *	[0.000] -42.605***	[0.000] -0.867***	[0.000] - 16.698** *	[0.000] -34.775***
Firm Age	[0.000] 0.191***	[0.000] 2.433***	[0.000] 2.070***	[0.000] 0.197***	[0.000] 2.491***	[0.000] 2.621***	[0.000] 0.192***	[0.000] 2.470***	[0.000] 2.192***
Observations	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Pseudo R-Squared	436 27%	436 12%	411 17%	436 28%	436 12%	411 18%	436 28%	436 13%	411 20%

This table analyzes the impact of grant and VC/PE backing on innovation inputs, outputs, and output quality. The models are Tobit models. All models include year dummies, ASX industry group dummies and a constant (suppressed), and cluster standard errors by ASX industry group. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Table 3: Determinants of VC/PE backing

Dependent Variable	VC or PE Backed [1]	VC Backed [2]	PE Backed [3]
VC/PE Intensity	11.673*** [0.000]	11.551*** [0.000]	10.859*** [0.005]
Ind Ave Return on Equity	-3.220*** [0.000]	-6.248*** [0.002]	-3.251 [0.156]
Ind Ave R&D/Assets	0.705 [0.772]	2.031 [0.794]	-13.61 [0.342]
Grant: Hypothesis 3	1.698** [0.018]	1.758*** [0.009]	0.249 [0.738]
Num VC/PEs in Mkt	-0.008 [0.975]	1.085** [0.015]	-2.137** [0.044]
Leverage	0.407* [0.092]	0.407 [0.107]	0.221 [0.306]
High Tech	-0.306 [0.681]	-0.365 [0.708]	-0.121 [0.935]
Firm Size	2.031 [0.296]	-0.613 [0.670]	8.661** [0.027]
Firm Size Squared	-0.044 [0.423]	0.03 [0.456]	-0.229** [0.041]
Return on Equity	0.233 [0.593]	-1.023 [0.263]	0.686 [0.388]
Firm Age	-0.044 [0.816]	-0.19 [0.262]	0.27 [0.492]
Constant	-26.908* [0.098]	-31.766** [0.034]	-30.412 [0.434]
Observations	369	312	288
Pseudo R-Squared	30.00%	30.00%	32.00%

This table examines the factors that determine VC/PE backing. The dependent variable is an indicator that equals one if the firm receives VC or PE backing, as indicated in the column title. The model is a logit model, include year dummies and industry dummies, and cluster standard errors by industry group. The model also includes a constant term. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

CASH HOLDINGS AND INNOVATION THROUGH ACQUISITIONS

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Cash Holdings and Innovation through Acquisitions

Abstract

This paper tests the hypothesis that cash-rich, but low-innovation firms can use acquisitions as a strategy to ‘catch-up’ on innovation. We examine whether cash-rich, but low-innovation firms can use acquisitions in general, and diversifying acquisitions in particular, to increase innovation inputs (i.e. R&D). We also show that low-innovation, but cash rich firms can respond to industry-shocks, in the form of a M&A wave or a tariff reduction in their industry, by using their cash to acquire a target and increase innovation. These results are consistent with the use of acquisitions to facilitate strategic repositioning in the presence of industry shocks.

INTRODUCTION

The resource based view of the firm (RBV) highlights the necessity of obtaining innovation-related resources in order to encourage corporate growth (Lee et al., 2001). However, internal corporate innovation tends to decrease with firm age and size, characteristics usually associated with larger cash holdings and an increasing dependence on core-capabilities (Levitt and March, 1988; Leonard-Barton, 1992; Balasubramanian and Lee, 2008). Theoretically, it is optimal for large firms to acquire innovation rather than to engage in an “R&D race” with small firms (Phillips and Zhdanov, 2013). Thus, for these companies, an acquisition could be one way to achieve strategic renewal (Grabner et al., 2010). However, the literature tends to suggest that such resource-rich (i.e., either asset-rich or cash-rich) incumbents tend to suffer from agency problems related to managerial entrenchment, often resulting in value-decreasing investment decisions, including corporate acquisitions (Harford, 1999; Moeller et al., 2004, 2005). Part of the reason for the negative evidence could be that the literature has not focused on the role of cash holdings in enabling companies to acquire innovation-resources. Thus, this paper hypothesizes and shows that cash-rich, but innovation-poor companies can use acquisitions as a way to acquire innovation, especially in the form of diversifying acquisitions and in response to industry shocks, such as increased takeover activity or an exogenous decrease in tariff protection.

The prior evidence on ‘resource-rich’ companies has not painted a positive picture of their acquisitions. Much of the prior literature hypothesizes that large cash-holdings (i.e. resource-richness) tends to induce managerial entrenchment, which enables managers to engage in self-interested and value-destroying acquisitions (Moeller et al., 2004, 2005; Cunha, 2012). Harford (1999) finds that acquisitions made by firms with large cash-holdings result in significant decreases in post-merger operating profits, supporting the view that large cash-holdings give poorly incentivized managers the means to pursue self-interested acquisitions.

An alternative, and more positive view is that resource-richness could enable companies to engage in acquisitions that increase innovation, especially if the company must respond to an industry shock. Large firms often have difficulties adapting to technological changes and industry shocks (Foster, 1986), owing in part to an increasing reliance on core capabilities at the expense

of new innovations (Levitt and March, 1988; Leonard-Barton, 1992; Balasubramanian and Lee, 2008). However, acquisitions might help firms to break their reliance on core capabilities and increase innovation. We hypothesize that cash-rich firms who are in industries that suffer a shock (e.g., in the form of increased product market competition from a merger wave in their industry) can use acquisitions as a means to stimulate innovation and adjust to the new competitive environment.

The evidence that acquisitions might facilitate innovation is mixed. Hitt et al (1991), for example, show that innovation, as proxied by R&D, falls after a takeover. However, other studies that have focused on particular industries show that some takeovers may help drive innovation (see e.g. Ahuja and Katila (2001) on the chemical industry and Kapoor and Lim (2007) on the semi-conductor industry). Recent literature has highlighted that acquirer-characteristics can influence the innovation-gains from acquisitions (i.e. Danzon et al., 2007; Hassan et al., 2007; Desyllas and Hughes, 2010; Makri et al., 2010). More recently, and most relevantly, Bena and Li (Forthcoming) find that acquisitions can be a driver of innovation, but that larger incumbents are better at capitalizing on R&D. They are also less prone to purchase patents and are less effective at exploiting purchased patents.

We extend this literature to focus on the role of resource-richness and industry shocks. In doing so, we highlight the importance of acquisitions to incumbents who face changes to industry structure, and takeover threats. We anticipate that resource-rich firms will be more able to respond to industry structural changes by undertaking acquisitions that facilitate greater increases in innovation.

This paper hypothesizes and shows that resource-rich firms can use acquisitions to increase innovation. We use a sample of 105,809 firm-year observations to compare the innovative performance of firms that make acquisitions with those that do not make acquisitions. We analyze the firm's R&D inputs in year $t + j$ as a function of whether it makes an acquisition

in year t .¹ We focus on R&D due to prior evidence that acquisitions by larger incumbents tend to

focus on the acquisition of R&D inputs, rather than on the acquisition of patents (Bena and Li, Forthcoming). We especially examine the acquisitions made by low-innovation, but resource-rich firms, and examine the impact of industry shocks, such as a merger wave in the acquirer's industry, which may have the effect of increasing competition in its industry. We also examine the impact for firms that do acquisitions outside their industry (i.e., diversified), since these types of deals may entail strategic complementarity between the acquirer and the target (Bauer and Matzler, 2013) and therefore offer greater opportunities to increase innovation.

The key results show that: (1) cash holdings are positively associated with post-takeover R&D; (2) Low-innovation acquirers (whose R&D is in the bottom 25% of all Compustat firms) can use their cash holdings to acquire targets in another industry and increase innovation; and (3) Low innovation acquirers who are exposed to an industry shock, such as a takeover wave in their industry or an exogenous reduction in tariff protection, can use their cash holdings to undertake acquisitions that increase innovation.

¹ We focus on innovation inputs rather than innovation outputs because it is implausible that an acquisition could automatically lead to more outputs (i.e. patents) in a short period after the acquisition. And, if we were to examine a longer period after an acquisition (i.e. 5+ years) it would be impossible to determine whether any increase in outputs was due to the acquisition or other contaminating factors.

The findings make a significant contribution to the literature. First, we contribute to the literature on corporate resources and cash-holdings. We provide further insight into how cash holdings can help firms by facilitating strategic renewal, rather than harm firms by facilitating agency conflicts. Second, we contribute to the literature on how acquisitions can help to encourage innovation. The prior literature provides mixed evidence on whether M&A transactions can increase corporate innovation. We highlight that the innovative-benefits might be particularly high for resource-rich incumbents who use acquisitions to respond to industry shocks, such as increased competition driven by a merger wave in their industry. Third, we contribute to the literature on approaches to innovation. Arora et al (Forthcoming) highlight that firm-level factors can influence a firm's innovation-approach. We extend this by highlighting the role of industry-level factors (i.e. takeover waves), cash holdings, and inter-industry diversification.

DATA

Sample

The aim is to collect data to compare acquirers and non-acquirers. The 'treatment' sample is the set of firms that undertake an acquisition in year t , and the 'control' sample is the set of firms

that do not make an acquisition. The main results use the full set of 'control' firms. However, robustness tests (discussed below) use propensity score models to mitigate concerns that non-acquirers might differ systemically from acquirers.

The sample comprises all companies in the Compustat database between 1990 and 2011 that have the necessary financial data. We then match the sample with acquisitions data from Thomson Financials SDC platinum. We create an indicator that equals one if the acquirer completes an acquisition in each of the years from 1990-2011. This yields a firm-year panel of data. The sample comprises 105,809 firm-year observations. However, this reduces in number in regression tests where we require lag values (for control variables) and lead values (for dependent variables), with the number of observations depending on the data requirements in the model-specification. Of these 105,809 observations, 23,767 represent firm-year observations where the firm makes an acquisition and 82,042 represent firm-year observations where the firm does not make an acquisition. The sample-composition by year is reported in Table 1. The table displays some clustering in takeover activity at particular times. For example, there is a reduction in takeover activity in 2008 and 2009, consistent with the reduction in M&A activity during the financial crisis.

Dependent Innovation variables

We examine innovation inputs in year $t + j$ as a function of the number of acquisitions a firm does in year t and the firm's characteristics in year $t - 1$. The proxy for innovation inputs is the

firm's R&D expenditure (following Kelm et al., 1995; Audretsch and Feldman, 1996; Hall and Bagchi-Sen, 2002), measured as R&D expenditures reported in the income statement scaled by total sales, called the firm's *R&D Intensity*. We focus on R&D (c.f. patents) due to prior literature

that firms tend to use acquisitions to acquire innovation inputs, to which they can contribute and then commercialize (Bena and Li, Forthcoming). If the company lacks R&D data in Compustat, then we code the R&D expenditure as zero on grounds that the R&D expenditure is likely to be too negligible to report separately (as in Masulis et al., 2009); the results are robust to not recoding R&D data in this way. In unreported robustness tests, we also examine ‘industry adjusted’ R&D/sales, defined as the firm’s R&D/sales less the average value for all companies in the firm’s SIC two-digit industry and year.² While we include both year dummies and industry dummies in the regressions to control for fixed-effects, the dummies only adjust the intercept term in the regression, whereas examining industry-adjusted R&D/sales adjusts the slope terms, which is important for accurate economic interpretation of the coefficients.

We do not focus on innovation ‘outputs’ (such as patents) because prior literature suggests that incumbents tend to undertake acquisitions of high-R&D firms, whose R&D expenditures then can then build upon and capitalized on (Bena and Li, Forthcoming). Further, there is significant evidence that examining patenting can be both over-inclusive and under-inclusive of innovative activity (Engel and Keilbach, 2007). Patents can be over-inclusive since it is relatively costless, so providing an incentive for firms to patent all technologies, even if there is no genuine innovation. It can also be under-inclusive because firms might have an incentive to avoid patenting if they feel that patenting a technology might reveal proprietary information to competitors.

Key independent acquisition variables

We calculate the number of acquisitions that a firm makes in year t , called $\#Acqs$. We obtain the

number of acquisitions that a firm makes from Thomson Financials SDC Platinum Database. We also obtain the number of diversifying acquisitions from SDC platinum, called $\#Diversifying Acqs$. We define a diversifying acquisition as one where the bidder and target have different two digit primary SIC industries. This enables us to test hypothesis 2.

Moderating variables

We anticipate that the impact of acquisitions in year t on innovation in year $t+1$ will depend on several moderating variables.

Cash: We predict that cash-rich firms might use acquisitions as a way to increase innovation. Our proxy for corporate cash holdings is its lagged cash scaled by its book-assets (*Cash*).

Low R&D: We predict that heretofore low-innovation firms might use acquisitions to increase innovation. Subsequently, we create an indicator that equals one if the firm’s R&D/Sales is in the bottom 25% of all companies in the subject-company’s one-digit SIC industry in year $t - 1$ (*Low R&D*).

² The use of industry-adjusted figures is consistent with prior studies that examine industry-adjusted operating performance following acquisitions (see e.g., Healy, Palepu and Ruback (1992); Powell and Stark, 2005; Harford et al., 2012).

M&A activity: We expect that a high level of M&A activity in a firm's industry might make managers concerned about the threat of their firm being acquired. This might induce managers to acquire innovation to increase competitiveness. We capture M&A activity by counting the number of acquisitions announced in a given SIC 2-digit industry divided by the number of Compustat firms in the acquirer's industry in year t , denoted *M&A Activity*. Note

that we are looking at merger activity in the acquirer's industry, as opposed to the target's industry, as we are interested in how firms respond to structural changes in their own industry.³

Tariff reductions: Hypothesis 4 indicates that a reduction in tariffs will drive firms to acquire innovation. We capture this by computing the equally weighted average tariff charged across all countries for goods imported in the firm's four-digit SIC industry.⁴ We then create an indicator variable that equals one if the average tariff charged in year t is below that charged in year $t-1$, which we capture with the variable *Tariff Fall*. Requiring data does reduce the sample size and limits the analysis to observations from 1990-2006.

Other control Variables

Firm Size: Large firms are likely to be less innovative in general because they are more likely to be mature firms that have passed the high-growth stage of the corporate life cycle. Further, large firm size might enable managerial entrenchment, which might reduce the firm's need to innovate (Moeller et al., 2004, 2005). Thus, the models control for the lagged log assets (*Firm Size*).

ATPs: Anti-takeover provisions (ATPs) can induce managerial entrenchment, thereby entrenching managers and reducing their need to engage in innovative investments. Thus, some prior evidence suggests that managers who are more entrenched are more likely to reduce corporate risk in an attempt to reduce the effort that they need to exert managing the company (Bertrand and Mullainathan, 2003; Low, 2009; Humphery-Jenner, 2012). However, one mediating fact is that high levels of ATPs might help to reduce agency conflicts of managerial risk aversion (with respect to 'opportunistic' takeovers), which might increase the level of innovation within a firm (Humphery-Jenner, 2013). Subsequently, we capture this by controlling for the firm's Bebchuk et al (2009) index of six key anti-takeover provisions.

Leverage: Debt makes the firm more risky. This risk forces managers to be more assiduous. This discourages managers from using excess cash flows for self-interested investments (such as acquisitions designed around empire-building). This should encourage managers to focus on value-creating projects (Jensen, 1986; Maloney et al., 1993). Thus, the models include lagged leverage, defined as the firm's debt scaled by its assets (*Leverage*).

CAPEX Intensity: Firms that focus on capital expenditures might be less inclined to increase expenditure on innovation and might focus more on fixed assets. Subsequently, we control for the firm's lagged CAPEX scaled by its sales (*CAPEX Intensity*).

Cash flows: Firms with higher cash flows will be more able to undertake acquisitions due to their increased ability to raise financing for a takeover. Further, managers of firms with high cash flows might use the increased ability to undertake acquisitions in order to engage in self-interested investments (Jensen, 1986), suggesting that cash flows need not be associated with

³ There is also a literature on takeover waves in the target's industry (Carow et al., 2004; McNamara et al., 2008; Halebian et al., 2012); however, such waves are not directly relevant to the hypotheses in this paper.

⁴ We thank Maggie Hu for providing the tariff data.

benefits such as value-creating takeovers or increased R&D through acquisitions. Subsequently, we control for the firm's operating cash flow scaled by its assets (*OCF/Assets*).

Institutional ownership: There is some evidence that higher levels of institutional ownership can encourage monitoring (Cronqvist and Fahlenbrach, 2009), which might encourage managers to increase R&D expenditure in order to remain competitive. However, this effect might only weakly influence R&D because: (1) institutions tend to be constrained to invest in companies that fit into a particular benchmark (Baker et al., 2011); and thus, they might deter innovation that causes a company to diversify or fall outside that benchmark might. (2) There is only limited evidence that institutions convey monitoring benefits, with some institutions taking a relatively more passive relationship to their portfolio-companies (Bushee, 1998). We capture the role of institutional ownership by controlling for the percentage ownership of institutions in the company as reported in the Thomson 13f filings (denoted, *Institutional Ownership*).

Tobin's Q: We control for the firm's lagged Tobin's Q because Tobin's Q can represent both the market's expectations of future innovation and growth, and the presence of stronger performance (Gompers et al., 2003; Bebchuk et al., 2009).⁵ We capture this by dividing the firm's market capitalization by its book assets (*Tobin's Q*).

HHI: The level of concentration in the firm's industry might influence its performance and innovation. Competition (lower concentration) might drive-down returns and discourage firms from investing in R&D. Alternatively, concentrated industries, with arguably higher market power, are argued to be more efficient in making innovative investments, such as R&D (Doukas and Switzer 1992). Thus, the models include the Hirfindahl Hirshmann Index (*HHI*) as a proxy for industry concentration. The HHIs are calculated using corporate sales and using SIC two-digit industries.

ANALYSIS

Bivariate analysis and summary statistics

Table 2 contains the univariate statistics and indicates some differences between acquirers and non-acquirers. They indicate that acquirers tend to have lower R&D/Sales than do non-acquirers. However, these models do not examine whether low innovation acquirers subsequently pursue acquisitions to increase innovation (on which, see the bivariate analysis, below).

We next present bivariate analysis to consider the difference in R&D between high-cash acquirers and low-cash acquirers, and between high-cash acquirers and high-cash non-acquirers. The bivariate statistics are in Table 3, which contains the average change in R&D sorted by whether a firm makes an acquisition in year t and by whether the firm is 'high cash' or 'low

cash' (where 'high cash' firms have cash/assets in the top 50% of all companies in its SIC 1-digit industry in the year prior). The results provide some evidence that acquisitions result in improvements in the R&D position of high-cash companies relative to high-cash companies that do not make an acquisition (see Table 3, row 10). That is, without an acquisition, high-cash companies would have even worse R&D. Further, difference-in-difference results suggest that acquisitions yield more R&D-related benefits for high cash acquirers than they do for low cash

⁵ It is possible that Tobin's Q is endogenous with R&D expenditure (following Hirshleifer et al., 2013); however, the results are robust to excluding Tobin's Q as a control variable, so this endogeneity is unlikely to drive the results.

acquirers (see Table 3, row 14). These results are consistent with the idea that high cash companies can use acquisitions to improve their relative innovation-position.

Acquisitions and low innovation, but cash-rich companies

$R\&D\ Intensity_{t,t+j}$

$$\begin{aligned} &= \alpha + \beta^{(1)} Cash_{t,t-1} + \beta^{(2)} \#Acq_{t,t} + \beta^{(3)} Low\ R\&D_{t,t-1} \\ &+ \beta^{(4)} (Cash_{t,t-1} \times \#Diversifying\ Acqs_{t,t}) + \beta^{(5)} (Cash_{t,t-1} \times Low\ R\&D_{t,t-1}) \\ &+ \beta^{(6)} (\#Acq_{t,t} \times Low\ R\&D_{t,t-1}) + \beta^{(7)} (Cash_{t,t-1} \times \#Acq_{t,t} \times Low\ R\&D_{t,t-1}) \\ &+ \theta X_{t,t} + s_t \end{aligned}$$

Here, $R\&D\ Intensity_{t,t+j}$ is the firm's R&D/Sales in year $t+j$, $\#Acq_{t,t}$ is the number of acquisitions that a firm makes in year t ; $Low\ R\&D_{t,t-1}$ is an indicator that equals one if the firm's R&D/Sales is in the bottom 25% of all firms in the firm's two-digit industry in year $t-1$,

and $Cash_{t,t-1}$ represents the firm's Cash/Assets in year $t-1$. The $X_{t,t}$ denotes the set of control

variables. We expect a positive coefficient on $(Cash_{t,t-1} \times \#Acq_{t,t} \times Low\ R\&D_{t,t-1})$, which

would indicate that a low-innovation, but cash-rich firm can use acquisitions to increase its innovation. All models include year dummies and two-digit SIC industry dummies, and use robust standard errors clustered by firm (consistent with Cronqvist and Fahlenbrach, 2009).

Table 4 contains regressions that examine whether cash-rich, but low-innovation companies can use acquisitions to increase their R&D expenditure. The positive and significant coefficient on the triple-interaction term indicates that firms who are both low-innovation, but cash-rich, can use acquisitions in year t to increase innovation up to three years after the acquisition (as per Hypothesis 1). This highlights the potential usefulness of cash stockpiles to strategic repositioning.

The control variables are largely consistent with expectations. High levels of cash holdings are related to higher levels of R&D, but not so for firms that conduct acquisitions in general, as evident in the negative and significant double interaction term ($\#Acq \times CASH$). This is consistent with the idea that high cash holdings can induce more innovation, but if spent on badly conceived acquisitions, will lead to a significant reduction in innovation. These findings are more consistent with the operating and stock performance literature, which shows that acquisitions by high cash acquirers are value destroying due to agency costs arising from high cash holdings.

Debt is negatively associated with R&D, which is consistent with the idea that lenders often impose restrictive covenants that might inhibit risky innovation (see e.g. Basu et al., 2013).

High Tobin's q ratios are associated with higher levels of innovation, which is consistent with the idea that Tobin's q ratios reflect the market's anticipation of future growth. Industry concentration, as proxied by the HHI, is associated with higher levels of innovation. This suggests that firms in concentrated industries might engage in R&D as a way to diversify and compete. Interestingly, firms with high levels of operating cash flows ('OCF') have lower R&D expenditures, perhaps suggesting that high OCF firms tend to focus on stable revenue-generating operations, rather than innovation.

Diversifying acquisitions

$$\begin{aligned} \text{R\&D Intensity}_{t,t+j} = & \alpha + \beta^{(1)} \text{Cash}_{t,t-1} + \beta^{(2)} \# \text{Diversifying Acqs}_{t,t} + \beta^{(3)} \text{Low R\&D}_{t,t-1} \\ & + \beta^{(4)} (\text{Cash}_{t,t-1} \times \# \text{Diversifying Acqs}_{t,t}) + \beta^{(5)} (\text{Cash}_{t,t-1} \times \text{Low R\&D}_{t,t-1}) \\ & + \beta^{(6)} (\# \text{Diversifying Acqs}_{t,t} \times \text{Low R\&D}_{t,t-1}) \\ & + \beta^{(7)} (\text{Cash}_{t,t-1} \times \# \text{Diversifying Acqs}_{t,t} \times \text{Low R\&D}_{t,t-1}) + \theta X_{t,t} + \varepsilon \end{aligned}$$

Here, $\text{R\&D Intensity}_{t,t+j}$ is the firm's R&D/Sales in year $t+j$. $\# \text{Diversifying Acqs}_{t,t}$ is the number of diversifying acquisitions that a firm makes in year t ; $\text{Low R\&D}_{t,t-1}$ is an indicator that equals one if the firm's R&D/Sales is in the bottom 25% of all firms in the subject-firm's two-digit industry in year $t-1$, and $\text{Cash}_{t,t-1}$ represents the firm's Cash/Assets in year $t-1$. The $X_{t,t}$ denotes the set of control variables. We expect a positive coefficient on $\text{Cash}_{t,t-1} \times \# \text{Diversifying Acqs}_{t,t} \times \text{Low R\&D}_{t,t-1}$, which would be consistent with low-innovation, but cash-rich firms using diversifying acquisitions to acquire innovative companies in other industries.

Table 5 examines the role of diversifying acquisitions in driving innovation-through-acquisitions. The positive, and statistically significant, coefficient on the triple interaction term indicates that cash-rich, but innovation-poor firms can use diversifying acquisitions to pursue innovation outside of their industry (as per Hypothesis 2). These results highlight that companies can reposition themselves by entering another line of business. The negative and significant double interaction term ($\# \text{Diversifying Acqs} \times \text{Cash}$) is consistent with the literature that value destruction is particularly evident in diversified deals on average (Harford, 1999).

Acquisitions as a response to increased acquisition activity

$$\begin{aligned} \text{R\&D Intensity}_{i,t+j} = & \alpha + \beta^{(1)} \text{Cash}_{i,t-1} + \beta^{(2)} \text{M\&A Activity}_{i,t-1} + \beta^{(3)} \text{Low R\&D}_{i,t-1} \\ & + \beta^{(4)} (\text{Cash}_{i,t-1} \times \text{M\&A Activity}_{i,t-1}) + \beta^{(5)} (\text{Cash}_{i,t-1} \times \text{Low R\&D}_{i,t-1}) \\ & + \beta^{(6)} (\text{M\&A Activity}_{i,t-1} \times \text{Low R\&D}_{i,t-1}) \\ & + \beta^{(7)} (\text{Cash}_{i,t-1} \times \text{M\&A Activity}_{i,t-1} \times \text{Low R\&D}_{i,t-1}) + \theta X_{i,t} + s_i \end{aligned}$$

Here, $\text{R\&D Intensity}_{i,t+j}$ is the firm's R&D/Sales in year $t+j$, or industry-adjusted R&D/Sales in year $t+j$. $\text{M\&A Activity}_{i,t-1}$ represents the amount of M&A activity in year $t-1$; $\text{Low R\&D}_{i,t-1}$ is an indicator that equals one if the firm's R&D/Sales is in the bottom 25% of all firms in the subject-firm's two-digit industry in year $t-1$, and $\text{Cash}_{i,t-1}$ represents the firm's Cash/Assets in year $t-1$. The $X_{i,t}$ denotes the set of control variables. We expect a positive coefficient on ' $\text{Cash}_{i,t-1} \times \text{M\&A Activity}_{i,t-1} \times \text{Low R\&D}_{i,t-1}$ ', which would indicate that low R&D, but cash-rich firms would respond to the presence of M&A activity by undertaking acquisitions that increase innovation.

Table 6 examines the role of innovation-through-acquisitions in responding to the threat of M&A activity in their industry. The table examines the sample of companies that make at least one acquisition in year t . The results show that cash-rich, but innovation-poor firms can respond to the presence of M&A activity in their industry by undertaking acquisitions that increase innovation, thereby enabling them to respond to industry-shocks. These results are consistent with the 'eat or be eaten' hypothesis in Gorton et al. (2009), whereby companies can engage in takeovers as a strategic response to ambient takeover activity. Our results highlight that engaging in innovation is a key way to achieve this repositioning.

Acquisitions as a response to an exogenous increase in competition

$$\begin{aligned} \text{R\&D Intensity}_{i,t+j} = & \alpha + \beta^{(1)} \text{Cash}_{i,t-1} + \beta^{(2)} \text{Tariff Fall}_{i,t-1} + \beta^{(3)} \text{Low R\&D}_{i,t-1} + \beta^{(4)} (\text{Cash}_{i,t-1} \times \text{Tariff Fall}_{i,t-1}) \\ & + \beta^{(5)} (\text{Cash}_{i,t-1} \times \text{Low R\&D}_{i,t-1}) + \beta^{(6)} (\text{Tariff Fall}_{i,t-1} \times \text{Low R\&D}_{i,t-1}) \\ & + \beta^{(7)} (\text{Cash}_{i,t-1} \times \text{Tariff Fall}_{i,t-1} \times \text{Low R\&D}_{i,t-1}) + \theta X_{i,t} + s_i \end{aligned}$$

Here, $R\&D\ Intensity_{i,t+j}$ is the firm's R&D/Sales in year $t+j$, or industry-adjusted R&D/Sales in year $t+j$. $Tariff\ Reduction_{i,t-1}$ is an indicator that equals one if the tariff charged on imports for goods in the acquirer's four-digit SIC industry is lower in year t than it was in year $t-1$; $Low\ R\&D_{i,t-1}$ is an indicator that equals one if the firm's R&D/Sales is in the bottom 25% of all firms in the subject-firm's two-digit industry in year $t-1$, and $Cash_{i,t-1}$ represents the firm's Cash/Assets in year $t-1$. The X_{it} denotes the set of control variables. We expect a positive coefficient on $Cash_{i,t-1} \times Tariff\ Fall_{i,t-1} \times Low\ R\&D_{i,t-1}$, which would indicate that low R&D, but cash-rich firms would respond to a reduction in tariffs by engaging in acquisitions to increase innovation.

Table 7 highlights the role of acquisitions in generating innovation following an industry shock, as manifested in a reduction in tariffs (and a subsequent increase in competition). Requiring tariff data does reduce the sample size and limits the analysis to observations from 1990-2006 (explaining the reduction in the number of observations). The table examines the sample of companies that make at least one acquisition in year t and for which we have data on tariff reductions. The main finding (from the positive, significant, triple interaction term) is that cash-rich, but low-innovation companies respond to a reduction in tariffs by generating innovation through acquisitions.

Robustness tests

The results are robust to several model-specification issues. For brevity, these results are untabulated. First, the results are robust to various types of clustering and time-effects. Second, the results are robust to how we measure innovation inputs and to cash holdings. Third, the results are robust to control-variable-definitions. Fourth, the results are robust to the regression technique used. Fifth, the results are robust to the presence of outliers. Sixth, the results are robust to controlling for the possibility of systemic differences between acquirers and non-acquirers.

CONCLUSION

This paper examines the usefulness of cash holdings in facilitating increases in innovation and strategic change. Most prior literature associates high cash holdings with greater agency costs and investment decisions that result in shareholder value-destruction. However, we hypothesize and show that cash holdings can enable a company to undertake acquisitions to increase innovation inputs, especially through diversified deals, and in response to industry shocks (such as industry takeover activity or a tariff reduction). The results contribute to the literature by showing that high cash holdings can be beneficial in some circumstances, such as in the presence of an industry shock.

Table 1: Sample composition by year

This table contains the number of observations in each year, split by whether the firm makes an acquisition in that year.

Year	All Firms	Acquirers
1990	4461	758
1991	4417	732
1992	4613	853
1993	4817	925
1994	5592	1208
1995	5922	1301
1996	6019	1433
1997	6110	1569
1998	5873	1581
1999	5633	1468
2000	5517	1322
2001	5475	1138
2002	5218	1053
2003	5038	1086
2004	4817	1161
2005	4729	1155
2006	4537	1184
2007	4433	1146
2008	4410	1015
2009	4193	793
2010	3984	885

Table 2: Univariate statistics

This table contains sample means (and differences therein) by whether the firm makes an acquisition in year t. The superscript *** represents significant differences in means at 1% significance.

Variable	All	Acquirers	Non-Acquirers	Difference
R&D Intensity (t+1)	0.137	0.068	0.157	-0.088***
R&D Intensity (t+2)	0.125	0.064	0.143	-0.079***
R&D Intensity (t+3)	0.116	0.061	0.132	-0.071***
#Acqs (t)	0.420	1.896	0.000	1.896***
Acquirer Size (t-1)	5.611	6.265	5.424	0.840***
Cash (t-1)	0.115	0.107	0.117	-0.010***
ATPs (t)	0.868	0.770	0.896	-0.127***
R&D Intensity (t-1)	0.165	0.074	0.190	-0.116***
Leverage (t-1)	0.168	0.175	0.166	0.009***
CAPEX Intensity (t-1)	0.123	0.094	0.131	-0.037***
Tobin's Q (t-1)	1.385	1.487	1.356	0.132***
Institutional Ownership (t-1)	0.281	0.458	0.231	0.227***
HHI (t-1)	0.078	0.074	0.080	-0.006***

Table 3: Bivariate statistics

This table contains average change in R&D sorted by whether a firm makes an acquisition in year t and by whether the firm is a ‘high cash’ firm in year $t-1$. We define a company as being ‘low cash’ in year $t-1$ if its cash/assets is in the bottom 50% of all companies in the subject-company’s 1-digit SIC industry in year $t-1$. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Changes in R&D			$\Delta R\&D$	$\Delta R\&D$	$\Delta R\&D$
Row	Cash		Intensit y (t- 1,t+1)	Intensit y (t- 1,t+2)	Intensit y (t- 1,t+3)
[1]	High Cash	Acquirers	-0.009	-0.015	-0.019
[2]	High Cash	Non-Acquirers	-0.038	-0.058	-0.069
[3]=[1]-[2]	Difference	Acquirers - Non-Acquirers	0.029** *	0.044**	0.050**
[4]	Low Cash	Acquirers	0.002	0.001	0.000
[5]	Low Cash	Non-Acquirers	-0.005	-0.006	-0.009
[6]=[4]-[5]	Difference	Acquirers - Non-Acquirers	0.007** *	0.007** *	0.008** *
[7] = [3]-[6]	Difference-in-Difference		0.022** *	0.036** *	0.042** *

Table 4: R&D, Cash Holdings, and Innovation through Acquisitions

This table contains regression models that examine R&D intensity in year $t+j$. All models include two-digit SIC industry dummies and year dummies, and use standard errors clustered by firm. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	R&D Intensity (t+1)	R&D Intensity (t+2)	R&D Intensity (t+3)
Column	[1]	[2]	[3]
#Acq (t)	0.011*** [0.000]	0.009*** [0.000]	0.007*** [0.000]
#Acq (t) x Low R&D (t-1)	-0.009 [0.338]	-0.003 [0.525]	-0.006 [0.284]
#Acq (t) x Cash (t-1)	-0.173*** [0.000]	-0.153*** [0.000]	-0.132*** [0.000]
#Acq (t) x Cash (t-1) x Low R&D (t-1)	0.264* [0.081]	0.156** [0.027]	0.172** [0.037]
Acquirer Size (t-1)	0.009*** [0.000]	0.005*** [0.001]	0.003** [0.026]
Cash (t-1)	0.621*** [0.000]	0.512*** [0.000]	0.481*** [0.000]
Low R&D (t-1)	0.036*** [0.000]	0.025*** [0.008]	0.025*** [0.005]
Cash x Low R&D (t-1)	-0.749*** [0.000]	-0.608*** [0.000]	-0.626*** [0.000]
ATPs (t-1)	0.002 [0.777]	0.001 [0.930]	0.002 [0.739]
Leverage (t-1)	-0.051** [0.013]	-0.060*** [0.002]	-0.069*** [0.000]
CAPEX Intensity (t-1)	0.398*** [0.000]	0.310*** [0.000]	0.271*** [0.000]
Tobin's Q (t-1)	0.028*** [0.000]	0.026*** [0.000]	0.022*** [0.000]
Cash flows (t-1)	-1.012*** [0.000]	-0.924*** [0.000]	-0.824*** [0.000]
Institutional Ownership (t-1)	0.002 [0.353]	0.002 [0.390]	0.002 [0.233]
HHI (t-1)	0.091*** [0.007]	0.087*** [0.006]	0.092*** [0.004]
Observations	105,809	92,608	80,965
R-squared	35.30%	33.90%	33.00%

Table 5: Diversifying acquisitions and innovation

This table contains regression models that examine R&D intensity in year $t+j$. All control variables are lagged (from year $t-1$). All models include two-digit SIC industry dummies and year dummies, and use standard errors clustered by firm. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Dependent Variable	R&D Intensity ($t+1$)	R&D Intensity ($t+2$)	R&D Intensity ($t+3$)
Column	[1]	[2]	[3]
# Diversifying Acqs (t)	0.010*** [0.000]	0.011*** [0.000]	0.010*** [0.000]
# Diversifying Acqs (t) x Low R&D ($t-1$)	-0.011 [0.388]	-0.002 [0.621]	-0.009 [0.263]
# Diversifying Acqs (t) x Cash ($t-1$)	-0.182*** [0.000]	-0.203*** [0.000]	-0.183*** [0.000]
# Diversifying Acqs (t) x Cash ($t-1$) x Low R&D ($t-1$)	0.274 [0.130]	0.143*** [0.006]	0.228* [0.051]
Acquirer Size ($t-1$)	0.008*** [0.000]	0.005*** [0.001]	0.003** [0.036]
Cash ($t-1$)	0.594*** [0.000]	0.495*** [0.000]	0.467*** [0.000]
Low R&D ($t-1$)	0.035*** [0.000]	0.023** [0.012]	0.024*** [0.006]
Cash ($t-1$) x Low R&D ($t-1$)	-0.719*** [0.000]	-0.578*** [0.000]	-0.609*** [0.000]
ATPs ($t-1$)	0.002 [0.681]	0.001 [0.863]	0.002 [0.686]
Leverage ($t-1$)	-0.051** [0.013]	-0.060*** [0.002]	-0.069*** [0.000]
CAPEX Intensity ($t-1$)	0.398*** [0.000]	0.310*** [0.000]	0.271*** [0.000]
Tobin's Q ($t-1$)	0.028*** [0.000]	0.026*** [0.000]	0.022*** [0.000]
Cash flows ($t-1$)	-1.017*** [0.000]	-0.927*** [0.000]	-0.827*** [0.000]
Institutional Ownership ($t-1$)	0.002 [0.372]	0.001 [0.415]	0.002 [0.245]
HHI ($t-1$)	0.095*** [0.005]	0.091*** [0.005]	0.096*** [0.003]
Observations	105,809	92,608	80,965
R-squared	35.20%	33.80%	33.00%

Table 6: M&A Activity, and innovation through acquisitions

This table contains regression models that examine R&D/Sales in year $t+j$. The regressions restrict the sample to the sub-set of firms that make an acquisition in year t and examine the relationship between M&A activity in the acquirer's industry, cash holdings, and under-investment in R&D on the firm's post-acquisition R&D level. All models include two-digit SIC industry dummies and year dummies, and use standard errors clustered by firm. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10% , respectively.

Dependent Variable	R&D Intensity (t+1) [1]	R&D Intensity (t+2) [2]	R&D Intensity (t+3) [3]
Column			
M&A Activity (t-1)	0.026*** [0.009]	0.021** [0.039]	0.015* [0.091]
M&A Activity (t-1) x Low R&D (t-1)	-0.060*** [0.000]	-0.086*** [0.002]	-0.072*** [0.000]
M&A Activity (t-1) x Cash (t-1)	-0.436*** [0.000]	-0.410*** [0.000]	-0.438*** [0.000]
M&A Activity (t-1) x Cash (t-1) x Low R&D (t-1)	0.713*** [0.003]	1.052** [0.031]	0.805*** [0.001]
Acquirer Size (t-1)	0.001 [0.803]	-0.001 [0.371]	-0.002 [0.171]
Cash (t-1)	0.648*** [0.000]	0.604*** [0.000]	0.610*** [0.000]
Low R&D (t-1)	0.027 [0.283]	0.047** [0.014]	0.036* [0.052]
Cash (t-1) x Low R&D (t-1)	-0.733** [0.038]	-1.018*** [0.000]	-0.856*** [0.000]
ATPs (t-1)	-0.002 [0.582]	-0.002 [0.706]	-0.004 [0.444]
Leverage (t-1)	-0.032 [0.165]	-0.061*** [0.001]	-0.039** [0.033]
CAPEX Intensity (t-1)	0.214*** [0.000]	0.189*** [0.000]	0.200*** [0.000]
Tobin's Q	0.027*** [0.000]	0.022*** [0.000]	0.025*** [0.000]
Cash Flows (t-1)	-0.782*** [0.000]	-0.660*** [0.000]	-0.652*** [0.000]
Institutional Ownership (t-1)	0 [0.904]	0 [0.978]	0.001** [0.016]
HHI (t-1)	0.063 [0.102]	0.069* [0.053]	0.064* [0.062]
Observations	23,767	20,965	18,507
R-squared	24.50%	22.20%	23.80%

Table 7: Innovation through acquisitions and tariff reductions

This table contains regression models that examine R&D/Sales in year $t+j$. The regressions restrict the sample to the sub-set of firms that make an acquisition in year t and examine the relationship between a tariff reduction in the acquirer's four-digit SIC industry, cash holdings, and under-investment in R&D on the firm's post-acquisition R&D level. All models include two-digit SIC industry dummies and year dummies, and use standard errors clustered by firm. Brackets contain p-values and superscripts ***, **, and * denote significance at 1%, 5%, and 10% , respectively.

Dependent Variable	R&D Intensity ($t+1$)	R&D Intensity ($t+2$)	R&D Intensity ($t+3$)
Column	[1]	[2]	[3]
Tariff Fall	0.021 [0.369]	0.014 [0.491]	0.018 [0.317]
Cash ($t-1$) x Tariff Fall	-0.765*** [0.001]	-0.691*** [0.000]	-0.563*** [0.001]
Low R&D ($t-1$) x Tariff Fall	-0.015 [0.588]	-0.012 [0.606]	-0.015 [0.491]
Cash ($t-1$) x Low R&D ($t-1$) x Tariff Fall	0.889*** [0.002]	0.912*** [0.000]	0.720*** [0.001]
Acquirer Size ($t-1$)	0.005 [0.280]	0.002 [0.672]	-0.001 [0.831]
Cash ($t-1$)	0.844*** [0.000]	0.729*** [0.000]	0.624*** [0.000]
Low R&D ($t-1$)	0.031 [0.218]	0.017 [0.442]	0.006 [0.751]
Cash ($t-1$) x Low R&D ($t-1$)	-1.114*** [0.000]	-1.041*** [0.000]	-0.822*** [0.000]
ATPs ($t-1$)	0.019* [0.075]	0.022** [0.040]	0.013 [0.191]
Leverage ($t-1$)	-0.108* [0.059]	-0.132*** [0.007]	-0.118** [0.018]
CAPEX Intensity ($t-1$)	0.453*** [0.000]	0.409*** [0.000]	0.404*** [0.000]
Tobin's Q ($t-1$)	0.034*** [0.000]	0.034*** [0.000]	0.030*** [0.000]
Cash Flows ($t-1$)	-1.275*** [0.000]	-1.036*** [0.000]	-1.024*** [0.000]
Institutional Ownership ($t-1$)	0.021 [0.512]	0.013 [0.685]	-0.001 [0.986]
HHI ($t-1$)	0.397 [0.296]	0.508 [0.180]	0.547 [0.134]
Observations	7,479	6,921	6,380
R-squared	35.40%	31.70%	32.60%

IMPACT OF ENTREPRENEURIAL EDUCATION ON ENTREPRENEURIAL INTENTIONS: UNIVERSITY CONTEXT AND EDUCATIONAL PROGRAM CHARACTERISTICS

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Impact of entrepreneurial education on entrepreneurial intentions: University context and educational program characteristics

Abstract

Whether or not entrepreneurship education enhances a student's aptitude toward entrepreneurship is a highly debated topic. Although positive effects are often hypothesised, recent empirical studies provide quite contradicting results. The possible reason for the contradiction is that the studies are very fragmented, a-theoretical, and completed in different contexts that makes comparison a difficult task. This study develops reliable measures to estimate the impact of entrepreneurial education on the start-up intentions of students. We suggest that in order to estimate the impact of entrepreneurship educational programs, at least two elements should be considered. First, the *university context* (UC) which refers to legitimacy of the closest environment in which the students operate should be considered. Secondly, the content, intensity, and mode of *educational program* (EP) itself should be considered. Results from this present study confirms that UC has a strong and direct impact on entrepreneurial intentions and attitudes.

Introduction

Entrepreneurs play a crucial role in counteracting economic decline and are major agents of economic growth, innovation, and employment (Kelley et al., 2010). Entrepreneurial intentions have also been found to be a good predictor of actual entrepreneurial behavior (Kolvereid and Isaksen, 2006). As Krueger et al. (2000, p. 411) argue: "intentions have proven to be the best predictor of planned behavior, particularly when that behavior is rare, hard to observe, or involves unpredictable time lags."

It is thus important to study factors that might enhance entrepreneurial intentions, creativity, innovativeness and self-efficacy. The question as to why graduate students do or do not intend to start their own business has received ample attention in entrepreneurship literature (Autio et al., 2001; Iakovleva et al., 2011; Kolvereid, 1996; Krueger et al., 2000). Several theories aim to explain forces that drive individual intentions to start up a business. These include the TPB (Ajzen, 1991), Shapero and Sokol's (1982) theory of the entrepreneurial events, the model of implementing entrepreneurial ideas (Bird, 1988), and the maximization of the expected utility model (Douglas & Shepherd, 2002). In addition, recent studies argue that concepts like autonomy (Van Gelderen and Jansen, 2006), role models (Van Auken et al., 2006), improvisation (Hmieleski and Corbett, 2006), and affect (Baron, 2008) might be used to predict entrepreneurial intent. Personal traits such as locus of control (Bonnett and Furnham, 1991), risk taking propensity (Hisrich and Peters, 1995), and need for achievement (Johanson, 1990) are also proven to be related to intentions.

The relationship between entrepreneurial intentions and innovativeness, is mainly explored at the individual level. Innovative behaviour can be defined as "intentionally and directly changing things through the creation of new circumstances, or the active alteration of current ones". (Batteman and Grant (1999, p.64). Majority of studies exploring and explaining innovative behavior on individual level are done within management research and deals with innovative behavior of employees. Personality, as well as stimulants of individual creativity such as organization culture, management style and available resources are often regarded as significant in explaining the individuals' innovative behaviour (Amabile, 1988; McAdam & McClelland, 2002). A broad scope is employed by those who also focus on the application of ideas. This includes the investigation of constructs like proactive work behavior (Crant, 2000), taking charge (Morrison & Phelps, 1999), voice (Van Dyne & LePine, 1998) and also innovative work behavior (Janssen, 2000).

Although these theories are useful and important, they mainly address personal traits and patterns of an individual. It is often argued that external factors such as educational environment and educational programs might positively affect entrepreneurial intentions and attitudes (Fayolle et al. 2006; Kuratko, 2005; Mueller, 2011). However, empirical evidence for this hypothesis is mixed. Some authors report contradicting results indicating that participating in entrepreneurship courses dampens entrepreneurial intentions among students (Oosterbeek et al., 2010; Souitaris, et al 2007) while concurrently having a positive effect on skills and attitudes toward entrepreneurship. The current state of the art is based on a diverse set of research attempts, mainly performed on students that were involved in very different type of programs in terms of length, intensity and purpose. Thus the mixed results are not surprising. The question as to whether there is a positive impact and the size of this impact of entrepreneurial education on entrepreneurial intentions and actual behavior remains open.

In parallel to this question, there is an increasing debate about the type or mode of education that is suitable for that purpose. Educating either in, about, or for entrepreneurship are suggested to have different purposes and thus different outcomes as consequences (Co and Mitchell, 2006; Hytti and O’Gorman, 2004; Kirby, 2004). The objectives of entrepreneurial education have shown to vary from initiating start-up activities and job creation, to training entrepreneurial skills, and increasing an entrepreneurial mindset. The recent debate suggests that educating *in* entrepreneurship through active student involvement in start-up activities enable them to experience a diversity of challenges and solutions opportunities (Kyro, 2008).

It is suggested that action-based learning associated with starting and growing a business, is the most productive way to stimulate entrepreneurial action (Foss et al., forthcoming). It allows students to develop the necessary entrepreneurial knowledge and skills and more importantly, allows students to gain valuable experience in the identification and exploitation of entrepreneurial programs that will not only stimulate the desired outcome – involvement in start-up activities, but also inevitably change the mental mindset of the students. Consequently, students may exhibit more proactive and innovative behavior in their future careers, even if they are not directly involved in start-up activities. There are arguments to suggest that different education modes for entrepreneurial education lead to diverse outcomes. However, there is still an absence of empirical results that can prove a correlative relationship, thus our main research question is:

Which impact do University enterprise Context (UC), form, and mode of entrepreneurship Educational Program (EP) delivery have on entrepreneurial intentions?

In the present paper we develop reliable measures for such concepts as UC and EP. We test the relationship of UC with entrepreneurial intentions, innovativeness, creativity, attitudes and self-efficacy based on the sample of 136 students enrolled in the entrepreneurship programs in Finland, Sweden, Norway, UK and USA. We also test relationship of EP with above mentioned dependent variables, however, the ability to perform this task is limited, since as to estimate the full effects of the EP on students one should perform a longitudinal study and employ difference-indifference tests, which was not possible within the scope of the present work.

Impact of entrepreneurship education on behavioral outcomes

Education often have outcomes on various levels. In their classical work on evaluation, Warr et al (1971) outline that educational or training outcomes can be classified as immediate outcomes –changes in knowledge and attitudes, intermediate outcomes, changes of behavior at the working place, and ultimate outcomes, effects on the company level, which in case of

entrepreneurship level might be the starting up of an enterprise. The need for entrepreneurial education is a hotly debated topic on policymaker's agendas; county-level governments often expect to the ultimate outcomes of the educational efforts to be an increased number of start-ups. However, there is currently lack of empirical evidence that can prove this third-level outcome. Rather, the majority of research focuses on immediate outcomes, or changes in attitudes. That can be explained by the facts that a majority of studies (see review of Pittaway and Coop, 2007, Mwasalwiba, 2010) are performed on the students taking entrepreneurship courses and are cross-sectional rather than longitudinal in nature. Further, one can assess different dependent variables, like entrepreneurial intentions, innovativeness, creativity, attitudes and self-efficacy. While these concepts might be related, they nevertheless might be driven by different antecedents. The educational environment (EU) and elements of educational programs (EP) might be related differently to these diverse outcome elements.

In spite of the positive relationship proposed in majority of current literature between success in developing business and education (Dickson et al., 2006), i.e. the positive effect of education on opportunity recognition (DeTienne and Chandler, 2004), there is less evidence as to whether entrepreneurship educational programs affects the desire to start a business. While theoretical studies suggest that entrepreneurial education should enhance intentions, attitudes, and skills (Kyro, 2008; Rasmussen and Sørheim, 2006; Henry et al., 2005; Nabi and Hiolden, 2008), recent reviews of empirical studies on this topic prove non homogenous results (Mwasalwiba, 2010; Pittawaay and Cope, 2007). Further, results from more recent studies are quite diverse). Some empirical studies confirm positive impacts of entrepreneurship education courses on the perceived attractiveness and feasibility of new venture initiation (Fayolle et al., 2006). It is suggested that entrepreneurial programs will enhance attitudes, subjective norms and self-efficacy, which in turn will enhance entrepreneurial intentions. However, findings from this study are based on a survey collected only from 20 students and seen rather as pre-test than full empirical test. Other empirical investigation undertaken recently showed mixed results.

For example, Souitaris et al (2007) conducted a survey on engineering students in the United Kingdom and France to find out whether entrepreneurship educational programs had a positive effect on intentions. The authors refer to the TPB and assessed the impact of different elements of entrepreneurial educational program on intentions and its antecedents such as attitudes, subjective norms and perceived behavioral control. They found that students who have been enrolled in entrepreneurial education have significantly increased subjective norms and intentions versus a control group of student that were not enrolled in such programs. Further, out of three "benefits" associated with entrepreneurial programs—*learning*, *inspiration* and *utilization* of resources—only *inspiration* showed to be significantly related to increase intentions and subjective norms. The authors explained that the absence of the association between learning and the utilization benefits of education and intentions by the fact that motivation, that is dependent of inspiration, is key. Persons already motivated to start a business appreciate the value of acquiring necessary resources and skills but only at a later stage.

A recent study of the impact of educational program on entrepreneurship skills and motivation show zero and even negative impact on the intentions to start a business (Oosterbeek et al. 2010). The study is interesting since the training was provided for all students, not just self-selected individuals. Other studies indicate that a positive effect from education programs often suffer from self-selection bias, as respondents are often students that chose to take entrepreneurial class.

Another study by Graevenitz et al (2010) showed that while entrepreneurial courses have positive effects on self-assessed entrepreneurial skills, the actual start-up intentions became lower. The conclusion could be that through educational programs expectation adjustment

happens though the increased understanding of the challenges of starting an enterprise. Authors suggest that the role of entrepreneurial education is necessary to enhance start-up intentions, but rather entrepreneurship education allows students to better assess whether they should pursue an entrepreneurial career. Students who are initially uncertain about their entrepreneurial aptitude are able to determine more clearly whether or not they are suited for entrepreneurship as a result of taking the course. Finally, Graevenitz et al (2010) argues that a focus on startup propensity alone is misleading. In order to complete a comprehensive assessment of entrepreneurship education, the gains from improved matching between students and career paths need to be considered. Informing non-entrepreneurial individuals that they are not well-suited for startup activities may be as valuable as confirming and strengthening entrepreneurial tendencies in other students.

The above discussion demonstrates that there is lack of consensus as to whether or not entrepreneurial educational programs always enhance attitudes and intentions to start a business. We suggest that the root of this debate is actually in the way empirical studies have been conducted thus far. In fact, whether or not individuals were self-selected into attendance of the entrepreneurial courses might dramatically affect the outcome. It is well accepted that students who purposefully enroll into entrepreneurship programs have normally higher entrepreneurial intentions. When motivation is in place, it is not surprising that they benefit from the toolkit provided to them during the course. On the other hand, when entrepreneurial courses were provided on compulsory basis, the student might not have enough motivation to get benefit from all the program has to offer.

Another limitation of the current studies is that speaking about education, is that they have not investigated what parts of educational program actually are more impactful than the others. In several studies only intentions of students before and after the program were evaluated, that educational programs as well as impact of the broader university context were not operationalized (Fayolle, 2006; Graevenitz et al, 2010; Oosterbeek et al., 2010; Peterman and Kennedy, 2003; Souitaris et al. 2007). We suggest that in order to fully understand the impact of the education on entrepreneurial intentions, we need to dig deeper into what the educational programs actually consist of and what surrounding students operate in, i.e. what we consider the UC context.

University Context (UC)

Despite of important role of the educational programs and personality traits on a person's real entrepreneurial behaviors, there are other second-level variables that might affect behavior. The spirit of the educational place, its shared values and norms can affect entrepreneurial intentions. UC can be seen as number of interrelated parts that may have an indirect impact on entrepreneurship education. Whereas universities in the past were institutes for research and teaching, in the last decade a third role has emerged: knowledge commercialization (Etzkowitz, and Leydesdorff, 2000; Zaharia and Gilbert, 2005). Rasmussen and Sørheim (2006) argue that by broadening the perspective and actually including the formation of new ventures as a part of education, a better match with these conceptions can be achieved. In addition, new venture creation will be in line with the overall mission of the university by contributing to economic development.

UC may include university governance and leadership (Sotirakou, 2004), its organizational culture and infrastructure, and its approach to commercialization of research and technology (Poole and Robertson, 2003; Etzkowitz, 2003). In such studies, the university is often the unit of analysis. For example, Jacob et al (2003) explored the Chalmers University of Technology and Lackéus and Williams Middleton (2011) compared venture creation programs in six universities. Within this third role, much attention has been given to patenting

and licensing in addition to the creation of university spin-offs (e.g. Shane and Stuart, 2002; Rasmussen and Borch, 2010).

However, a number of studies have also addressed UC as an input variable. In the study of Todorovic et al (2010) a university entrepreneurship orientation construct is suggested, consisting of such sub-items as research mobilization, unconventionality, industry collaboration, and university policies. High levels of research mobilization suggests that researchers involve external partners in research, and make sure that outcomes are valued, useful, and shared with industry. Unconventionality refers to identifying opportunities, taking unconventional approaches and working outside the traditional university environment. Industry collaboration relates to the cooperation with industry and suggests both faculty and student's involvement as well as department industry level of cooperation. And finally, university policies relate to the department perception of university policies and the extent to which they support department aspirations on intentions to innovate and be unconventional. This entrepreneurial orientation of a university was proven to be related to a number of spin-off activities and patenting in the university (Todorovic et al., 2010) as well as to the increased entrepreneurial intentions and attitudes of the students (Saeed and Muffatto, 2012)

The results of this study correlates with the recent work of Davey et al (2011). In their study, Davey et al (2011) explored the role of universities in fostering entrepreneurship in seven countries, including four European developed nations (Finland, Germany, Ireland, and Portugal) as well as two African developing countries (Kenya and Uganda) and one emerging African nation (South Africa). It was concluded that bringing students in contact with the network needed to start a new business, as well as arranging conferences or workshops on entrepreneurship, and offering project work focusing on entrepreneurship were the most important type of support services requested by students at a university. Students in developing and emerging countries requested universities to provide required networks and workshops and ideas to start businesses as well as project work focusing on entrepreneurship. In European countries, students wanted to use university services and access to networks and support in finding other entrepreneurially-minded students. Neither group of respondents ranked specific entrepreneurship degrees high in their ranking lists.

In the related study Kraaijenbring et al (2009) looks at the relationship between entrepreneurial intent, entrepreneurial behavior, perceived university support, and desired university support. University context was explored in this study with the help of three conceptual variables: education support that university provides, concept development support, and business development support. *Educational type of support* is a part of the universities traditional role as a teaching institution. *Concept development* support concerns the provision of specific concept development such as awareness, motivation and business ideas and has to do with a creative and stimulating atmosphere in the university. Finally, *business development support* is oriented towards start-ups rather than individuals, and can include a provision of money and lending students the reputation of the university. In the study by Saeed and Muffatto (2012), this scale was tested upon entrepreneurial intention and attitudes from 805 Pakistan students. It is found that an integrated scale representing educational, concept development, and business development support are significantly and positively associated with entrepreneurial intentions and attitudes.

Further, Turker and Selcuk (2009) developed scales of educational, relational, and structural support and tested it in relation to intentions on the sample of 300 university students in Turkey. Results of this study provide evidence that educational support is positively associated with entrepreneurial intentions. This factor is mainly associated with a supportive university environment. Structural support, including government system support, availability of loans, and overall attitudes toward entrepreneurship in a country, also shows to be positively associated with entrepreneurial intentions.

Related to the scales of institutional support are measures of legitimacy for entrepreneurship. Legitimacy is often described in terms of acceptability or acceptance (Brown, 1997, p. 664; Knoke, 1985, p. 222; Meyer and Rowan, 1977, p. 351), Suchman (1995, pp. 573–4) presented an encompassing definition of legitimacy as ‘*the generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within a social system*. Thus, it appears that a key element of legitimacy, is meeting and following expectations of a social system’s norms, values, rules, and meanings (Hirsch and Andrews, 1984; Parsons, 1960). That means that for an activity to be legitimate, the social system must allow it, either formally or informally. Perceived support from universities may therefore legitimate a certain behavior. Further, Lawrence (1998) suggested that legitimacy indicates that one is qualified for a particular profession. That is that a person has the knowledge, skills, or competence is a legitimate member of that profession. In this perspective, it means that the right knowledge and skills must be provided for people to be considered legitimate actors of a certain activity. Further, Ruef and Scott (1998) followed Scott (1995, 2001) and wrote that actors must conform to normative rules, regulative processes, and cognitive meanings. Irrespective of the source of these expectations (Ruef and Scott, 1998), to which extent an activity is legitimate, influences its frequency (Suchman, 1995).

Therefore, the scale developed by Kraaijenbrink et al. (2009), Turker and Selguk (2011) and Todorovic (2011) are interesting in a legitimacy point of view, however, we intend to structure them according to the dimensions indicated by Scott (1995, 2001). Consequently, Busenitz, Gomez, and Spencer (2000) have developed a measure for entrepreneurship specific country institutional profile, which has later also been tested by Manolova et al. (2008) to describe the institutional dimensions in Thailand. Oftedal (2008) argued that what the scale really was measuring was institutional legitimacy and used the scale to measure the legitimacy for entrepreneurship among Norwegian entrepreneurs. The study found relations between innovative entrepreneurs and regulative legitimacy and cognitive legitimacy to growth oriented entrepreneurs. Further, the results showed that the perception of regulative legitimacy decreased when entrepreneurs gained more experience. The study points to how entrepreneurs are formed by institutional legitimacy. However, the statistic qualities of the results supports that these are indications, rather than proof. A reason for this might be that entrepreneurs are not specifically aware of a national dimension of legitimacy.

Amo et al. (2006) have further developed Buzenits (2000) scale to measure internal legitimacy within an organization on regulative, normative and cognitive dimensions. This scale loaded in three factors labeled employee’s competence, colleagues esteem, and management encouragement in relation to continues entrepreneurship. The results indicate that within an organization, management encouragement towards continued entrepreneurship as well as coworkers esteem was strongly associated with external (product and market) innovation, while employees knowledge and experience in relation to continued entrepreneurship were related to internal (routine improvement) innovation, although not that strongly.

Extending this line of research, we suggest measuring university enterprise context on three dimensions – regulative, normative and cognitive. Regulative dimension refers to rules and formal regulation, University policy and regulation towards entrepreneurship and commercialization. Normative refers to shared values and attitudes in the University in relation to entrepreneurship. Cognitive dimension refers to shared skills and knowledge in relation to business start-up. The following hypotheses are suggested:

Hypothesis 1: Regulative dimension of UC will be positively associated with attitudes,

creativity, innovativeness, self-efficacy and entrepreneurial intentions.

Hypothesis 2: Normative dimension of UC will be positively associated attitudes, creativity, innovativeness, self-efficacy and entrepreneurial intentions.

Hypothesis 3: Cognitive dimension of UC will be positively associated with attitudes, creativity, innovativeness, self-efficacy and entrepreneurial intentions.

2.2 Entrepreneurship educational programs

The dominant pattern of education has been based on an individual-centered mindset, with the aim of modeling single individuals to become entrepreneurs (Laukkanen, 2000). In short, the candidates receive knowledge and capabilities through a linear educational process, or what Gibb (1993) refers to as a didactic model. This approach is debated in the literature, as entrepreneurship has come to be seen as the concrete enactment of new ventures. According to Gibb (2002), this calls for an action-oriented approach.

As an alternative to the individual focus, Laukkanen (2000) conceptualizes the 'business generation model' as an educational strategy for entrepreneurship education. Its aim is to foster the necessary conditions for new ventures and for the strategic expansion of regional subject matter experts (SMEs): the emergence and fusion of viable business concepts, entrepreneurial actors, resources, and a munificent environment. In an educational setting, students should meet and internalize a realistic business concept from the outset and should be operationally involved in real business contexts. In such a model there is room for including opportunities and contexts (Gartner, 1985; Shane, 2003), which emphasizes learning-by-doing (Fiet, 2001).

Lackeus and Middleton (2011) argue that the action-based method is essential for achieving important learning outcomes such as tacit learning, personal development, and self-awareness. One important benefit of this pedagogy is that it allows for higher-level learning from highly emotional and critical incidents in the venture creation process, provided that action is also paired with opportunities for reflection together with experienced mentors. In some instances, a real-life learning environment can provide for what Fayolle et al. (2006) terms an emergency learning situation, especially when economic and personal stakes are high.

Bager (2010) demonstrates that the camp model (changing the learning situation by switching to another location and including students from other disciplines as well as business leaders and experts), gives other learning outcomes such as application of knowledge, faster learning, idea generation, problem-solving, self-efficacy, creativity, dealing with complexity and ambiguity and training presentation skills). Timmons and Spinelli (2004:66) argue that there is a limit to what can be taught in entrepreneurship education. They also add that the only way to learn is through personal experience. Institutions of higher learning, colleges and universities, have to put together a curriculum which provides for experiential learning and personal experiences. Botha et al. (2006) emphasizes the fact that most programs pay great attention to the knowledge aspects but are weak when it comes to teaching the skills and attitudinal aspects that are crucial to the success of any potential or start-up entrepreneur. In addition, he argues that lecturing as a teaching method needs to be changed because this approach often reveals more about the teacher than the subject being taught.

This literature review shows that while there are a variety of classifications of entrepreneurship education, these seem to be converging towards a single framework for entrepreneurship education. We conclude that the field develops towards the attitude-changing perspective on entrepreneurship.

However, when reviewing empirical studies addressing the effects of the entrepreneurial education, it is evident that research samples are based on students that

enrolled in very different types of education. While the individuals that are self-selected to take entrepreneurial courses seems to increase their positive attitudes, develop skills, and increase their entrepreneurial intentions (Falyolee, 2006; Peterman and Kennedy, 2003), individuals that were enrolled in mandatory entrepreneurship educational courses have zero or even a negative effect of the programs (Graevenitz et al, 2010; Oosterbeek et al., 2010; Souitaris et al. 2007). There is lack of research on what particular parts of entrepreneurial programs have an impact and on what type of students.

There are, however, some exceptions from this. In the recent study by Mueller (2011) the impact of different elements of educational programs on antecedents of intentions (attitudes, perceived behavioral control, and subjective norms) was assessed on the 464 students enrolled into entrepreneurship classes in 17 different universities in Austria, Germany, Liechtenstein and Switzerland. Educational programs were evaluated using assessment of such elements as practical knowledge, business planning, role models, entrepreneurial networks, student-orientation consisting of adaptive, discursive, interactive and reflective elements, explorative elements, and feedback. In addition, the moderating role of previous exposure and student expectations were taken into consideration. Some items were measured based on evaluations by teachers, while others were evaluated by the students. The results show that educational elements positively affect antecedents of intentions in varying degrees. It is suggested that future research should investigate what benefits different groups of students might get from different education forms.

Following the call from Mueller (2011), we suggest to enrich the description of program characteristics on the basis of action-based education versus more traditional forms of education. Mueller's work also incorporate the viewpoints of two stakeholders, student and faculty, whereas this study focused on the student perspective. As is evident from the above review of the debate about educational form, there are arguments that suggest that active-learning should enhance skills and intentions in a higher degree in comparison with more traditional teaching. In working with Mueller's variables and looking into work by Benjamin Bloom (1956), known for identifying three domains of educational activities including cognitive, affective, and psychomotor, we looked to establish facets of active learning in entrepreneurial programs to study. Bloom (1956) identified six cognitive levels that are widely recognized at Bloom's taxonomy. These levels include knowledge, comprehension, application, analysis, synthesis, and evaluation (Keshavarz, 2011). The intended application of the levels on educational curriculum design was to be implemented at the university level (Booker, 2007). The first two skills relate to knowledge and understanding. The other four involve intellectual skills. Scott (2003) notes in active learning, students should be more engaged in higher level activities. Keshavarz (2011) argues that Bloom's taxonomy should be a basis for identifying strong course objectives and closing assessment loops in education. Some programs have used Bloom's taxonomy as a basis for restructuring its curriculum; one example being a course on renewable energy engineering (Kalkani et al., 2004).

In leveraging Mueller's (2011) work as a foundation and incorporating Bloom's cognitive levels (1956), we identified three facets of active learning in entrepreneurial programs to study. The three facets of entrepreneurial educational programs that we identified are network, presentation, and interaction. In each of the three facets, Bloom's levels are incorporated. Additionally, Mueller's variables have been either blended or combined into new, comprehensive variables. *Presentation* incorporates Mueller's feedback, *network* incorporates role models and entrepreneurial network, and *interaction* blends Mueller's explorative elements and student-orientation. Practical knowledge is essentially the same as Mueller's practical variable but adjusted to incorporate Bloom's idea of both knowledge and intellectual skills. The compilation of all three facets together provides a structured, concise, and research-based method of looking at entrepreneurial educational programs. We believe

that if measured employing longitudinal techniques, those elements of EP can prove to have effect on outcome variables. In the present study, due to cross-sectional nature, we only can assume relationships and suggest the following hypothesis:

Hypothesis 4: Networking element of EP will be positively associated with attitudes, creativity, innovativeness, self-efficacy and entrepreneurial intentions

Hypothesis 5: Presentation element of EP will be positively associated with attitudes, creativity, innovativeness, self-efficacy and entrepreneurial intentions

Hypothesis 6: Interaction element of EP will be positively associated with attitudes, creativity, innovativeness, self-efficacy and entrepreneurial intentions

Moderating effects of motivation: Motivation to study entrepreneurship can greatly also affect results of the entrepreneurial education and increase effects of University Context. We assume that motivated students will perform better results in term of EP. Thus, two additional hypotheses are suggested:

Hypothesis 7: Strong motivation for entrepreneurship education can increase the positive effect of UC on attitudes, creativity, innovativeness, self-efficacy and entrepreneurial intentions

Hypothesis 8: Strong motivation for entrepreneurship education can increase the positive effect of EP on attitudes, creativity, innovativeness, self-efficacy and entrepreneurial intentions

Method

Sample: The main purpose of the present study was to test scales. Therefore, Universities that thought to participate in the later research with the purpose to test full theoretical model were asked to spread questionnaires. That explains the mixed nature of the sample. The participants in the study were 136 students, from UK (54 respondents, 39,7%), Finland (36 respondents, 26,5%), USA (17 respondents, 12,5%), Sweden (16 respondents, 11,8%), Norway (11 respondents, 8,1%), and Belgium (4 respondents, 1,5%). Mean age of respondents is 24,37 with SD =4,93). In relation to gender, 79 respondents or 58,1% were females. In relation to studies, 89 respondents or 65,4% were bachelor students, rest were master students. Almost all students (97,1%) were enrolled into entrepreneurship course at the moment of survey, and for 42% of respondents it was mandatory enrollment. For 27,2% entrepreneurship or innovation was their major specialization.

Procedure: The data collection took place during 2012. Participation in the study was voluntary. Questionnaires were completed anonymously to ensure confidentiality. In UK and Finland, questionnaires (paper and pencil version) were completed in the classroom and the results then entered into SPSS files. In other countries web-survey was applied. The questionnaire was originally developed in English, and then translated into Finish, Norwegian. In Sweden and Belgium, as well as USA and UK the original English version was used.

Measurement instruments Both new independent variables (University Context and Entrepreneurial Program) and dependent variables (entrepreneurial intentions, attitudes, creativity, innovativeness, self-efficacy) measured along a seven point Likert scale. A score of 1 suggested 'absolutely disagree', 4 suggested 'neither agree nor disagree', and a score of 7 suggested 'absolutely agree'. Explorative principal component analysis was applied to each

variable to find out whether items load on the right dimensions. Reliability was ensured with the help of Cronbach's alpha.

Independent variables: University Context was measured along three dimensions: Regulatory, normative and cognitive. Based on the work of Buszentsis et al. (2000), Oftedal (2008) and Amå et al. (2006), we have developed a set of questions that were applicable for the University rather than organization or country level. **Regulatory dimension** was measured with the help of the following five questions: In my University there is (1) sponsorship for students entrepreneurial activities, (2) sponsorship for business plan/ pitch competitions, (3) sponsorship for start ups (faculty and student start ups), (4) policies rewards students who engage in entrepreneurial activities, (5) policies are best described as bottom up using feedback from all levels of the university. Chronbach alpha is 0,889 **Cognitive dimension** was measured by two sub-dimensions. The first one consist of 5 items relates to **knowledge of fellow students**: (1) My fellow students know how to handle the risks associated with a start up, (2) My fellow students know the procedures to start up their own businesses (3) My fellow students have the skills to start up their own businesses, (4) My fellow students know how to develop their own ideas (5) My fellow students know who may be helpful in launching a start-up. Chronbach alpha for this construct is 0,943. The second sub-dimension refers to **advice from faculty**, and was measured with the help of following three questions: (1) I receive good advice from faculty to develop my ideas, (2) The faculty are open to my ideas, (3) The faculty has good knowledge on how to commercialize an idea. Chronbach alpha is 0,814. **Normative dimension** reflect the entrepreneurial image among the fellow students and was measured with the help of the following five questions: (1) Those who start their own businesses are respected, (2) Fellow students look up to those who develop their own ideas, (3) Entrepreneurial initiatives are seen as the "road to success", (4) Starting your own business is a respected career path, (5) Fellow students look up to those who have many ideas. Chronbach alpha is 0,943

Entrepreneurial Programs were measured along three dimensions: Networking, Presentation and Interaction. **Networking** was self-constructed and inspired by Mueller (2011), measured with the help of the following four questions: (1) The course taught me to identify to which degree I use my current network, (2) I had to select events to attend during the course to grow my network, (3) I learned methods to leverage my peer network, (4) The course taught me techniques on how to grow my network. Chronbach alpha for this construct is 0,918. **Presentation** was also self-constructed and inspired by Mueller (2011), measured with the help of the following three questions: (1) I had to create my own elevator pitch, (2) I had to review the pitches of my peers and provide feedback (3) The course required me to demonstrate judgment. Chronbach alpha for this construct is 0,874. **Interaction** was self-constructed, measured with the help of five questions: (1) I had to provide examples of entrepreneurial resources available on the web (2) I was required to research an entrepreneurial topic or phenomenon (3) The course required that I participate in practical startup activities (4) I was encouraged to participate in entrepreneurial activities outside the classroom (5) I had to bring real world examples to class for discussion. Chronbach alpha for this construct is 0,873.

Dependent variables

Entrepreneurial intentions were measured using three items, two of which were taken from (Liñan and Chen, 2009) and one adapted from Kolvereid (1996).: (1) "I have very seriously thought about starting a firm"; (2) "I intend to start a firm within five years of graduation", (3)

I would prefer to be self-employed rather than being employed by someone. This component has a Cronbach's alpha of 0.857.

Innovativeness was measured with the help of five items: (1) I often come up with new ideas to solve a problem, (2) I am very innovative, (3) I am willing to apply innovative behavior in my (current or) future job, (4) I will try to develop new things, (5) My family members think that I can easily come up with new ideas to improve things or the situation. Items were self-constructed, but inspired by the work of Bysted (2013), Bysted and Risom Jespersen (forthcoming). This component has a Cronbach's alpha of 0.884.

The measure of *attitude* was taken from Iakovleva et al. (2011) and originally adopted from Kickul and Krueger (2004) and Liñan and Chen (2009). Attitude toward self-employment was measured by five items: (1) "Being an entrepreneur implies more advantages than disadvantages for me"; (2) "Being an entrepreneur would give me great satisfaction"; (3) "It is desirable for me to become an entrepreneur"; (4) "It is interesting for me to become an entrepreneur"; and (5) "It is attractive for me to become an entrepreneur". This component has a Cronbach's alpha of 0.961.

Creativity was measured with the help of following three items which were slightly adapted based on work of Chen et al. (2001) and Carmeli and Schaubroeck's (2007): (1) I successfully overcome many creative and innovative challenges at school and at work (2) I achieve the creative goals I have set for myself (3) I am a good source of creative ideas. This component has a Cronbach's alpha of 0.879.

Self-efficacy concept consists in our study of two sub-dimensions – opportunity self-efficacy and start-up self-efficacy. *Opportunity self-efficacy* comprises 4 items, taken from Iakovleva et al 2011, De Noble et al. 2000 (1) I can see new market opportunities for new products and service (2) I can discover new ways to improve existing products (3) I can identify new areas for potential growth, (4) I can create products that fulfill customers' unmet needs. This component has a Cronbach's alpha of 0.891. *Start-up self-efficacy* comprises 4 items, taken from De Noble et al. 2000 and Kickul et al. 2009 : (1) I can write a formal business plan, (2) I can find partners for my business, (3) I can find resources for my business, (4) I can manage a small business. This component has a Cronbach's alpha of 0.897.

Controls

Several control variables were used in the present study—respondents' gender, age and previous self-employment experience—because these factors according to previous studies can affect entrepreneurial intentions (Isaksen, 2006; Kolvereid, 1996; Wang and Wong, 2004). Female students were allocated a score of '0', and male students were allocated a score of '1'. Students with start-up experience were coded '1', and otherwise they were coded '0'. In addition, we used type of studies- bachelor (0) or master levels (1) and entrepreneurial course enrollment as mandatory (1) or elective (0) as controls. Means, standard deviations, correlations between variables, and VIF scores are presented in Table 1.(Insert Table 1 here)

Moderating variables: Motivation to study entrepreneurship can greatly also affect results of the entrepreneurial education and increase effects of University Entrepreneurial Context. We assume that motivated students will perform better results in term of EP. Motivation construct was self-created and comprised of following questions which load on one dimension in PCA: (1) To get knowledge and skills to start my business, (2) To get knowledge and skills to increase my creativity (3) To get to know how to identify opportunities, (4) To extend my network.

Results

The purpose of the present study was firstly to develop valid and reliable measures of UC and EP. Secondly, the objective was to test associations with diverse set of the dependent variables. To fulfill the first objective, valid and reliable measures of UC were created. The table below presents results of the factors analysis for the UC constructs.

Rotated Component Matrix ^a					Component	Commun	mean	SD
	1	2	3	4				
Cognitive dimension								
Knowledge of fellow students								
q23_8 My fellow students know how to handle the risks associated with a start up	,897					0,862	4,17	1,52
q23_6 My fellow students know the procedures to start up their own businesses	,889					0,850	4,3	1,48
q23_7 My fellow students have the skills to start up their own businesses	,878					0,851	4,49	1,54
q23_5 My fellow students know how to develop their own ideas	,806					0,761	4,78	1,42
q23_9 My fellow students know who may be helpful in launching a start-up	,800					0,696	4,57	1,49
Normative dimension								
Entrepreneurial image among fellow students								
q24_3 Those who start their own businesses are respected		,859				0,793	5,47	1,26
q24_6 Fellow students look up to those who develop their own ideas		,777				0,710	5,34	1,26
q24_2 Entrepreneurial initiatives are seen as the “road to success”		,773				0,695	5,23	1,41
q24_1 Starting your own business is a respected career path		,745				0,638	5,61	1,26
q24_5 Fellow students look up to those who have many ideas		,678				0,566	5,21	1,26
Regulative dimension								
Sponsorship for students								
q22_6 there is sponsorship for students entrepreneurial activities			,874			0,813	4,64	1,39
q22_5 there is sponsorship for business plan/ pitch competitions			,839			0,810	4,61	1,6
q22_7 there is sponsorship for start ups (faculty and student start ups)			,834			0,786	4,44	1,43
q22_3 policies rewards students who engage in entrepreneurial activities			,726			0,678	4,26	1,40
q22_1 policies are best described as bottom up using feedback from all levels of the university			,578			0,430	4,25	1,16
Cognitive dimension								
Advice from faculty								
q23_2 I receive good advice from faculty to develop my ideas				,895		0,869	4,95	1,30
q23_1 The faculty are open to my ideas		,387		,773		0,766	4,95	1,26
q23_3 The faculty has good knowledge on how to commercialize an idea								
Eigenvalue	,389			,716		0,738	4,87	1,30
% of Variance	4,202	3,483	3,437	2,198				
Cumulative % of variance	23,354	19,353	19,040	12,212				
Chronbach’s alpha	23,345	42,698	61,737	73,949				
KMO 0.861, Chi Sq 1586.5, df 153, sig .000, N 122	0,943	0,873	0,889	0,814				

As evident from the table above, four distinct components have emerged. Each component has Chronbach's alpha far above 0.7 cut off point suggested by Hair et al (2010). Further, the same procedure was performed for Entrepreneurial Programs. Results of factor analysis for EP presented below.

Table 3. PCA analysis of EP.

Rotated Component Matrix						
	Component			Commun	mean	SD
	1	2	3			
Networking						
q26_5 The course taught me techniques on how to grow my network	,847			,835	4,19	1,741
q26_4 I learned methods to leverage my peer network	,839			,850	4,20	1,720
q26_3 I had to select events to attend during the course to grow my network	,802			,756	4,09	1,781
q26_2 The course taught me to identify to which degree I use my current network	,782			,795	4,45	1,672
Interaction						
q28_2 I had to bring real world examples to class for discussion		,803		,730	4,57	1,780
q28_1 I was encouraged to participate in entrepreneurial activities outside the classroom		,768		,689	4,46	1,896
q27_2 I was required to research an entrepreneurial topic or phenomenon		,736		,739	4,57	1,899
q27_5 The course required that I participate in practical startup activities		,691		,700	4,60	2,067
q25_2 I had to provide examples of entrepreneurial resources available on the web	,494	,608		,616	4,47	1,625
Presentation						
q25_5 I had to review the pitches of my peers and provide feedback			,869	,827	4,90	1,874
q25_4 I had to create my own elevator pitch	,417		,755	,833	5,03	1,891
q25_6 The course required me to demonstrate judgment			,755	,801	4,97	1,754
Eigenvalue	6,972	1,185	1,012			
% of Variance	29,534	26,497	20,379			
Cumulative % of variance	29,534	56,031	76,410			
Chronbach's alpha	0,918	0,873	0,889			

KMO 0.896, Chi Sq 1158,373; df 66, sig 000, N 129

Three distinct constructs were identified. Originally, there were more items entered into the analysis, assuming more theoretically-driven constructs. However, exploratory analysis showed that many constructs load on the same factor, thus some were excluded to achieve higher reliability. It should be noticed that preferably, EP constructs should be tested on students enrolled into a longitudinal and more action-based programs, rather than short-term classes, as was the case in the present study. It is possible that if tested on different respondent group, we would be able to identify more elements of EP: However, constructs presented above are distinct and reliable one and can be suggested for future analysis and research.

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**BACK TO EMPLOYMENT? HR MANAGERS PERCEPTIONS OF FAILURE
EXPERIENCE AND HOW IT INFLUENCES THE HIRING DECISION.**

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Back to employment? HR managers perceptions of failure experience and how it influences the hiring decision.

1. INTRODUCTION

It is often assumed that after experiencing firm failure entrepreneurs choose between returning to self-employment or seeking paid employment. Framed within human capital theory, this assumption takes as a starting point that entrepreneurs choose the employment option that maximizes the present value of their utility over their lifespan (e.g. Douglas & Shepherd, 2000; Eisenhauer, 1995; Lévesque, Shepherd, & Douglas, 2002) where utility consists of both the economic benefits that the individual's human capital can render in each employment option and the psychic benefits such as the enjoyment from each employment option (Becker, 1975; Gimeno, Folta, Cooper, & Woo, 1997). However, in the case of firm failure, there is often stigma associated with it and this can influence the employment options available to the entrepreneur (Shepherd & Haynie, 2011; Simmons & Wiklund, 2011) both in terms of access to capital to start a new firm and also in regards to wages earned in paid employment (Landier, 2005).

Stigma is the outcome of having an attribute or reputation which is socially discrediting, causing an individual to be classified by others as undesirable (Goffman, 1963). What is stigmatized is thus based on what society as a collective whole value and judge. Historically bankruptcy has been stigmatized as it has been associated with shame, dishonesty and fraudulent conduct (Efrat, 2006). More broadly, firm failure can result in stigmatization to the extent that the entrepreneur is perceived as causing the failure (Wiesenfeld, Wurthmann, & Hambrick, 2008). At a micro-level, outcomes of such stigma include decreases in the willingness of business stakeholders to interact with failed entrepreneurs (Sutton & Callahan, 1987; Wiesenfeld et al., 2008) and decreases in the entrepreneurs' psychological well-being as feelings of competence, relatedness and autonomy are challenged by the failure (Shepherd & Haynie, 2011). At a macro level, the extent of stigmatization influences the number of individuals who are willing to engage in entrepreneurial ventures and, in turn, this can negatively impact the overall economic growth in the economy (Landier, 2005).

To-date, however, entrepreneurship research has predominately focused on the macro implications of stigma in regards to the economic activity and in particular start-up activity in an economy (e.g. Armour & Cumming, 2005; Landier, 2005; Peng, Yamakawa, & Seung-Hyun). In this research, society level stigma is reflected in the regulatory framework such as the leniency of bankruptcy laws and the ease at which failed entrepreneurs can gain a fresh start (Simmons & Wiklund, 2011). Findings show that in economies with more lenient bankruptcy laws, start-up rates are higher (Landier, 2005) reflecting that societal perceptions of failure have implications for the extent of entrepreneurial activity within the society (Baumol, 1993). In the cases where prior research has focused on micro level outcomes, the starting point has been the separation of the firm and the entrepreneur, and that an entrepreneur experiences stigma through their association with the firm (see Sutton &

Callahan, 1987) whereby the extent of stigma experienced is directly related to how closely the firm and entrepreneur are linked by time, proximity and accountability for the failure (Simmons & Wiklund, 2011). Further, this research has taken the perspective of the entrepreneur, rather than those who interact with the failed entrepreneur who also take on a private cost for doing so (Furuya, 2002).

In this paper we explore the potential stigma failed entrepreneurs experience when seeking paid employment. We do this by focusing specifically on Human Resources (HR) managers' perceptions of failure and how this influences their hiring decisions. HR managers play an important arbiter role as they act as gatekeepers to employment and thus they have a legitimate platform to offer assessments of the entrepreneur's economic value (Wiesenfeld et al., 2008). Thus we aim to gain a more nuanced understanding of the conditions failed entrepreneurs face when seeking employment after experiencing firm failure.

Specifically we focus on the following research question: how do HR managers evaluate entrepreneurs with prior failure experience?

To answer this research question we adopt a case study approach and interview HR managers of small-medium sized firms mid-south of Sweden. We frame our study using the process model of the stigmatization of elites developed by Wiesenfeld et al. (2008) to try and identify under what conditions prior failure experience is valued by human resource managers and under what conditions prior failure experience limits an entrepreneurs employment prospects.

In doing so, we aim to make the following contributions to the literature. First, while it is commonly accepted that entrepreneurs experience stigma after firm failure (Simmons & Wiklund, forthcoming), prior research has not focused on how entrepreneurs are professionally and economically stigmatized. We contribute to this literature by showing the conditions in which entrepreneurs can experience stigma when seeking employment and thus an understanding of how firm failure can translate into diminished compensation and professional opportunities. Second, by focusing on how entrepreneur's human capital is judged by human resource managers we contribute to deconstructing the prior experience variable to provide a more nuanced understanding of how prior failure experience is valued. Our findings also have practical relevance for failed entrepreneurs who are looking for paid employment they uncover how employers value failure experience.

2. STIGMA AND FIRM FAILURE

2.1 A historical perspective and its lasting influence

Historically bankruptcy has been stigmatized (Efrat, 2006). Bankrupts have faced public humiliation as part of their punishment and language used in the public discourse has been contemptuous referring to them as deceivers and frauds (Efrat, 2006). Not being able to pay debts went against commonly accepted social norms of acting honestly and was viewed as engaging in reckless and deviant behavior (Efrat, 2006). Punishment included being sold as a slave and having to wear identifiable clothing in public.

This negative image of bankrupts was wide spread across American and Europe through the Victorian era and into the 20th century. Although the negative public perception of bankrupts has eased, there is still substantial stigma associated with bankruptcy (Landier, 2005). For example, bankruptcy is still associated with shame and mistrust in Sweden despite only 4% of corporate bankruptcies being associated with improper conduct (Sannesson, 2011). Cardon et al., (2011) found that in reporting of corporate failures in US newspapers, the most frequent form of reporting was the creating a sense of stigma around the entrepreneurs who had experienced failure.

2.2 The process of stigmatization

To understand the process by which entrepreneurs experience stigma after firm failure we draw on the model developed by Wiesenfeld et al. (2008). Their model takes as its starting point that business failure evokes a sensemaking process whereby observers stigmatize individuals they perceive as causing the failure. Individuals with a legitimate platform to make judgments about the cause of the failure play a key role in determining the extent that the individual is stigmatized. Wiesenfeld et al. (2008) call these individual arbiters and divide them into three categories: social arbiters who have legitimate platforms for influencing the public opinion such as press, academics and activists; legal arbiters are who can make decisions on the legal side of the failure such as regulatory officials, judges and prosecutors and economic arbiters who have the option of going into economic exchange with the stigmatized individuals. Directors, members of the board, venture capitalists and employers are examples of economic arbiters.

Arbiters draw their conclusion regarding the extent of stigmatization directed towards the individual by drawing on their professional knowledge and skills in combination with their personal bias on the matter. To assist in the process of rendering judgment arbiters search for information to help make their judgments. Examples of factors that can bias an arbiter's judgment include personal emotions, the standards within their profession and what they perceive others will think is fair judgment (Wiesenfeld et al., 2008). For example, Cardon et al., (2011) found regional differences in the extent that newspapers held entrepreneurs accountable for their failures and this reflected the more prevailing cultural differences between the regions regarding entrepreneurial failure.

In the process of identifying the causes of the failure, arbiters often try to single out which individuals contributed to the failure and hence which individuals will be stigmatized. The extent of stigmatization is reflected in lost professional and economic opportunity and it is through this lost opportunity that the devaluation of the individual becomes tangible

(Wiesenfeld et al., 2008). Arbiters are under social pressure to shun stigmatized individuals by rejecting their invitations for interaction. They also take on a private risk for doing so, if there is risk that the behavior that lead to the initial stigmatization could be repeated (cf. Furuya, 2002). Empirical evidence supports the professional devaluation for stigmatized professionals (Wiesenfeld et al., 2008) For example, Cannella Jr, Fraser, and Lee (1995) found that bank managers of failed banks where the failure was clearly out of the control of the bank manager where twice as likely to find comparable employment in comparison to bank managers of failed banks generally.

3. METHOD

3.1 Study design and data collection

We adopt an exploratory, qualitative research design. Human resource managers were selected from small-medium sized firms in the mid-south of Sweden. Most firms had just under 100 employees and often the HR manager was also involved in other activities in the firm such as sales and marketing or held a management role two of the respondents were also the owner of the firm. Interviews were conducted in the first half of 2013.

We adopted a semi-structured interview approach starting with general questions regarding the employment process at the company prior to asking questions about their experience of interviewing and hiring job seekers who had previously experienced firm failure. As part of this line of interviewing we also asked respondents whether they would prefer to hire a someone with failure experience or not. Further topic specific questions were asked depending on the developments of the interviews.

Interviews were conducted in person, recorded and transcribed. All of the HR managers expect one had interviewed an applicant with prior failure experience. The HR managers were responsible for hiring senior managers and thus most of the interview focused on hiring decisions at this level. Questions were also asked about lower level positions and the role that failure experience on hiring at this level.

Respondent	Age/Sex	Interviewed job seekers with failure experience/Hired job seekers with	No of employees
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failure experience				
G	57/male	HR, Management	Y/Y	250
C	50/male	HR, Sales and Marketing	Y/Y	20
E	45/female		Y/Y	60
V	33/female		Y/N	80
T	42/male		Y/Y.	500 (in Sweden)
P	38/female		Y/Y	46
D	50/ female	HR and Owner	Y/Y	60
J	34/male	HR, Management	Y/Y	80
Z	31/female	HR, Management	Y/N	70
I	36/male		Y/Y	80

3.2 Sweden as a context

Sweden is a context where there is still relatively high levels of stigma directed towards failed entrepreneurs (Falkenhall & Wennberg, 2010) and this is also in comparison to other countries (Armour & Cumming, 2005). For example, in a recent Eurobarometer survey that asked respondents whether they would order goods from a merchant who had previously failed, Sweden was the country with the highest percentage (over 65%) of respondents who stated that they would not order goods (Armour & Cumming, 2005). There is a legacy of stigma and mistrust of bankrupts and is also reflected in the current Swedish bankruptcy laws where once an application of bankruptcy is made, the board no longer has control over the firm's assets or the possibility to continue to run the firm; this responsibility is given to the bankruptcy trustee. This is similar to chapter 7 bankruptcy in the US

investigating stigma entrepreneurs' face when seeking paid employment as it is possible to

In Sweden there is publically available data on firm performance, bankruptcy and the board members of these firms. Thus HR managers are able to easily find information about prospective employees' entrepreneurial history. Sweden is therefore an ideal context for

investigating stigma entrepreneurs' face when seeking paid employment as it is possible to

find out about the job applicants entrepreneurial history, a prerequisite for stigma to take place. Given that Sweden is a context where stigma is likely to take place it should also be easier to identify this in our interviews.

3.3 Operationalizing failure

When discussing failure with the HR managers we emphasized failure for economic reasons such as bankruptcy. A strict financial criterion increases the visibility of the failure, a necessary criterion for social stigma. Financial criterion at the firm level is also relevant as it emphasizes firm level performance as the criterion for the failure and not other more personal reasons for the failure such as shifting preferences of the entrepreneur. A firm level definition is also more relevant for professional and economic devaluation of the entrepreneur as failure signals that the entrepreneur was not able grow and maintain a profitable business (Shepherd & Haynie, 2011).

Data Analysis

We analyzed our data by drawing on the framework developed Wiesenfeld et al. (2008). We used the Wiesenfeld et al. (2008) framework to understand the role of HR managers as economic arbiters in the stigmatization process and how they professionally evaluate entrepreneurs with prior failure experience in the hiring context. We analyzed the data using the three categories identified in their framework: rational decision making, professional standards and their own biases while also allowing for other themes to emerge (Eisenhardt, 1989). We conducted a within case analysis and then a cross case analysis.

4. RESULTS

We present our results based on the themes identified in the data while using the framework by Wiesenfeld et al. (2008) to structure our results. These main themes are summarized in Table 2 below. We then elaborate on these themes in the following sections. We found that respondents first used rational decision making through the seeking of information from the job applicant about why the firm failed in order to gain a better understanding of the applicant's history. In particular they emphasized that fraudulent behaviors was an absolute deal breaker reflecting their professional standards. It was personal biases, however, which really influenced whether the respondent viewed failure negatively or positively and this was also related to how they valued the human capital the entrepreneur developed from the failure experience.

Table 2: Summary of main findings

Sensemaking	Emergед theme	Supporting Quotes
Rational	Cause of the failure	It depends how the failure happened actually... But then, after the

decision making		<p>failure, you have to understand the reason for it- was it the market, the product, or your lack of skills at that time. I would never blame the CEO of a bankrupt company before I understand the reasons behind the failure (respondent G)</p> <p>I can just see the hard economic situation right now and this is why now it is really easy to fail. This is why you have to see the reasons for the failure before judging the entrepreneur (respondent P).</p>
Professional standards	Evidence of Fraud	<p>Not if I know that the reason for the bankruptcy was not in him and he hasn't done <i>illegal things like fraud</i> (respondent G).</p> <p>But if the owner cheated or <i>committed some kind of fraud</i> to avoid bankruptcy I would never hire him. I think no one would hire a person like this (respondent C)</p>
Own biases	<p>Perception of failure</p> <p>Failure as a learning experience</p>	<p>It depends on the person. I think everyone in my field will give the applicant the benefit of the doubt when it comes to bankruptcy. We live in harsh economic times right now, and most of the time when a company goes bankrupt it's not the manager's fault but the circumstances (respondent D).</p> <p>Failure is always a lesson. Take a look at babies that learn how to walk- their parents always cheer them and help them get up when they fall. And in that context falling is a good thing- it means you are one step closer to your goal (respondent D)</p> <p>Maybe people have to experience failure in some way in their life, so that they can see that nothing lasts forever and if something bad happens you have to re-think your ways of thinking and acting (respondent E)</p>
Information seeking	Network	<p>I have hired a lady, who came from a company she owned herself and the company went bankrupt, we know why that happened <i>and we know that she is very competent and skilled in our business field</i> (respondent C)</p> <p>I will go through <i>my networks and colleagues</i> and ask them if they know what happened what were the reasons for the failure (respondent Z)</p> <p>In cases where I like an applicant with a past as failed entrepreneur I also try to ask my <i>colleagues</i> if they know more about his failure (respondent I)</p>

4.1 Rational decision making

As a starting point, most of the respondents were interested in understanding the cause of the failure as a starting point for their decision making. Stigma is often associated with blame and causality (Cardon et al., 2011) and thus the interest in understanding the cause of the failure was linked to determining the role of the entrepreneur in the bankruptcy. HR managers emphasized that given the current economic climate, they did not automatically assume that the failure was caused by the entrepreneur. However, the link between causality and stigmatization was not as simplistic as: an external attribution, less blame, less stigmatization; internal attribution, more blame, more stigmatization (Cardon et al., 2011). Rather, in some cases it was actually the opposite, if the entrepreneur did not take same blame for the failure the HR managers were less likely to be interested in hiring them. For example one of the respondents quoted John Burroughs: “A man can fail many times, but he isn’t a failure until he begins to blame somebody else” explicitly stating that she viewed not taking some portion of blame for the failure in a negative light. In particular, taking responsibility for the failure was viewed positively for senior roles where managers were expected to operate under conditions of uncertainty.

4.2 Professional Standards

A number of the respondents emphasized Any links to fraudulent behavior was a deal breaker ... respondents brought this up

4.3 Personal Biases

4.3.1 Perception of failure

Nearly half of the respondents focused on the positives of failure and placed value on the failure experience, two respondents viewed failure as inherently negative while four respondents expressed mixed views of failure. However, while respondents diverged on the value of failure experience these differences were only expressed when it related to higher level roles requiring either higher education or management of employees. At lower levels all but one of the respondents said that failure did not have any impact on the hiring decision. We elaborate on these findings in the following sections. We started by characterizing these three main perceptions of failure. The results are also summarized in table 3.

4.3.2.1 Identifying the positives in failure

The respondents who viewed failure in a positive light had the starting point that the entrepreneur had learnt from the experience and could help the company avoid the same mistakes that they made. Thus rather than placing the onus on the job seeker to prove they had learnt, they had the starting assumption that they had learnt from the experience and they could benefit from this experience. The underlying assumption was that the job seeker was applying for a role in the industry that they failed and they had industry specific knowledge that could benefit the company. For example, the importance of understanding the

industry and the up and downs of the industry was stressed by two the respondents. The network that the job applicant brought with them to the position was also stressed as positive. These HR managers, however, also stressed that they would check with their network if they had additional information about the job applicant to confirm that their failure was not due to fraudulent behavior. Given the starting assumption that the job seeker was in the same industry, they were confident that one of their colleagues would be able to provide additional details about the failure.

The assumption that the job seeker had experience from the same industry also suggests that their specific human capital from the failure is valued by employers in the same industry. Their understanding of what can go wrong and expose to the negative side of the industry was seen as an advantage. This also has implications for entrepreneurs who experience failure suggesting that their human capital is valued by some employers in the industry.

4.3.1.2 Failure is inherently negative

The HR managers who had a negative perception of failure had the starting point that firm failure is a negative blemish on the job seekers application and that it is the responsibility of the job seeker to prove otherwise. These HR managers viewed failure as a consequence of poor decision making and management of the company even if they recognized that many factors probably contributed to the failure. However, they also allowed scope for the job seeker to show how they have learnt from the failure experience and hence developed their management skills. This could be either through starting new successful firms after the failure reflecting that they must have learnt from their mistakes, or by showing that they have been gainfully employed for a substantial period of time after the failure thereby decreasing the risk of hiring them.

As these respondents stressed the accountability of the entrepreneur in causing the failure, they also allowed scope for learning from the experience. This reflects that taking personal responsibility for the failure is the first step for learning from the experience and that failure experience is valued by HR managers provided the job seeker can demonstrate that they have learnt from the experience and applied this learning in a new context. However, even if the job seeker could demonstrate the learning benefits from failure, the HR manager would prefer to hire someone with previous failure experience as they were deemed less risky.

4.3.1.3 Mixed views of failure

Four of the respondents expressed mixed views regarding the value of failure experience. Their negative view was expressed in relation to hiring the job seeker with failure experience while acknowledging that failure is often not the fault of the entrepreneur or that failure allows scope for learning. This reflects that while they can see the benefits of failure experience they do not want to personally take the individual risk of hiring someone with such experience (Furuya, 2002).

Table 3: Perceptions of failure

Respondent	Focusing on the positive outcomes from failure
Z	He can help me with his experience of bankruptcy, he has already gone through the process so he should be familiar with the reasons and mistakes he made. This would make him a more valuable asset to the company
G	I would hire the guy who has experienced bankruptcy as I think this has given him a whole other view on business and help him make better decisions
P	I would hire a person who had previously experienced failure. And the reason behind this is that she has a vital experience in the industry. Moreover, she would know exactly what kind of problems I have to deal with and help me prevent them
V	In fact people that have experienced an entrepreneur failure are more aware of the unexpected conditions that may affect the work of an enterprise and are likely to be better at risk management
	Focusing on the negative outcomes from failure
E	(the entrepreneur) couldn't manage the critical situation and went bankrupt
T	We have some employees who have previously experienced failure but have failed only once and then they have worked in several successful companies. It is much harder to get employment after you have failed the first time as the reason for the failure would be closely connected to your performance.
	Expressing mixed views
I	People learn from their mistakes One bad experience does not mean it will be repeated They (entrepreneurs who have failed) are the ones who bring fresh ideas In this case (if the job seeker has been working for 5-10 years after failure) is very likely not to even take that failure as a minus
D	In my opinion if you have experienced bankruptcy and I hire you, you will be a silent competitor in the company. It depends on the person. I think everyone in my field will give the applicant the benefit of the doubt when it comes to bankruptcy. We live in harsh economic times right now, and most of the time when a company goes bankrupt it's not the manager's fault but the circumstances.
J	A person without a bankruptcy would be easier to fit in the team as he would most likely be used to working under a boss People who did not make it have tried which is what other people want but never dared to do.
C	I would hire the one that haven't had a bankruptcy Maybe when I was younger I was likely to blame the entrepreneur. Now I think you cannot say if it was solely the owners fault for the failure

4.4 Learning

Most of the respondents referred to failure as a learning experience. However, it was the respondents who had either a mixed or negative view of failure who explicitly talked about failure as a learning experience. Respondents with a positive view on failure took for granted that it was a learning experience and thus did not talk about learning per say, rather they assumed the job seeker had gained valuable lessons from the experience.

One respondent reflected on the fact that while failure provides opportunities to learn, the entrepreneur may not actually learn from the experience. Those with a negative view also expressed similar sentiment as they emphasized that the entrepreneur needed to take responsibility for their role in contributing to the failure, a pre-step to learning from the experience.

Table 4: Learning

Respondent	View on failure	Potential learn
G	Positive	But after the failure you need to understand the reasons for it – was it the market, the product, or your lack of skills at the time.
I	Mixed	People learn from their mistakes
C	Mixed	In our company when we talk about acting and doing things in the company we always tell our people “we have to try and if we fail, we can fail and we are allowed to fail- we learn from it and then we go again but you should not fail over and over again in the same sphere- then it is something wrong” but you must be allowed to take certain risks and learn from them
D	Mixed	Failure is always a lesson. It depends on the person if it will be a lesson learned.
E	Negative	<p>Of course there are many factors that can be the reason for somebody’s failure, but you must not deny if one of those factors is you.</p> <p>The entrepreneur most of the time blames the state and its financial problems, but the thing that most of them don’t do is to take a look at themselves. They were the one making the decisions and taking the risks, right? There is no right answer to this questions, because factors leading to failure are a lot and different in each situation. But there is nothing wrong in admitting that you are the reason for that failure and explain why</p>
T	Negative	This means that they (referring to the

		employees hired after working in several successful companies) have learned their lesson from the bad experience.
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4.5 Networks

Nearly half of the respondents said they would turn to their network to find out more about the failure. In particular, it was the respondents who held a positive view of failure that were most likely to do this. These respondents took the default position that the job seeker had learnt from the experience and turned to their network to confirm this. Thus while they valued failure experience, they also wanted to find more about the failure from colleagues within their network. Often this was to confirm that the failure/bankruptcy did not involve fraudulent behavior. Turning to their professional network is an example of the HR managers collecting evidence about the corporate failure in order to help them make a judgment about the suitability of the applicant (Wiesenfeld et al., 2008). Whether they hire the applicant or not is one way in which they disseminate to wider society their judgement of failed entrepreneur.

The fact that these HR managers also turn to their network to find out more information about the applicant also reflects that they are more likely to actually consider hiring the entrepreneur. It also suggests that entrepreneurs who are at the risk of failure should try to avoid burning bridges in the industry as this can also impact their reputation within the industry.

Table 5: Networks

Respondent	View on Failure	Networks
I	Mixed	I also try to ask my colleagues if they more about his failure. Our industry is characterized with a friendly environment so the probability that your colleagues know that guy is high
Z	Positive	But I would gather more information about the reasons for his failure. I will go through my networks and colleagues and ask them if they know what happened and what were the reasons for the failure
P	Positive	Another factor in my opinion is the entrepreneur's ethics while managing his company. Because in smaller cities where competitors in the same industry or related industries usually know each other. Therefore, if you have treated others badly, I doubt that they would hire you later even though your experience makes you a perfect applicant.
C	Mixed	I will ask my colleagues if they know what happened what were the reasons for the failure

5. Discussion

In this study we investigated the potential stigma faced by failed entrepreneurs when seeking paid employment by focusing on the perceptions of HR managers towards failed entrepreneurs. Earlier work on stigmatization has highlighted that bankruptcy is highly stigmatized (Shepherd & Haynie, 2011) Sutton & Callahan, 1987; Wiesenfeld et al., 2008). However, most research on stigmatization takes the view of the stigmatized rather than the potential stigmatizer (Miller and Kaiser, 2001). In this paper, we add to this literature by showing how HR managers who act as economic arbiters perceive failed entrepreneurs and the factors which influence whether they would hire a failed entrepreneur.

We found that the recruiters expressed relatively uniform opinions in regards to wanting to understand the causes of the failure and whether fraudulent behavior was involved. Where they differed was in regard to how their personal biases regarding failure influenced whether they would hire someone with failure experience. The main difference was in regard to their accountability for the failure. The two respondents who were least likely to hire someone with failure experience linked the actions of the entrepreneur directly with the performance of the firm. In contrast, the other HR managers expressed that the failure was unlikely to be the sole responsibility of the entrepreneur and there were likely to be other factors involved. The main differing factor between the HR managers who expressed more mixed and positive views on failure was the extent to which they assumed the entrepreneur had learnt from the experience. The HR managers who were most likely to hire someone with failure experience assumed that the entrepreneur had learnt from the experience and saw how this experience could benefit the company. The HR managers who expressed more mixed views, viewed failure as a potential learning experience but did not assume that the entrepreneur had learnt.

These findings can be related to how the human capital of the entrepreneur is valued by HR managers. HR managers expressing negative views of failure, did so because they viewed that the entrepreneur did not have the ability to manage the firm. In contrast the HR managers with the most positive views of failed entrepreneurs saw how the failure experienced increased the human capital of the entrepreneur and valued this experience.

6. Conclusions

We found that failure in and of itself does not automatically trigger a rejection, rather how failure experience is perceived by the HR manager is dependent on a combination of factors

including the entrepreneurs explanation for the failure and the nature of industry experience that the failure has given the entrepreneur.

Our findings contribute to the emerging field of entrepreneurial failure by investigating the conditions under which failed entrepreneurs are able to re-integrate back into the paid labour force and thus facilitate recovery from failure. Our findings also contribute to understanding how self-employment is valued by HR managers and under what conditions the specific human capital entrepreneurs develop in self-employment is also valued in paid employment.

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FIRM GROWTH PROCESS BY WOMEN-OWNED SMES IN A DEVELOPING ECONOMY SETTING

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Firm growth process by women-owned SMEs in a developing economy setting

ABSTRACT

This paper explores the growth experiences of women-owned SMEs in the setting of a rapidly developing economy, that being the Islamic nation of Bangladesh. Philosophical standpoint of pragmatism provides this research a foundation for analysing the social construct of women entrepreneurship with a scope to transfer the results into other similar economic development contexts. Building on a conceptual framework, this study attempts to understand how institutional factors operate and interact with each other in achieving firm growth. The emerging patterns support the main elements that underpin the framework of analysis, developed especially for this study. From this perspective, this paper offers enhancement to the existing body of literature on firm growth by providing answers to the question '*how women-owned firms grow*'. It also aims to contribute to understanding business growth by women entrepreneurs in the specific Islamic setting of Bangladesh.

1. INTRODUCTION

In all developing countries, small and medium sized enterprises (SMEs) are considered crucial for endogenous growth and development, as evident in the fast developing Asian economies; yet little is known about the role of women entrepreneurs in this environment (Tambunan, 2009). Bangladesh is an Islamic Asian economy that had dismal underdevelopment with a lowly 3.7 per cent economic growth in Gross Domestic Product (GDP) during the 1980s. However, since the onset of the 1990s it began to grow at an accelerating rate with average annual GDP jumping to 4.8 in the 1990s and accelerating in the decade of the 2000s to average just under 6 per cent (Osmani, 2010). The role women have played in this development is little understood despite 47 per cent of all women-owned firms being in manufacturing, which is the sector that has been the driver of growth (Zohir and Greene, 2012). From this perspective, this paper explores the growth experiences of women- owned urban-based SMEs in Bangladesh.

Specifically, the focus of this paper is to understand women entrepreneurship in Dhaka, the capital city of Bangladesh, by adopting the epistemological stance of pragmatism. The study views a businesswomen's 'belief', 'habit' and 'doubt' as critical for researching gender related entrepreneurship. A conceptual framework developed in detail for the ACERE Conference 2013 is set out as the basis for examining the growth aspects of these women- owned SMEs (Jomaraty and Courvisanos, 2013). In this way, this paper aims to address two neglected issues in relation to women entrepreneurship. One is the dearth of studies on women entrepreneurs in developing countries, especially in the context of the Diana International Project. The other is to focus on very successful women-owned growth 'outliers' who can shed light on the growth process and its success as first identified by Edith Penrose.

The paper adopts a multiple-case design covering 16 SMEs, four from each context of small and medium manufacturing enterprises, as well as four small and medium service enterprises. SMEs are studied as the basis for firm growth from initial venture creation, while the sector concentration on manufacturing and services reflects the urban nature of the study in examining firms that exist in the capital city of Dhaka. Data from in-depth interviews and supporting documents are used for the case studies and integrated with the theoretical framework. Themes are categorised and compared against the framework. Each of the cases of small and medium sized firms consists of identifying the factors assisting growth and the

growth process of the firm. Patterns are identified and matched with the framework for recognising the influential growth factors and growth processes undertaken by them.

The emerging patterns support the main elements that underpin the conceptual framework developed especially for this study. The firms under study were not typical firms, but successful outliers that can inform the framework with specific decisions and actions (Taleb 2007). These firms are among the most successful firms in their respective industries and they have been developed and grown by women in a male dominated Islamic society. From this perspective, this paper offers two main contributions to the literature. First, it will enhance the existing body of literature on firm growth providing answers to the question '*how women-owned firms grow*'. It also will contribute to understanding business growth by women entrepreneurs in an Islamic society. The paper investigates the growth experiences of women owners of SMEs and aims to provide better understanding to promote women entrepreneurship in Bangladesh. Using the research framework for identifying the influential factors for growth of women-owned enterprises and their growth processes this study can also be useful for other countries with similar economic and social contexts.

2. WOMEN-OWNED SME GROWTH

Women entrepreneurship in Bangladesh is experiencing a period of expansion, as in the rest of the world. There has also been an increase in women's participation in diverse aspects of social life. Women's entrepreneurial participation has considerably increased in last three decades (James, 2012). In this study, the quantitative data on growth of women-owned SMEs are assessed and correlated with the framework of analysis, which is a reflection of what the firms experienced at the stage of their life cycle between 2008 and 2010. The discussion builds up on the quantitative analysis of actual growth rates as measured by annual sales growth from secondary data sources. The results indicate that women-owned manufacturing and services SMEs in Dhaka city grew by 2.86 per cent between 2008 and 2010. Women-owned SME growth rates improved at a stable rate, reflecting recent persistent economic growth of the country. Moreover, growth rate of manufacturing SMEs were higher (2.92 per cent) than that of services SMEs (2.80 per cent), which is consistent with results of *Bangladesh Economic Review 2010* (Government of the People's Republic of Bangladesh, 2011).

3. RESEARCH DESIGN

Multiple case studies were conducted to identify how growth was achieved in different size firms in various industry contexts. Sixteen cases were selected in total, including four cases of small sized manufacturing, four medium sized manufacturing, four small sized service and four medium sized service firms were selected. These 16 cases of growth oriented firms were purposively selected to provide holistic understanding of the growth of women owned SMEs. Case studies were developed through the analysis of compiled sets of case data which included audio recording of personal interviews and transcripts of interviews. Along with interview data, other sources of data such as annual financial reports, internal management reports, existing data analysis, organisation website printouts, newspaper articles and advertisements, government publications and reports, emails from the interviewees were also accessed to complement and support the interviews in order to build each case study.

Analysis of the data was guided by the conceptual framework. For the purpose of maintaining confidentiality of the research participants and their firms, no real names of the participants or their firms were disclosed. For easy understanding, same size firms from the same industry were identified with identical letters (for example, medium-sized manufacturing firms were prefaced by the letters *MM*) and then numbered subsequently (1, 2, 3 and 4) in an order in which they were interviewed. The details of the firms are summarised in Table 1.

Table 1 Case study firms

Type of firm	Code	Description of firm
Medium manufacturing firm 1	MM1	Printing
Medium manufacturing firm 2	MM2	Readymade garments
Medium manufacturing firm 3	MM3	Leather products
Medium manufacturing firm 4	MM4	Decorative art glass
Small manufacturing firm 1	SM1	Recycled metal products
Small manufacturing firm 2	SM2	Fiber glass shower fittings
Small manufacturing firm 3	SM3	Clothing
Small manufacturing firm 4	SM4	Clothing
Medium service firm 1	MS1	Beauty-care service
Medium service firm 2	MS2	Event management
Medium service firm 3	MS3	Advertising agency
Medium service firm 4	MS4	Restaurant
Small service firm 1	SS1	Telecommunication equipment installer
Small service firm 2	SS2	Architectural designing
Small service firm 3	SS3	Education institute
Small service firm 4	SS4	Shuttle bus service

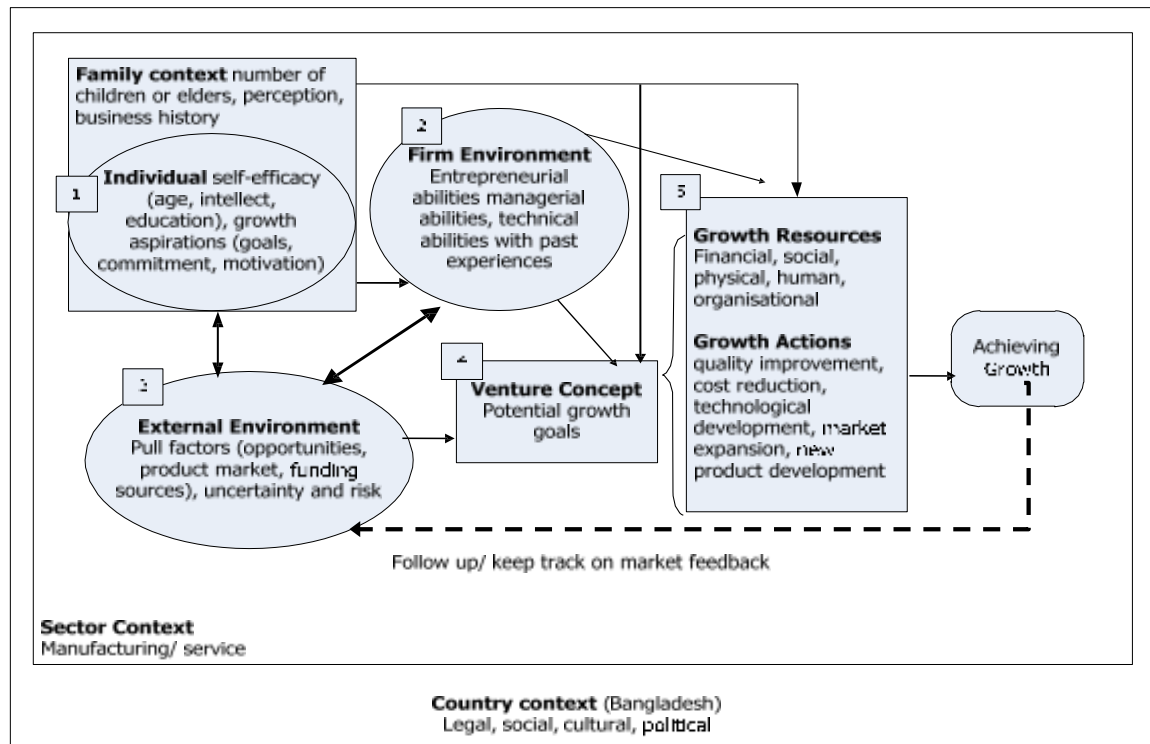
Data from in-depth interviews and supporting documents were used for case-studies and integrated with the theoretical framework. Themes were categorised and compared against the framework. Each of the cases consisted of identifying the factors assisting growth and the growth process of the firm. Patterns were identified and matched with the proposed framework for recognising the influential growth factors and growth processes undertaken by them.

The framework is based on the Diana International Project. In order to evaluate the growth process itself, this framework has been modified with growth resources and actions as explained by Edith Penrose in her 1959 seminal book *The Theory of Growth of the Firm*. This allows for the examination of the effects of managerial and entrepreneurial abilities in growth, and the identification of how firms achieve growth. For details of this framework see Jomaraty and Courvisanos (2013). Figure 1 is the diagrammatic representation of this framework.

The framework of analysis embraces the interplay between individual, internal and external factors as well as between cultural, social, legal and political institutional contexts. However, in revisiting the conceptual framework it is evident that the model, especially the factors of external environment, needs modification. The modification that emerges from the data is that

external market opportunity is the key element in this business growth model. No evidence could confirm the influence of necessity-driven push factors from the external environment such as financial crises, loss of job or husband's unemployment. The empirical context of this research shows that opportunity-driven pull factors played the significant role in growing these case study SMEs. The opportunities were created by a number of market trends and were embedded within a broader context of the growing economy of Bangladesh.

Figure 1 Conceptual framework for women-owned SME growth in Bangladesh



The context of a growing economy and its supportive macroeconomic policies has facilitated a steady growth in manufacturing and services sectors, reflecting expansion in consumer demand. Although, poor governance, inadequate investment in human capital, infrastructure bottlenecks and political unrest contribute to the increasing cost of operating business in Bangladesh; these women entrepreneurs were successful in overcoming constraints and protecting their firms against the worst effects by acquiring resources from the environment to build firm's internal abilities, combining them with already possessed individual characteristics and developing strategies to exploit productive opportunities.

Country context also played a critical role in influencing these women's entrepreneurial experiences by shaping their entrepreneurial identities which is consistent with Robinson et al. (2007). The political, legal, social and cultural environments surround and mediate the entrepreneurial activities of these women. In Bangladesh, the legal and political support for women entrepreneurship includes the constitution of Bangladesh which ensures equal rights for women. It also incorporates property rights allowing women ownership of property. Social and cultural environment frames the gender roles and responsibilities within the society shaping women's perception on entrepreneurial activities as well as society's perception on women entrepreneurs. In Bangladesh women are still defined through family roles and household responsibilities within a strong Islamic milieu. Although empowerment of

educated urban-based women is evident, gendered power relations and inequalities within the household still elucidate differences in the entrepreneurial activity. However, the conditions in which these gender-based issues are embedded are improving. Consistent with this, the results demonstrate that, changing social ideals in urban areas of Bangladesh encouraged these women to emerge as entrepreneurs. Consequently, the liberty accompanying independent business venturing provided more opportunities to overcome stereotypical gender subordination. Moreover, a gradual growth in the overall economy has also contributed to the emergence and subsequent growth of these women entrepreneurs.

Apart from country context, sector context also emerged as an important influential factor. Emerging industry sectors that are especially non-traditional for women entrepreneurs have played significant role, which echoes the works of McAdam and Marlow (2012) and James (2012). Besides the traditional and dominant readymade garment industry; leather goods, printing, education, and fiber-glass manufacturing were a few other emerging industries which expedited the growth of these women-owned SMEs. However, other SMEs in this study are examples of firms in fairly routine (non-emerging) industries that have maintained impressive growth rates. How the specific national context of Bangladesh and different industrial contexts have shaped the nature and trajectory of the case study SMEs sheds light on the diversity of factors that have contributed towards achieving firm growth.

4. FACTORS ASSISTING GROWTH OF WOMEN-OWNED SMEs

Entrepreneur's individual characteristics, firm's internal environmental factors and external environmental factors have an impact on SME growth, as indicated in Figure 1 framework.

Individual factors and family context: The primary determinants of entrepreneur's individual characteristics are related to their individual self-efficacy and growth aspirations. Self-efficacy includes age, intellect and educational background of individual entrepreneur. Based on their education and intellect; both manufacturing and services sector entrepreneurs' demonstrated similar self-efficacy attached to their skills and abilities to grow their businesses. Growth aspiration incorporates growth goals, commitment and motivation towards growth. Economic value creation was found to be fundamental source of growth aspirations. Entrepreneur's family context played a significant role in shaping the growth trajectory of studied SMEs. Emotional and financial supports from the family positively influenced transition from start-up to growth. An interrelationship was found between entrepreneur's childhood socialisation process and individual self-efficacy as well as growth aspirations. This relationship contributed towards building a robust entrepreneurial perspective necessary for acquiring vital entrepreneurial resources such as initial capital and business networks.

Firm's internal environment: Firm's ability to respond to market opportunity is grounded in its internal capacity which is made up of firm's entrepreneurial, managerial and technical capabilities with past experiences. Firm's entrepreneurial capabilities can be broadened to include the ability to identify market opportunity, entrepreneurial vision and imagination, growth ambition, innovativeness and willingness to experiment. Managerial abilities were formed by providing training or hiring experienced management personnel who pursued

market opportunities through appropriate administration of routine functions. Technical abilities achieved through professional training or work experience improved firm's growth propensity. Entrepreneurs, managers and workers having prior experience in the same industry were identified as positively related to firm growth.

External environment: Opportunity-driven pull factors from the external environment such as recognition of market opportunity, increase in disposable income, advancement in technology and changes in government regulations anchored the growth of studied SMEs. Appropriate location was also ascertained as an important external factor for the growth of services providing SMEs. In these cases, influences of necessity-driven push factors such as financial crisis, loss of job or husband's unemployment were not apparent.

Growth resources: Growth resources mainly included financial, social and human resources of the firms. Financial resources were mostly acquired through personal and family savings. On later stages, growth capital was generated through profit surplus. Integrated network of both formal and informal relationships, extending across professional and industry links, formed crucial social resources that enable strong firm growth. Also, professional women business associations encompassing similar belief, value and activities of these women entrepreneurs enriched the social resources of these firms by providing professional assistance such as training and consultancy. Human resources in the form of skilled and experienced workforce, including managers, enabled firm growth by improving employee performance and effectiveness.

Contextual barriers were not sufficient to deteriorate growth expectations of studied women-owned SMEs. Gradual economic growth of developing Bangladesh instead contributed to the emergence of these firms and their subsequent growth. Besides national context, industrial context especially non-traditional emerging industries such as leather products, printing and education also formed a persuasive base for some of the SME growth. However, heterogeneity was also evident among these SMEs. Different firms in different industries were surrounded with different environmental factors and responded differently to those conditions. With different combination of capabilities and resources studied SMEs obtained different growth paths which also changed over time.

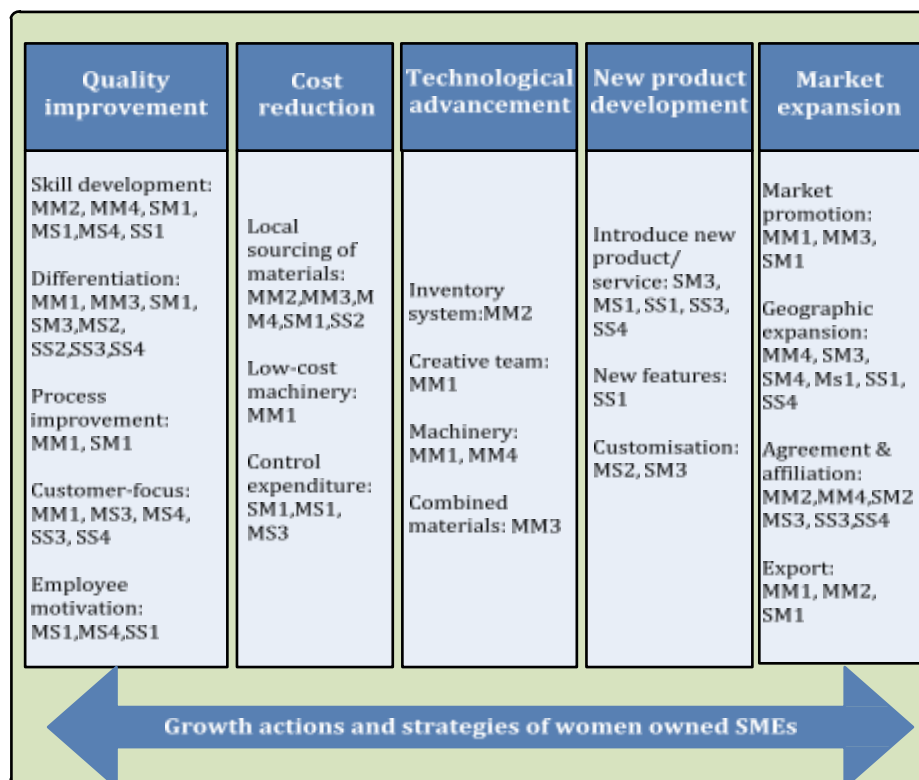
5. GROWTH PROCESSES OF WOMEN-OWNED SMEs

The heterogeneous growth processes can be conceptualised as a series of growth actions and strategies, as represented in Figure 2. Growth was achieved through a number of strategies and approaches in both manufacturing and services sectors. Growth strategies and approaches were largely shaped by market opportunities. In doing so, 13 of the 16 entrepreneurs studied pursued growth strategies without seeking external funding. Rather they preferred to draw only little on profits for personal consumption and consequently reinvest their profits in the firms. Financial and investment decisions of all 16 women were determined by their goal to increase total long term profit that would yield positive returns, enabling them to take advantage of profitable growth opportunities available to them in the future. Profits were primarily sought for the sake of surviving in the industry and later with a view to reinvest in the firm. Therefore, consistent with Penrose (2009), an increase in total long term profits of

these SMEs was equivalent to an increase in long term rate of growth. However, increasing the rate of growth was an important objective of these firms and their growth inducing strategies had produced positive results.

Growth strategies involved improving quality of product or services, reducing cost of production, achieving technological advancement, developing new products or services as well as expanding existing market. Each of these strategies of SME growth was itself a process comprising a series of actions and decisions. Growth paths varied depending on the extent to which the firm could act upon profitable growth opportunities and commit resources for the purpose of investigating possible avenues of growth. Some of the growth actions and strategies were common among more than one firm whilst some were unique to a particular firm. However, the entrepreneurial decision to investigate the growth opportunities was common among the 16 SMEs.

Figure 2 Growth strategies and actions of women-owned SMEs



In terms of growth strategies, emerging patterns in Figure 2 indicate that, 14 out of 16 SMEs applied strategies for making quality a source of sustainable competitive advantage. However, based on firm's internal capabilities and resources, their choices of actions were different. Market expansion was the second most commonly used strategy as 13 of the studied SMEs achieved growth through market promotion, geographic expansion, export and affiliation with other firms. Cost reducing strategies were mostly implemented by manufacturing firms by local sourcing of raw materials. New product development strategies were relative rare among the firms studied. Based on innovation, only six SMEs aimed at achieving growth in existing

market by introducing new product or adding new features to existing products or services. The use technological advancement as a growth strategy was not used across the 16 SMEs except for all four medium sized manufacturing firms. The following sections explain each of these growth strategies in detail.

Improve product or services quality: The results featured the gradual nature of growth supported by improving product or services quality. SMEs emphasised this through skill development in training, product or services differentiation, process development, improved customer orientation and employee motivation. In order to achieve improved performance, six SMEs implemented the strategy of skill development to a great degree. For example, in the decorative art glass manufacturer (MM4), local and overseas training was arranged for the workers and managers to develop their level of skills. The results illustrate that, six women entrepreneurs were engaged in the strategy of skill development for facilitating firm growth. These results are consistent with Bartel (1994) and Westhead and Storey's (1996) findings that training yield substantial productivity gains and is crucial for firm growth. Eight SMEs used differentiation as a strategy of achieving firm growth. For instance, the printing firm (MM1) formed a creative team of artists to ensure innovation-based differentiation to its products. Similarly, the leather product manufacturer combined jute with leather for products which positively influenced sales growth. These results support Baum, Locke and Smith's (2001) argument that firms following differentiation strategies through quality or innovation achieve higher growth. Supporting Aghion and Howitt (1992) who stress the importance of innovation for firm growth, results from two manufacturing firms (MM1 and SM1) argue that improvement in production process facilitated firm growth. The results also indicate that five SMEs are consistent with Appiah-Adu and Singh (1998) in having improved customer orientation positively influencing SME performance.

Skilled workers, administrative, technical and managerial employees represent substantial investment by SMEs. As Penrose (2009, p. 22) states "...the firm suffers a loss akin to a capital loss when such employees leave the firm at the height of their abilities". Consistent with this, three case study SMEs focused on employee relations and practiced embedded reward systems for remunerating employees. For instance, the beauty-care providing firm (MS1) used verbal appreciation, awards and certificates as part of recognising good employees. Bonuses and salary increments were used in another firm as instruments of encouragement. The results of three services-providing firms endorse Bacon and Hoque's (2005) findings that women entrepreneurs use management practices which focus more on building social capital with SMEs. The results show that among these five quality improvement strategies, product and services differentiation was applied by all SMEs studied except for SM2 and SM4.

Reduce cost of production: Reduction of cost was another strategic approach resulting in efficiency in production for accomplishing growth objectives. In studied SMEs, production cost were reduced through replacing expensive foreign materials with local sourcing of raw materials. In two medium sized manufacturing firms, lower costs of production were achieved with replacing expensive foreign raw material suppliers by low cost local suppliers without compromising on quality. For example, the ready-made garments manufacturer (MM2), significantly reduced dependency on imported materials by incorporating with suppliers from local market. However, another three SMEs used low cost local raw materials from the beginning as a way of achieving efficiency. Instead of using high quality expensive

machinery, these SMEs reduced cost of production by using low cost machinery and focussing attention to financial control over expenditure. In the printing firm (MM1), instead of a high quality German printing machine, a Japanese printing machine was used as a low cost option. This result is comparable to Leitner and Guldenberg's (2010) claim that cost efficient production is an important requirement for achieving firm growth. Case study results indicate that local sourcing of raw materials is preferred over the other cost reduction strategies.

Achieve technological advancement: In order to attain technological advancement a number of strategies were practiced for achieving growth. SMEs manufacturing efficiency were improved through advanced inventory system. In the quest for improved manufacturing efficiency, the garments manufacturer (MM2) implemented advanced inventory system that linked orders and inventory to streamline the order processing, production and stock keeping capabilities. Significant development in manufacturing process resulted in inventory savings and reduced unit cost of production which concurrently improved firm's competitive position in the market. Recruiting new creative team of artists provided significant advantage in encouraging innovation and consequently improving performance in the printing firm (MM1) through designing a variety of new products. In this case, technological development was achieved through improved human resources, which in the course of time led to increased sales revenue.

Productive capacity was improved in two medium sized manufacturing firms through introducing new machinery. For example, new printing machines significantly outperformed older machines which also complimented the creative team of artists in the printing firm. Similarly, in the crafted art glass making firm (MM4), process of production was improved from simple to advanced, by adding new and improved machinery. In the leather product manufacturing firm (MM3), technological economies were achieved when production cost were reduced through a unique combination of jute and leather. Although, this innovation was copied by competitors later on, the firm had the first-mover advantage which ensured growth for a considerable period of time.

Develop new product or services: SMEs acquired successful growth through implementation of new product development strategies which included designing and selling new products and services to increase revenues. For example, as one of the first beauty care service providers (MS1), a medium sized services firm was successful in identifying a need which was unfilled. Same was the case for other four SMEs as they introduced crafted art glasses (MM4) or filled the gap of an advertising agency (MS3) or became the source of strong technical support to mobile operators (SS1) or introduced airport shuttle bus services (SS4).

Some of the SMEs added related new product or services to their existing product or services line. For example, as fashion cloth manufacturers, once theme-based outfits were popular in the market; new products such as leather accessories, footwear, traditional jewellerys and home decorating items were added to the product line. Modifying an existing product or services by adding new features was less expensive for an SME than to develop a new product or services from scratch. This was the case for the technical services providing firm (SS1). It started installation and maintenance of microwave equipment for various mobile operators. The firm increased revenue by adding new services such as installing, testing and

maintaining mobile frequency towers as well as microwave equipment for mobile operators in the country.

Products and services were also customised based on customer preference. Flexible and diversified nature of two case study SMEs allowed them to be more responsive to individual customer needs. For example, the event management firm (MS2) specialised in floral decorations and landscaping, which ensured customisation in each design that provided a significant competitive advantage. Similarly, in another firm (SM3), the theme-based tailor-made outfits and jewellerys were uniquely designed and limited to two copies only for maintaining their authenticity. The results limited to these two SMEs are comparable to Cohn and Lindberg (1972) who stress that, compared to larger firms SMEs can be more responsive in providing made-to-order products and services.

Expand existing market: The findings also demonstrate the significance of extending existing markets in the growth process of women-owned SMEs. In order to gain increased customer attention, three of the case studies SMEs pursued market promotion activities. For example, the printing company (MM1) was engaged in building public relations with an effort to establish and maintain an image with the public. Annual painting competitions were arranged for children and the winners' paintings were printed in the forthcoming year's calendars, notebooks and diaries. Participation in trade shows was another market promotion activity commonly pursued by these three SMEs in order to increase awareness of the products and services as well as attracting media audiences. Six of the studied SMEs grew by expanding from their original location to additional geographic sites. All these SMEs expanded by operating through added showrooms or outlets in order to accommodate customer growth. New outlets initially required more attention and nurturing compared to the already established outlets. However, business learning from the success of initial locations was successfully applied to the new sites.

Arrangements and affiliations with other firms were utilised as a strategy for achieving firm growth among six of the case study SMEs. These arrangements were considered as means of gaining mutual access to resources such as technology, markets and information, as supported by Penrose (2009). For instance, the ready-made garments producer (MM2) contracted with a commission agent for acquiring raw materials as well as securing sales of finished goods. Similarly, growth potential of the crafted glass manufacturer (MM4) considerably increased when it signed an agreement with a North American company which provided advanced technical skills. The leather product manufacturer (MM3) also affiliated with a large multinational company which ensured regular revenue and enabled the firm to grow. The education institute's (SS3) affiliation with the state-owned university brought recognition and increased the number of students. In the same way, the airport shuttle services firm (SS4), contracted with some of the major airlines for carrying their crew and passengers which ensured a steady flow of passengers and therefore facilitated firm growth.

Only three SMEs pursued exporting as an action of firm growth, despite vast growth potential associated with international expansion given the large scale opportunity of the global market. For example, the readymade garments producer (MM3) acquired its first export order through a commission agent. Similarly, the recycled metal product manufacturer (SM1) started exporting products overseas by responding to a foreign buyer's query. For the printing firm

(MM1), this process started with sending business proposals to multiple foreign firms which eventually secured some export orders. Among these four market expansion strategies, both geographical expansion and affiliation with other firms were the most commonly applied strategies for achieving firm growth.

This paper also highlights the significance of dynamic form of growth process. In this form, firms have the ability to re-evaluate growth strategies by responding to market feedback. This represents a more realistic model which is flexible to environmental conditions. The findings suggest that the nature and trajectory of women-owned SME growth in Bangladesh is diverse but simple. Entrepreneurs reviewed environmental factors, their firm's capabilities and resources and market opportunities. Based on such review, growth was achieved through formulation of various growth strategies. The findings also acknowledged the existence of uncertainty and risk in the growth process. Strategies were adopted to reduce the negative impacts on firm growth of such uncertainty by obtaining information from networks and drawing upon their own firm's internal capabilities.

6. CONCLUSION

Three final remarks provide the basis for understanding successful firm growth experiences in developing economies. The first is the success of 'pull' driven women-owned firms, founded by educated, family-oriented, urban-based, middle-to-upper class females. Their strong self-efficacy and aspirations were matched by internal and external environmental factors together with appropriate resources and effective decision-making to provide a solid foundation for firm growth. This result contrasts with much previous research, which has focussed on women engaging in entrepreneurship in developing economies out of necessity ('push' factors) due to poverty and unemployment. Necessity entrepreneurs (generally microcredit and agricultural based) typically exhibit minimal firm growth and generally lack the potential to contribute significantly to the broader economic growth of their communities.

The second remark is specifically related to the Islamic context of this research. Islamic developing economies have generally ignored women as strong economic constituents. What this study shows is that, given the opportunity within the family, the community and the general body politic; talented and educated women can emerge from the home to be significant and uniquely different entrepreneurs.

Finally, the size differences between the small and medium firms merely reflects the longer time period that the medium sized firms have had to grow; as the small firms appear to be growing at a similar rate to the medium firms at the same stage of their firm's life cycle. This finding should encourage the Bangladeshi government to abandon the garments export-only business development policy, which is too dependent on one highly exploitative and unsustainable industry.

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CONTEMPLATING AN AUTECOLOGICAL APPROACH TO ENTREPRENEURSHIP

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Contemplating an Autecological Approach to Entrepreneurship

Abstract

It is argued that we have much to gain through consideration of an alternative approach to the study of firms and the entrepreneurs that create and assist in their persistence through time. This new approach is autecology, an approach that predates all current forms of ecology used today. Autecology is the term applied to the study of individuals and their life history from emergence to existence as influenced by the environment. In seeking to highlight the potential advantages of using an autecological approach this paper draws specific attention to the importance of understanding the ecology of individual firms, the environments they experience and help create, and the dynamic interactions occurring between any firm and its specific environment. The idea of an ecological trinity is proposed as concept through which researchers can narrow their focus to those specific factors that account for the interaction occurring between firm and environment. This paper concludes by suggesting several emergent research questions that highlight the potential value of employing an autecological approach to the study of firms.

Introduction

There are many competing and complementary research paradigms used to advance entrepreneurship research. This paper considers the premature convergence of thinking that has occurred in one such research paradigm, the so-called ecological approach. It will be argued that at present, the role afforded to the entrepreneur in creating and maintaining firms is insufficiently developed (see Carroll and Khessina, 2005) within the current organizational ecology (OE) approach (Hannan and Freeman, 1977). This paper will explain why such a situation has arisen and offers an alternative established ecological approach through which the individual entrepreneur can be logically placed at the center of an ecological explanation of firm emergence/persistence. Once the history of ecological thought as germane to the study of firms is understood, the lack of genuine consideration given to the entrepreneur and his or her firm is easy to comprehend.

It will be argued that what is absent from the entrepreneurship literature is a deeper appreciation of what other types of ecological approaches exist. Further, once the actual nature of the current OE approach is understood vis-à-vis its inherent assumptions, focus, and historical development, other ecological approaches can be better understood. To achieve this aim, it is therefore necessary to provide a brief historical overview of the development of OE. Doing so will demonstrate that this distinctive research paradigm is both loyal to its intellectual ancestor, human ecology (Park, 1915; McKenzie, 1924; Hawley, 1950), whilst also remaining a slave to its sociological reasoning as well. Herein lies the crux of problem. While the population/community ecology approach constitutes what is *ecological thinking* in the organizational studies literature, such an approach is but one of many competing and complementary research paradigms in mainstream ecology research. This paper aims to elevate the status of one such alternative approach, autecology, as a genuine process through which entrepreneurship and firm persistence can be researched.

The remainder of this paper will be organized as follows. First, a brief history of OE, spanning nearly 100 years will be presented. The aim of this section is to highlight the

consistency in thinking that has been present in ecological research inspired and conducted primarily by organizational sociologists. Also considered is a range of issues pertinent to research in the entrepreneurship domain that are not addressed by the OE approach. Second, the nature of autecology will be discussed and its potential role in entrepreneurship research contemplated. Third, the idea of an ecological trinity will be explored to provide focus upon which specific aspects of entrepreneurship research could be viewed from a different ecological perspective. Finally, those issues that have remained problematic for the OE approach will be revisited from an autecological perspective. The aim being to offer for consideration a range of new research opportunities for entrepreneurship researchers.

Prior to commencing the first section, it is important to accurately describe the arguments contemplated here. In no way does this paper suggest that the contributions made by organizational ecologists (e.g. Hannan and Freeman, 1977; McKelvey, 1982) and other prominent evolutionary theorists (e.g. Aldrich, 1999) are somehow less valid than the alternative approach promoted in this paper. In reality, many of the ideas developed here have been inspired through consideration of the many significant contributions such scholars have made to the field. What is being argued is that different ecological approaches are built upon different philosophical and methodological assumptions, and we must take care to appreciate such differences. Both approaches are deemed valid so long as they seek to answer questions specifically appropriate to that approach.

A Brief History of Organizational Ecology

The domain of OE has been heavily shaped by sociologists, especially by the specific early works of Park (1915), Parks and Burgess (1921) and McKenzie (1924), then by the subsequent work of Hawley (1950) and ultimately by Hannan and Freeman (1977), Aldrich (1979; 1999) and Carroll (1985). Across this period of time, spanning almost 100 years, firms have been viewed collectively from the perspective of the environment, with the survival of any one individual firm not of any great importance (Hatch, 1997). The antecedents of OE were known as human ecology, until its further development by modern day organizational sociologists. It constitutes “an approach to the macrosociology of organizations that builds on general and evolutionary models of change in populations and communities of organizations” (Hannan and Freeman, 1989, p. xi). That is, it is the effects of the environment on the structures and organizing of firms, rather than the influence of the firms upon their environments that has been the central focus. In recent times, its foundations have been built upon the idea that firms are “complicated systems with strong limitations on flexibility and speed of response” (ibid, p. xii). The pioneering work of Hannan and Freeman (1977, p. 962) represent a “reopening of the lines of communication between sociology and ecology”, just as Hawley (1950) had done to keep alive the ideas of his predecessors, Park, Burgess and McKenzie.

Across time, it has always been taken for granted that “units subjected to the same environmental conditions ... acquire a similar form of organization” Hawley (1968, p. 334). The emphasis has always been upon collective action, not individual action. Organizations were cast as the “main vehicles for action in modern society” (Hannan and Freeman, 1989, p.

3). However, organizations are assigned membership in a population and/or community, subject to competition, and the environment is assumed to exert “the power to select from a group of competitors those organizations which best serve its needs” (Hatch, 1997, p. 81-82). So survival is achieved through a process of competition that plays out between members of a

given population and/or related communities that may also compete for common resources. Therefore, the behavior of any given individual organization is of less importance than the nature of interrelationships that exist between the members of populations and/or communities.

However, despite a raft of ecology related concepts having been drafted into the OE approach, many others that remain the fundamental building blocks of mainstream ecology have been eliminated and/or used in unconventional ways. For example, McKenzie's (1924) strident support of the ecological process of succession has faded away after Hawley's (1950) reluctance to incorporate such a qualitative process into his research designs. Likewise, Hawley's appreciation of Kropotkin's (1902) concept of mutual aid has been lost as current formulations of OE increase the importance upon competition to organization selection processes. Alternatively, other concepts such as commensalism (Aldrich, 1979) and resource- partitioning (Carroll, 1985) have been developed within OE in ways that are highly inconsistent with their usage in other domains of ecology.

A dominant feature of the current OE approach is the assumed presence of a knowable carrying capacity against which limits will be set on the availability of resources that related organizations could compete for. Brought to life through the use of the density dependence approach, the idea of legitimacy was cast as the driver of initial population density and competition was seen as the regulator of such density (Hannan and Carroll, 1992). Such ideas have also been extended to the closely related community ecology as well (Barnett and Amburgey, 1990). In both instances, the environment may be altered by political turmoil (Carroll and Delacroix, 1982), government regulation (Baum and Oliver, 1992), institutional linkages (Singh, House and Tucker, 1986), and by technological cycles (Tushman and Anderson, 1986).

Despite the substantial body of literature that has developed since 1977 and the large number of researchers still contributing to this school of thought (see Schoonhoven and Dobbin, 2010), there remain questions about the progress that OE has made. For example, the definition of organizational fitness; "survival is explained by fitness, but fitness is defined as survival—there is a tautology at the heart of population ecology that means we cannot predict survival on the basis of an independent assessment of fit" (Hatch, 1997, p. 83). Further, Fombrun (1984, p. 230) raises very specific concerns that as currently formulated, OE "artificially separate[s] organizations from their environments ... [thereby distorting] ... the systemic relationships between organizations and environments". Adding further to such concerns are those of Gimeno et al., (1997) who worry about the lack of interest by OE researchers for actually studying the causal relationships assumed to explain the survival of particular firms. Most worryingly is the admission by Hawley (1984, p. xvi) that in all likelihood, firms do indeed reshape their own environments and therefore selection processes. However, Hawley notes that such a rethinking of OE "is looking further down the road than organizational ecology should travel at this time".

In summary, OE best fits within the synecology paradigm. Synecology is the term applied to the ecological study of the social life of communities. It is a term almost synonymous with sociology and historically, many writers would like to have restricted the study of ecology to such studies (Bews, 1935). The emphasis is upon relationships occurring between entities that are assumed to compete for resources. "Density serves as a surrogate for the difficult to observe features of the material and social environment that affect the rates, particularly competition and legitimacy" (Hannan and Freeman, 1989, p. 131). However, competition and

legitimacy are not directly observed; rather they are inferred from studying demographic data. Populations and communities are assumed to evolve via law like patterns that are assumed to be directly determined by the relationship between estimated carrying capacities and observed/estimated densities. What is missing from OE is a direct concern for the plight of individual firms; for understanding how they interact and shape their own specific environments. Through the introduction of autecology, we can develop a focus upon the individual firm and therefore, the behaviours of the entrepreneur.

Autecology

Whilst it is acknowledged that the majority of mainstream ecological studies use synecology-based approaches, this does not mean that it is the only ecological approach available to organizational studies researchers. A valid alternative is autecology. Autecology is the term applied to the study of the individual throughout its life history from emergence to existence as influenced by the environment (Bews, 1935). To paraphrase Daubenmire (1974, p. 2) “to understand the ecology of a community, the ecologic life histories of ... [its] most common ... [firms] ... must first be understood, so that autecology is of necessity the foundation upon which synecology is built”. Viewed from this alternate perspective, density, competition and legitimacy are merely the epiphenomena of the ongoing interactions between individual firms and their environments (see Hengeveld and Walter, 1999). Importantly, autecology historically predates the synecology. In mainstream ecology, a logic exists that having gained a sound understanding of the biology of an entity and its particular mode of life (Elton, 1927), one is *then* well placed to consider the life of such an entity in a population or community context.

The absence of autecological foundations in the social sciences represents a missing ecological link. Perhaps due to the dominant influence of those sociologists at the Chicago School responsible developing human ecology, the development of any such autecological foundation simply did not occur. Starting with the community-based approach first developed by Park (1915) and then subsequently developed by McKenzie (1924), Hawley (1950) and modern day researchers Hannan and Freeman (1977; 1989), a concern for autecology has never surfaced. Therefore, it is argued that this paper provides the first opportunity to consider what an ecological approach to firm survival/persistence would look like if the firm and the entrepreneur became the central focus of such research.

Within such an approach, to paraphrase Hagen (1992, p. 10), “every individual firm must make its way in the world. It must either win new territory, maintain what it has already won, or cede its place of abode and growth to some firm better fitted to cope with the conditions peculiar to the spot”. This passage is worth deconstructing. Note, there is no assumption that competition must be occurring; likewise, there is no assumption that the firm in question has been assigned membership of a population and/or community. Quite the opposite, there is no assumption that the firm even shares its environment with any other firm. Rather, each individual firm is potentially left to it’s own devices to survive, and such survival may be mediated through an individual firm interacting with an environment that is peculiar to its presence. This is the potential world of autecology, where no ecological processes are ruled in, or ruled out. It is about what can be seen and experienced by the researcher, not what can be assumed by the researcher.

In the absence of the need to apply assumed ecological laws, the autecologist is free to *directly* observe the actual *interactions* that produce ecological phenomena. “The autecological paradigm ... rejects the notion that law-like common influences, like density dependence, are equally imposed on all individuals of all species by the dynamics of the population they are [assumed] a part” (Hengeveld and Walter, 1999, p. 147). Accepting that a firm’s environment is subject to random change through both time and space, “ecological and evolutionary processes are dependent on the degree to which ... [firms] ... match with their spatially heterogeneous environment” (ibid, p. 150). Therefore, from an autecological perspective, it is through the organization of a firm that each entity participates in ecological processes, and subsequent evolution.

Such evolution would be impacted by the choice of location, maintaining their existence through times of environmental change, achieving growth and/or geographical expansion. The autecologist assumes that environmental change vis-à-vis any individual firm is highly likely. Therefore, of fundamental concern is 1), accounting for how firms cope with such change, and 2) understanding how firms contribute to such change. Importantly, a key process acknowledged by most, but investigated seriously by very few now becomes visible to the entrepreneurship researcher. The subtle two-way interaction between each individual firm and its particular environment is now the subject of attention. It will be argued that a process of interpenetration (Rose, 1997) between firm and environment is constantly occurring through which each individual firm seeks to acquire resources and provide resources to other stakeholders in its environment. While this process unfolds, the entrepreneur seeking to survive, naturally attempts to improve the nature of selection his or her firm is exposed to. This process, known as niche construction has until recently been rarely investigated. However, the recent work of Luksha (2008) and Jones (2009) highlights the process of niche construction (Odling-Smee, Laland and Feldman, 2003) as an ecological process through which firm environments may be altered.

Stated simply, rather than only being on the receiving end of natural selection, firms both make and are made as a consequence of interaction with their environment. The interacting elements (Jones, 2005) of any given firm not only are selected for or against by the process of environmental selection, they also hold the potential to shape the nature of such selection processes. Thus, the autecological approach offers a far more dynamic view of the firm and its operations. This is because the focus of attention for the autecologist is the individual firm, not a population or community. As such, attention is given to the resource inflows/outflows as they pertain to an individual firm vis-à-vis various identifiable environmental axes. Therefore, and in contrast the current formation of OE, our focus is released from the assumed presence of a carrying capacity and density dependence processes such as competition or resource partitioning. Importantly, the autecologist does not deny the possible existence of such ecological processes. They merely are also open to the presence of other such opposing processes such as density *independence*, cooperation and facilitation (see Rathcke, 1983), to identify but three processes potentially related to the existence of any individual firm.

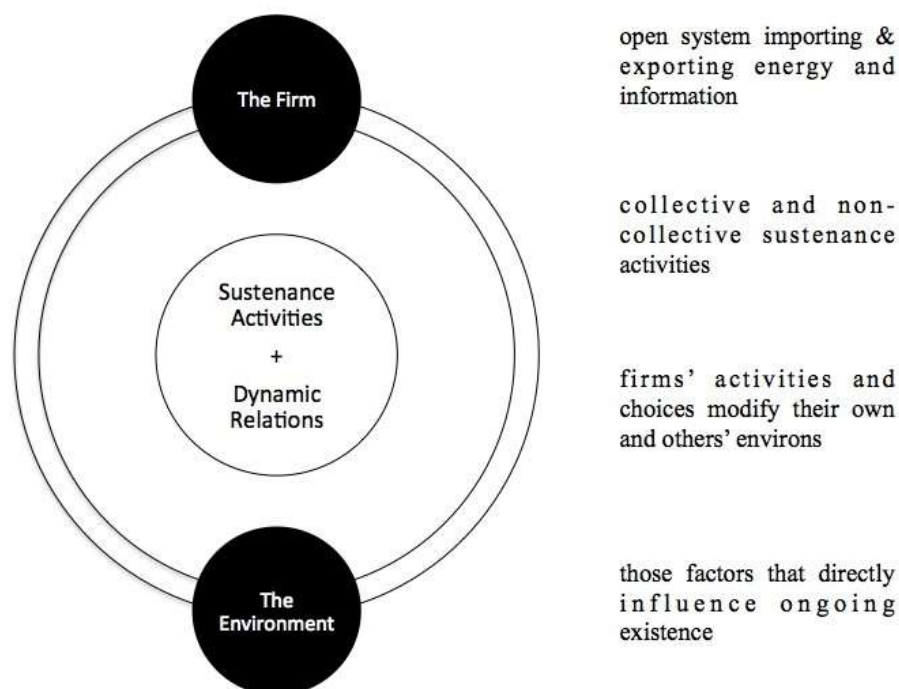
Rather than assume the presence of a market *in* or heading *towards* equilibrium, the dynamic spatio-temporal distribution of firms takes precedent as a starting point. Individual firms and their specific adaptations to various environmental axes across a heterogeneous landscape are of primary concern. To fully understand the nature of an autecological approach and the central role afforded to the process of niche construction, the next section will introduce the idea of an ecological trinity. Through this discussion, we can consider explicitly how firms as open systems import and export energy and information in ways that support their long-term

persistence. This will ultimately lead to questions such as, what types of collective and non-collective sustenance activities (Gibbs and Martin, 1959) are employed to support long-term persistence? In what ways do the activities and choices of entrepreneurs modify their own and others' environments? Finally, how can we isolate those factors of the environment that specifically relate to the persistence of an individual firm?

The Ecological Trinity

If we are to gain access to a more exact ecological explanation of interaction between individual firms and the environments they experience/create, we must adopt a different ecological approach. It is argued that autecology is such an approach suitable for such investigation. To explain the intended use of this particular approach, the idea of an ecological trinity has been developed to increase specific focus upon different aspect of firm survival/persistence. Three specific components, illustrated in figure 1, highlight that nature of this focus. These components are 1) the firm, 2) its environment, and 3) the dynamic processes through which their interaction is mediated. While these areas are not new, it is argued that the way they are individually and collectively considered is significantly different from their treatment in the OE approach.

Figure 1: Ecological Trinity



The first component is the firm. From an autecological perspective, firms exist because from the moment of their creation to the present moment they are maintained as open systems, importing and exporting energy and information to and from their environment; not simply because they have inherited or copied the *right* routines and/or due to fortuitous environmental selection. So, the researcher is free to study *all* firms, be they gazelles, elephants or merely mice, because they all offer insights into the processes required to persist

through time. To paraphrase Haukioja (1982, p. 360), firms “are successful if they maintain themselves at the moment of evaluation”. We can concern ourselves with the idea that every firm is always attempting to *be* and yet also *become* (Rose, 1997). What matters is that we can access a reality within which we can comprehend the *order* that persists within routines associated with resource inflows/outflows and other elements of the firm through which environmental interaction is achieved.

From this perspective, neither the firm and/or its routines can be seen as isolated from their own external environments; they constantly interpenetrate each other. On the basis that environments constantly change, then change is the only constancy for the firm; stasis therefore is likely to be fatal (see Wake, Roth and Wake, 1983). Therefore, the developmental trajectory of each firm attempting to *be* and *become* can be seen as a distinctive lifeline (Rose, 1997). There already exist established evolutionary and ecological processes, such as the Baldwin Effect (Breslin and Jones, 2012), to enable such firm plasticity to be examined.

The second component is the environment. A fundamental premise of the autecology approach is an assumption that individual firms operate in and are adapted to environments particular to their operations. If this is true, then we are freed from the a default position of assuming that evolution will proceed through a process of natural selection, or differential selection occurring within a common environment. Instead, we can entertain the possibility of environmental selection (Brandon, 1996) rather natural selection as a means for explaining the *sustenance activities* of firms. That is, rather than assuming that differences in firm fitness are derived from the sorting of firms in common environments, the actual heterogeneity of the environment is highlighted to enable firm adaptedness to be viewed as a property-in-an-environment. By sustenance activities, reference is being made to organized regular and enduring activities aimed at supporting firm survival (see Gibbs and Walter, 1959)

At the center of this examination of the environment is Emery and Trist’s (1965, p. 21) concern for energy flows. They argued, “any living entity survives by importing into itself certain types of material from its environment”. Given the long-standing fundamental role afforded to energy flows in mainstream ecology (Odom, 1971) it is of paramount importance that any attempt to develop a consistent (Hodgson, 2004) ecological approach the study of firms also accounts for energy flows. Understanding actual energy (or resource) flows between firms and their environments provide unique insights into the true nature of selection occurring for any individual firm. Access to such information is critically important given that an autecological approach to the study of firms would commence with assumptions related to environmental heterogeneity. Brandon (1990, p. 11) notes that selection is highly sensitive to the environment and that evolution attributable to natural selection must occur within a *common* environment for his Principle of Natural Selection (PNS) to hold true. That is, “If *a* is better adapted than *b* in environment E, then (probably) *a* will have greater reproductive success than *b* in E”. However, if *a* and *b* do not share a common environment, then their relative fitness can not be attributable to a single process of natural selection acting upon both. At the heart of an autecological approach is an explicit acceptance of this line of reasoning. Thus, it is imperative that any such heterogeneity is fully understood.

Brandon’s (1990; 1996) work on ecological environments offers us a way to identify *uncommon* environments by discerning three distinctive dimensions related to every environment. First, he identifies the *external* environment, or the sum total of *all* factors external to the firm that may be expected to influence its survival. However, at this level of analysis specific factors of most importance to one firm or another are rarely expected to be

discernable. It essentially relates to the factors that all firms in all industries are most likely exposed to (e.g. high interest rates), regardless of their overall importance to actual firm survival.

To identify such factors, we need to enlist Brandon's second dimension, the *ecological* environment. Now we are only concerned with those factors that specifically affect an individual firm's ability to contribute to reproduce and/or grow in isolation or within an industry (e.g. the increasing availability of specific vital resources). The third dimension is the *selective* environment. The selective environment refers to those factors of the external environment (i.e. consumer taste) that specifically determine the differential fitness of an individual firm's interacting elements (such as their products and services, see Jones, 2005). Under such a proposal, the *general* environment can exist independently of any individual firm, and most aspects of it could not be altered substantially by an individual firm. Therefore, it is the relationship between the firm and its *selective* and *ecological* environments that should occupy the concern of the researcher.

The *selective* environment has no existence independent of the firm; it represents the actual *niche* of the firm. Therefore, selective environmental heterogeneity is an issue that must be accounted for. Brandon notes that sometimes this heterogeneity can be accounted for by the discrete nature of the environment (i.e. town boundaries) or through the development of selective environmental neighborhoods around arbitrarily chosen entities. What is so useful about Brandon's (1990; 1996) various ideas on selection and environments is that they allow us to easily reconnect to the pioneering autecology ideas of Andrewartha and Birch (1954), who also developed a theory of the environment consistent with the above discussion. For Andrewartha and Birch, resource availability varies from one location to another. One cannot assume an even distribution of resources and/or selective pressures from one entity to another. The challenge from an autecological perspective is to understand how individual entities solve their survival problems; rather than assume the environment determines such outcomes.

The final component of the ecological trinity is the presence of dynamic relations. When viewed from the perspective of an individual firm, the nature of interaction between firm and environment represents a constant process of interpenetration between firm and environment. A process of attempting to constantly acquire resources and provide resources to other stakeholders in *its* particular environment. In contrast to the prevailing logic of OE (e.g. Hannan and Carroll, 1992), autecology allows for the assumption that while individual firms are subject to environmental selection forces, those very firms are also capable of altering such selection pressures through modifying aspects of their *own* ecological and selective environments.

There has long been support for the idea that individual firms can modify aspects of *the* environment (see March, 1994; Winter, 1990; Scott, 1987; Popper, 1972; Rumelt, 1979; Winter, 1964). However, such support relates to an assumed common environment experience by many firms. Interestingly, little research has examined such a process of environmental modification. Recently, Jones (2009) and Luksha, (2008), both drawing on the recent ideas of Odling-Smee, Laland and Feldman (2003) and therefore the past work of Lewontin (1983), have introduced the idea of niche construction into the study of firms. For Lewontin, any explanation of the process of adaptive change must cater for the ongoing reciprocal interaction between the organism, its generative mechanism and the environment. He asserted that organisms determine relevance, alter their external world, and transduce physical signals from their external environment. Essentially, rather than merely being on the receiving end of

natural selection, organisms both make and are made as a consequence of interaction with their environment. Such ideas provide the means to apply Brandon's (1990) concepts of environment to organizational research whilst also accommodating the critical ecological issue of energy flow; the central process of firm-environment dynamic relations.

Importantly, niche construction theory highlights a generative mechanism through which empirical explanations of *how* firms might alter their environments may be crafted. Odling-Smee, Laland and Feldman (2003, p. 41) define niche construction as "when an organism modifies the feature-factor relationship between itself and its environment by actively changing one or more of the factors of its environment, either by physically perturbing factors at its current location in time and space, or by relocating to a different space-time address, thereby exposing itself to different factors". Importation of such ideas in the social domain could reasonably be explained as follows.

From the standard evolutionary perspective, populations of firms transmit information (routines, cultures and organizational structures) from one generation to the next, under the direction of natural selection. However, from the niche-construction perspective, individual firms may modify their local environments through niche construction activities. Each firm (and/or those similar) inherits both information and a legacy of modified selection pressures (i.e. ecological inheritance) from incumbent firms. To recap, there are differing views within the current literature as to whether or not firms are capable of altering their environments. Such differences of opinion are not assisted by the paucity of empirical studies addressing this fundamental issue. The recent introduction of niche construction theory into the social domain offers a new window through which to consider *how* and under *what* conditions firms may alter their environments, and those of other firms.

In summary, the idea of an ecological trinity in uniting a firm and its environment into a process of constant interpenetration provides greater opportunity to define with precision each, relative to the other. Put simply, once we accept the reality of the presence of a dialogic relationship (see Bruyat and Julien, 2001) between the firm and its environment, we advance our capacities to understand both. That is, we cannot expect to understand the workings and situation of any firm without specific reference to its direct ecological and selective environments. Once we have developed this level of focus, the firms and its interacting elements can be seen for what they are. The nature of the routines and the order that contribute to ensure sustenance activities are performed become readily apparent. The nature of behaviors associated with modifying aspects of the selective and/or ecological environment can be searched for and discovered. The actual complex web of direct and indirect relations between the firm and its environment can be discerned. Such observations ultimately make it possible for the researcher to understand how an individual firm can *be* and *become*; the fundamental purpose of the autecologist.

Discussion

Putting to one side the acknowledged valuable knowledge gains that have emerged from the OE approach, many questions and concerns have remained unsolved. Autecology as an established ecological approach offers entrepreneurship researchers an exciting and potentially profitable way to investigate firms and the entrepreneurs who create and maintain them. Not only does this approach offer the promise of being able to optimistically revisit questions and concerns related to the OE approach, it has the potential to generate many new

research opportunities. The remainder of this paper will now consider a range of such exciting research opportunities made possible through the development of an autecological approach.

One of the first obvious areas to revisit is the issue of fitness. Rather than assuming fitness is a mere by-product of survival, we can delve deeper. Typically, Darwinian fitness is associated with persistence (Mac Nally, 1995, p. 19), placing greater emphasis at the level of the population. From an autecological perspective, the concept of fitness needs to be considered a property of individual firms. It is the capacity of individual firms to demonstrate resource versatility, or the degree to which an individual firm “can fully exploit resources in their local environment”. Thus, fitness is not identifiable in the absence of specific knowledge of what elements determine the selective and ecological environment of any individual firm. Thus, we are concerned about how individual firms interact with and shape selection forces.

In OE, it would appear straightforward that the process of selection acting upon firms resembles the organizing force of a one-way freeway. In reality, we observe firms behaving in different ways under different circumstances. While the case for such variance in selection (i.e. directional, disruptive and stabilizing processes) has been successfully made (Amburgey, Dacin & Kelly, 1994), it would seem that like the process of ecological succession, it is too difficult to incorporate such variance into the OE approach. Once freed from the underlying rules pertaining to OE, we can use autecology to explore the unique relationships between any given firm and its actual environment. Thus, Fombrun’s (1984, p. 230) concerns that OE “artificially separate[s] organizations from their environments ... [thereby distorting] ... “the systemic relationships between organizations and environments” can be addressed. Such an approach would address the concerns of Gimeno et al., (1997) that ecological approaches to firm survival pay inadequate attention to the causal relationships assumed to explain the survival of particular firms.

Importantly, such an approach is still concerned with the embeddedness of any firm in higher-order collectives, but only when specific resource exchange relationships are observable. This can be achieved through the use of an envirogram (Andrewartha and Birch, 1984) to identify causes, from the most distal, to the most proximate. This approach is guided by discerning the elements of the selective and ecological environment as germane an individual firm’s ongoing persistence. Therefore, it is the interpenetration between firm and actual environment that is the explicit consideration of the autecologist. We are able to address questions like, how do firms as open systems, import and export energy and information in ways that support their long-term persistence? Or, what types of collective and non-collective sustenance activities (Gibbs and Martin, 1959) are employed to support long-term persistence? At the heart of these questions must be an appropriate ecological framework. For the autecological approach promoted here; it is argued that this could be operationalized through the ecological trinity as noted previously.

Perhaps the most exciting opportunity afforded the researcher using the ecological trinity is the ability to access the niche constructing behaviors of firms. By focusing upon the feature-factor relationship between any given firm and its environment, we can identify specific firm-level behaviors that change the nature of environmental selection. Again, this is because natural selection, the assumed selection process in OE is inappropriate in autecology where environmental and/or firm heterogeneity are assumed. Thus a process of selection operating at the level of the individual and not the population is required (Odling-Smee et al., 2003). So, we can ask, which observable factors of the ecological and selective environment are altered by physically perturbing local factors in time and space? Along the same lines we can ask,

how a firm alters its feature-factor relationship by relocating to a different space-time place to achieve higher degrees of ecological versatility through exposure to different environmental factors?

Thus it is the firm's ongoing sustenance activities (Gibbs and Walter, 1959) that remain as central to our observations as do the unique factors in their local environment. By understanding how the firm's organized regular and enduring (activities aimed at supporting firm persistence) are influenced in their past and future development by local environmental factors provides insights into the nature of interpenetration occurring. We can therefore ask, what is the nature of interplay between the firm's organized regular activities and environmental penetration? The matching question also in play simultaneously being, in what ways do firms adapt by using their organized regular activities to change the nature of interpenetration experienced in favorable ways?

Summary

To conclude, autecology offers a great many new avenues for research into firm survival. We need not be concerned by Hawley's pessimism (1984, p. xvi) that while in all likelihood, firms do indeed reshape their own environments and therefore selection processes, a rethinking of OE "is looking further down the road than organizational ecology should travel at this time". This is a logic belonging to an alternative ecological approach, a selection-based approach. In contrast, autecology is an environmental-based approach, governed by different foundational assumptions. Assumptions that open the door to revisit many of the problematic issues that have gathered around the OE approach. It is in this sense that OE and autecology can be viewed as potentially co-existing research paradigms. This paper promised to unseal the claimed premature convergence of thinking surrounding what is an ecological approach to the study of firms. What has been offered for consideration is established ecological approach that is enjoying a renaissance in mainstream ecology (see Levin, 2009). An approach that allows us to participate in research that emphasizes the life history and ongoing behavior of the primary integrative unit of ecology upon our collective research landscape, the firm. By virtue of such a focus we gain unique ecological access to the entrepreneur along the way.

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EMOTIONAL SUPPORT, ROLE-RELATIONS AND NETWORK AGENCY

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EMOTIONAL SUPPORT, ROLE-RELATIONS AND NETWORK AGENCY

ABSTRACT

In this study, we combined a network agency explanation with a relational explanation of role expectations to understand under which circumstances network agency matters for access to emotional support. The traditional structurally-based social network perspective overlooks to some extent the capacity of the entrepreneurs to act on his or her own in the world, offering as a consequence an implausible explanation of human action and network agency. Therefore, interest in moving the explanation of how entrepreneurs access various resources from structurally-based to agency-based explanations is emerging in the entrepreneurial network literature. We add to this literature by showing empirically that network agency is more than an ability to effectively interact with others as previously assumed – it also involves a motivation element that translates into an individuals' sense of comfort for engaging, and hence with using their networks. Further, we show that network ability and network motivation do not function universally across role-relations but rather that their functions are modified by the cultural defined expectations associated with various role-relation. We use a mixed method approach that combines qualitative interview data with quantitative survey data to develop and test our hypotheses.

INTRODUCTION

Interest in moving the explanation of how entrepreneurs access various resources – e.g., information, knowledge, advice and finance – from structurally-based to agency-based explanations is emerging in the entrepreneurial network literature (e.g., Baron and Markman 2003; Baron and Tang 2009; Zhao et al. 2010). The idea of using structural variations in entrepreneurs' social networks to explain entrepreneurial process elements and outcomes has been relatively powerful and popular. However, extensive review of the literature also suggests empirical results are inconsistent with this approach (Witt, 2004). Organizational (Emirbayer and Goodwin 1994; Mehra et. al 2001; Obsfeldt 2005; Ahuja et al. 2012), and a small though growing number of entrepreneurship scholars (Baron and Markman 2003; Baron and Tang 2009), argue the empirical inconsistency reflects the traditional structurally-based social network perspective's general ignorance of human agency. In other words, the traditional structurally-based social network perspective overlooks to some extent the capacity to of the agent to act on his or her own in the world, offering an implausible explanation of human action. Although still relatively few in number, some scholars are turning their attention to social psychological variations in how prospective entrepreneurs interact with their environment as they seek to successfully develop opportunities (Baron and Markman 2003; Baron and Tang 2009; Zhao et al. 2010; Semrau and Sigmund 2013) to extend and complement the extant knowledge produced through the study of structural patterns of relations (Shane and Cable 2002; Greve and Salaff 2003). In essence, interests are moving from a focus on the idea of network structure to that of network agency. We follow this line of thinking by defining human network agency as the "... motivation and ability to shape relations and create a beneficial link or dissolve an unprofitable one, or to shape an advantageous structure" (Ahuja et al. 2012: 437-438).

The idea focusing on entrepreneurs' human network agency has been successful in adding new knowledge on why some entrepreneurs access certain resources while others do not

(Zhao et al. 2010; Semrau and Sigmund 2013), as well as why some entrepreneurs outperform others (Baron & Markman 2003; Baron & Tang 2009). Nevertheless, due to the infancy of research focusing explicitly on the notion human agency in entrepreneurial networks, further exploration is warranted. Specifically, the network literature in entrepreneurship currently suffers from at least three main weaknesses.

First, whereas the focus of prior studies has only been on how entrepreneurs' network agency enables them to access various types of instrumental resources (e.g. Baron and Tang 2009), the present authors know of no studies that have investigated whether network agency also provides entrepreneurs better access to emotional support. Instrumental support includes affirmation, feedback, advice, suggestions, and tangible resources such as finance. Emotional support, by contrast, involves individuals' feelings of being valued and accepted for their worth and experiences. Emotional support is a behavior expressing esteem, affect, trust, concern, and listening (Wellman and Wortley 1990; Neergaard et al. 2005). The lack of investigation, and ultimately knowledge, as to whether network agency matters for access to emotional support is problematic given emotional support has been argued and shown to impact the start-up process by promoting optimism, supporting creativity, enabling individuals to deal with stress, and in other important ways (Baron 2008).

Second, while prior studies have thoroughly examined one important component of human network agency, it has largely ignored another. Ahuja et al. (2012) maintains that human network agency consists of two fundamental components – 1) an ability component reflecting individuals' ability to interact effectively with others; and, 2) a motivation component reflecting individuals' impetus to interact purposefully with others. Studies to date have provided significant insight into how entrepreneurs' ability to interact with others impact various entrepreneurial output. Yet it is not necessarily enough to be able to interact effectively with others unless entrepreneurs actually choose to interact in the first place. The motivation to interact with others depends on individuals' "attitude towards using networking" (Wanberg et al. 2000: 494), a dependency that has been at best implicitly assumed present, or at worst overlooked, in prior research. Therefore, it is important for research to explicitly investigate the nature and role of both the ability and motivation components of human network agency.

Finally, research has tended to approach human network agency as if it functions rather universally across various situations and contexts despite the stronger likelihood that it functions under certain contingencies (Edward and Berry 2010). These contingencies likely range from be macro-oriented (e.g., national culture or industry) to micro-oriented (e.g., gender or experience) in nature. In this paper we suggest a meso-orientation. Specifically, we argue that the function and impact of network agency depends on the culturally defined expectations associated with various role-relations (Biddle 1986; Montgomery 1998; Freeman and Ruan 1997). That is, individuals take on social-psychological roles – such as a family member, a friend, or a businessperson – that, although enacted by the individual, are simultaneously affiliated with broader cultural expectations of appropriate behavior (Biddle 1986; Wellman and Wortley 1990).

With these three gaps in mind, we investigate how human network agency, understood as both network ability and network motivation, influences entrepreneurs' access to emotional support. We argue that entrepreneurs' networking agency influences their access to emotional support in such a way that entrepreneurs who are high in ability to interact with others and who are highly motivated to interact with others are more likely to access emotional support. We also investigate the extent to which this network agency influence depends on the culturally established expectations associated with various role-relations. We elaborate on and empirically show that altruism, mutualism, and egoism are ideal types that can be associated with expectations for respectively the family role, the friend role, and the businessperson role, and that these culturally established expectations moderate the importance of individuals' networking ability and motivation on their access to emotional support.

A mixed methods approach is employed. Qualitatively, we develop our ideal types based on 83 embedded cases of role-relations collected through face-to-face interviews with 18 nascent entrepreneurs. These ideal types guided our development of hypotheses which were then formally tested on a representative sample of nascent entrepreneurs collected in 2012 in Denmark (N=641).

THEORY: AFFECT, EMOTIONAL SUPPORT AND ENTREPRENEURSHIP

There is strong evidence suggesting that affect – “that neurophysiological state consciously accessible as the simplest raw (non-reflective) feelings evident in moods and emotions” (Russel, 2003: 148) – exerts strong effect on cognitions and behavior in various environments (Frijda 1989; Carstensen, Pasupathy and Mayer 2000), including business environments (George and Brief 1992, Ashforth and Humphrey 1995; Fisher and Ashkanasy 2000; Jordan and Ashkanasy & Härtel 2003). Baron (2008) provided two main reasons why affect is particularly relevant in an entrepreneurship context. First, entrepreneurs often operate in highly unpredictable and uncertain environments (Bygrave 1991), a characteristic which reduces the possibility of employing learned scripts, routines or procedures to guide decision making and behavior. Instead, affect becomes more powerful differentiating factor in what is decided and ultimately what is done under such contextual conditions (Forgas 1998). Second, the range of tasks entrepreneurs perform throughout the start-up process varies significantly. However, many of these tasks involve activity components such as creativity, persuasion, decision making, relationship maintenance and building, have been shown to be strongly influenced by affect in previous research (Baron 2008).

Affect and emotion, its closely related more conscious and observable manifestation, typically function through several mechanisms to influence entrepreneurial behavior. Specifically, they impact the way the external world is perceived in that positive emotions are more likely to be associated with individuals perceiving objects, other persons, and ideas as more favorable (Bower 1991; Isen 2002). Moreover, there is also evidence that positive affect and emotion act to enhance creativity by making individuals more likely to engage in heuristic processing, by influencing memory, and by influencing the strategies to cope with stress (Baron 2008). Thus, theoretically there are strong reasons to believe that affect and emotion matter to entrepreneurs. Empirical evidence is emerging suggesting emotional support does indeed have a positive impact on the start-up process though undoubtedly it remains somewhat scarce and inconclusive based on methodological issues.

In this study, however, we are not interested in the consequences of emotional support on the entrepreneurial start-up process. Instead we are interested in its antecedents. Specifically, we are interested in advancing the understanding of why some entrepreneurs access emotional support while others do not by investigating predictors suggested by extant theory and empirical evidence.

Several explanations are possible for why some individuals are able to access emotional support while others are not. These explanations can be categorized into those of a structural, relational, and network agency-based nature. While structurally-based explanations focus on structural characteristics such as network size or density to explain access of emotional support (Burt 1992; Lin, Cook and Burt 2001), relational explanations focus on the qualitative characteristics more unique to each dyadic relation in the broader network of social relations (Granovetter 1973; Biddle 1986). Network agency explanations, by contrast, focus more on individuals' social intelligence, including their ability and motivation to interact with others as "active agents" in order to explain why they attain (or not) access to emotional support (Thorndike 1920; Riggio 1986).

In this study we combine theoretical insights from a network agency-based explanation (Riggio 1986; Baron and Markman 2003) with a relationally-based explanation of role expectations (Biddle 1986) to understand under why *and* under which circumstances network agency matters for accessing emotional support. We consider emotional support as behavior expressing esteem, affect, trust, concern, and listening (Wellman and Wortley 1990; Neergaard et al. 2005), not a perception, an approach which assumes a provider, a receiver, and an exchange.

HYPOTHESES DEVELOPMENT

Network agency: Ability and motivation

As a reaction to viable prevalence of studies emphasizing how social networks' structural and relational dimensions impact on entrepreneurs' decision and behavior, critique has emerged in psychology (Zhou et al. 2009), sociology (Mehra et al. 2001), organizational theory (Obstfeld 2005), and entrepreneurship (Baron and Markman 2003) arguing that prior explanations relying on predominately on the structural characteristics of social networks fail to offer a robust explanation of human action because such approaches ignore the role and impact of human agency. Stated differently, these approaches are considered overly deterministic, overlooking the fact that human beings often act as autonomous agents influencing, as well as being influenced by, the broader system of social relations in which they exist.

Scant empirical evidence exists in the literature with respect to how human network agency impacts entrepreneurial activity and outcomes. The initial step in moving from network structure to network agency as the main explanatory factor in entrepreneurship research is traceable to Baron and Markman (2000; 2003). They argue that while "... *entrepreneurs' social capital (as based on their reputation, social networks, etc.) often helps them gain access to persons important for their success ...*, *their social competence then plays a key role in determining the outcomes they experience*" (Baron & Markman, 2003: 42). Baron and Markman further articulate the notion of social competence by identifying four distinct aspects of social competence: social perception, impression management, social adaptability,

and expressiveness that together explain individuals' ability to interact effectively with others. Across two parallel studies they show that entrepreneurs' accuracy in perceiving others (social perception) consistently impacts the financial success achieved. By contrast, they show that whereas both the ability to adapt to social situations (social adaptability) and the ability to express emotions and feelings appropriately (expressiveness) are also important to the level of financial success achieved, the level of influence does appear to vary across industries.

Baron and Tang (2009) validated these initial results indicating that social impression and expressiveness are related to measures of new venture performance in a later study conducted in China. In that study they show how social impression and expressiveness impact performance. Specifically, they show that entrepreneurs with high scores on social impression and expressiveness were more effective in acquiring information and essential resources, which in turn accounts at least in part for why higher venture performance is achieved. Thus, they conclude that entrepreneurs' social competence matters with respect to venture performance because it enhances their ability to acquire and strategically use key information and resources.

Zhao et al. (2010) also suggest a mediation model highlighting to the importance of social competence in strategically leveraging information and resources. Specifically, they find that the impact of entrepreneurs' social competences on business growth is partly mediated by the size of their networks. They conclude that entrepreneurs with high social competences develop larger social networks, which are beneficial for their business growth. Similarly, in a recent study based on a German sample of 146 new ventures Semrau and Sigmund (forthcoming) argue and find support for the idea that entrepreneurs' network ability impact new venture performance because entrepreneurs with good network abilities create larger social networks that expand the breadth of resources available to the new venture.

Each of the aforementioned studies shares a common theoretical emphasis on how network abilities impact entrepreneurship by facilitating access to resources. While Baron and Tang (2009) specifically measure resource access as the mediating explanatory mechanism for the impact of networking abilities on venture performance, it is not explicitly measured in the remaining papers. Moreover, the focus on resource access in Baron and Tang's (2009) study is explicitly on rather instrumental resources, such as information, knowledge, advice, and finance. By contrast, whereas the focus on resource access appears rather similar to the other papers, it is less explicit what resources they are focusing on.

We follow and add to these arguments by hypothesizing that network ability not only increases entrepreneurs' likelihood to access instrumental resources but also access emotional support. We extend prior work by arguing that entrepreneurs with high networking abilities – "... *ability to interact effectively with others*" (Baron and Markman 2003: 41) – are also more likely to have better access to emotional support from their social environment.

Hypotheses 1: Entrepreneurs' networking ability is positively associated with the level of emotional support.

While entrepreneurs' networking ability appears important to the creation and development of new ventures, it is not necessarily enough to be able to interact effectively with others. Entrepreneurs must first actually choose to interact with others. Thus, the motivation to interact is also necessary component to understanding human network agency. That fact that human network agency cannot be understood purely as an ability is clearly reflected by the inclusion of a motivation component in Ahuja et al.'s (2012) definition. Therefore, although prior studies on human network agency in entrepreneurship have dealt with the issue of network ability, we follow Ahuja et al. (2012) in arguing that a networking motivation is also a necessary prerequisite for human network agency to function. This argument is consistent with evidence previously presented by Wanberg et al. (2000) showing that individuals vary with regard to their comfort with networking. It also supports an underlying idea driving this investigation – that is, whereas some individuals are very comfortable with asking for help, advice or emotional support, others are less comfortable with such activities.

Thus, we draw on the notion that while network ability may affect the effectiveness in interaction, network motivation is responsible for the initiation of interaction in the first place. We use Wanberg et al.'s (2000) notion of networking comfort as a proxy for network motivation. They define networking comfort as "...an individual's attitude toward using networking ..." (p.494) purposefully. We argue that those entrepreneurs with high networking comfort are more likely to interact with others and, therefore, more likely to get their network abilities into play.

Hypotheses 2: Entrepreneurs' networking motivation is positively associated with the level of emotional support.

Contingency: Expectations in Role-Relationship

Role Theory

As noted previously, in those few studies that have investigated networking ability the focus has been on explaining why network ability matters, or the mechanisms they function through. Another theoretical issue of interest that emerges in this line of inquiry is whether the associations between network ability and motivation and the level of emotional support are universal and unconditioned, or whether these associations are stronger or weaker in certain situations. Under which conditions do network ability and motivation function? We use role theory to argue that the function of network ability and motivation depends on the specific culturally defined expectations associated with the role-relation.

In role theory the characteristic of the dyadic relation matters (Agneessens et al. 2006). Relational role explanations rely on the "... *culturally defined set of expectations, obligations, and rights between incumbents of two reciprocal social positions*" (McCallister and Fischer 1978: 136) in order to understand the nature of the exchange between relations. It is assumed that individuals' behavior has to be understood depending on their roles evoked by situations and the socially constructed content associated with these roles (Biddle 1986; Montgomery 1998).

Expectations associated with roles are learned through experience. As a result, individuals are generally aware of these expectations as they are presumed to be "... *thoughtful, socially*

aware human actor[s]” (Biddle 1986: 69). Although alternate versions of role theory exist, functional role theory assumes that roles are shared, an assumption that implies normative expectations are shared with respect to what behavior is considered appropriate. From this perspective, it is commonplace for individuals to socially classify each other according to their roles (Freeman and Ruan 1997; Montgomery 1998). Thus, people may be, and indeed are often classified as partners, parents, brothers or sister, friends, colleagues, classmates, business partners, etcetera. These role classifications are used to guide what people perceive as appropriate behavior among and toward each other. It is important to point out that what is appropriate behavior varies greatly across roles while appropriate behavior is relatively stable within roles. This implies that one form of behavior can easily be appropriate for a certain role while inappropriate for another role. Thus, for each role relation there exists a culturally defined set of expectations on what is perceived appropriate behavior strongly guiding how individual react to each other. These expectations are independent of persons but defined by individuals’ social position to each other.

Empirical evidence is generally consistent with the idea that emotional support follows such role expectations (Freeman and Ruan 1997; Agneessens et al. 2006). Findings are also relatively consistent in the entrepreneurship literature though there are exceptions (e.g. Klyver 2011). In one of the first and now seminal articles, Birley (1985) found that entrepreneurs are more likely to access intangible resources, including emotional support, from informal contacts. In a closely related manner, Anderson et al. (2005) found that help from family is more likely to be emotional support than is help from business contacts. Arregle et al. (2013) more recently argued that family ties are more likely to serve as providers of emotional support.

Substantial research exists focusing on what type of support various role-relations provide and what the consequences are of this support. By contrast, there is far less research focused on understanding the culturally defined expectations and obligations associated with each of the role-relations although some exist (Montgomery 1998; Grayson 2007; Greenhaus and Beutell 1985; Stewart 2003; Anderson et al. 2005).

Role-relation moderation

Drawing on Doty and Glick’s (1994) argument for the use of typology development as a unique form of theory building, we rely on empirically developed ideal types from our qualitative interview data to conceptualize the expectations associated with various role-relations. Table 1 provides an overview of the ideal types that came out of the qualitative analysis. Later in the paper we elaborate on how our qualitative data were used to develop the ideal type expectations associated with role-relations.

The family role is guided by an ideology of altruism. Based on this ideology, individuals are motivated to provide value to each other without expectation of getting anything in return as a function of occupying their respective social positions as family members. The biological relationship creates a logic of dependence and solidarity that creates an expectation of unconditional support among one other guided by care and regardless of merit or intended actions.

The friend role is guided by an ideology of mutualism. Based on this ideology, the social relation is based on a logic of cooperation and interdependence that make friends aim to create mutual benefits over the long run. Friends have mutual interests in each other's well-being that obligate them to care for one another. Yet in contrast to the family role, caring is to some extent conditional, not universal. In the short run, one party can easily be benefiting from the friendship while the other is not benefiting or even experience costs. In the long run, however, both should benefit from each other. Thus, the conditions for care are primarily constrained by long term expectations of mutual benefit.

Finally, the businessperson role is outside the social sphere and guided by an ideology of egoism. Social exchange relationships guided by this ideology adhere to a logic of independence and competition in which self-interests are the main focus. Individuals in the businessperson role seek to maximize their own interest and therefore, their care is conditional. In contrast to friendship role, individuals in businessperson roles make decisions and act depending on the expected benefit they will experience, regardless of the time horizon and the consequences of the other party.

We argue that the impact of network ability and motivation on individuals' access to emotional support from relations depends on whether the roles are characterized by expectation of altruism, mutualism or egoism. Since altruism is characterized by universal and unconditional support and care, we do not expect individuals' network ability or motivation to matter with respect to whether or not they access emotional support. However, for mutualism and egoism we do expect network ability and motivation to have an effect since none of these ideologies presume unconditional support and care. In the case of mutualism, support and care is conditional with respect to the long term expectation of mutual benefits. In the case of egoism, support and care are conditional with respect to expectations of utility maximization. We therefore expect individuals' network ability and motivation to matter more for the amount of emotional support accessed from relations characterized by egoism compared to mutualism. Stated formally:

Hypothesis 3: The positive association of networking ability and level of emotional support is a) non-existing for family members and b) stronger for businesspersons than for friends.

Hypothesis 4: The positive association of networking motivation and level of emotional support is a) non-existing for family members and b) stronger for businesspersons than for friends.

METHODOLOGY

We use a mixed method approach that combines qualitative interview data with quantitative survey data to develop and test our hypotheses. Specifically, we employ the qualitative data to guide the development of the ideal type expectations associated with each of the respective role-relations family, friends, and businessperson. The hypotheses are then formally tested using quantitative survey data.

Qualitative study

Ideal type methodology

Through qualitative in-depth comparative analysis of 86 embedded cases, we examine the culturally defined ideal type expectations associated with the three role-relations to develop the contingent hypotheses focusing on the effect of individuals' network ability and motivation (Eisenhardt 1989).

Use of ideal type has a long tradition in social science. Doty and Glick (1994) describe ideal types as holistic descriptions of something that might exist rather than as it does exist at a given moment in time. Thus, the use of ideal types draws on the possibility that the ideal types observed in practice might deviate to some extent from the pure ideal type. In the words of Thornton et al. (2012) *“the purpose of systematically developing analytic categories a priori is to highlight what is essential about the phenomenon and to constrain the natural and often unconscious process of observer bias. ... Ideal types are a tool to interpret cultural meanings into their logically pure components”* (p52). By focusing on what may seem like “extremes” of a theoretical continuum, these various aspects of the three role-relations are used to identify what is crucial about the culturally defined expectations in role-relations with respect to individuals' likelihood of accessing emotional support.

The use of ideal type has two main strengths for our purposes. First, because ideal types are not strictly deduced from empirical observations in the sample, theory development is not restricted to the variance reflected in the sample. Second, they have been found useful for testing how cultural effects vary within populations, situations, and time (DiMaggio 1997).

Qualitative data

Data collection began with us contacting a stratified sample of individuals either in the process of starting a business or who had very recently started a business (N=18). Respondents were selected on the basis of variance, primarily across gender though educational background and age were also considered (Strauss and Corbin 1998).

Face-to-face interviews were then conducted following a quasi-structured interview guide. All interviews were recorded. Following a number of open-ended questions focusing on the entrepreneurs' career history and the start-up efforts, we used a name-generator approach to identify up to five individuals with which respondents noted having discussed their start-up effort (Marsden 1990). Eighteen entrepreneurs identified 86 relations that were considered embedded case observations for this investigation (Family 58%; friends 31 %; businesspersons 10 %).

Analytical procedures

Systematic analysis of the qualitative data involved several steps. First, the recorded interviews were transcribed. The search for culturally defined expectations with role-relations is a challenging task because individuals often follow these same cultural rules when they speak about those role-relations. Therefore, in our second step, the focus was primarily directed toward looking for surprises, disappointments, and similar type of events that indicate a deviation from the norms. These deviations were treated like critical events

(Flanagan 1954; Burns et al. 2000). In contrast to traditional critical events research designs, we were less explicit and consistent in asking respondents to mention critical events. We often waited for those events to emerge out the conversation though we did occasionally ask about certain events and situations. Our third step was to review and categorize each of these critical events. Fourth, we coded each event according to those categories (Basit 2003). The categories of family, friend, and business person were selected before the qualitative analysis based on the extant role relations literature (Freeman and Ruan 1997; Agneessens et al. 2006).

Survey study: Danish Panel Study of Entrepreneurial Dynamics (DaPSED)

In this study, we use data collected during the late summer 2012 in Denmark. Using CATI technology, a representative sample of nascent entrepreneurs was identified by calling randomly to a stratified sample frame of 4.4 million mobile numbers in Denmark (the total population of Denmark is 5.5 million).

Based on the approach employed in aforementioned body of prior studies, we used the following well-tested screening question to identify a sample of nascent entrepreneurs: “*Are you currently, alone or together with others, in the process of starting a business?*” The sample was stratified based on gender, age, and region. Calls were made to 47,615 individuals and reached 19,286. There were several reasons for unsuccessful calls, including: non- working numbers (3,854), refusals (7,795), outside target group of 16 to 64 years old (1,623), and failed after 10 repeated calls (9,814). Overall, the approach resulted in a response rate of 40.5% and a 20.6 % refusal rate.

From the 19,286 individuals initially contacted, a sample of 800 nascent entrepreneurs was identified. This suggested a start-up rate on 4.5% among the adult Danish population ($800/(19.286-1.623)$), a rate which is consistent to that identified in comparable longitudinal samples such as that from Global Entrepreneurship Monitor (GEM) in Denmark. Consequently, it provides support for the representativeness of the present sample. In preparing the dataset for statistical analysis, 59 cases contained missing values for some of the questions. These responses were therefore dropped, resulting in a useable sample of 741 among the 800 respondents initially identified.

Measures

Dependent variable

Emotional support was operationalized by applying a well-tested and well-established approach also used to operationalize resource access in entrepreneurship research (e.g. Birley 1985; Shane and Cable 2002; Jenssen and Koenig 2002). Specifically, we developed a formative scale of accessed emotional support based on combinations of the position- generator approach (Lin & Dumin 1986) and the resource-generator approach (Snijders 1999) – both frequently applied in social network analysis and well established (Lin 2001).

Respondents were asked: “*We will now ask you questions regarding how people specifically reacted to start-up process. Please evaluate whether your partner was critical, indifferent, or enthusiastic*”. They were presented with a range of role relations: parents, closest family member apart from partner and parents, best friend, the acquaintance, colleague, and advisor to which they last talked.

Each response was as 1 if ‘critical’, 2 if ‘indifferent’, and 3 if ‘enthusiastic’. A mean score was for partner (if existing), parents, closest family member apart from partner and parents to reflect the amount of emotional support received from family. Similar values were calculated for the amount of emotional support acquired from friends (best friends and acquaintance you last talk to) and business persons (colleague you last talk to and advisor you last talk to).

Independent variable

Two measures were employed to operationalize human agency, both of which were reflective in nature. For network ability, we used Ferries et al.’s (2001) 7-items scale. For network motivation, we used Wanberg et al.’s (2000) 7-items scale.

Control variables

We controlled for a range of demographic variables. Gender was coded 1 for male and 2 for female. The exact age was recoded into dummies for age categories. Dummies were also coded for respondents’ civil status: single, partner, and cohabitant/married, respectively. We created a dummy to control for whether entrepreneurs had kids (coded 1) or not (coded 0). Finally, we controlled for respondents’ education level: primary school, secondary school, vocational education, university shorter than 3 years, university between 3 and 4 years, and university longer than 4 years. Again, we created dummies for each category.

FINDINGS

Qualitative study

The results from the qualitative study in form of the content of the ideal types associated with various role-relations have already been described and applied in our hypotheses development. The 86 embedded cases collectively revealed 51 critical incidents across the three role-relations. We identified three broadly defined ways in which respondents reported a deviation from the ideal types. Specifically, respondents reported they were sometimes surprised, even to the point of being emotionally overwhelmed, by the support they received. Alternatively, respondents reported sometimes being disappointed with the lack of emotional support received in comparison to that which they’d expected to receive. Finally, respondents sometimes provided excuses or explanations to why they did not receive the emotional support they expected. Table 2 (available on request to author) provides an overview of how the 51 critical events are distributed across the three role-relations and the three codes (overwhelmed/surprised; disappointed; excuse). It is also provides a sampling of illustrative examples of these critical events.

Together, these results led us to develop the ideal types where family relations are being culturally associated with altruism, friends are culturally associated with mutualism, and businesspersons are culturally associated with egoism as explained in the hypothesis development section.

Survey: Descriptive findings

We used exploratory factor analysis to evaluate the underlying factor structures and the distinctiveness of the networking ability and networking motivation variables. The rotated results using Varimax-rotation are shown in Table 3 (available on request from author).

As shown in Table 3, the rotated factor matrix reveals a solution with acceptable results ($KMO=0.75$; cut-off point 0.55). The resulting overall reliability obtained of the final measures is acceptable – a Cronbach alpha value of 0.71 for network ability, and a Cronbach alpha value of 0.68 for network motivation respectively. Given the reliance on self-reported measures, we designed our study to overcome the risk of common method bias to the greatest extent possible. Specifically, we proactively followed Podsakoff et al.'s (2003) recommendations and performed a Harman's single-factor test including all our items suggesting common method bias is not a threat to our results.

Pearson correlations are shown in Table 4 (available on request). The independent variable network ability is positively correlated with emotional support from businessperson ($r = 0.13$), but not correlated with emotional support from family and emotional support from friends. Network motivation is, however, positively correlated with all three dependent variables family ($r = .11$), friends ($r = 0.09$), and businessperson ($r = 0.12$). Further examinations of these correlations suggest no indications of multicollinearity (Knoke et al. 2002) since the highest correlation is between being married and having children ($r = 0.38$).

Given the use of cross-sectional data, there is a risk of reverse causality. Although, we cannot fully eliminate this risk, we did seek to minimize it through our choice of measurement. Specifically, network ability and motivation were measured in general terms (i.e., referring to characteristics that are relatively stable over time) while emotional support was measured as a specific recent behaviour.

Survey: Multivariate statistics

We used hierarchical linear regression to formally test our hypotheses. For each of our three dependent variables we first introduced the control variables followed by the independent variables networking ability and network motivation.

With regard to the independent variables, we find that network ability is insignificantly correlated with access to emotional support from family and friends but positively correlated with emotional support from business persons ($\beta=.09$, $p<.05$). Networking motivation is positively correlated with access to emotional support from family ($\beta=.11$, $p<.05$), friends ($\beta=.07$, $p<.05$), and businesspersons ($\beta=.10$, $p<.05$).

Thus, the results support Hypothesis 1, showing nascent entrepreneurs high on network ability are more likely to access emotional support though only from businesspersons. Since nascent entrepreneurs high on network motivation are more likely to access emotional support from both family, friends and businessperson compared to nascent entrepreneurs low on network motivations, support is also found for hypothesis 2. Entrepreneurs' networking ability is uncorrelated with access to emotional support from family suggesting support for Hypothesis 3a. Similarly, network ability is stronger associated with access to emotional support from businesspersons compared to access to emotional support from friends suggesting support for Hypothesis 3b. Entrepreneurs with a high network motivation, in comparison to those with a low network motivation, report they are more likely to access emotional support from family than entrepreneurs. Consequently, Hypothesis 4a is rejected. However, network motivation is more strongly associated with access to emotional support from businesspersons in

comparison to accessing emotional support from friends suggesting support for Hypothesis 4b.

CONCLUSION

Applying mixed methods approach, we used a network agency explanation to provide insight into individuals' networking ability and motivation as antecedents to emotional support access (Ahuja et al., 2012). We also combined a network agency explanation (e.g. Baron and Tang 2009) with a relational explanation of role expectations (Montgomery 1998) to understand under which circumstances network agency matters for access to emotional support. As a result, this investigation provides important new insights into the micro foundations of micro-macro links in entrepreneurship theory, insights that meaningfully address the central theoretical issue of social aggregation (Barney and Felin, 2013).

Our study contributes to the existing, albeit limited, knowledge base drawing attention to social-psychological variations in how entrepreneurs interact with their environment to successfully progress through the entrepreneurial process (e.g. Baron and Markman 2003; Baron and Tang 2009). Specifically, in this study we make three important contributions to the existing literature taking a more agentic turn in entrepreneurial network theory.

First, we add to this emerging knowledge base by showing that network agency not only provides entrepreneurs with access to instrumental support as previously shown by Baron and Tang (2009), but also serves as an important antecedent in access to emotional support (Hanlon and Saunders 2007).

Second, we empirically showed that network agency is more than an ability to effectively interact with others as previously assumed. Specifically, we showed that network agency also involves a motivation element (Ahuja et al. 2012) that translates into an individuals' sense of comfort for engaging, and hence with using their networks (Wanberg 2000). Finally, by integrating functional role theory (Freeman and Ruan 1997; Montgomery 1998) with network agency (Baron and Markman 2003; Baron and Tang 2009) we showed that network ability and network motivation do not function universally across role-relations, an important insight into the complexity of social interactions (Barney and Teplin 2013) in the emergence of entrepreneurial activity and outcomes. We showed instead that these forces are dependent on the culturally defined expectations associated with each of these roles. This moderation effect is a significant extension of the existing entrepreneurial network knowledge base since it has presumed that network agency has universal effects across situations and contexts, a presumption traceable most likely to the infancy of the field.

Our findings suggest that network ability has no role in providing entrepreneurs access to emotional support from the family and friends. From these social positions, the culturally defined expectations overwhelm any potential role of network ability. Thus, the only thing that matters is the social position, or more specifically the role in relation to others. In other words, family members provide other family members emotional support and friends provide friends emotional support not because these persons have great abilities to interact with others but because of their social positions and the respective cultural expectations associated with those social positions. Such a finding is consistent with longitudinal research focusing on the

impact of family business background on interest in business ownership (e.g., Matthews and Moser 1996)

By contrast, our findings suggest that access to emotional support from businesspersons is dependent on entrepreneurs' ability to effectively interact with others. Culturally, emotional support is not something that is necessarily expected to be exchanged among businesspersons, relationships in which egoism dominate. Therefore, accessing emotional support from businesspersons appears contingent on entrepreneurs' ability to interact with other businesspersons.

While results reflecting the moderating function of culturally defined role-relations expectations on network ability are consistent with theory expectations as hypothesized, results reflecting the moderating function of culturally defined role-relations expectations on network motivation are a bit more surprising. We find, as expected, that network motivation matters more for access to emotional support from businesspersons than from friends; thus, entrepreneurs who are highly motivated to use their network are more likely to benefit from this motivation in form of access to emotional support under expectations of egoism compared to expectations of mutualism. Under expectations of mutualism, access to emotional support is less dependent on the entrepreneur's being motivated to use his or her network.

Interestingly, however, and in contrast to what we expected, we find that entrepreneurs' network motivation matters for access to emotional support from family members, conditions that are theoretically postulated as a function of altruism. We hypothesized that under such conditions emotional support is unconditional. While this may indeed be true, the present results indicate that this does not necessarily mean that emotional support is automatic. Consequently, although the culturally defined expectations affiliated with the family role are representative of an unconditional form of emotional support, this support needs to be activated (e.g., asked for). This as an interesting extension of central questions reflected in extant entrepreneurship research. For example, whereas family business background has been linked to interest in in firm ownership (e.g., Matthews and Moser 1996), precisely *why* and *how* it leads to the emergence of such interest may be more complex, and a function of specific interactions among family relations, than prior studies suggest. Simply put, our results suggest entrepreneurs will get it if they ask for it but not necessarily if they don't ask for it. One reason for this might be that although cultural expectations of unconditional support prevail, entrepreneurs' family members are not necessarily aware of the entrepreneurs' need for it at a given moment and time and need to be prompted as a result.

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Table 1: Cultural defined expectations associated role-relations (ideal types)

	Family	Friends	Businessperson
Ideology	Altruism	Mutualism	Egoism
Relation	Biological	Social	Exchange
Logic	Dependence & solidarity	Interdependence & Cooperation	Independence & Competition
Interest	Others interest	Mutual interests	Self interest
Care	Universal	Long term conditioned	Short term conditioned
Action Guidance	Carefulness	Mutual obligation	Utility maximization

Table 5: Estimates of Linear Regression Models of Emotional Support

	Family		Friends		Business	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Gender	.106 [†]	.097 [†]	.162***	.156***	.187***	.160**
Age (ref 16-25)						
Age 26-35	-.019	-.033	.101	.101	.282***	.267***
Age 36-45	-.069	-.073	0.28	.025	.279***	.285***
Age 46-55	-.014	-.001	0.37	.046	.285**	.289**
Age 56-64	.098	-.124	.234*	.252*	.427***	.454***
Civil status (ref is single)						
Partner	.085	.096	-.032	-.024	-.005	-.004
Cohabitant / married	.057	.049	-.023	-.028	-.069	-.078
Children	-.054	-.035	-.061	-.048	-.103	-.091
Work status (ref is self-employed)						
Work status: employed	-.082	-.101 [†]	.019	.007	-.126*	-.143**
Work status: unemployed	.082	-.099	-.068	-.079	-.094	-.105
Work status: student	-.161 [†]	-.180*	-.098	-.111	-.060	-.077
Work status: other	.069	.071	-.088	-.086	-.084	-.089
Education (ref is primary)						
Education: secondary	-.198	-.179	.067	.079	.023	.016
Education: vocational	-.130	-.123	.113	.118	-.037	-.043
Education: higher, short	-.207	-.181	.151	.168	-.116	-.118
Education: Higher, mid	-.348**	-.328**	-.030	-.016	-.098	-.113
Education: higher, long	-.188	-.157	.051	.072	-.049	-.047
Network ability		-.012		-.010		.094*
Network motivation		.108**		.072*		.102**
N respondents	641	641	641	641	641	641
R Square	.041	.054	.045	.053	.062	.088
R Square change		.013*	.	.008 [†]		.026***

[†] p < 0.10 * p < 0.05, ** p < 0.01, *** p < 0.001.

The significance levels are reported as two-tailed tests for control variables and as one-tailed tests for independent variables.

TEMPORAL AND INTERNAL SOCIAL SUPPORT DYNAMICS IN FIRM EMERGENCE

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TEMPORAL AND INTERNAL SOCIAL SUPPORT DYNAMICS IN FIRM EMERGENCE

ABSTRACT

This paper investigates how social support and social support dynamics impact firm emergence. Although not fully consistent, prior research demonstrates that social support in form of informational and emotional support impacts firm emergence. However, much of this research has been static. In this study, we developed and test a dynamic understanding of the importance of social support for firm emergence. First, we propose that informational support, emotional support, and specifically their dynamic interplay explain why certain nascent entrepreneurs dropped out of the firm emergence process while others continue. Second, we propose that the explanation provided by informational and emotional support to why certain nascent entrepreneurs dropped out of the firm emergence process while others continue depends on when the support is received – its timing. We develop our hypotheses anchored in social support theory and test them on a longitudinal datasets of nascent entrepreneurs collected in Denmark from 2012-2013 (N=338).

INTRODUCTION

What explains why certain nascent entrepreneurs abandon the firm emergence process while others continue (Carter et al. 1996)? This has been an enduring question that has occupied many entrepreneurship scholars over time and in the last couple of decades several large research programs have been devoted to solve this puzzle (Davidsson & Gorden 2012; Gartner & Shaver 2012). Firm emergence is a process of organizational effort performed by individuals trying to create a new firm (Katz & Gartner 1988; Gartner 1993).

Among the various theories¹ that have been applied to explain this complex puzzle of firm emergence are social network theory and social support theory that are closely related and often not distinctively separated in entrepreneurship research (See Hoang and Antoncic 2003, Jack 2010, and Gedajlovic et al. 2013 for review of the literature). In this vein, it is argued that nascent entrepreneurs are embedded into social structures that simultaneously enhance and restrict firm emergence through the social support or resources available to them (e.g. Birley 1985; Davidsson & Honig 2003; Hanlon & Saunders 2007; Shane & Cable 2002).

Following Kim et al.'s (2013) recent definition we understand social support "... as resources people accrue from their social relations and employ when addressing difficult issues in their lives (Lin & Ensel, 1989)". Conceptually, social support has often been divided between instrumental support, informational support, emotional support, and companionship (House 1981; Wellman & Wortley 1990; Neergaard et al. 2005). In this study, we specifically distinguish between informational support as 'advice and cognitive guidance' and emotional support as 'encouragement' (House 1981; Neergaard et al. 2005; McGuire 2007).

Although, prior research has been informative for our understanding of what is distinctive to entrepreneurship and firm emergence much of it suffers from being static and not including a dynamic understanding of social support processes essential to really understand firm emergence (Jacobsen 1985; Slotte-Kock & Coveillo 2010). As we will elaborate on later, so far empirical results are relatively inconsistent including both optimistic (e.g. Davidsson &

¹ Among others have the following theories been applied to explain firm emergence: resource based view (Brush et al. 2008), motivation (Cassar 2007), goal setting theory (Delmar & Shane 2003), signaling (Delmar & Shane 2004), human capital (Delmar and Shane 2006), attribution theory (Gatewood et al 1995), cognition (Patel and Fiet 2009), institutional theory (Honig & Karlson 2004), dynamic capabilities (Newbert 2005), and self-efficacy (Townsend et al. 2010).

Honig 2003; Newbert, Tornikoski & Quigley, 2013) and pessimistic (e.g. Kessler & Frank; Tornikoski 2009) outcomes regarding the ‘network success hypothesis’ (Brüderl & Preisendörfer 1998). Most interestingly though, studies showing optimistic outcomes of social surroundings most frequently approached those social surroundings from a dynamic contingency perspective (e.g. Newbert, Tornikoski & Quigley 2013; Kreiser, Patel & Fiet 2013). In accordance, we propose a dynamic understanding of social support’s impact on firm emergence.

First, consistent with prior research we argue that respectively informational and emotional support positively impact firm emergence. Empirically though, the informational and emotional support are of cause mixed and intermingled together (Cohen & Wills 1985; Semmer et al. 2008). Semmer et al. (2008) notice that informational support carry with it a symbolic emotional component. This intermingle between types of support necessitates an understanding of their mutual interplay in order for us to understand how they impact firm emergence (Beggs, Haines & Hurlbert 1996; Klyver & Schenkel 2013). Studying isolated social support effect only provides us part of the firm emergence story, and likely a biased one. Therefore, secondly, we propose an ‘internal social support dynamic’. Specifically, we propose that the positive impact of instrumental support on firm emergence is weaker when accompanied by emotional support. This is because when informational support is accompanied with emotional support it is more likely the information is provided due to obligations between individuals and less likely provided due to possession of accurate and precise information. The quality of the informational support is, therefore, lower and consequently its impact on firm emergence weaker.

Finally, we propose a ‘temporal social support dynamic’ in response to several calls for more focus on timing of social support (e.g. Hoang & Antoncic 2003; Slotte-Kock & Coviello 2010). We propose that social support unfolds over time and that informational and emotional supports are appropriate in different situations during firm emergence (Jacobsen 1986). We argue that firm emergence is characterized by an increasing degree of commitment to the startup by the entrepreneur (Fayolle, Basso & Tornikoski 2010) and that the impact of informational and emotional support depends on the degree of commitment when the support is received. Specifically, we argue that emotional support – that is a reassurance of others’ ability and willingness to help – is more important for firm emergence the less committed entrepreneurs are. Further, we argue that as entrepreneurs eventually get more committed to the startup the important type of support switch from being emotional toward being informational support, practically informing the transition to self-employment.

Thus, our main contribution to entrepreneurship literature is development and test of a dynamic social support understanding of firm emergence that include both internal social support dynamics and temporal social support dynamics. We test our ideas based on a longitudinal dataset collected in two waves in 2012 and 2013 on a representative panel of Danish nascent entrepreneurs (N=361).

THEORY

Social networks, social support and firm emergence

There is a long tradition of studying how social networks influence entrepreneurship. Historically, this interest arose as a reaction to the individualistic and autonomous perception of entrepreneurs as unique distinctive individuals (Zimmer & Aldrich 1987). Within this tradition it was acknowledge that entrepreneurship is inherently a social process in which entrepreneurs heavily rely on their social surroundings to succeed (Starr & Macmillan, 1990; Gedajlovic et al. 2013).

The social nature of entrepreneurship has been approached in various ways although they all rely on the assumption that entrepreneurs access various resources or support from their social environment that they apply in their start-up effort (Hanlon & Saunders 2007). While some have focused only on the structural and relational characteristics of entrepreneurs' social networks and how it affects entrepreneurship (Burt 2000; Greve and Salaff 2003) others have been interested in what has been exchanged between entrepreneurs and their environment (Birley 1985; Jenssen & Koenig 2002; Rooks et al forthcoming) – specifically what types of resources and social support that have been exchanged.

In those studies, entrepreneurship has had many faces including but not limited to operationalizations such as entry to nascent entrepreneurship (Klyver and Schenkel 2013), small business ownership (Cromie & Birley 1992), growth (Hansen 1995), and firm emergence (Davidsson & Honig 2003). In this study, we are interested in entrepreneurship understood as a firm emergence process (Katz & Gartner 1988).

Although not exhaustive, table 1 provides a review of a number of essential studies that have investigated, based on longitudinal datasets, how social network, social support or networking activities have impact firm emergence. Several issues become evident from the review. First, only relatively few different datasets have been used of which two are national representative (Swedish and US PSED) while the two remaining are more convenient samples (Austria and France).

Second, there is great heterogeneity in the operationalization of firm emergence as also revealed in Davidsson & Gordon's (2012) review on studies on firm emergence. Some use objective measures either as specific single gestation activities, including first sale, hired employees, external funding, and positive cash flow (Davidsson & Honig 2003; Tornikoski & Newbert 2007; Newbert, Tornikoski & Quigley 2013) or have generated indexes based on a combination of gestation activities (Davidsson & Honig 2003; Tornikoski 2009; Newbert & Tornikoski 2012; Kreiser, Patel & Fiet 2013). Simultaneously, due to methodological challenges with those objective measures there is also a strong tradition for using perceptual measures of firm emergence operationalizing abandon, still trying, and in operation in various ways² (Kessler and Frank 2009; Tornikoski & Newbert 2007; Tornikoski 2009; Newbert, Tornikoski & Quigley 2013; Kim, Longest & Aldrich 2013). In fact, a majority of the studies reviewed applied a perceptual measure of firm emergence.

Third, there is an increasing tendency to study the contingencies of social network or social support effects. The early studies mainly investigated main effects while the more current studies are interested in the contingencies of those effects. Three studies investigated how different network effects were contingent. Newbert & Tornikoski (2012) found that network growth moderates the effect of network size, contact frequency, and value of resources on firm emergence while Kreiser et al. (2013) found that the effect of change in number of ties on firm emergence is stronger for entrepreneurs with higher social competences and higher entrepreneurial intensity. Finally, Kim et al. (2013) found that the effect of social support is dependent on the alignment of task (informational support or emotional support) and role of the provider (family or not).

Fourth, so far the focus of prior studies follows a relative formalistic sociology in which attention is almost only on the structure of relations and networks without consideration of their substantive content – the studies prioritize structure over essences (Emirbayer and Goodwin 1994). Exceptions are Davidsson & Honig (2003) who also found that encouragement from family and friends matters for progression in gestation activities, and

² Tornikoski (2009) also included a option of having the startup on standby.

Newbert & Tornikoski (2012) who found that the value of the resources received has a positive impact on firm emergence while it negatively moderate the otherwise positive impact of growth in network size on firm emergence.

Fifth, although all studies are dynamic the nature of this dynamics is often related to timely separation to when dependent and independent variables were collected (e.g. Davidsson & Honig 2003; Kessler & Frank 2009; Tornikoski & Newbert 2007; Tornikoski 2009; Kim, Longest & Aldrich 2013). Only recently, the various consequences of network dynamics on firm emergence has been in focus (Newbert & Tornikoski 2012; Newbert, Tornikoski & Quigley 2013; Kreiser, Patel & Fiet 2013) responding to Hoang & Antoncic's (2003) call for studies on the importance of timing of network effects.

Finally, while prior studies reveal overall optimism about the 'network success hypothesis' (Brüderl & Preisendörfer 1998) it also is evident that the results are not convincing and not at all consistent (Witt 2004). While some studies provided optimistic empirical results (Davidsson & Honig 2003; Newbert & Tornikoski 2012; Newbert, Tornikoski & Quigley 2013; Kim, Longest, & Aldrich 2013; Kreiser, Patel & Fiet), others were less successful and obtained both optimistic and pessimistic results (Tornikoski & Newbert 2007), while finally some found no effect (Kessler & Frank 2009) or even negative effects (Tornikoski 2009). Interestingly though, the more recent studies, that have applied more sophisticated techniques and studied network contingencies, are more optimistic. It might indicate that network effects are not simple and linear and in order to understand their mechanisms it is necessary to consider the dynamic mechanisms.

From Social Network to Social Support

Because we are moving discussions of firm emergence away from a formalistic sociology only focusing on structural or relational network characteristics (Emirbayer and Goodwin 1994), as often seen in prior research, towards a focus on essence and content in form of social support, it is important to understand the parallel developments and later integration of social network theory and social support theory.

The historical roots of social support theory and social network theory are respectively social psychology and sociology (Walker et al. 1993). Historically, social support theory was interested in explaining how social support influence health, happiness, and longevity of life (Gottlieb & Bergen 2010) while social network analysis used the structural and relational characteristics of individuals' social network to explain a broad range of behavior (Borgatti, Mehra, Brass, and Labianca 2009). Thus, while social support theory was interested in the content of what was exchanged (House 1981), social network theory was only interested in the structural and relational characteristic of the social environment (Wellman 1983; Emirbayer and Goodwin 1994).

Later, these two theories have been integrated and a tradition has developed in which scholars are studying how various types of social support is obtained from social network with various structural and relational characteristics trying to explain effect of various behavioral outcomes (Beggs, Haines & Hurlbert 1996; Agneessens et al. 2006). This development is also seen in organizational theory (Borgatti & Foster 2003), including work sociology (McGuire 2007) and in entrepreneurship (e.g. Kim et al. 2013).

In this study, we rely on social support theory to investigate the effect of what is being exchanged on firm emergence, regardless of the relational or structural embeddedness of this support. We follow Kim et al. (2013: 2) in defining social support "... as resources people accrue from their social relations and employ when addressing difficult issues in their lives (Lin & Ensel, 1989)". Social support have been categorized in many different ways; however, consensus seems to be that social support can be conceptually understood as instrumental

support, informational support, emotional support, and companionship (House 1981; Wellman & Wortley 1990; Agneessens et al. 2006).

In this study, we distinctive between informational support as ‘advice and cognitive guidance’ and emotional support as ‘encouragement’ (House 1981; Neergaard et al. 2005; McGuire 2007) and are interested how they together impact firm emergence.

HYPOTHESIS DEVELOPMENT

Main Effect: Informational Support & Emotional Support

One of the most prevalent arguments in entrepreneurship and social network literature is that entrepreneurs access non-redundant information (e.g. Burt 2000) that enhance their ability to discovery, evaluate and exploit business opportunities. Cohen & Wills (1985: 313) stated that “... informational support is help in defining, understanding, and coping with problematic events”, often termed advice, appraisal support, or cognitive guidance. We follow this stream of research to argue that nascent entrepreneurs who receive informational support are more likely to continue in their startup process effort. They have information available from their social surroundings that supplement their own knowledge and thereby increase their ability to discover, evaluate and exploit opportunities necessary for firm emergence.

Hypothesis 1: The more informational support nascent entrepreneurs receive, the more likely does firm emergence continue.

In contrast to informational support, emotional support involves individuals’ feelings of being valued and accepted for their worth and experiences. Broadly, it has been described as behavior expressing esteem, affect, trust, concern, and listening (Wellman and Wortley 1990; Neergaard et al. 2005). Emotional support has been argued and shown to impact entrepreneurship by promoting optimism, supporting creativity, and enabling individuals to deal with stress (Baron 2008). Specifically, emotional support impact the way the external world is perceived in that positive emotions are more likely to be associated with individuals perceiving objects, other persons, and ideas as more favorable (Bower 1991; Isen 2002). We follow this stream of research to argue that nascent entrepreneurs who receive emotional support are better able to handle stress and obstacles that are prevalent during the startup process (Bygrave 1991) and are more optimistic about the viability of their business (Busenitz & Barney 1997). Therefore, they are more likely to continue their startup effort.

Hypothesis 2: The more emotional support nascent entrepreneurs receive, the more likely does firm emergence continue.

Interaction effect: Internal Social Support Dynamics

The question is whether informational support and emotional support function independent of each other (Beggs, Haines & Hurlbert 1996; Klyver & Schenkel 2013). It is not hard to imagine that often entrepreneurs receive both informational and emotional support from the same the person, often even during the same interaction. One might argue that informational and emotional support are embedded in each other and closely intermingled together. As Cohen & Wills (1985: 313) state: “Although support functions can be distinguished conceptually, in naturalistic settings they are not usually independent”. Semmer et al. (2008) noted that situations that individuals describe as instrumental were interpreted as emotional – specifically they argue that “...instrumental acts may well carry emotional meaning” (p236).

Thus, the question becomes whether informational support and emotional support enforce or reduce each other? Klyver & Schenkel (2013) asked a similar question regarding the interplay of human capital, social capital and financial capital and how they together influence individuals’ decision to entry nascent entrepreneurship. Specifically, they argued that the interplay might take place through one of three mechanisms: 1) various resources might

supplement each other, 2) various resources might substitute each other, and 3) various resources might be neutral to each other. These three mechanisms are also the ones in question when investigating the interplay between informational support and emotional support.

Interpretation of Semmer et al. (2008) suggests that it is the emotional meaning of informational support that is importance in most cases, and probably even decisive for the perception of informational support as helpful³. They argued that informational support includes a more important symbolic message that is capture in the emotional support which's value is beyond dealing with the specific issue.

We do not necessarily disagree with Semmer et al. (2008) that informational support might sometime also contain symbolic and embedded emotional support. Not at all. We identify two consequences of Semmer et al.'s (2008) idea that is relevant for this study. One, the main effect of informational support is really an emotional support effect suggesting that the effect of informational support is mediated by emotional support. Two, the effect of informational support is strongest with the presence of emotional support suggesting an interaction model with positive interaction effects.

Although, we comply with Semmer et al. (2008) that informational support is sometimes, and probably often, affiliated with emotional support we argue in contrast to them that this affiliation is not a sign of quality of the support. Rather, when informational support is affiliated with emotional support it is more likely the information is provided due to obligations between individuals. Because of these obligations it is less likely the informational support has high quality. It is provided because there are obligations to help, not because accurate and precise information is in possession. In contrast, if there is no emotional support affiliated with informational support it is more likely no obligations prevail between the parties and therefore more likely the informational support is given due to expert knowledge, and therefore that it has high quality. We therefore expect a negative interaction effect of informational support and emotional support on firm emergence.

Hypothesis 3: The positive effect of informational support on firm emergence decreases the more emotional support nascent entrepreneurs receive.

Interaction Effect: Temporal Social Support Dynamics

Interest in how entrepreneurs' social network develops has a long tradition although the majority of studies are static in nature (Slotte-Kock & Coveille 2010). The few early studies on network dynamics were mainly focused on how entrepreneurs' social network developed during the entrepreneurial process (e.g. Larson & Starr 1993; Greve 1995) but not on the consequence of this development. Maybe this initiated Hoang & Antoncic (2003) to call for studies on the timing effects of social network: "*For research that seeks to explain entrepreneurial outcomes, incorporating processual insights such as order or timing effects could better explain the impact of network resources on venture performance. The notion of timing could be a key contingency that magnifies or attenuates the benefits of accessing certain types of resources*" (p181). While their call seems intuitively reasonable it took almost ten years before such studies with focus on the consequences of network dynamic started to appear in the literature (e.g. Newbert & Tornikoski 2012; Kreiser, Patel & Fiet 2013).

³ Semmer et al. (2008) distinctive between instrumental and emotional support, not between informational and emotional support. However, we argue that similar mechanisms are likely existing between informational support and emotional support because of the conceptual closeness of instrumental and informational support (Cohen & Wills 1985).

Also in social support theory, timing has also been an issue and a way to get closer to study the mechanisms through which social support functions – it is said that the temporal dimensions of social support are important for understanding social support (Jacobsen 1986; Thoits 1995).

Essentially, it is argued that social support unfolds over time and different kinds of supports are appropriate in different situations. Jacobsen (1986) concluded in their conceptual work that emotional support is most appropriate in situations characterized by crisis where the emotional support “... reassurance that others are able and willing to help in the struggle to regain equilibrium” (p254) while informational support is most appropriate in situations of transition helping individuals understanding the changes they going through. We argue similar processes of alignment of social support and situations take place during firm emergence.

Businesses go through several life cycle stages (Greiner 1972). Firm emergence as one of them is characterized by an emotional-oriented commitment process that eventually results in a decision to start or not (Fayolle, Basso & Tornikoski 2010) together with a practical-oriented process of actually trying to start the business (Katz & Gartner 1988). The emotional-oriented commitment process is equivalent to the ‘crisis situation’ described in social support theory while the practical-oriented process is equivalent to the ‘transition’ situation. The two processes are parallel, taking place simultaneously, and are closely related; however, the balance between them varies over time in such a way so that commitment issues are more prevalent early in the process and practical issues are becoming more prevalent later in the process as commitment is established. Commitment is not a feeling but a behavior (Fayolle, Basso & Tornikoski 2010). Therefore, it is reasonable to assume that as entrepreneurs complete more and more gestation activities they increasingly commit themselves to firm emergence. In this way, the commitment process closely follows the number of gestation activities completed.

We argue that emotional support is more important to entrepreneurs’ firm emergence, the less committed entrepreneurs are. Entrepreneurs early in their firm emergence process still struggle with commitment issues are more reliant on the reassurance obtained from others in form of emotional support to continue their effort, and therefore, we expect the impact of emotional support on firm emergence to be stronger the fewer gestation activities they have completed when receiving the support.

Similarly, we expect informational support to be more important when received after many gestation activities have been completed where commitment issues are settled and focus is on the transition towards self-employment. Thus, as entrepreneurs become increasingly committed to firm emergence, we expect the informational support to have stronger impact on firm emergence.

Hypothesis 4a: The positive effect of informational support on firm emergence is stronger the more gestation activities completed when received.

Hypothesis 4b: The positive effect of emotional support on firm emergence is stronger the fewer gestation activities completed when received.

METHODOLOGY

Data

In order to increase generalizability of empirical results, we follow an ongoing trend in entrepreneurship research to apply national representative sample of nascent entrepreneurs (Gartner & Shaver 2012; Davidsson and Gordon 2012). Specifically, we apply a longitudinal dataset consisting of two waves collected in respectively 2012 and 2013.

Using CATI technology, a representative sample of nascent entrepreneurs was identified in 2012 by calling randomly to a stratified sample frame of 4.4 million mobile numbers in Denmark (the total population of Denmark is 5.5 million) asking the well-established screening question for nascent entrepreneurs: ‘Are you currently, alone or together with others, in the process of starting a business?’ (Davidsson & Gorden 2012). An earlier survey supports using mobile numbers as sample frame in Denmark where almost all adults use mobiles (Danish Statistic 2012).

The sample was stratified based on gender, age, and region. Calls were made to 47,615 individuals and we reached 19,286. There were several reasons for unsuccessful calls, including: non-working numbers (3,854), refusals (7,795), outside target group of 16 to 64 years old (1,623), and failed after 10 repeated calls (9,814). Overall, the approach resulted in a response rate for the first wave of 40.5%.

From the 19,286 individuals initially contacted, a sample of 800 nascent entrepreneurs was identified. Six months after the first wave we tried to contact all 800 entrepreneurs again for a second wave of questions. We reached 460 giving a response rate for the second wave of 57.5 %. Most often non-response was due to unreachable respondents, even after ten callbacks. A non-response analysis reveals no systematic difference in the independent and moderating variables of interest between those who responded in second wave compared to those who did not. We did, however, find smaller differences in some control variables⁴ but overall we do not consider the missing respondents a threat to the empirical results apart from reducing the statistical power.

In order to eliminate those respondents that potentially already were operating their business during the first wave, we excluded respondents that in the first wave had been self-employed more than year and who have not started at least two firms. It is unlikely they are really in the process of starting a business and much more likely they are running an established business. This reduced the sample to 361. It was finally reduced to 338 due to uncompleted questionnaires.

Measures

Dependent variable: Firm Emergence Persistence

As noticed earlier, there is no consensus on how to operationalize firm emergence (Kim & Aldrich 2010; Davidsson & Gorden 2012). We follow the tradition of using perceptual measures of firm emergence (e.g. Kessler & Frank; Newbert, Tornikoski, Quigley 2013), and specifically we follow Kim et al. (2013) in being interested in those who abandon the startup effort compared to those who do not. Kim et al. (2013) argued that persistence in the firm emergence effort, in contrast to quitting, represent “... a key output of social support’s contribution to a founding effort, with persistence defined as sustained activity and ongoing involvement by individuals toward establishing a business” (p4). In the beginning of the second wave questionnaire we asked entrepreneurs if they had dropped their startup, still trying to start their business or if they had successfully started their business. We coded ‘firm emergence persistence’ 1 if they are still trying to start their business or if they have successfully started it. If they have abandoned the started effort firm emergence persistence is coded 0.

⁴ Specifically, we found that respondents in second wave were 2 years older ($p < 0.05$), were less likely to have a partner ($p < 0.05$), more likely to be married ($p < 0.01$), and more likely to have children ($p < 0.05$).

Independent variables

We operationalize social support as the amount of resource entrepreneurs activate from their social environment using a well-established approach to operationalize resource acquisition in entrepreneurship research (e.g. Birley 1986; Kessler & Frank 2009).

We developed our formative scales of informational support and emotional support based on combinations of the position-generator approach (Lin & Dumin 1986) and the resource-generator approach (Snijders 1999). For *informational support* we asked in the first wave: “We will now ask you questions regarding whether people specifically have provided advice during your start-up. Please evaluate whether your partner has provided you useless advice, trivial advice, good advice or no advice at all”. We asked this question to a range of role relations: parents, closest family member apart from partner and parents, best friend, the acquaintance you last talked to, the colleague you last talked to, the advisor you last talked to. We recoded each response as 1 if ‘good advice’ and otherwise 0, and our formative measure was finally calculated as the mean.

McGuire (2007) showed in her qualitative study of social support in a work context that encouragement and excitement is closely related to emotional support. Therefore, for *emotional support* we asked in first wave: “We will now ask you to evaluate how people specifically have reacted to your startup. Please evaluate whether your partner has been critical, indifferent or excited.” We asked this question to the same range of role relations. We recoded each response as 1 if ‘excited’ and otherwise 0, and our formative measure was finally calculated as the mean.

Moderating variable: Gestation activities

Katz & Gartner (1988) argued that firm emerges as a result of individuals’ continuous organizational effort – an effort that can be categorized into activities associated with intentionality, resources, boundary, and exchange. The organizational effort is not a linear process or follows a specific sequence; however, the firm becomes closer to emergence as more activities are completed (Katz & Gartner 1988; Kreiser et al. 2013). In compliance with this idea, entrepreneurship scholars have counted the number of gestation activities completed as sign of where in the firm emergence process individuals are (Davidsson & Gordon 2012).

Following this ‘counting gestation activities’ tradition, we asked respondents in the first wave whether the following gestation activities have been completed or not: writing a business plan, developed a product or a service, developed material for market promotion, developed technology, bought, leased or rented machinery or buildings, bought commodities, inventory items or other items, talked to potential customers, collected data on customers, defined your business concept, made a budget, checked the law and regulations, completed sales, registered the business. Each activity was coded 1 if ‘Yes, completed’, otherwise 0. The formative measure of ‘gestation activities’ is calculated as the average of the 13 activities.

Control variables

We controlled for a range of demographic variables. Gender was coded 1 for male and 2 for female. The exact age was recoded into dummies for age categories. Dummies were also coded for respondents’ civil status: single, partner, and cohabitant/married, respectively. We created a dummy to control for whether entrepreneurs had kids (coded 1) or not (coded 0). We controlled for whether individuals were unemployed or not, coded 1 for unemployment. Finally, we controlled for respondents’ education level: primary school, secondary school, vocational education, university shorter than 3 years, university between 3 and 4 years, and university longer than 4 years. Again, we created dummies for each category.

Analytical techniques

Since our non-response analysis revealed no systematic differences in our variables of interest between respondents and non-respondents in the second wave, there is no selection bias and no need to control further for attrition of respondents. Therefore, because of the binary nature of our dependent variable logistic regression is the most appropriate technique (Hosmer and Lemeshow 2000). Logistic regression analysis has a relaxed assumption about linearity and estimates the relationship between a binary dependent variable and independent variables.

Since we separated time-wise data collection for our dependent and independent variables we are in a better situation to claim causality compared typical cross-sectional design (Greve & Salaff 2003). However, this is still not without concerns. We can still not eliminate all causality biases. For instance, we cannot rule out the possibility that people are more likely to provide social support if they expect firm emergence to succeed compared to situation where they expect individuals to abandon the firm emergence process. If such expectations about the future are not completely random distributed the future status of firm emergence interferes with our causality claim even though we collect the data in various waves.

We use a stepwise approach introducing first the control variables, followed by a model including the main effects, and finally a model that also includes the interactions effects.

FINDINGS

Descriptive statistics

Table 2 (available on request from author) shows the means for the control variables and independent variables across entrepreneurs who in wave 2 abandoned the firm emergence process, entrepreneurs who are still trying to start their business, and entrepreneurs who have started their business. It reveals no significant differences between firm emergence stages and gender, civil status, education level, and emotional support. It does, however, reveal that those who abandon the process are younger ($p < 0.01$), less likely to have children ($p < 0.01$), and more likely unemployed ($p < 0.05$), completed fewer gestation activities ($p < 0.001$), and received less informational support ($p < 0.05$).

The Spearman correlations are shown in Table 3 (available on request from author). The independent variable firm emergence persistence is positively correlated with children ($p < 0.01$), gestation activities ($p < 0.01$), and informational support ($p < 0.01$) while negatively correlated with higher education less than 3 years ($p < 0.05$).

The highest correlation between variables ($r = -0.497$) is between being married (or cohabitant) and having a partner indicating that there is no risk of multicollinearity (Knoke et al. 2002). We followed several of Podsakoff et al.'s (2003) procedures to reduce risk of common method bias: 1) used different anchors for our scales, 2) we protected the anonymity of the respondents, and finally most importantly 3) we separated measures of predictors and dependent variable. It is therefore not surprising that our Harman's single-factor test including all our variables revealed a nine-factor model in which the strongest predictor explained only approximately 13 % of the variance. Thus, common method bias is not a threat to our results.

Multivariate statistics

In order to test our hypotheses we completed logistic regressions stepwise introducing variables into the models. First, in model 1 we introduced the control variables revealing no significant results of gender, age, civil status, having children, unemployment, and education. In model 2, we introduce the independent variables together with the moderating variable gestation activities. It reveals that the number of gestation activities at wave 1 positively predict firm emergence persistence in wave 2 ($p < 0.001$). It further reveals that informational support received in wave 1 positively impact firm emergence persistence in wave 2

supporting hypothesis 1 ($p < 0.05$). We did not find a positive impact of emotional support received in wave 1 on firm emergence persistence in wave 2 rejecting hypothesis 2.

In model 3, we introduce the interaction effects. In support of hypothesis 3, we find that the impact of informational support received in wave 1 on firm emergence persistence in wave 2 is negatively moderated by emotional support received in wave 1 ($p < 0.10$). It also reveals that informational support received in wave 1 has a stronger impact on firm emergence persistence in wave 2, the more gestation activities entrepreneurs had completed in wave 1 when receiving the informational support ($p < 0.10$). This is in support of hypothesis 4a. And finally, in support of hypothesis 4b we find that emotional support's impact on firm emergence persistence is stronger the fewer gestation activities the entrepreneurs had completed when receiving the emotional support.

CONCLUSION

Overview of results

Relying on two waves of data collection from a national representative sample of nascent entrepreneurs in Denmark, we investigated the impact of social support on firm emergence. Specifically, we tested how respectively informational support, emotional support, their internal contingencies, and their temporal contingencies impact nascent entrepreneurs' tendency to continue their effort to start a business. Anchored in social support theory, we developed five hypotheses of which four were supported. Empirically, our study provides strong evidence for the importance of social support for firm emergence, but simultaneously and strikingly important our study also reveals a contingent and dynamic nature of this impact.

We found that informational support has a direct impact on firm emergence (hypothesis 1) but that this impact is stronger when received later in the firm emergence process when more gestation activities have been completed (hypothesis 4a). In these later stages of firm emergence, the entrepreneurs are more likely to have clarified their commitment issues affiliated with the identity crisis and have moved their attention to the practical issues of the transition to self-employment. They are therefore better able to absorb and apply the informational support received.

Unexpectedly, we did not find a direct effect of emotional support on firm emergence (hypothesis 2) but our interaction model revealed that emotional support are important when received earlier in the firm emergence process when fewer gestation activities have been completed (hypothesis 4b). In these early stages, entrepreneurs are struggling with commitment issues in form of various crises related to the startup decision, and reassurance from others in form of emotional support is here important for them to continue their effort. Without reassurance that others support their intended transition to self-employment they are likely to abandon their startup effort.

Thus, our empirical results show temporal contingencies of social support effects in that emotional support is more important early in the firm emergence process which most precisely is described as a period with crises and commitment issues, while informational support becomes increasingly important as entrepreneurs have resolved their commitment issues and are moving into a period of transition where practical guidance is of essence.

Apart from temporal contingencies of social support, we also found support for an internal social support contingency in form of informational support and emotional support dynamics. We found that informational support is less impactful on firm emergence when accompanied with emotional support. Informational and emotional support are closely related and intermingle. As emotional support gets more embedded into and intermingled with

informational support the less impactful this informational support becomes. This is because when informational support is accompanied with emotional support, the information that are being exchange are more likely exchanged due to mutual obligations between parties rather than being exchanged because of accurate and precise knowledge. In this way, it is more likely the informational support is of lower qualitative and therefore is has a weaker impact on firm emergence.

Theoretical implications

Our study contributes in several ways to the existing research on firm emergence, social networks and social support. We are moving the discussion of how social surroundings impact firm emergence from a prior main formalistic sociology focusing on relational and structural characteristics (e.g. Newbert & Tornikoski 2012; Kreiser, Patel & Fiet 2013) to focus on essence and content by integrating social support theory into the understanding of firm emergence. Previously, the content of exchange processes has been the unexplained black-box mechanisms used to justify why relational and structural characteristics are expected to have impact. In this study, joining Kim et al. (2013) we have tried to bring content out of the black box and make it the main focus of inquiry.

This change of focus crystalized a nuanced and complex picture of social support dynamics that eventually make it difficult to really believe only relational and structural characteristics of social surroundings are enough to understand the complex nature of firm emergence and entrepreneurship.

Actually, the dynamic understanding of social support processes might eventually get us closer to an answer as to why we have not been able to obtain more consistent results regarding the impact of social surroundings on entrepreneurship and firm emergence (Witt 2004). Our review revealed that studies incorporating a contingent understanding of social support dynamics or social network dynamics are more successful in explaining how social surroundings influence firm emergence process. Thus, the inconsistency in prior studies might be due to that sometimes a too simple, and not dynamic, understanding of social surroundings are applied. Our study endorses this explanation.

The dynamic understanding also helps us explain our lack of direct effect of emotional support. Although, this might intuitively looks surprising it should be noticed that in social support theory it is not uncommon to find only indirect effect of emotional support (Gottlieb & Bergen 2010). In this vein, Cohen & Wills (1985) discussed two main arguments focusing on different mechanisms through which emotional support may function. The first argument follows an embeddedness and social integration logic and it empirically captured in a main effect of emotional support. Our emotional support hypothesis was original developed following this logic. Another argument, however, follows a stress buffer logic empirically captured as a dependent effect. Converting this idea to the empirical context of this study infers that emotional support should not have a direct effect but rather only an effect when commitment issues have high priority and attention equivalent to high stress situations. In these situations where commitment issues are most prevalent, emotional support has a positive impact and becomes a buffer between the emotional stress of committing and successfully continuering firm emergence behavior.

We strongly believe and suggest that future research continues this emerging focus on contingencies and dynamics in how social surroundings impact entrepreneurship and firm emergence.

Although we have studied firm emergence our results can be generalized and have consequences to a broader context. Firm emergence essentially involves discovery, evaluation and exploitation of opportunities (Shane & Venkataraman 2000; Shane 2012). These

processes of discovering, evaluating and exploiting of cause take place in other settings where the results may well be applicable too, including growing and developing an idea within an existing business (Burgelman 1983). While we claim our results are generalizable outside of empirical context it is of cause also within limits. One obvious limitation might be the cultural dependence of social support (Klyver & Foley 2012). Entrepreneurs behave differently in various cultural contexts but also the functions and mechanisms of social support vary with culture.

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Table 1: Overview of Longitudinal Studies on Social Support/Social Networks with Firm Emergence as Dependent Variable

Study	Datasets	DV	IVs	Model	Structure or content	Timing / dynamics in support	Conclusion (Network effect: Optimism, pessimism, or both)
Davidsson & Honig (JBV 2003)	Swedish PSED	Gestation activities Sales Profitable	Parents in business Encouragement Friends in business Assistance agency Team Business network Married	Main	Mostly structure	No	Most variables impact progression in the, process measure as gestation activities, while only member of a business network and having friends and neighbors in business are the only important factors for sales and profit (only member of business network) (Optimism)
Kessler & Frank (ISBJ 2009)	Austria (not representative)	Started or not (perceptual)	Network index (contact with a range of business roles) Role models	Main	Structure	No	No effect of network structure on the likelihood of starting a business. (Pessimism)
Tornikoski & Newbert (JBV 2007)	US PSED I	First sale Hired employees External funding Started (perceptual)	Defined marketing opportunities Asked funds Established credit Took business class Outside assistance	Main	Structure	No	Both negative and positive effect of networking (Both)
Tornikoski (IEMJ 2009)	France (not representative)	Emergence: started, still trying, stand-by, quit (perceptual) Gestation activities	Network index (contact with suppliers, R&D partners, and technology partners)	Main	Structure	No	Networking activity has negative impact on firm emergence (Pessimism)
Newbert & Tornikoski (SBE 2012)	US PSED I	Gestation activities (Hired employees, First sale, External funding)	Network size Contact frequency Duration of contact Multiplexity Value of resources Network growth	Interaction	Mostly structure	Yes	Network growth, value of received resources and multiplexity of relationship are positively related to firm emergence. The network growth effect is moderated by network size, contact frequency, and value of resources. (Optimism)
Newbert, Tornikoski & Quigley (JBV 2013)	US PSED I	Positive cash flow Started (perceptual)	Heterogeneity over time in duration, exchange history, frequency, and emotional intensity	Main	Structure	Yes	With small variations, heterogeneity over time in duration, multiplexity, frequency, and emotional intensity impact firm emergence (perceptual and positive cash flow) and the pace of it. (Optimism)
Kim, Longest & Aldrich (WO 2013)	US PSED I	Hazard rate of quitting startup effort (or continuing; perceptual)	Task-role support combinations	Interaction	Content	No	The effect of social support firm emergence depends on alignment of task (information or emotional) and roles (family or non-family) (Optimism)
Kreiser, Patel & Fiet (ETP 2013)	US PSED I	Increase in gestation activities	Change in tie strength (=change in intensity of network use) Change in numbers of ties	Interaction	Structure	Yes	Change in tie strength has a negative impact on firm emergence while change in numbers of ties has a positive impact. Change in number of ties is moderated by social competences. (Optimism)

Table 4: Hierarchical Logistic Regression: Predicting nascent entrepreneurs' continuering in the startup process (compared to quitting).

	Control model	Main effect model	Interaction effect model
	B	B	B
Main effect			
Gender	-.30	-.40	-.39
Age (ref is 16-25 years old)			
26-35 years old	-.09	-.23	-.27
36-45 years old	.29	.16	.11
46-55 years old	.68	.51	.56
56-64 old	.96	.70	.72
Civil status (ref is single)			
Partner	.43	.37	.43
Cohabitant/married	-.03	-.02	.02
Children	.47	.27	.27
Unemployed	-.65 [†]	-.33	-.35
Education (ref is primary school)			
Secondary	-.30	-.65	-.69
Vocational	-.13	-.52	-.51
High < 3 years	-.83	-.87	-.96
High 3-4 years	-.14	-.23	-.24
High > 4 years	-.35	-.08	.19
Gestation activities		2.80***	3.58*
Informational support		.91*	1.09
Emotional support		.15	2.69*
Interaction effects			
Information support * Emotional support			-2.11 [†]
Informational support * Development stage			2.97 [†]
Emotional support * Gestation activities			-3.42*
Constant	.22	-1.43***	-2.50
N respondent	338	338	338
Nagelkerke R Square	.09	.24	.27
Change in Nagelkerke R Square		.15	.03

[†] p < 0.10 * p < 0.05, ** p < 0.01, *** p < 0.001.

The significance levels are reported as two-tailed tests for control variables and as one-tailed tests for independent variables.

LINKING NARCISSISM AND PERFORMANCE IN ENTREPRENEURIAL TEAMS: THE MEDIATING ROLE OF INDIVIDUAL ENTREPRENEURIAL ORIENTATION

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Linking narcissism and performance in entrepreneurial teams: The mediating role of individual entrepreneurial orientation

Can a narcissistic individual in a two-person team be beneficial for an entrepreneurial team outcome? By questioning this, we shed light on a controversially debated personality trait which frequently emerges in the context of entrepreneurship. Therefore, we conduct a longitudinal experimental design with 66 entrepreneurship student teams. Building on social psychological theories and previous research, we argue that individuals in teams scoring high on narcissism enhance the team's entrepreneurial orientation which leads to higher team performance regarding an entrepreneurial task. The results of the mediation analysis confirm our assumption and contribute to the entrepreneurship literature by explaining the link between narcissism and performance.

Introduction

In line with person-environment fit theory, recent research pointed out that narcissism is a common phenomenon among entrepreneurs and significantly explains variance in entrepreneurial attitude (Mathieu and St-Jean, 2013). Narcissism is considered as “dark side” personality trait and can be defined as “highly inflated, unrealistically positive views of the self” (Campbell and Foster, 2007). In view of this negatively connoted approach, previous research mainly examined the negative outcomes of narcissism which indicate that narcissism is a personality trait that should be avoided. In this respect previous studies revealed – in certain contexts - a negative effect of narcissism on performance as well as a positive effect on firm performance variance (Wales et al. 2013; Judge et al., 2006). Moreover, narcissism can be linked to possible beneficial bright sides (Resick et al., 2009; Judge et al., 2009) and to a positive performance outcome (Raskin, 1980; Goncalo et al., 2010). This indicates that narcissism could have promising effects regarding bright sides of narcissism (Winslow and Solomon, 1987). Therefore, the need of studying positive outcomes of narcissism arises. Further, the consideration of narcissism in a team-setting is eminently worthwhile because certain narcissistic behaviors particularly take effect in social interactions (Morf and Rhodewalt, 2001). Only recently, results by Goncalo et al. (2010) indicate that narcissism may - under certain conditions - affect team performance regarding a creative task positively. Those findings suggest that narcissists' behavior may be beneficial when targeting high team performance concerning certain tasks. Especially when it comes to a very early stage of new venture creation – business planning – narcissistic individuals are up to unfold their potential arising from their personality. Regarding the aforementioned lines it is worthwhile to study the effect of the phenomenon narcissism on entrepreneurial teams' business plan performance. Moreover, we assume that it is more complex than a direct link. Rather, narcissism in a team enhances teams' individual entrepreneurial orientation which in turn leads to higher teams' business plan performance. Withal, we refer to the theoretical approach of Krauss et al. (2005) and regard the construct of individual EO as context-sensitive and thus alterable concept which includes dispositions (Lumpkin and Dess, 1996) regarding the dimensions innovativeness, risk taking and proactivity (Bolton and Lane, 2012). Hereunder, we examine the effect of the individual narcissism manifestation of the team member scoring highest on narcissism on the team's average individual EO and the following team's business plan performance. This is because we assume that the team member scoring higher on narcissism influences the other team member's dispositions in order to achieve higher team performance. On the one hand, narcissistic individuals are more entrepreneurially oriented and therefore show more innovative, risk-taking and proactive dispositions. On the other hand, because of their dominant role (Brunell et al., 2008) they have the ability to enhance the other team member's individual EO. In view of our object of research, we contribute to the narcissism literature by highlighting a

context in which the bright side of narcissism may appear, while revealing that narcissism may enhance business plan performance in entrepreneurial teams when considering teams' individual EO as mediator. Therefore we extend the study of Wales et al. (2013) by regarding an entrepreneurial team context and a very early state of new venture creation. Further, whereas, in previous research, the managers' entrepreneurial orientation had been examined (Kuratko et al. 2005) there is lack of research addressing individual EO in team-settings. Therefore, our study contributes to the current status of entrepreneurship literature by integrating the concept of individual EO in a team-setting, by identifying narcissism as an antecedent for individual EO as well as by examining narcissism in entrepreneurial teams. The paper is organized as follows. First, we review narcissism in the context of entrepreneurship and entrepreneurial teams. Subsequently, we develop our research model and postulate our hypothesis regarding the mediation of the linkage of higher scoring on narcissism team member's narcissism and team performance through individual EO. Following this, we reveal the methods and study results. In conclusion, we discuss implications for future research and practice as well as the limitations of the study.

Theoretical Background and Hypothesis Development

Narcissism and Entrepreneurial Teams

Narcissism is a construct that has been emerged in the social psychological research years ago (Raskin and Hall, 1979). In this research field narcissism has been handled as a personality trait in distinction from the Narcissistic Personality Disorder (NPD) (Miller and Campbell, 2010). Beyond that, it is a common phenomenon among entrepreneurs. Previous research highlighted that narcissist individuals are prone to emerge as leaders, CEOs (Brunell et al., 2008; Judge et al., 2006) and entrepreneurs (Mathieu and St-Jean, 2013). Given that individuals seek for an environment with the best match to their personal characteristics, this is not surprising. The person-environment-fit theory suggests a match between person's needs and goals and the supplies in the environment that fit to the person's needs (Edwards et al., 1998) in order to reduce stress and strain of individuals (e. g. Brandstätter, 1994). Narcissism is a relatively stable personality trait and is characterized by self-enhancement, inflated levels of self-esteem (Raskin et al., 1991) right up to overconfidence (Campbell et al., 2004), extraversion, excessive self-views (Campbell et al., 2002) and self-aggrandizement (Morf and Rhodewalt, 2001). Therefore, to approve and enhance this self-conception (self-perception) narcissistic individuals tend to seek out for glory, power and fame (Raskin et al. 1991). Narcissists strive for an environment, which fulfill their needs for social approval, confirmation (Raskin et al., 1991), attention and admiration (Campbell et al., 2011). As a result, narcissistic individuals often fill top management positions (e.g. Brunell et al., 2008) and emerge as entrepreneurs (Mathieu and St-Jean, 2013), where they have the chance to receive such affirmation. Therefore, narcissism can function as a motivational mechanism (besides a cognitive frame) (Chatterjee and Hambrick, 2007; Campbell and Foster, 2007). In this way, the "bright side" of narcissism may appear, even though narcissism is classified as a 'dark' leadership trait (Judge et al., 2009).

In previous research, there are some existing studies suggesting narcissism as a potential antecedent of performance (Nevicka et al. 2011), whereas divergent results were reported. Besides a positive (Raskin, 1980; Goncalo et al., 2010) and a negative (Judge et al. 2006) linkage between narcissism and performance, no relationship between narcissism and performance (Brunell et al., 2008; Soyer et al., 1999) and an unstable performance of narcissists could be shown (e. g. Chatterjee and Hambrick, 2007; Patel and Cooper, 2013). In line with this suggestion, recent research found support for a positive effect of CEO narcissism on firm

performance variance. This effect is accomplished by the partial mediation via firm-level EO (Wales et al., 2013). Those conflicting results provide an indication that the relationship between narcissism and performance may be more complex than a direct link.

Regarding team-based settings the effect of narcissism on performance until now has received little attention in previous research (Nevicka et al., 2011). Whereas, a recent study could reveal that more narcissists in teams may result in higher creative team performance (Goncalo et al., 2010). Further, narcissism in a team context is particularly relevant because of the narcissists' behavior in social interactions with their team partners. Thus, narcissists tend to use social interactions for self-presentation and social manipulation (Morf and Rhodewalt, 2001). According to the interdependence theory, the costs and benefits of one team member depend – at least partly - on the behavior of the other team member. The team members share common goals and have the awareness that the other team member's disposition has an impact on the team's success (Johnson and Johnson, 1995, 1999). In this regard, in order to accomplish their personal goals, narcissists are interested in affecting the disposition and behavioral components of the other team member. In Addition, more narcissistic personalities tend to emerge as leaders in leaderless groups to capture the control over the team's success (Brunell et al., 2008) and therefore capture a dominant role in the team. Hence, it is important to examine the effect of narcissistic personalities as self and their influence as well as domination on others through social relationships and as a result of self-regulatory strategies (Campbell, 2011). Therefore, we conceptualized and operationalized narcissism on a team-level while allowing for individual manifestation. Further, because narcissists frequently emerge as entrepreneurs (Mathieu and St-Jean, 2013), the phenomenon narcissism shall be examined in the context of entrepreneurial teams. Previous literature in the field of entrepreneurship and new venture creation proposed taking into account that new ventures are usually founded by entrepreneurial teams, not individuals (Gartner et al., 1994). In entrepreneurship research there is a growing trend towards examining entrepreneurial teams instead of individuals regarding new ventures success and performance (e.g. West, 2007; Chowdhury, 2005; Shepherd and Krueger, 2002). Entrepreneurial teams can be defined as two or more individuals who together found a business in which they have an equity (financial) interest, are present during the pre-start-up phase of the firm (Kamm et al., 1990) “[...] and participate actively in the development of the enterprise” (Cooney, 2005: 229). Further, they pursue a shared purpose which can only be met by appropriate combinations of individual entrepreneurial actions (Harper 2008).

Narcissism, individual Entrepreneurial Orientation (EO) and Team Performance

The narcissist's quality of the self and tendency of sensation and success seeking have implications for his dispositions (Campbell and Foster, 2007). To accomplish ambitious aims and therefore fulfill their needs, narcissistic personalities take out more aggressive strategic actions which lead to bring up new ideas (Goncalo et al., 2010), even if bold actions are involved (Campbell et al., 2004). Those aspects are in line with the theoretical concept of EO (Lumpkin and Dess, 1996). EO is a well-known and extensively examined construct in entrepreneurship literature (Bolton and Lane, 2012) and had been identified as an antecedent of product innovation (Avlontis and Salavou, 2007), firm performance (Lumpkin and Dess, 1996; Wiklund, 1999; Wiklund and Shepherd, 2005; Bedi and Vij, 2012), new venture performance (Stam and Elfring, 2008) and organizational success (see Rauch et al., 2009, for a summary). EO on firm-level is defined as „the strategy-making processes that provide organizations with a basis for entrepreneurial decisions and actions“ (Rauch et al., 2009: 762). A firm is entrepreneurial oriented, when it “engages in product-market innovation, undertakes somewhat risky ventures, and is first to come up with "proactive" innovations, beating competitors to the punch“ (Miller, 1983: 771). According to this, EO consists of the dimensions

innovativeness, risk-taking and proactivity which mainly have been considered in entrepreneurship literature (Rauch et al., 2009; Wiklund, 1999). Those primary firm-level dimensions could be transferred to the individual level, where risk-taking, innovativeness and proactivity function as individual's traits, attributes and dispositions concerning entrepreneurial intentions and activities (Bolton and Lane, 2012). In previous literature regarding personal EO it has been discussed that it is rather a trait-level phenomena than just a set of traits (Krueger, 2006). Further, individual EO can be described as a certain form of strategic thinking, where new opportunities need to be identified (Krueger, 2006). In line with assumptions in previous research, we propose that individual EO is based on individual's dispositions (Lumpkin and Dess, 1996) and orientations including behavioral components which are alterable over time and can be changed by environmental influences (Krauss et al., 2005).

Whereas, previous research revealed a link between narcissism and entrepreneurial attitudes like general self-efficacy, locus of control and risk propensity (Mathieu and St-Jean, 2013), the relationship between narcissism and individual-level EO has left unattended so far. However, there are existing indications that narcissism is a personality trait which is accompanied by risk-taking, innovative and proactive dispositions. First, narcissistic impulsivity is associated with sensation seeking as well as risk-taking (Campbell 2011). Risk-taking can be described as "taking bold action by venturing into the unknown, borrowing heavily and/or committing significant resources to ventures in uncertain environments" (Rauch et al., 2009). According to prospect theory (Kahneman and Tversky, 1979) decision making under uncertainty may be influenced by cognitive bias. For example one cause may be overconfidence or over-confidential bias (Forbes, 2005). Self-serving bias is one of the intrapsychic strategies of narcissistic personalities (Campbell and Foster, 2007), which is why narcissists rate themselves highly regarding frequent aspects as for example intelligence (Gabriel et al. 1994) and performance on group tasks (John and Robins, 1994). This high confidence right up to overconfidence leads to increased risk taking (Campbell et al., 2004). Further, narcissists believe in a positive outcome of risky actions and for example that is why they tend to make risky bets (Campbell, 2011). Those positive self-evaluations and optimistic expectations (self-enhancement processes) of narcissistic personalities frequently lead to a blindness towards and underestimation of very risky actions arising in new venture creation (Farwell and Wohlwend-Lloyd, 1998; Chatterjee and Hambrick, 2007). In addition and probably more important for our study, an incentive design may result in higher risk taking (Sanders and Hambrick, 2007). According to narcissism the potential and often overestimated likelihood of occurrence of success as a consequence of risky actions may be an incentive. Therefore, a higher risk-taking tendency of narcissistic personalities occurs by the rewards that often may accompany risky behavior (Foster et al., 2009). Consequently, more narcissistic personalities are less anxious and more motivated towards taking risks and additionally rate themselves as more risk taking. Second, narcissists frequently emerge as forces for change in organisations (Campbell et al., 2011) and as visionaries (Maccoby and Conrad, 2003). That is because in order to fulfill their needs for attention and fame they are searching for something special, unique and novel. Thus, individuals scoring higher on narcissism often prefer highly visible initiatives (Chatterjee and Hambrick, 2007). Consequently, on the one hand, they evaluate themselves as more innovative and they actually tend to more distinct innovative behavior. Further, innovativeness is strongly connected to creativity. As a recent study by Goncalo et al. (2010) pointed out narcissism may stimulate creative performance in teams. Thus, narcissistic personalities tend to overestimate the potential of the own idea and to self-enhance when it comes to the evaluation of their creative talent. As a result, because of being enormous confident regarding their ideas more narcissistic individuals are skillful to sell their ideas, so that it has a positive impact on the ratings of outside evaluators (Goncalo et al., 2010). As a consequence, they perceive themselves as more creative and innovative. On the other hand, individuals with higher

narcissistic outcome are interested in competing with their team partners, which may lead to more creative and novel ideas in the team outcome (De Dreu et al., 2008). Consequently, narcissistic individuals are particularly interested in an innovative outcome - also to impress others. Third, the strongly distinct goal orientation and success-seeking of narcissistic personalities may function as a motivator for action and performance (Frese, 2007). In order to fulfill their needs (e. g. affirmation) individuals rating higher on narcissism frequently show proactive behavior, which allows the anticipation of opportunities (Frese, 2007: 176). Proactivity is defined as “an opportunity-seeking, forward-looking perspective characterised by new products and services ahead of the competition and acting in anticipation of future demand” (Rauch et al., 2009). Further, in order to reduce failings which may cause deep depressions and anger especially for narcissistic personalities (Rhodewalt and Morf, 1998), they particularly try to anticipate future problems. According to the action theory individuals become more active, because they have the understanding that this is a way to control the environment (Frese, 2007). Regarding this, proactive behavior is very powerful by influencing occurrences before they emerge (Frese, 2007). As previous research has proposed, narcissists are seeking for power (Raskin et al., 1991) and tend to influence others and the environment in order to achieve their purpose (Morf and Rhodewalt, 2001). Consequently, individuals scoring high on narcissism tend to be more proactive in order to reach their ambitious personal aims.

Whereas, there is a lack of research regarding the effect of the construct individual EO on team performance, there are existing evidence regarding the relationship between entrepreneurial personality, disposition or behavior and firm performance (e.g. Baum et al., 2001; Krauss et al. 2005; De Jong et al., 2011). For instance, Ciavarella et al. (2004) found a positive relation between entrepreneur’s conscientiousness and long-term venture survival. Further, Ling et al. (2008) could confirm the influence of founder’s values (like novelty) on firm performance. In our study, team performance is defined as the external evaluation (by business angels) of the team’s business plan. Thus, the teams are faced with an entrepreneurial task in the very early stage of business creation which contains an innovative character. Business planning outlines a crucial indication and important precursor to action in new ventures (Delmar and Shane, 2003). According to Crant (1995) individuals showing proactive behavior “[...] create situations and environments conducive to effective performance” (Crant, 1995: 532-533). In line with this, there are evidence of an existing relationship between proactive personality and performance (Thompson, 2005). Considering team settings, the results of Kirman and Rosen’s (1999) show that there is a positive relationship between team-level proactivity and for example productivity which indicate that proactive teams are more effective than less proactive teams (Crant, 2000). Further, Yuan and Woodman (2010) proposed an expected positive performance of more innovative individuals. According to previous research, we propose that on the one hand a higher team’s individual EO lead to a higher team performance because of the entrepreneurial task which is involved. On the other hand, innovativeness, proactivity and risk-taking lead to a higher team performance in general. This can be explained by the higher team effectiveness as a result of innovative, proactive and risk-taking behavior or disposition.

In the light of previous literature as well as prospect theory and action theory, we assume that individuals scoring higher on narcissism tend to more risk-taking, innovative and proactive dispositions and therefore have a higher manifestation of individual EO. According to the assumption that individuals scoring high on narcissism influence others through social relationships and as a result of self-regulatory strategies (Campbell, 2011), we argue that it is not a team’s average narcissism that affects outcomes foremost. Rather we hold the opinion that it is the level of narcissism of the more narcissist team member that affects the team’s individual EO given two lines of thought (Goncalo et al., 2010). First, narcissistic individuals are

prone to be more entrepreneurially oriented (Mathieu and St-Jean, 2013). Second, and in line with interdependence theory the narcissistic individual influences the other team member to exhibit enhanced individual EO which is in line with empirical findings describing the dominant role of narcissistic team members (Brunell et al., 2008) as well as the influencing character of dominant personalities in groups (Anderson and Kilduff, 2009). They tend to manipulate others with regard to dispositions and behavioral components in order to achieve their personal goals. Consequently, individuals who are in an entrepreneurial team with individuals rating high on narcissism have a more distinctive individual EO. Together with the high outcome of the more narcissistic team member, this leads to a higher team's individual EO. We argue that the concluding higher average individual EO in the team leads to higher performance (Krauss et al., 2005). With respect to previous research in the area of EO, we suppose that innovative, proactive and risk-taking dispositions lead to higher team's business plan performance. Thus, we propose that one high narcissistic individual in an entrepreneurial team may positively affect the team's individual EO and through this the team's performance. Taken together, drawing on the above mentioned lines and on theories of person-environment fit as well as on the interdependence theory, we propose:

Hypothesis: A team's individual EO mediates the relationship between the narcissism of the more narcissistic team member and business plan performance, whereas narcissism of the more narcissistic team member effects team's individual EO positively which in turn effects business plan performance positively.

Method

Sample and Procedure

We conducted a quasi-experimental longitudinal study running for four month (one term) from November 2012 until February 2013. The study was conducted with German entrepreneurship student teams, each composed of two members. We decided for teams of two in order to prevent possible coalition building within the teams. The students were advanced undergraduates of economic sciences attending an elective major course in Entrepreneurship. The students working together on the given entrepreneurial task – business plan – were assigned to their groups at random, resulting in total of 66 teams. The sample encompassed 132 individuals (37.1% female), aged between 20 and 37 years ($M = 23.73$; $SD = 2.82$).

First, the student teams were supposed to create a business idea and write a business plan, simulating a realistic and essential entrepreneurial task during early stages of business creation. During the course the students got some basic information about how to write a business plan. Further, the definition of the task included the requirement of an innovative character. We assume that the students took the team task serious because it accounts to 50 % of their overall course grade. Second, the students were asked to fill out questionnaires at different dates during the semester. Withal, we asserted that the research participation is anonymous and that the answers to the questionnaires don't impact the course grade at all. To capture the whole team processual effect, data were gathered at three different survey waves. The first paper and pencil survey wave was before the composition of the teams and gathered the teams' individual manifestation of narcissism, while individual EO was requested in the second survey wave. The business plan performance, representing our measure of team performance, was external evaluated at the end of the term.

Measures

Our *independent variable* was the score of the team member with the higher individual narcissism manifestation in the group. Therefore, we conducted a maximum operationalization of narcissism (Chan, 1998). Narcissism was measured with a well-established and validated (Ames et al., 2006) 16-items short version of the well-known Narcissism Personality Inventory (NPI; e.g. Raskin and Hall, 1979; German version: Schütz et al., 2004). The 16-items scale (NPI-16) includes 16 paired statements (narcissistic statements vs. non-narcissistic statements), where the respondents should indicate which statement is closest regarding own feelings and beliefs about themselves. A sample of paired items would be: “I think I am a special person” and “I am no better or no worse than most people” ($M = .52$, $SD = .19$). The individual narcissism score is calculated by the counted number of narcissistic responses divided by the number of total 16 Items (Ames, 2006). The scale reliability measured with Cronbach’s alpha was above the cut off value of .7 ($\alpha = .74$).

Our *mediator variable* was the teams’ average individual EO of each team member. To measure individual EO we used the measurement instrument by Bolton and Lane (2012). The measure was generated, validated, and then tested on university students (Bolton and Lane, 2012), which is in line with our student sample. The 10-items-scale includes the three traditional and in previous research mostly considered dimensions of the EO construct, namely risk-taking (3 items), innovativeness (4 items), and proactivity (3 items). Sample items for each dimension would read: “I like to take bold action by venturing into the unknown” (risk-taking); “I favour experimentation and original approaches to problem solving rather than using methods others generally use for solving their problems” (innovativeness); “I tend to plan ahead on projects” (proactivity). Items were measured using a five-point likert scale (1 = strongly disagree to 5 = strongly agree, $M = 3.51$, $SD = .37$). After testing the discriminatory power of the scale by item to total correlation, we excluded one proactivity item. The scale reliability measured with Cronbach’s alpha was good and above the recommended cut-off of .7 ($\alpha = .79$). Further, in order to confirm the validity of the construct we performed a confirmatory factor analysis which demonstrated an acceptable fit: standardized root mean square residual [SRMR] = .07; comparative fit index [CFI] = .90; root mean square error of approximation [RMSEA] = .10.

Our *dependent variable* team performance was measured with business plan performance as an entrepreneurial task. Business plan performance resulted from a due diligence of the business characterized in the business plan, where the five categories entrepreneurs’ personality, entrepreneurs’ capability/qualifications, product, market and financial criteria were considered. Each assessment category includes two items. The 10 Items were measured using a seven-point likert scale (1 = not convincing at all to 7 = totally convincing). The business plans were evaluated by nine experts (business angels, resp.) ensuring rational, valid and undistorted ratings - as the often used self-assessment of performance measures are highly distorted by narcissism scores (John and Robins, 1994) - and allows for drawing causal conclusions ($M = 3.83$, $SD = .79$; $ICC(1) = .23$ und $ICC(2) = .750$).

We *controlled* for age, gender and working experience. Therefore, we used the teams’ average score for age (in years, $M = 23.73$; $SD = 1.83$) and working experience (in years, $M = 2.63$; $SD = 2.11$). Following the study of Wales et al. (2013), we consider that the team’s average age may influence the team’s average risk taking proclivities. In addition, we assume that as one gets older the need for proactive and innovate behavior in order to reach personal goals becomes more aware. Further, we control for working experience because it may positively affect the coordination of activities and tasks in teams which may result in more team

effectiveness and higher business plan performance in teams. Additionally, we used the proportion of women in each team ($M = .37$; $SD = .34$; Goncalo et al., 2010) in order to make sure to control for gender diversity effects (Mannix and Neale, 2005) and because women doesn't score high on narcissism (Foster et al., 2003).

Because we use different sources for gathering the dependent and independent variable, we can preclude common source and common method bias. Further, in our longitudinal design we gather the study variable at different time, which is why we don't have a problem concerning reverse causality.

Results

Table 1 presents mean, standard deviation and correlations and shows low to moderate correlations.

- Please insert Table 1 here -

To test our hypothesis, we made a regression-based mediation analysis (Preacher and Hayes, 2004, 2008) using 1000 bootstrap samples. Here, the narcissism score of the team member with the higher narcissism manifestation served as predictor, whereas the average individual EO of the team members was specified as mediator and the team performance was set as dependent variable. All control variables functioned as covariates (see Figure 1).

- Please insert Figure 1 here -

Our results show significant direct effects of team member's narcissism on team individual EO (path a: $\beta = .49$, $p < .05$) and of team individual EO on team performance (path b: $\beta = .39$, $p < .10$). Further, our results support our hypothesis by showing an indirect effect through the proposed mediator (point estimate of indirect effect [path a x b]: .19, bias corrected and accelerated 90% confidence interval: .01 to .62). Finally, our findings approve our assumption that a team's individual EO mediates the relationship between the narcissism of the more narcissistic team member and team performance.

Discussion

Theoretical contribution and implications for research and practice

In our research, we argued that in an entrepreneurial team-setting narcissism do have a positive impact on business plan performance, even if it is an indirect effect. The results of our study supported our hypothesis that it is the manifestation of narcissism of the more narcissist team member that affects the team's individual EO. Further, we could confirm that the team's individual EO is an antecedent for team's business plan performance. Consequently, we approve the suggestions in previous literature that narcissism - even though it is a dark-side personality trait - may lead to improved performance outcomes. Actually, we could indicate that the bright side of narcissism may show up in entrepreneurial team-settings, where social interactions are required too. This indicates that dark side personality traits are not compulsory harmful and should be examined in future research regarding positive outcomes. Further, our findings indicate that personality traits rather lead to dispositions and behavioral components which may affect performance.

While recent research examined and indicated a mediation effect of firm's EO between CEO narcissism and firm performance (Wales et al., 2013), we referred to individual EO in team-settings with regarding one team member's manifestation of narcissism. Therefore, our findings contribute to the existing entrepreneurship literature in several ways. First, our study build upon person-environment-fit theory and previous research that suggest that to fulfill certain needs narcissistic individuals frequently emerge as entrepreneurs and therefore might be more entrepreneurial oriented than non narcissists. Even though, existing recent research considered narcissism in a team-setting (Goncalo et al., 2010), there is a lack of research examining narcissism in the context of entrepreneurial teams. We examined whether an individual scoring high on narcissism is harmful or beneficial in the context of team's early stage of new venture creation. Regarding this and in line with interdependence theory, our results show that more narcissistic individuals may impact their team partners to the effect that the resulting common behavior leads to an enhanced team's business plan performance. Second, our research contributes to the entrepreneurship literature in order to examine the concept individual EO in a team context. Even though, there is a whole series of studies examining the effect of firm-level EO on firm performance and new venture creation as well as existing research considering the linkage between CEOs individual EO on firm performance (Wales et al., 2013; Krauss et al., 2005), there is – as far as we know – no study allowing team's individual EO as an antecedent of team performance concerning new venture creation. With knowledge that most new ventures are founded in teams and the entrepreneur as lonely hero becomes less important (Cooney, 2005) the relevance of entrepreneurial team-settings in entrepreneurship research arises. Third, our study results suggest that more narcissistic individuals might be particularly successful in being an entrepreneurial team member because they show more risk-taking, innovative and proactive dispositions and further lead their team partner to such behavior in order to fulfill their personal need for success. Regarding this, our study contributes to research by revealing a context where the beneficial bright side of narcissism may appear.

Whereas our study provides support for the mediation of the linkage between team member's higher narcissism manifestation and team performance through team's individual EO and therefore contributes to research in several ways, future research should consider that there might be additional intervening variables in this link. For instance, previous research found intervening variables in the relationship between EO and performance on firm-level (for review see Wales et al., 2011). Such findings indicate that intervening variables might also be relevant in a team-setting because besides team member's personality and attitude as well as behavior, there might be interpersonal effects in teams which could have an additional impact on team performance (De Dreu and Weingart, 2003; Jehn et al., 1999). For instance, especially if there are one or even two team members scoring high on narcissism team conflicts may arise more frequently. Allowing for this, the effect of team's individual EO on team performance may be weakened or even strengthened. In addition to it, we would like to point out that there might be moderating effects in the linkage between the narcissism of the more narcissistic team member and team performance. For example, the more narcissistic team member needs to have a chance to influence the other team member. Therefore, the amount of social interventions may probably be considered in this context. In addition, we can imagine further entrepreneurial variables as possible mediators of the link between narcissism in entrepreneurial teams and team performance. For instance, besides EO which is an indicator for entrepreneurial behavior and disposition, future research may examine concepts like entrepreneurial intention or entrepreneurial passion as mediators in this context. Further, future research should take into account that individuals scoring high on narcissism could overestimate their own proactive, risk-taking and innovative behavior because they tend to hubris (Bogart et al., 2004). Hence, we suggest making a distinction between narcissists' self-rated individual

EO and their actual individual EO. Therefore, we recommend gathering data which captures the individual EO of each team member as well as the individual estimation of the team's EO.

Our study also has implications for practice. In particular, our study addresses investors in new ventures (e. g. business angels, venture capitalists). Regarding this, our findings indicate that they shouldn't hesitate to invest in teams with a narcissistic team member. Quite the contrary, individuals scoring high on narcissism can boost the entrepreneurial orientation in the whole team which may promote the team's effectiveness and performance and as a possible result new venture performance. Therefore, a high business plan performance might be an indicator for future venture success (Delmar and Shane, 2003).

Limitations

Besides the contributions of the study a few research limitations are worth noted. First, our sample is composed of entrepreneurship student teams to ensure internal validity with respect to comparability and for practical reasons. In the context of early stages of business creation, students having entrepreneurship as main subject make a good sample, because the chance of a future business creation is relatively high among these students (Shane, 2003). But we like to inspire future research to examine the phenomena narcissism in the early stage of new venture creation regarding real founder teams. In our study, whereas, the assignment of the team partner was random to make sure that all teams have the same precondition. In reality individuals mostly consciously decide to create a new venture with certain partner. Further, we examine the performance in a very early stage of new venture creation, namely business planning, which partly predict new venture success. Regarding this, in future research it would be interesting to examine the effect of narcissism concerning actual new venture success. Second, we would like to emphasize that our rather small sample size is representative on the subject of teams (e.g. Amason, 1996; Randel and Jaussi 2003; Miron-Spektor et al. 2011). Even though, a larger sample size may be able to uncover links which are non-significant in our sample. Finally, we remark that in distinction to our teams with two members, larger teams are less adequate because coalition formation which diminishes cohesion may occur. Even though, in this way we prevent bias, future research could debate possible occurring issues in larger entrepreneurial teams.

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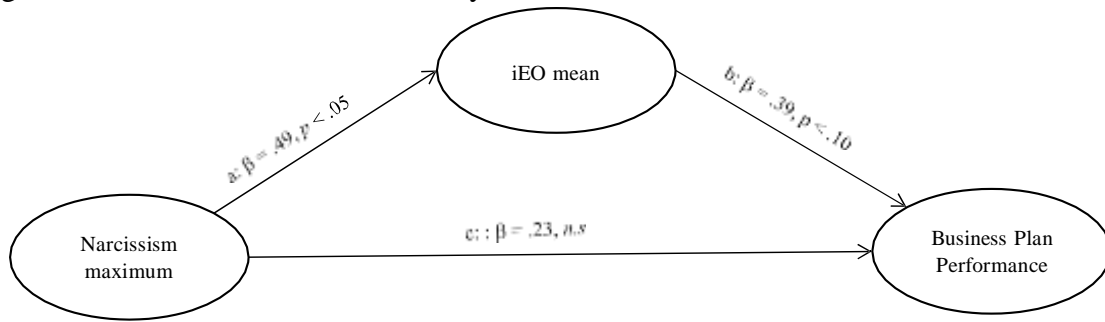
Appendix

Table 1. Mean, Standard deviation and Correlations

	M	SD	1	2	3	4	5
1. Narcissism maximum	0.52	0.19	1				
2. Individual EO mean	3.51	0.37	0.28*	1			
3. Business Plan Performance	3.83	0.79	0.09	0.14	1		
4. Team's average age	23.73	1.83	0.03	0.21	- 0.12	1	
5. Team's average work experience	2.63	2.11	0.21	0.01	- 0.01	0.34**	1
6. Proportion of women	0.37	0.34	- 0.21	- 0.28*	0.04	0.03	0.10

Notes: N = 66, * Correlation is significant at 0.05 level, ** Correlation is significant at 0.01 level

Figure 1: Results of the mediation analy-



Note: iEO = team average of team member's individual entrepreneurial orientation, narcissism maximum = higher scoring team member's narcissism, n.s. = non significant. Point estimate of indirect effect (path a x b) = 0.19; bias corrected and accelerated 95% confidence interval (CI): .01 to .62 (based on 1000 bootstrap samples)

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LONG-TERM EFFECTS OF THE GERMAN ENTREPRENEURSHIP EDUCATION PROGRAM EXIST-PRIME-CUP

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Long-term Effects of the German Entrepreneurship Education Program EXIST-priME-Cup

Abstract

In previous studies we discussed the evaluation of entrepreneurship education in the annually organized nationwide German program “EXIST-priME-Cup”. This start-up management simulation and game-based program was carried out together with about 150 universities under the auspices of the German Federal Ministry of Economics and Technology. In this paper we present a new long-term study. This longitudinal analysis in the form of a follow-up survey should help to evaluate the assessment of the program 1-5 years after participation. The other question looked at was to find out effects and what had become of the former participants. Overall N=1217 took part in the survey. The results show very good reviews from the former participants. The overall rating of all participants across all 16 assessment items is M=1.71 (mean) on a six-point scale (with 1 being the best score and 6 the lowest). Out of the 506 participants, who are no longer students we found for the EXIST-priME-Cup a very high start-up rate of around 16%. This is approximately twice as high as compared to other representative studies (e.g. 7-9% in “HIS study”; see below). The results are interpreted as clear proof of the success and positive effects created by the program.

Introduction

From 2007 to 2012 we have carried out a series of evaluation studies in which a total of N=8190 students participated in more than 300 “cup-seminars” of the German Entrepreneurship Education Program EXIST-priME-Cup. This annually organized program was carried out together with about 150 universities and about 30 leading companies and was conducted under the auspices of the German Federal Ministry of Economics and Technology.

The program uses start-up business simulation games that cover all stages of a business start-up from collecting information, to checking the business idea, to transforming the business idea into a successful company. The program is a voluntary activity for students of all faculties enrolled in German universities. The program has four levels in which so called “cups” are organized. In each cup-seminar the qualified 4-6 student-teams (with 3-6 members) compete two days against each other and the winning team qualifies for the next higher level. In the forth level Germanys best 15 teams compete in the final “champions cup”. In all cup-seminars students make business plans and start a new company as entrepreneurs. Then the market entry and competition on markets is simulated and students are dealing with authentic and realistic entrepreneurship and management decisions.

The program has the goal to foster entrepreneurial competencies and influencing the intention of participants to start their own business. Therefore the main research objective of our evaluation studies is, to which extent the predefined learning outcomes of these courses were reached: to foster entrepreneurial competencies and to inspire participants to start up their own company. We conducted several pre-post-test-analysis studies and showed that start-up simulation games are an effective method to reach these goals. We used tests, questionnaires, interviews before and after the simulation games and in addition also assessments during the game play process (Kriz, Auchter & Wittenzellner, 2008, 2011). Our approach in evaluating the effectiveness of the simulation games is based on the model outlined by Kriz and Hense

(2006) and modified for our research (Kriz & Auchter, 2006). This model also provides a framework for the interpretation of what takes place during a start-up simulation game competition.

The results from our evaluations of these start-up simulation games and competitions suggested for example a number of gender specific effects, ranging from differences in entrepreneurial motivation to divergent team and leadership experiences (Auchter & Kriz, 2011; Kriz & Auchter, 2012). Further studies showed how changes in the program structure and game scenarios led to significant better results for female students (Auchter & Kriz, 2013).

Previous studies neglected however an important part of our evaluation model: to examine the long-term effects of the EXIST-priME-Cup. Therefore 2012-2013 we started a new study in the form of a follow-up survey to assess long-term effects of the program. The aim was to invite all former participants from the 2007 to 2011 year groups to participate in an online survey. Alongside the evaluation of the effects of the EXIST-priME-Cup in the form of a longitudinal analysis, the other question looked at was to find out what had become of the former participants.

Methodology

Although N=8190 persons had participated in the program in the years 2007-2011 only N=5988 addresses of the former participants were still valid. Overall N=1217 persons took part in the online survey. This represents a response rate of 20.3% based on the former participants still potentially being reached. Table 1 show the distribution of the participants in year groups (when they participated in the program). When they took part in our online survey they did it 1-5 years after participation in the EXIST-priME-Cup. Table 2 show the distribution of the participants regarding the highest level of the competition they had reached.

Year group	N
2007	76
2008	133
2009	178
2010	314
2011	305
Do not remember	120

Table 1: year of participation in the program

Level reached	N
1 Campus-Cup	667
2 Master-Cup	606
3 Professional-Cup	324
4 Champions-Cup	108
Do not remember	102

Table 2: highest competition level reached in the program (4 is the highest level)

Part of the online survey was a retrospective assessment of the cup-seminars using a questionnaire with 16 items (a number of these items were already used in an identical form in the regular annually standard evaluation questionnaires of the EXIST-priME-Cup). Another part of the survey consisted in several career related questions about how the former participants had evolved professionally after their participation.

Results and Discussion

General results

The results of the former participants show excellent reviews, as only averages of "very good" to "good" were scored. The global overall rating of all participants (N=1217) across all 16 assessment questions is M=1.71 (average) on a six-point Likert-scale (with 1 being the best score and 6 the lowest). 98% of the survey participants indicated that they were extremely satisfied with attending the EXIST-priME-Cup.

In the table 3 below all the evaluation questions of the online questionnaire are presented in the form of an overview. A number of these questions were used in an identical or similar form in the annually regular evaluation of the EXIST-priME-Cup. In the table the 16 items are displayed, together with the percentage of participants (here always calculated without those who have missing values) as positive (rating 1-3) and negative (4-6). In the table the mean and standard deviation of all ratings of all participants for each item is specified. Averages from 1.0 to 3.5 give an affirmative/positive rating; averages from 3.51 to 6.0 give a deprecating/negative rating.

Evaluation items	% positive rating	% negative rating	Mean	Standard deviation
I rate the organisation of the EXIST-priME-Cup	99	1	1.14	.53
I rate the simulation games of the EXIST-priME-Cup	97	3	1.26	.71
I rate the lecturers for their facilitation of the simulation games	99	1	1.23	.64
I rate the reflection/debriefing of the simulation games	96	4	1.56	.91
I was extremely satisfied with my attendance at the EXIST-priME-Cup	98	2	1.25	.70
I have further developed my understanding of business contexts at the EXIST-priME-Cup	94	6	1.57	1.01
Through the EXIST-priME-Cup I have further developed my team and communication skills	93	7	1.62	.98
I learnt something about my personal strengths and weaknesses through the EXIST-priME-Cup	90	10	1.86	1.12
Participation at the EXIST-priME-Cup influenced my attitude towards entrepreneurship positively as a whole	89	11	1.85	1.13
Through the EXIST-priME-Cup I have further developed my entrepreneurial thinking and acting	92	8	1.67	1.06
The EXIST-priME-Cup has raised my interest in company start-ups	77	23	2.30	1.42
The EXIST-priME-Cup has raised my interest in business and management	87	13	1.83	1.24
The EXIST-priME-Cup has improved my competences for a company start-up	83	17	2.20	1.26
The EXIST-priME-Cup has improved my management skills	86	14	2.05	1.23

The EXIST-priME-Cup has encouraged me to consider setting-up a company or taking over a company in my future plans	75	25	2.41	1.42
I have recommended the EXIST-priME-Cup to other people	88	12	1.68	1.28

Table 3: results of the program evaluation questionnaire

Using a special coding system we were able to link the participant's data of this online survey study with the evaluation data of previous studies. The evaluation results were even significantly better after 1-5 years (this follow-up study as the second measuring time), compared with the assessment scores of the same participants straight after the cup (as explored in the standard annual evaluations; first measuring time). The review this time shows an even increased appreciative assessment by the former participants of the EXIST-priME-Cup (using t-Test for paired samples; $p < .001$).

Results in sub-samples

There was also an analysis of whether there were (significant) evaluation differences between sub-samples. For this, a new value was calculated which represents a "global rating". This provided the average of all 16 evaluation questions (see table 4 and 5).

The global rating, based on the total sample, has a mean of $M=1.71$. The two following tables show how this global rating is characterised by the perspective of different year groups and related to the four program levels.

Year group	Mean	Standard deviation
2007	1.72	.75
2008	1.58	.69
2009	1.67	.86
2010	1.64	.73
2011	1.68	.77

Table 4: assessment score and year of participation in the program

Level reached	Mean	Standard deviation
Campus-Cup	1.71	.73
Master-Cup	1.57	.70
Professional-Cup	1.48	.72
Champions-Cup	1.38	.63

Table 5: assessment score and highest competition level reached in the program

Based on the year groups we found no significant differences. It should be emphasized, that despite a substantially higher number of participants in the competition over the past couple of years, extremely high ratings could still be achieved, which speaks for the quality of the program.

With the cup levels it is interesting that there is a continual improvement. Compliant to expectations we found that the assessment of former participants is significantly more

positive, the higher these participants have been able to qualify themselves in the four EXIST-priME-Cup levels, i.e. the longer they have been able to participate in the competition. The age of the respondents does not correlate ($r = .07$) with the assessment scores, i.e. young and old rate the same.

The follow-up survey, however, revealed again – a well-known result from the standard evaluation reports – that a gender difference is present. Men gave significantly higher ratings than women (t-Test; $p < .001$). In this regard, the program has already reacted by introducing special offers such as a specially designed "Ladies' Cup" that has already witnessed good results. However, these campaigns cannot cause the gender difference to disappear from the study. In the follow-up survey sample these special offers are barely noticeable (see below).

Sex	N	Mean	Standard deviation
Female	310	1.87	.73
Male	588	1.66	.70

Table 6: assessment score and gender differences

Professional development of former participants and differences in evaluation

The question was then asked about how the former participants had evolved professionally after their participation. The following table gives on the one hand the individual options and their answers, as well as the global ratings of groups of persons, who indicated a certain category as being applicable. The percentages in the table are based on all respondents who chose the certain category. Multiple answers were possible and have not yet been differentiated here (e.g. students who are already working besides their studies; see below).

Professional development	N	Mean	Standard deviation
Continued my studies, I am still studying	515	1.71	.68
Continued my studies in a new/further subject area	62	1.54	.63
Studies continued with a new/further higher qualification	164	1.59	.60
Employee or civil servant in science and research	36	1.74	.87
Employee in a company	281	1.73	.72
Senior member of staff, leading or managing role in a company	54	1.77	.82
Start-up own business (self employment)	64	1.60	.60
Start-up own business (with creating jobs for employees)	71	1.61	.81

Table 7: professional development after participation in the program

Table 7 also shows the overall excellent results of graduates of the program in the evaluation. The differences in ratings in the professional development categories are not significant here. By using a special coding system it is possible to link the data of the participants in the standard annual evaluation of the EXIST-priME-Cup with the data of this follow-up survey. As expected there is a comparatively better evaluation after 1-5 years, compared with the evaluation straight after the Cup (significant) and secondly, that the rating of graduates is more positive, the higher these students are able to qualify in the EXIST-priME-Cup, i.e. the

longer they were able to take part in the competition (in terms of the four levels of the program, from the Campus-Cup as the lowest level up to the highest level of the national final "Champions-Cup"). The review, thus on the whole, gives an even more appreciative assessment by the graduates of the EXIST-priME-Cup.

A closer examination of the 71 founders from the EXIST-priME-Cup, who took part in the survey, shows that 26 of them are still studying. From the 506 participating persons who are no longer studying, the proportion of start-ups is high (9%). In addition, there are almost as many persons who have indicated having a self-employed position (7%). The percentage of start-ups of the EXIST-priME-Cup, as already mentioned (see above), can be classified as relatively high. As a reference value for Germany, the study of Kerst & Minks (2005, 2009) can be considered here. This so-called HIS (University Information System) study is a representative survey of graduates of students 1 and 5 years after completing their studies and is focused on self-employment and entrepreneurship. Here 7- 9% were measured, cohort depending. In the further HIS graduate survey of 2009, 1 year after graduation a value of around 7% was to be seen. In the HIS study, however, all types of self-employment and entrepreneurship were grouped together. In order to obtain a comparison value, we have to calculate our two categories of "self-employed work" and "own company start-up with creating jobs for employees" together. For the EXIST-priME-Cup this results in a start-up rate that is approximately twice as high (around 16%) as compared to the HIS-study. However, we here need to take into account a self-selection effect of the participants in our own study. Nevertheless the EXIST-priME-Cup – as an initiative for raising awareness towards start-ups – can be considered a success based on these results.

Employee statistics and industry sectors were collected from the founders. Twelve of the 71 participating founders (approx. 17%) have already got more than 10 employees (25 were found as a maximum). Around 38% have 1-3 employees. Around a quarter (26%) have set up their own companies in the IT and/or Internet sector. Other services make up around 63% of the other start-ups. The rest is distributed to around 7% in the technical sector and producing/processing sector and around 3% in the education/research sector.

Contacts and networks gained through the program

In the online questionnaire we were furthermore interested in the effect of the EXIST-priME-Cup with regard to further contacts and networks. The following table shows the percentages of the corresponding survey questions.

Questions on contacts and networks	Yes %	No %
Are you still in contact with former team members?	72	28
Are you still in contact with other former participants?	26	74
Are you still in contact with simulation game facilitators?	13	87
Has there been any further contact or cooperation with jury members, speakers etc from companies or institutions who were present in the program?	7	93
Have contacts from the EXIST-priME-Cup helped to lead you to a job?	9	91

Table 8: contacts and networks gained through the program

The contacts and networks made through the Cup are on the whole as expected strongest to members of the same team. Although 9% of the participants have made contacts through the Cup that have been of concrete help professionally, this is definitely an aspect that could be promoted even more in the future.

Conclusion and summary

The results show very good reviews from the perspective of former participants covering all year groups, cup levels, age groups, career paths and professional groups. Men assess the simulation games and cups significantly better than women (as already seen in the standard annual evaluations), but both groups have highly positive rating scores overall. The global overall rating of all participants (N=1217) across all 16 assessment questions is M=1.71 (average) on a six-point scale (with 1 being the best score and 6 the lowest). 98% of the survey participants indicated that they were extremely satisfied with attending the EXIST-priME-Cup. Compliant to expectations we found that the assessment of former participants is significantly more positive, the higher these participants have been able to qualify themselves in the four EXIST-priME-Cup levels, i.e. the longer they have been able to participate in the competition.

The EXIST-priME-Cup promotes interests and skills for start-ups, and the competition then motivates real business ventures to get off the ground. A closer examination of the 71 company founders from the EXIST-priME-Cup, who took part in the survey, shows that 26 of them are still studying. From the 506 participating persons who are no longer studying, the proportion of start-ups is around 16%. As a reference value for Germany, the study of Kerst & Minks (2009) can be considered. This so-called "HIS-study" is a representative survey of graduates of students 1 and 5 years after completing their studies and is focused on all forms of self-employment and entrepreneurship. Here after graduation a value of around 7-9% was to be seen (cohort dependent). For the EXIST-priME-Cup the result of start-up rate and self-employment is approximately twice as high.

In all of the results of this follow-up study it should however be noted that it is a self-selection of voluntary participants (the effort to take part in a follow-up survey is made by those with a genuine interest and generally positive opinion of the EXIST-priME-Cup), however we see these results as clear proof of the success and positive effects created by the program

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SCALING HYBRID ORGANIZATIONS: PATH DEPENDENCIES AND PARADOXES

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SCALING HYBRID ORGANIZATIONS: PATH DEPENDENCIES AND PARADOXES

ABSTRACT

With our study we seek a better understanding of how hybrid organizations incorporate to conflicting logics when scaling. We specifically focus on how and whether organizational responses to conflicting scaling logic demands are interrelated and dependent on each other, and what drives organizations' scaling strategy choices. A thorough inductive case study of three work integration social enterprises from different European countries allowed us to discover that significant path dependencies exist between seemingly separate organizational responses that narrowed organizations' subsequent response patterns in a paradoxical way. Furthermore, we found that, in contrast to traditional institutional arguments, legitimacy considerations were not the primary driver of hybrids' responses but rather resource considerations or firm objectives.

INTRODUCTION

Hybrid organizations are defined as organizations facing demands from conflicting institutional logics (Battilana & Dorado, 2010). Social enterprises as one type of hybrid organizations, for example, combine the social welfare logics of charity and non-profit-organizations (NPOs) with the commercial logic of traditional profit-oriented businesses. However, the demands of achieving both social mission and profitability are often competing (Tracey and Jarvis, 2007) and thus social enterprises face a dilemma: On the one hand, to ensure their own survival and growth social enterprises have to build a distinctive competitive advantage, which usually requires (social) enterprises compete for scarce resources and safeguard their business models from imitation. On the other hand, to ensure the fulfillment of their social change efforts, social enterprises strive for replication and imitation of their solutions potentially foregoing their own growth via a commercial scaling approach (Lumpkin, et al., 2011). In an extreme case, one might even consider a commercially failing social enterprise a success in terms of their social mission if this venture succeeded in legitimizing and institutionalizing the approach by which they pursued the social goal. This can be illustrated by the example of Aspire UK that did not survive as company but whose social problem solution of homeless support and nonprofit retail became legitimized and institutionalized and is now used by an estimated 800 organizations in the UK that address homelessness as social enterprises following Aspire's approach (Tracey, Phillips, and Jarvis, 2011). Thus, there is a potential trade-off between replication and imitation on the one hand and growth and scaling of social enterprises on the other hand.

A growing body of literature investigates how organizations react to divergent conflicting demands (e.g., Pache & Santos, 2010; Greenwood et al., 2011; Smets et al., 2012). More recent research also studied how hybrid organizations respond to demands of different scaling strategy elements on an intraorganizational level (Pache & Santos, 2013). Although hybrid organizations are not limited to social enterprises, scaling is a specifically salient issue for social enterprises (Bradach, 2004). While recent studies on hybrids' intraorganizational responses to conflicting demands found that hybrids rather enact selective coupling for different elements of competing demands (Pache & Santos, 2013), we do not yet fully understand how or whether these responses make up a coherent scaling strategy on the organizational level. More specifically, responses to some aspects of a scaling strategy may not be compatible with other responses and thus, may create a lock-in situation for subsequent options of organizational behavior. In the example of social enterprises, sharing proprietary company knowledge and inviting for imitation of that knowledge (social welfare logic) is incompatible with choosing a scaling approach that relies on commercializing knowledge such as licensing (commercial logic). Thus, in this paper, we investigate how hybrid organizations respond to conflicting logics when scaling, considering how responses to conflicting demands map onto specific scaling strategies.

THEORY

We build on two streams of literature. First, we build on research in the tradition of new institutional theory (NIT) focusing on organizational and intraorganizational responses to competing logics, such as decoupling, compromising, and selective coupling (Meyer & Rowan, 1977; Greenwood et al., 2011; Oliver, 1997; Pache & Santos, 2013; Tracey et al., 2011). Recent research on the intraorganizational responses to competing logics showed that hybrids tend to selectively couple different responses to different elements of the competing logics (Pache & Santos, 2013). However, we do not yet fully understand how and whether at all selective coupling of intraorganizational responses to competing demands makes up a coherent strategy on the organizational level.

To link to intraorganizational responses to competing logics to actual strategies, we build on research in the tradition of strategic management theory of scaling organizations as a second stream of research (Penrose, 1959; Ahlert et al., 2008; Dees et al., 2002; Heinecke & Mayer, 2012). Scaling can be achieved by three basic scaling strategies: dissemination, branching, and affiliation (Dees et al., 2002). These strategies differ regarding several characteristics such as the level of control (Lyon & Fernandez, 2012), organizational resource investment and economic value appropriation, and speed of scaling (Heinecke & Mayer, 2012). If an organization uses the dissemination strategy, it provides free information on its business model and processes to encourage replication. As a consequence, dissemination is considered the fastest scaling strategy with no or minimal resource investment from the parent organization. However, when disseminating the enterprise has no or very limited control over the scaling process and the quality of the results, and does not appropriate any economic value from replicators.

In contrast, when branching the parent organization builds up its own subsidiary by performing all activities necessary to run a subsidiary itself. These include hiring employees, getting access to beneficiaries, and scouting new locations. Thus, branching allows the organization to control scaling process and quality and to appropriate economic value from its outlets, but it is the slowest scaling strategy with the highest resource investment requirements for the parent organization.

Affiliation aims at combining the benefits of a certain level of control with considerable scaling speed and limited resource investments. While affiliation consists of many sub-forms, such as joint ventures or franchising/licensing, all variations share a formal agreement between the parent social enterprise and an independent partner organization.

Thus, this study aims at understanding more clearly how hybrid organizations that are faced with competing institutional logics respond to these conflicts when scaling and what determines their choices of scaling strategies as a coherent set of responses?

METHOD

This study started from an interest in the scaling of hybrid organization, sparked by the emergence of “imitators” of a social enterprise that pioneered the employment of people with Autism Spectrum Disorder (ASD) and that intended to grow mainly via licensing instead of dissemination around 2008. Intuitively and theoretically, the imitation of a social enterprise business model to serve more people is at odds with the licensing approach that requires replicators of the model to pay license fees and operate under the licensor’s brand name. To explore our research questions, we developed an inductive multiple case study in the setting of social enterprises that employ with ASD as IT testers in Europe.

Research Setting

Autism Spectrum Disorder (ASD) refers to a spectrum of pervasive developmental disorders of the central nervous system that are primarily genetically caused and manifest in the first five years of life. People with autism show impairments in interpersonal interaction and communication, and are typically prone to repetitive behavior patterns and resistance to

change in routine (Boucher, 2009; National Autistic Society, 2007). The spectrum of autistic disorders ranges from severe mental retardation with autistic symptoms and a lacking ability to speak to people with average or even above-average cognitive abilities. ASD consists of three forms, classical autism also called infantile autism, Asperger syndrome, and atypical autism (Boucher, 2009). While both infantile autism and atypical autism usually involve learning difficulties and impairments in cognitive abilities, Asperger syndrome represents a mild form of autism with normal to above-average cognitive abilities. Although abilities of people with autism vary, particularly people with Asperger syndrome show an unusual talent for intense focus on tasks, a superior skill at observation, recall of detail and analytical abilities, the ability to successfully complete repetitive tasks, and an inability to lie or pretend (Austin et al., 2008).

Despite these extraordinary abilities of many people with autism, only a small proportion, approx. 5% of people with ASD in general and 20% of people with Asperger syndrome, is successful in finding and retaining appropriate work mostly because of their lack of social skills and self-confidence (Austin et al., 2008). Thus, the vast majority of people with ASD is either unemployed or remains in sheltered workshops for the disabled, which has not only negative implications on the lives of people with ASD and their families, but also on many companies' competitive advantage and society. Companies embracing the otherness of people with ASD and the resulting diversity in behavioral inclinations and personality types within their organization can gain competitive advantage in an innovation economy that thrives on variation (Austin, 2010). Against the background of intensified global competition, "the critical 20th-century management skill – making things and people fit into systems that execute efficiently – will inevitably be transcended by a different 21st-century critical management skill: creating the conditions in which people of widely varying backgrounds, behaviors, and inclinations can maximize their particular contributions to economic value." (Austin, 2010: 1). Integrating the untapped work force of people with autism reduces social welfare spendings of the state for unemployed people with ASD and at least partly transforms them into tax income through employment (Austin et al., 2008). Not least does employment represent an important source of a person's self-esteem and joy, not only for people with ASD (Boucher, 2009) – as expressed by this quote of a parent of a Specialisterne employee, the pioneer of social enterprises employing people with ASD, in an email to founder Thorkil Sonne: "You don't know me. I am crying as I write this message to you. You recently hired my son. And he is happy again for the first time since he started school..." (Austin et al., 2008: 12).

The mission of social enterprises employing people with ASD is to bring those people into meaningful jobs that will enable them to live dignified lives and become contributing members of society. They do so by offering services to for-profit companies at market rates that leverage the strengths of people with ASD such as IT testing. The social enterprises select people diagnosed with Asperger syndrome or some mild form of autism, who are interested in IT and possess the necessary level of social and technical skills to work as IT consultants. Before the consultants start their work they are specifically trained for few months to get work-ready. Ideally, consultants work at the client's premises and a job coach supports each consultant in case any problems arise.

Research Design and Sampling

We use an inductive case study design (Eisenhardt, 1989). We theoretically sampled three social enterprises, Specialist People Foundation (SPF), Passwerk, and auticon, founded between 2004 and 2011 in different European countries. All three enterprises employ people with Asperger autism and utilize their special abilities and attention to detail to offer services such as quality and software testing to IT companies. While the social mission of those enterprises is to support regular employment of people with autism and change the perception

of those people in society, they aim to operate financially self-sustainably by offering their services to companies at market rates. We chose those three social enterprises as “particularly revelatory” cases (Eisenhardt & Graebner, 2007: 27), because they differ in various characteristics such as the scaling strategy, while all three enterprises follow the same mission. To appreciate the subjective assessment of the company respondents, we also gathered data from external experts and on the field-level characteristics. Table 1 describes the three sample firms.

---- Insert Table 1 here ----

Data Collection

We conducted three distinct data collection phases. To understand the backgrounds and their different scaling approaches social enterprise, we attended several meetings and conferences of expert social entrepreneurs where members from the sampled organizations and industry experts were present during an exploratory stage from November 2011 to May 2012. We conducted two semi-structured and several informal interviews. The semi-structured interviews lasted between 30 minutes and four hours and were all taped and transcribed. These data allowed us to confirm that social entrepreneurs perceived issues of scaling and the three social enterprises as appropriate cases.

In a second stage from May 2012 until October 2012, we collected the first wave of data. We drew upon three data sources – interviews with company internal respondents, interviews with external experts and market observers, and archival materials – to capture different perspectives on strategy, growth approaches and perceptions of scaling issues within and between organizations, and field-level context. We started by gathering available archival data about the field of social enterprises employing people with autism, its history as well as its legal environment. Data collected during this stage included books, research articles, magazine and journal articles, law texts, and professional documents produced by associations of people with autism. For some cases, we accessed more specific material, such as internal presentations, business plans, email communication, and reports produced by the organizations for governmental agencies and support organizations. We also conducted four interviews with field experts (e.g., members of support organizations such as Ashoka, social incubators, or Autism associations) to understand their views on the evolution of the field. Then, we formally interviewed seven key respondents within the three firms such as founders, CEOs, employees (both Autistic and “neurological typical” people), and the franchisees of SPF as well as external stakeholders such as customers and investors. Once this data collection phase was finished, we proceeded with a round of data analysis, to identify and describe different strategies of the social enterprises, and allowed for interim respondent validation.

During a third phase from May 2013 until October 2013, building upon the initial analyses described above, we collected additional data and conducted another 14 interviews with key respondents within the three organizations and with external respondents. We usually met with the informants in their respective organizations, in each of which we spent approx. one day. This physical presence allowed us to get a sense of the culture and norms in each social enterprise. Interviews in stages two and three lasted between 30 to 140 minutes, were conducted in the interviewee’s native language or in English, tape-recorded, transcribed, and, where necessary, translated into English. Interviews were semi-structured and varied depending on the respondent’s position within or relationship to the organization. We asked internal interviewees to describe their position within and history with the social enterprise, their assessment of the enterprises business model and its effectiveness, their perception of the enterprise’s relationship to other social enterprises and stakeholders, strategic resources important for success and their imitability, their growth intentions and approach. We asked external respondents to describe their relationship to the social enterprises, the rationale

behind the decision to become investors, customer, or supporter, where possible their comparative assessment of the enterprises' scaling strategy and its effectiveness. Overall, we conducted 27 interviews comprising approx. 30 hours of recording. Finally, analysis of additional archival materials such as available annual reports, news coverage, case study material and websites provided macro level data on the historical and institutional context of the information provided in the interviews, validation of respondent statements, and deep understanding of the market and characteristics the social enterprises are operating in.

Data Analysis

Stage 1: Case narrative

The first stage of analysis involved drawing on the often-conflicting reports of our respondents and on our archival data in order to construct an "event history" (Garud & Rappa, 1994). This account of the foundation and scaling of the different social enterprises, and the interactions between the different actors allowed us to develop an in-depth understanding of the events and how different scaling approaches emerged. We acted cautiously to ensure that the case study encompassed a balanced representation of the different perspectives of the members of three social enterprises and the external observers.

Thorkil Sonne, father of a son diagnosed with ASD, founded Specialisterne ApS 2004 in Denmark (Austin et al., 2008; Wareham & Sonne, 2008). Specialisterne is the first company in the world to employ people with ASD to work as IT consultants, harnessing their special characteristics and providing valuable services for the corporate sector on market terms (Specialisterne Website; Jensen, 2011; Wareham & Sonne, 2008). Specialisterne performs services such as testing of business IT systems, data logistics, record keeping, programming, and data recording for corporate clients such as TDC, NOKIA, KMD, Microsoft, and CSC (Specialisterne Website; Jensen, 2011; Wareham & Sonne, 2008). Specialisterne's social innovation has the potential to combine the creation of social and economic value and thus, represents a social entrepreneurial example par excellence that has, as a consequence, achieved international acclaim¹ (Jensen, 2011, Specialisterne website).

To finance the start-up of Specialisterne, Sonne risked his and his family's financial security by giving up his employment and re-mortgaging his house (Austin et al, 2008). Between 2004 and 2008, Specialisterne grew to a company employing 50 people, including 34 consultants diagnosed with Asperger syndrome or some mild form of autism (Austin et al., 2008; Specialisterne People Foundation website). The financial situation of Specialisterne, however, has been unstable. Despite a continuous growth in revenues, the company incurred losses in many years, is indebted since 2009 and has not increased their number of employees with autism considerably since 2008 (Jensen, 2011; Austin et al., 2008).

In 2008 Sonne established the Specialist People Foundation (SPF) as a non-profit organization with the goal of enabling "one million jobs for people with autism and similar challenges" through educational programs and through scaling their model internationally, using Specialisterne as showcase (Specialisterne website; Jensen, 2011). Sonne sold all his shares in Specialisterne to SPF for the nominal amount of 1 Danish kroner. To reach their goal of enabling one million jobs for people with ASD, SPF has mainly established licensed outlets in other countries with the first outlet in Scotland in 2010 followed by outlets on Iceland, Switzerland, and the US between 2011 and 2013 (Jensen, 2011). Although the outlet in Iceland ceased operations, SPF managed to establish further outlets such as in Poland, Ireland, and Spain (Specialisterne People Foundation website). SPF's licensing approach resembles traditional licensing or franchising models in the for-profit sector including the obligation of the licensee to pay an initial fee and ongoing fees, typically as percentage of

1 For example, Sonne became the first Danish Ashoka fellow in 2009. Founded by Bill Drayton in 1980, Ashoka is the largest network of social entrepreneurs worldwide. Furthermore, Specialisterne has been covered in international media, such as the New York times and BBC.

their sales, to acquire the right to operate under the licensor's brand name and its business model (Krzeminska & Zeyen, 2013; Heinecke & Sonne, 2011).

However, some potential licensees decided to not become SPF's licensee but establish their own social enterprises, imitating the Specialisterne's social innovation. For example, SPF was trying to establish a German outlet since 2009. Germany, as one of Europe's largest economies with almost 82 million citizens, inhabits an estimated 4000 people who meet the requirements to work as IT consultant with autism,² more than 14 times as many people as, for example, Denmark with approx. 5.6 million inhabitants (World Bank, 2012). In 2009 a father of a son diagnosed with autism in Germany became interested in founding a business that would improve the career prospects for people with autism. The company's goal should be to offer services in the market by leveraging the strengths of people with ASD (auticon GmbH website). Due to the similarity of their social mission to the mission of SPF, in 2010 the entrepreneur and SPF consulted how he could become licensee of SPF in Germany to build on their existing knowledge and experience. During negotiations, however, it became clear that both parties followed different logics. First, the business model of Specialisterne is highly tailored to the Danish welfare system, which makes it difficult to transfer to the German market. Second, both the entrepreneur and the impact investor who was funding the startup up in large parts wanted to set up a financially independent company while SPF planned to make the German outlet part of a non-profit organization that at least partly depended on government subsidies and donations. Furthermore, SPF requires its licensees to pay upfront fees and continuing royalties to benefit from their knowledge and brand reputation. Given the lack of direct replicability of the Danish model in Germany and agreement about the organizational setup, the license payments seemed to be an unjustified business spending that would have made the establishment of a financially sustainable social enterprise in a competitive IT consultancy market in Germany unviable. Thus, the same year, the entrepreneur ceased negotiations with SPF and decided to set up an independent company, auticon.

In the course of starting up, the founder of the Germany social enterprise met the founders of Passwerk, who in contrast to SPF shared their knowledge without contractual arrangements and payments, and thereby significantly helped the founder to set up auticon. The founders of Passwerk established their company based on Specialisterne's social innovation but adapted the model to an institutional environment that provided significantly less social welfare support than Denmark. Unlike the other two cases it was not the founder's personal affectedness by autism that led to the founding of Passwerk. Inspired at a conference hosted by SPF in Poland, the management representatives from two Belgian organizations that support disabled people, decided to set up a steering committee with the aim of creating a business that would employ people with an ASD as IT consultants in Belgium. One of the later founders was part of the steering committee and mainly coordinated the startup. Together with a partner he founded Passwerk in 2008 in Antwerp, Belgium and they started with employing 4 autistic IT consultants the same year (Passwerk, 2013b). Just one year later Passwerk broke even and the number of staff with autism grew to 40 within 4 years. In the long run Passwerk's aims to employ 75 consultants in Antwerp.

Incorporated as a Cooperative Company with Limited Liability with a social purpose, Passwerk is funded by a consortium of for-profit firms from the IT sector (providing 95% of equity) and non-profit organizations that support disabled people. Despite their financial success, the shareholders have no intention to scale Passwerk beyond Belgian borders (Passwerk, 2013a). To increase social impact and help more people with ASD, Passwerk

2 It is estimated that approx. 36% of the population are between 18-45 years old, 0,3% of them are diagnosed with Asperger syndrome, 15% of those diagnosed have IT skills and interest, and 30% of them are psychologically able to have a steady job.

instead disseminates its knowledge and experience for free to people of whom they believe have a genuine interest in setting up an own social enterprise to employ people with autism. Licensing their model was not an option for Passwerk. It seemed unreasonable to Passwerk's founders to impose license payments on a licensee only to direct the licensee's scarce financial resource to a financially well-off licensor. That way financial resources would be taken away from where they are needed, straining the licensee's financial resource constraints and making it more difficult for the licensee to pursue the social mission.

Building on the knowledge provided by Passwerk, auticon GmbH³ was founded as the first German company to employ people with autism as IT consultants in 2011. Financed by a social investment fund auticon has scaled via branching in Germany. In 2013, auticon operated three branches in Berlin, Düsseldorf, and Munich, had revenues of half a million Euro, and employed 23 people, including 16 people with ASD. In 2014 auticon plans the opening of branches in Frankfurt, Stuttgart, and Hamburg. Until 2016 auticon plans to employ 100 people with autism. Currently, auticon scales in Germany, but it is intended to scale beyond German borders in the future.

Stage 2: Identification of theoretical concepts and categories

During the second stage of analysis, we inductively went back and forth between data and literature to identify initial theoretical concepts (Locke, 2001). More specifically, we attempted to characterize the demands from competing institutional logics the enterprises were embedded in. We drew on Pache and Santos' (2013) work and focused on those aspects that were most relevant for scaling. As a first step in categorizing the main themes, we worked through selected archival data, expert interviews, and respondent interviews. As we clustered the themes, we identified elements of institutional logics on two different levels of analysis, the interfirm level and firm level (Oliver, 1997). On the interfirm level we identified the support by the welfare system in the enterprise's country of origin as important theme. On the firm level, we identified four themes: Scaling objective, problem framing, imitability of the business model, financial self-sustainability, and knowledge diffusion approach. To confirm that the identified themes were the most important aspects affecting the scaling of (social) enterprises and that our characterization of those aspects accurately represented the competing institutional logics, in a second step we triangulated our analysis with existing research studying competing institutional logics and scaling of social enterprises (e.g., Austin et al., 2006; Dees et al., 2002; Heinecke & Mayer, 2011; Pache & Santos, 2010 and 2013). Finally, we cross-validated our analysis with experts from the field. Table 2 summarizes the identified scaling demands imposed by competing institutional logics.

---- Insert Table 2 here ----

While all three country contexts represent a societal market logic (Friedland & Alford, 1991), states characterized more strongly by a social welfare logic offer significantly more financial support and advantages to social enterprises than states characterized more strongly by a commercial logic.

On the firm level, the social welfare logic is structured around the goal to scale the provision of services and goods by the social enterprise to serve more people in need. Thus, the social welfare logic encourages replication and imitation of solutions and business models by sharing knowledge freely (Lumpkin, et al., 2011), subordinating the survival or competitive advantage of individual firms to the solution of the social problem. Perceived from the perspective of the social welfare logic the social problem is usually a long-standing, large or even global problem that can be best tackled top down by scaling a proven solution across different contexts (Austin et al., 2008). Financial self-sustainability of the enterprises or their

3 Company with limited liability.

approach is not a necessary requirement in a social welfare logic that allows for dependency on donations or the cross-subsidization of the provision of social goods or services.

The commercial logic is structured around the objective of scaling the provision of services or goods by growing the individual firm (Santos & Eisenhardt, 2009). Thus, to ensure their own survival enterprises embedded in a commercial logic have to build a distinctive competitive advantage, which usually requires them to compete and safeguard their business models against imitation or replication by protecting and commercializing their knowledge (Barney, 1991). Enterprises embedded in a commercial logic tend to serve newly created or local needs bottom up by starting small and growing from there (Austin et al., 2008). Survival and scaling of commercially-driven enterprises requires them to operate in a financially self-sustainable way.

Stage 3: Cross-case analysis

Building upon the prior analysis, in the third stage of data analysis we proceeded to identify differences, similarities, and common patterns across cases (Eisenhardt, 1989). Relying on our extensive data, we used the five themes identified during the previous phase (state support, scaling objective, problem framing, imitability of the business model, and financial self-sustainability) as lenses through which to analyze our data. To address our research questions, we analyzed how each organization responded to the conflicting demands identified in stage 2 and how this mapped onto the different scaling approaches pursued by the different organizations. In Table 3 we report the behaviors that the organizations enacted for each element, and categorize this behavior as the enactment of a social welfare or commercial logic and also tracked whether organization enacted a different type of behavior such as compromise or decoupling (Pache & Santos, 2013) We also provide illustrative evidence for our analysis.

---- Insert Table 3 here ----

To identify patterns, we compared the organizational responses. The data analysis revealed that auticon and Passwerk showed similar patterns, while SPF exhibited a different pattern. However, auticon and Passwerk differed in their scaling strategy. To make sense of our results, we engaged in a discourse between theory and data. We found that the enterprises' scaling approaches can be explained by a two-stage process, which we outline in detail in the findings section below.

FINDINGS

Stage One: Path Dependency of Imitability of the Business Model

When analyzing the patterns, we identified that one social enterprise in our sample, the Specialist People Foundation, emanated from a field with dominant social welfare logic, while the other two enterprises were embedded in more commercially driven state contexts. The Danish context is characterized by a strong support of work integration companies by the social welfare system. First, the Danish "flexicurity" system (also called flex job system) allows (social) enterprises to employ people with disabilities who work as "little" as a minimum of 12 hours a week in an economically meaningful way for both parties, as the Danish state covers the salary difference between the actual work hours and a full time employment of 37 hours (Bredgaard, et al., 2009). Second, the Danish enterprise received substantial financial support for the training of people with autism independently of whether these people were employed thereafter. In contrast, the German and Belgian contexts are characterized by a commercially driven logic. In both countries the social welfare support for work integration companies is designed to make those companies competitive compared to traditional companies by mitigating the economic disadvantages and additional costs of social enterprises such as the employment of job coaches who support the employees with autism at work.

Further analyzing the data, we realized that the state support affected an organization's flexibility to choose whether it responds to the financial self-sustainability demand in a commercial or social welfare fashion. More specifically, a social welfare state support left the organizations with a choice, while a commercial state support pushed the organizations to respond to financial self-sustainability demands in a commercial way. Because the profitability of commercially driven consulting services relies on a high ratio of consultants' billable hours, the flex job system gives consultancies the possibility to survive despite consultants' small percentage of billable hours. This allowed SPF to partially cross-subsidize the consultancy unit, mitigating the pressure of generating market income. In contrast, both auticon and Passwerk had to build their business around a financially self-sustainable model as they did not receive an amount of state support sufficient to subsidize their business. While the availability of strong support by a social welfare system does not necessarily mean that a hybrid organization will choose to rely on social welfare support, our data shows that it can offer social enterprises that notoriously suffer from a shortage in financing an opportunity to survive without financial self-sustainability.

The response to financial self-sustainability demands, however, subsequently determined the imitability of the business model in a paradoxical way. In our data, the social enterprise business model relying on strong support from the social welfare state was less imitable than the social enterprise business model embedded in a commercially-driven context due to its reliance on context dependent funding. If the business model was not set up in a financially self-sustainable way, it restrained the imitability of the business model, because imitators had to access similar state support to replicate the financing of the business. In contrast, organizations that responded to financial self-sustainability demands by enacting a commercial logic exhibited a high imitability of their business model (characterizing a social welfare response to this demand), because their business model was not dependent on local state support and could thus be replicated more easily to other contexts. However, low imitability of the business model represents a characteristic of a commercial scaling logic, reducing the opportunity to scale the social innovation to other contexts.

As a consequence, we found that the organization that originated from a social welfare context could choose between social welfare and commercial responses to financial self-sustainability demands of the scaling logics, while organizations embedded in a commercial context did not have this choice. However, if an organization embedded in a social welfare context chose to enact a social welfare response to financial self-sustainability demands, i.e., not operate financially self-sustainable, it restrained their opportunity to scale due to lower imitability. Organizations that were embedded in a commercial context had to operate financially self-sustainable (i.e., enact a commercial logic response), however, their financial self-sustainability ensured that their business models were imitable across different contexts, as they did not rely on local funding. Thus, in our data the imitability of the enterprises' business model was path dependent on the enterprises' financial self-sustainability, but only organizations embedded could choose to not operate financially self-sustainably.

Stage Two: Path Dependency of Choice of Scaling Strategy

Based on our analysis of stage one, we realized that organizational responses to financial self-sustainability and imitability of the business model were closely linked. When financial self-sustainability was low, imitability of the business model was low, too and vice versa. We then went on to analyze the choice of scaling strategy and how it was related to the other themes. We had two interesting insights. First, the combination of low imitability of the business model and low financial self-sustainability left the organization originating from a social welfare context with few viable scaling choices, making it difficult for these organizations to enact a social welfare scaling strategy. As a consequence, the organization originating from a social welfare context paradoxically enacted a commercial scaling strategy,

namely licensing. In contrast, the combination of high financial self-sustainability and high imitability of the business model left the organizations from a commercial context with a choice of scaling approaches, including the enactment of a social welfare scaling approach. Thus, one of the organizations embedded in a commercial context enacted a social welfare scaling approach, namely dissemination, while the other enacted scaled via branching.

Second, when choosing their scaling approach none of the organizations was prioritizing legitimacy concerns. More specifically, resource considerations outweighed legitimacy concerns in organizations that did not operate in a financially self-sustainable manner. In our case, SPF was even criticized for adopting a commercial scaling approach while claiming to support the scaling of the social mission. Thus, we identified their response to the scaling objective as decoupling. Organizations that did operate financially self-sustainably decided upon their scaling approach based on their scaling objective rather than legitimacy. As Passwerk had no firm growth aspirations, we identified their scaling approach response as enactment of the social welfare logic. Auticon tried to scale the mission but at the same time scaled their organization throughout Germany, we identified their scaling approach (branching) as compromise between social welfare and commercial logics.

Overall, our data indicates that organizational responses to conflicting demands at one stage create a path dependency and lock in situation for responses at subsequent stages. Interestingly, in our case a social welfare context left organizations flexibility of choice in stage one, but locks them in stage two of they chose to rely on social welfare funding. In contrast, a commercial context left organizations little choice in stage one as it pushes them to operate financially self-sustainably, but then in stage two these organizations have the flexibility to choose among different scaling strategies. In our data, these led to a paradoxical scaling strategy as the organization emanating from a social welfare background enacted a decoupling response by claiming to enact a social welfare response but factually enacted a commercial response. In contrast, organizations originating from a commercial background enacted either social welfare or a compromise scaling strategy. The Model in Figure 1 illustrates the path dependencies and paradoxes in hybrid organizations' responses to conflicting scaling logics.

---- Insert Figure 1 here ----

DISCUSSION

With our study we sought a better understanding of how hybrid organizations incorporate to conflicting logics when scaling. We specifically focused on how and whether organizational responses to conflicting scaling demands are interrelated and dependent on each other, and what drives organizations' scaling strategy choices. A thorough inductive case study of three work integration social enterprises from different European countries allowed us to discover that significant path dependencies exist between seemingly separate organizational responses that narrowed organizations' subsequent response patterns in a paradoxical way. Furthermore, we found that, in contrast to traditional institutional arguments, legitimacy considerations were not the primary driver of hybrids' responses but rather resource considerations or firm objectives. Below we elaborate on each of these findings and discuss how they contribute to institutional theory and to the emergent literature on hybrid organizations and social enterprises respectively.

With this paper, we aim to contribute to several streams of research. First, we contribute to existing literature on organizational responses to conflicting logics (e.g., Pache & Santos, 2013). Previous studies found that hybrid organizations exhibited partially paradoxical responses to institutional demands, such as organizations originating from a business background incorporated more social welfare responses than organizations emanating from a social welfare context. Our studies supports these results, however, it advances existing knowledge in two respects. First, our study highlights that considerable path dependencies exist between hybrid organizations' responses to competing logics.

Interestingly, path dependencies existed for all organizations in our data, either in stage one determining their resource positions or in stage two determining their scaling strategy. Thus, organizational responses to conflicting demands at one stage create a path dependency and lock in situation for responses at subsequent stages. In our case a social welfare context leaves organizations flexibility of choice in stage one, but locks them in stage two if they chose to rely on social welfare funding. In contrast, a commercial context leaves organizations little choice in stage one as it pushes them to operate financially self-sustainably, but then in stage two these organizations have the flexibility to choose among different scaling strategies.

Second, organizational responses to conflicting demands in our data are not primarily driven by legitimacy considerations, but rather by resource scarcity/availability considerations. Thus, we confirm paradoxes in organizational responses found in previous studies (Pache & Santos, 2013), but our study explains those paradoxes with resource constraints that emerged based on path dependencies when responding to conflicting scaling demands. These factors, however, are better explained using strategic management theories, such as resource based view (Barney, 1991), resource dependence theory (Pfeffer and Salancik, 1978), or resource scarcity theory (Oxenfeldt, & Kelly, 1969). This stresses the need to augment new institutional theory with other complementary theories when explaining responses to conflicting logics (e.g., Deephouse, 1999; Oliver, 1997).

Second, we contribute to the literature on scaling (hybrid) organizations. Specifically, our paper highlights that social enterprises choose licensing only if they are forced to due of their resource scarcity. In our data, this applied to the organization emanating from a social welfare context. Organizations originating from a commercial context seem to grow either via branching or via dissemination. Thus, our results link the literature on conflicting logics to the strategic management and social entrepreneurship literature on scaling. It also sheds new light on the typology of scaling strategies and the usefulness of licensing as scaling strategy for social enterprises. When branching, the headquarter finances the outlets with own resources, supporting the overall scaling of the social mission. Licensing in contrast, requires the outlets to invest their often-scarce resources deterring the scaling of the overall mission. This is especially relevant, when imitability of the business model is low as in our case, as this may lead to a incoherent scaling strategy that does neither support the imitators with imitable knowledge nor with financial resources due to lacking financial self-sustainability.

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TABLES AND FIGURES
Table 1: Description of Cases

<i>Characteristic</i>	Specialist People Foundation	Passwerk	auticon
<i>Number of interviews within the organization</i>	6	3	7
<i>Number of stakeholder interviews⁴</i>	6	3	8
<i>Founding year</i>	2004	2008	2011
<i>Headquarter</i>	Copenhagen, Denmark	Antwerp, Belgium	Berlin, Germany
<i>Industry</i>	IT, Education	IT	IT
<i>Market entry</i>	Pioneer	Imitator	Imitator
<i>Number of neurological typical employees</i>	6 at SPF, 16 at Specialisterne	7	13
<i>No. of employees with ASD (=beneficiaries)</i>	34 (at Specialisterne Denmark)	40	25
<i>No. of sites; international; national</i>	9; 8; 1	1; 0; 1	3; 0; 3

Table 2: Competing Scaling Prescriptions of Social Welfare and Commercial Logics

	Social Welfare Scaling Logic	Commercial Scaling Logic
<i>State Support</i>	Strong	Weak
<i>Scaling Objective and Approach</i>	Scaling of the provision of services/goods by open source sharing of knowledge as common good	Scaling of the firm by protection and commercialization of proprietary knowledge
<i>Problem Framing</i>	Long-standing, large/global problem	Multiple local or newly created problems
<i>Financial Self-sustainability</i>	Can rely on donations and social welfare system support	Needs to be financially self-sustainable in the long run
<i>Imitability of the Business Model</i>	Should be high to facilitate widespread replication of the model across different contexts and enterprises	Should be low to create imitation barriers and competitive advantage for the firm

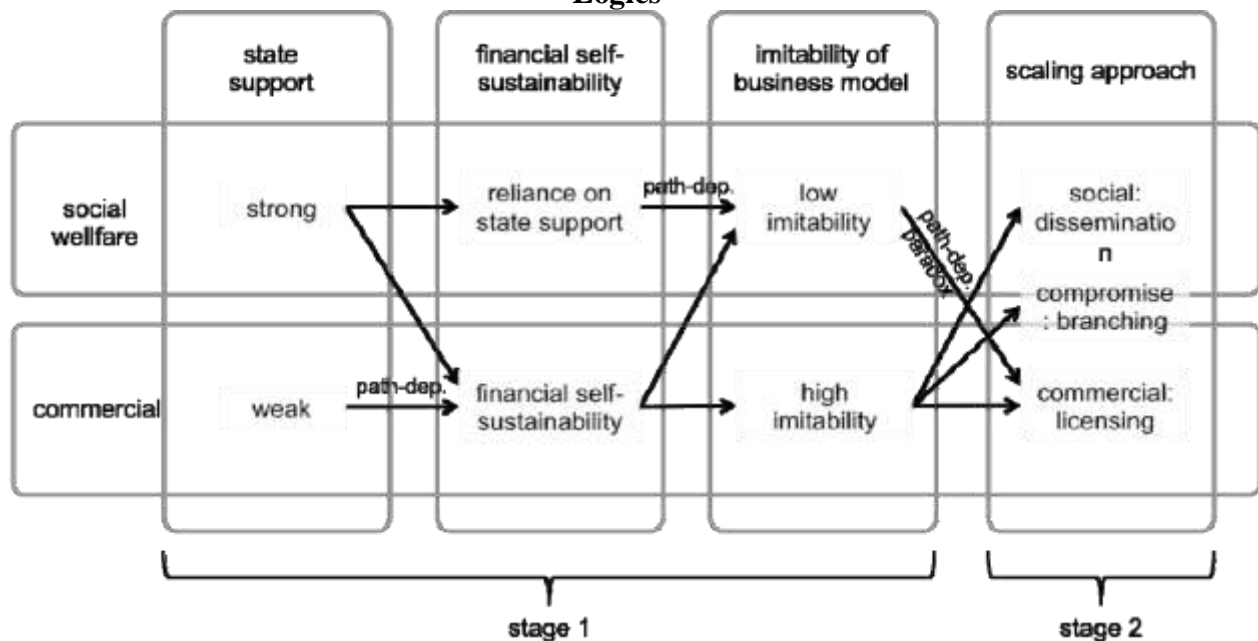
4 Multiple mention of stakeholders when they had experience with more than one enterprise.

Table 3: Organizational Responses to Conflicting Social Welfare and Commercial Scaling Demands

	SPF	Passwerk	auticon
<i>State Support</i>	Social Welfare	Commercial	Commercial
	<p><i>“In Denmark it is so, you have to know. Specialisterne also trains people. They get a couple of thousand Euros per month per employee for training. This is immense. And that's not the case in Belgium. I knew the social system in Belgium is much closer to the German.” (Founder, auticon)</i></p> <p><i>“95% of our consultants work in the flex job system, so which means they have a work performance of more than 12 hours and less than 37 hours per week. [...] In Denmark, which is a welfare system, they get paid a normal full salary. [...] Basically, the difference between their work hours and 37 hours, that amount of salary we as a company get back from the public.” (Customer Service Manager, Specialisterne Denmark)</i></p>		
<i>Scaling Approach</i>	Decoupling	Social Welfare	Compromise
	<p><i>Mainly licensing approach despite claims to share knowledge</i></p> <p><i>“We can't give the knowledge away for free. Then can't live, then we can't expand. Where should the money come from to run the foundation? To share knowledge. There's a lot of overhead here. I mean, who should pay for the overhead?” (Customer Service Manager, Specialisterne Denmark)</i></p> <p><i>“There has to be money involved. Otherwise you can't make the world go round. It's impossible. I mean, we are not philanthropists. I mean, we can't send people out. The foundation has to give the people a salary. At the moment there are six people at the foundation.” (Customer Service Manager, Specialisterne Denmark)</i></p> <p><i>“The main thing we don't agree upon is the fact that they [SPF] come out as being the institute that wants to share and doesn't share anything without paying for it.” (Managing Director, Passwerk)</i></p>	<p><i>Dissemination</i></p> <p><i>“We share our knowledge with people who have their heart in the right place.” (Sales Director, Passwerk)</i></p> <p><i>“They [Passwerk] do not want to globalize. They want to stay in Belgium. And we are partners in the sense that we get the knowledge from Belgium. For free. That's it.” (Founder, auticon)</i></p>	<p><i>Branching</i></p> <p><i>“We are now represented at sites in Berlin, Dusseldorf, Munich and Frankfurt. In 2014, planning to open sites at Stuttgart and Hamburg. From 2015, we want to make the first steps to go abroad, probably London and Zurich..” (Founder, auticon)</i></p>
<i>Problem Framing</i>	Social Welfare	Commercial	Commercial
	<p><i>“The Specialist People Foundation works to enable one million jobs for people with autism and similar challenges through social entrepreneurship, corporate</i></p>	<p><i>“Passwerk combines its business with a social dimension and offers this as an added value to its customers.” (Passwerk website)</i></p>	<p><i>“As the first company in Germany auticon employs only people on the autism spectrum as consultants in the IT sector.” (auticon website)</i></p>

	sector engagement and a global change in mind-set.” (SPF website)		
Financial Self-sustainability	Social Welfare	Commercial	Commercial
	<p>„As to my present analysis, the whole education and training sector of Specialisterne actually subsidizes the business sector.” (Founder, auticon)“</p> <p>“He [Thorkil Sonne] says he makes sales from Consulting and Software Testing. But this is insignificantly small. The main sales he makes is with grants for training. That is, he has the academies and gets a hell of money for it, he lives from training people in the academy. This is also a valid approach. But he does not need to tell me that he has a consulting business, because that's insignificant. ” (Social Investor and Industry Expert)</p> <p>“Of course, we are covered by the social welfare system. It's also our enemy to a certain degree. [...] Because these people have always been told that they have a diagnose, they're not normal, you can't expect that you can work full-time, you can only work part-time. And so on. At the moment, it looks people with an autism diagnose in America can work full-time. Is it the water in the Atlantic ocean that makes the difference, or is it the social welfare system that makes the difference?” (Customer Service Manager, Specialisterne Denmark)</p>		
Imitability of the Business Model ⁵	Commercial	Social Welfare	Social Welfare
	<p>"The Danish model does not work outside of Denmark. They have a very different funding environment. (Social Investor and Industry Expert)</p> <p>"And you can't transfer the model from Denmark one-to-one." (Founder, auticon)</p> <p>"All countries work differently. So every time, I won't say you start from scratch, because we gather experience every time, but believe you and me, there's a big difference whether you start in America, or whether you start in Dublin, or whether you start in Austria." (Customer Service Manager, Specialisterne Denmark)</p>		

Figure 1: Two-Stage Model of Path Dependencies and Paradoxes in Hybrid Organizational Responses to Competing Scaling Logics



⁵ Imitability of the business model refers to the imitability of the financial aspects of the model.

ENTREPRENEURSHIP AND SMALL BUSINESS RESEARCH: DISENTANGLING A COMPLICATED RELATIONSHIP

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Entrepreneurship and small business research: disentangling a complicated relationship

Abstract

Entrepreneurship and small business management are clearly related but certainly not synonymous phenomena. We seek to disentangle the close relationship between both fields by relying on a large-scale survey of entrepreneurship and small business scholars and a content analysis of published research from both areas, from which we derive an implicit consensual definition of each field and their shared interface. For most scholars, the definition of the field of entrepreneurship would probably embody the opportunity view to the same extent as the firm formation perspective. For the field of small business management, the consensual definition would probably go beyond size and suggest a more problem-centered conception of the discipline. Finally, when entrepreneurship and small business research meet, the entrepreneurial idea might be useful to help small businesses to achieve growth goals in a positive way. Our findings suggest that despite the very fragmented and multidisciplinary character of both fields, the respective scholars share a consensus of opinion on what their field really encompasses. That consensus suggests the presence of a relatively strong common bond within the fields that enables researchers to reflect multiple perspectives, while still maintaining each field's coherent distinctiveness.

Introduction

Entrepreneurship and small business research are undoubtedly related domains. Both fields are flourishing and progressing as by their combined published articles, conference contributions and the number of endowed professorships and chairs (e.g. Kuratko, 2006; Katz, 2008). However, the rapid advancements in entrepreneurship research and small business management are accompanied by ongoing definitional, conceptual, and methodological challenges (e.g., Davidsson, 2003; Grant & Perren, 2002; Ireland et al., 2005; Wiklund et al., 2011). When scholars describe the attributes of their respective fields, they commonly use terms like “fuzzy”, “fragmented,” and “open to varied interpretations”. The multidisciplinary character of both fields as well as specificity concerns within the domain of management sciences (Shane & Venkataraman, 2000; Bruyat & Julien, 2001; Mitchell et al., 2004; Stevenson & Jarillo, 1990) give rise to definitional problems (Davidsson, 2003). Broadly agreed definitions for entrepreneurship research, the domain of small business, and the interface between them, which can be seen as the foundation of any framework, are still lacking.

Entrepreneurship as a research domain and small business management seem clearly distinct from each other only on a surface level, since their adjacent boundaries have become indistinguishable from each other. Such blurring of boundaries presents a challenge to scholars working in both (comparably young and rapidly expanding) fields. As every entrepreneur starts small, the question might be raised as to whether entrepreneurship research could simply be a subdomain of small business research, or viewed from another perspective, perhaps small business research should be viewed as residing in the domain of entrepreneurship research. There is a substantial need for discourse and reflection on the essential nature of both fields and their interface. We seek to close this gap by addressing the following research questions: What is the essential nature of entrepreneurship and small business research, and what is the nature of their

interface? Answering those questions will involve attempting to disentangle the close relationship between both fields and establishing a foundation for a broadly agreed conceptualization of both disciplines that will contribute to the legitimacy and prosperity of both fields.

When a field is fragmented and its boundaries are blurred it is legitimate to ask scholars what they perceive to be the defining elements of their field, since ultimately, it is the community of researchers that must share a common view of what defines their paradigm (Kuhn, 1962; Bruyat & Julien, 2001). To address this problem, we followed a procedure suggested by Nag et al. (2007) and content analyzed published research to disentangle the relationship between entrepreneurship and small business management by conceptualizing consensual definitions of a) entrepreneurship research, b) small business research, and c) the interface between both fields.

To achieve this objective, we conducted a multi-staged analytical process. As a first step, we asked a large panel of entrepreneurship and small business scholars to read 248 abstracts of articles appearing in leading entrepreneurship, small business, and management journals and evaluate the degree to which specific articles seemed to them to be an entrepreneurship article or a small business article. Building upon the article categorization, we identified the distinctive lexicon of each field using automated text analysis software. Finally, we developed the implicit consensual definitions of entrepreneurship, small business management, and their shared interface, held by the research community. We conclude the paper by discussing the implications of our analyses for the field and proposing further applications and extensions of our research.

Past efforts to define the fields

Entrepreneurship

Examining past efforts to define the domain of entrepreneurship reveals an enormous diversity in the scope of definitions and in the way people understand and convey the notion of the field (Gartner 1990). Various definitions of the field are grounded implicitly or explicitly on the entrepreneur as the primary definitional unit. Entrepreneurship is then seen as the outcome of an entrepreneur's actions, characteristics, and attributes (Stevenson & Jarillo, 1990). Definitions of this kind are often too vague and/or cover just a portion of the field. To elucidate, Anderson (2000), for instance, defines entrepreneurship research as a discipline dealing with the "creation and extraction of value from an environment." Definitions following this pragmatic perspective predominantly account for the multidisciplinary and very fragmented character of the field but at the expense of informing us of what the research domain of entrepreneurship is really all about and how it might differ from that of small business management.

The prominent definition of Shane and Venkataraman (2000) extends this pragmatic view and puts greater emphasis on the concept of opportunity as the defining feature of entrepreneurship research. Irrespective of the advancements in entrepreneurship research, the definition is difficult to operationalize due to the very nature of opportunities. In particular, the opportunity view could be criticized for being too vague to be really informative for entrepreneurship researchers (Davidsson & Tonelli 2013). Moreover, relying on the opportunity construct does not shed sufficient light on conceptual differences between entrepreneurship and the domain of small business management since the idea of exploiting opportunities basically applies to any active participant in any market including entrepreneurs to the same degree as small business managers.

Alternatively, scholars argue that entrepreneurship research should be studied from a process perspective where definitions center around the formation of firms (or organizations) instead (Gartner 1989). Increasing the emphasis on new firm formation facilitates the transfer into research practice since it can be measured more conveniently than the identification, evaluation, and exploitation of opportunities. However, this view is not universally accepted either. Shane (2012) argues that firm formation can also be undertaken by people in existing firms or through market mechanisms. Besides, while the opportunity view is criticized as being too broad and vague, the alternative perspective is criticized for being too narrow to cover the full dimension of entrepreneurship research (Davidsson, 2003).

Small business

The picture is different in the field of small business research. The definition of the field is usually reduced to the question of how small a business needs to be to qualify. Most scholars follow policy makers in their classification of small businesses (e.g., the European Union or the U.S. Small Business Administration). The size standards usually include quantitative criteria such as number of employees, sales or balance sheet totals. However, there is no broadly agreed quantitative definition of a small business (Storey, 1994) whereas the appropriateness of the selection and setting of these criteria for research practice is itself subject to discussion (Peterson et al., 1986; Curran & Blackburn, 2001). Relying on quantitative definitions is convenient and appears to be objective and transparent. However, applying quantitative criteria is associated with major drawbacks. First, size standards are dependent on specific sectors, and therefore make it challenging for researchers to draw generalizable conclusions. Second, these small business definitions fail to help delimit small business research, because they give rise to tautological definitions along the lines of small business research being concerned with researching small- sized businesses.

Definitions that go beyond size to incorporate qualitative attributes to describe the nature of the field of small business management are scarce. Scholars usually refer to the Bolton Committee's Report on Small Business (1971, as cited by Storey, 1994). According to the committee's economic definition, small businesses must satisfy three criteria: a) having a relatively small share of their market place, b) being managed by owners or part-owners in a personalized way and not through the medium of a formalized management structure, and c) being independent, in the sense of not forming part of a larger enterprise. There has been plenty of criticism of this definition. For instance, one of the Bolton Committee's quantitative criteria is that a small business might have 100 employees, a characteristic that would certainly militate against it being managed in a personalized way.

Following the Bolton Committee's economic definition, more recent efforts to describe the field have predominantly been concerned with the question of how to distinguish small businesses from their larger counterparts (Julien, 1993). Torres and Julien (2005), for instance, claim that small businesses could be distinguished from larger enterprises based on a number of traits such as centralized management, a low level of labor specialization, intuitive and short-term strategies or a focus on the local market. To extend the criticism of Curran (2006), these qualitative definitions fail to inform us about the specific relationship with entrepreneurship since most of the suggested attributes would apply equally to the field of entrepreneurship.

The interface of entrepreneurship and small business

Entrepreneurship and small business management are clearly related but certainly not synonymous concepts. Scholars from both fields migrate back and forth between the disciplines, attend joint conferences, and publish in the same journals. Due to the close conceptual relationship, previous attempts to disentangle the relationship between the fields are predominantly concerned with the question of how to separate the disciplines, instead of informing researchers about the nature of the interface between them. In response to this specific concern, a growing body of research analyzes which attributes can be definitively assigned to entrepreneurs, small business owners and/or CEO-managers (e.g., Kaish & Gilad, 1991; Busenitz & Barney, 1997; Stewart et al. 1999). Apparently, entrepreneurship and small business scholars are on a quest to establish a distinct identity in order to claim independence within the domain of management sciences, and in the process are intent on simply ignoring the link between them.

In a rare attempt to specifically disentangle the relationship between the domains of entrepreneurship and small business management, Carland et al. (1984) arrive at distinct definitions for entrepreneurial and small business ventures, as well as definitions for the small business owner and the entrepreneur. The authors argue that innovation and growth are critical when it comes to distinguishing between entrepreneurship and small business management. An entrepreneur capitalizes on innovative combinations of resources which serve the primary purpose of profit and growth. The small business owner, in contrast, operates a business as a means to extend his personality to further personal goals and to generate family income. Moreover, entrepreneurs and small business owners differ in terms of venture strategies, personality traits and also in regard to cognitive orientation and behavioral preferences (Stewart et al., 1999).

Scholars remain silent when it comes to describing the nature of the interface, that is, the boundary-spanning space where both fields enrich each other (Carland et al. 1984). To our knowledge, there is neither a definition nor a research agenda for the interface between entrepreneurship and small business management. However, clarifying the distinct topics of each field is equally important as stating the communalities, which are, in turn, reflected in the nature of their interface. We are of the opinion that illuminating how both fields are interconnected by defining their interface is a prerequisite if both disciplines are to maintain their momentum.

The challenge in defining the field of entrepreneurship and small business management and the interface between them lies in ensuring that any definitions are not too restrictive to reflect the multidisciplinary and fragmented character of the discipline. However, at the same time, a suitable definition should be precise enough to inform researchers of what the distinctive topics are, and of how their field differs from neighboring domains. The current research accounts for these requirements by looking to the research community itself and asking scholars what they perceive to be the topics related to the specific domains. The scholars' perceptions of the field should give a valuable impression of what entrepreneurship and small business management really are, and especially of which aspects should be exclusively attributed to a particular field.

The relationship between both disciplines will be exposed if, as we anticipate, entrepreneurship and small business scholars share an implicit (and perhaps even explicit) consensus on the scope of their respective fields. Despite varied theoretical and methodological approaches, and despite the absence of any agreed definition, scholars can be expected to have a broadly shared understanding, or a common worldview, of what constitutes their field. This implicit understanding can be used to impute consensual definitions of entrepreneurship, small business

management, and also the interface between them. It can also help us understand the community members' collective identification of the field, that is to say, the shared identity that gives members a fundamental sense of who they are as members of a research community.

Data & method

Identifying relevant texts

Our first step was to present a panel of entrepreneurship and small business scholars with a set of articles and ask them to rate each one, essentially asking, "To what degree do you consider this article an entrepreneurship article and to what extent a small business article?" We presented our panel with a total of 248 articles. To generate this pool of articles, we randomly selected articles from the leading entrepreneurship, small business, and management journals. Those journals were *Entrepreneurship Theory & Practice* ($n = 48$), *Journal of Business Venturing* ($n = 50$), *International Small Business Journal* ($n = 50$), *Journal of Small Business Management* ($n = 50$), *Academy of Management Journal* ($n = 25$) and the *Journal of Management* ($n = 25$) from the volumes for 1991–2011.

The sampling was conducted with the aim of ensuring a fair balance between entrepreneurship and small business journal articles. We included management journals as a reference point allowing for statistical analysis due to its clearly distinct lexicon. The 20-year time-span broadly covers the fields' research domains, and avoids the problem of overemphasis on the research of a more limited era, therefore mitigating the risk of cycles and momentary fashions. The selected approach to determining the pool of articles to be coded offers several benefits. First, including management articles helped to reduce rater fatigue or annoyance, which would have occurred if raters had been asked to rate only entrepreneurship and small business articles. Second, by adding management articles as a reference point, raters were required to make choices that were relatively more discriminating. As a result, the raters' evaluations of the extent to which they deemed articles entrepreneurship- and small business-related, and in turn our extraction of the distinctive lexicon, can be considered relatively conservative.

The panel selection involved randomly selecting 439 researchers from a database compiled by the first author that lists 3,500 entrepreneurship and small business researchers worldwide. Their common denominator was that the researchers had all presented their research at one of the major academic conferences such as the Babson College Entrepreneurship Research Conference or the Entrepreneurship Division of the AoM Meetings, which would certainly make them familiar with either the field of entrepreneurship or small business management and therefore reliable sources of ratings for our purposes. Those 439 were invited to participate by e-mail and sent a link to a survey. The action generated 138 useable surveys (equating to a solid response rate of 31% (Baruch, 1999)), which in turn provided 2,449 individual ratings.

The panel were diverse in terms of their career stage (26% professors, 25% associate professors, 18% assistant professors, 7% postdoctoral researchers, 20% doctoral candidates and 4% with a different academic status) and primary area of research interest (73% entrepreneurship, 17% small business and 10% with another research interest). The background data suggest a panel well acquainted with entrepreneurship and small business research and able to draw on considerable experience. On average, the respondents had been interested in entrepreneurship and small business research for 11.9 years (SD 8.5).

Each panelist was given access to a web-based survey which contained the titles and complete abstracts of our 248 randomly generated articles. All the formatting was removed to avoid font style, layout, or design influencing the raters' decisions on the applicable field. Each panelist was asked to rate the titles and abstracts on two separate four-point scales; one for entrepreneurship and one for small business: 1 = clearly not entrepreneurship (E) / small business (SB) article; 2 = probably not an E / SB article; 3 = probably an E / SB article; 4 = clearly an E / SB article. A randomization process ensured that every one of the 248 articles was rated on average ten times (SD 3, Min: 3, Max: 16). Panelists exhibited strong agreement in their ratings, as shown by the intraclass correlation coefficient (ICC) for the field of entrepreneurship of 0.66 ($p < 0.001$) and 0.60 ($p < 0.001$) for small business management (Shrout & Fleiss, 1979; Nag et al., 2007).

The mean ratings could be considered as a scale of the degree to which an article was deemed E or SB respectively. Such an approach, however, would have the unnecessary and unfortunate result of drawing distinctions between every increment of the scale, including between articles with mean ratings of, say, 1.2 and those of 2.0, which clearly was not our purpose. Instead, we used a categorical distinction, treating all articles with mean ratings above 3.0 as E (a total of 94 articles) or SB articles (77 articles) respectively and those with mean ratings of 3.0 for E and SB as at the interface between both domains (14 articles). Table 1 gives an overview of where the classified abstracts were published, thereby revealing information about the essential nature of the journals in our sample.

Table 1: Journals and Classification of Articles

	Entrepreneurship Journals		Small Business Journals		Management Journals	
	JBV	ETP	ISBJ	JSBM	AMJ	JOM
Purely E-articles	52%	58%	30%	22%	4%	-/-
Purely SB-articles	10%	13%	52%	58%	-/-	4%
Interface articles	6%	6%	10%	10%	-/-	-/-
Other	32%	23%	8%	10%	96%	96%

n=248.

Interestingly, small business topics seem to play a minor role in the classic entrepreneurship journals such as JBV and ETP, whereas the classic small business journals such as ISBJ and JSBM seem to serve a bridging function between the disciplines by publishing a substantial number of entrepreneurship articles alongside those with a primary focus on small business research. The relatively high number of articles published in JBV and ETP classified as being neither entrepreneurship nor small business (32% and 23% respectively) can be ascribed to studies primarily addressing questions around strategic concepts, indicating that these journals serve a bridging function, not oriented toward the small business domain, but rather in the direction of the strategic management domain.

Extracting the distinctive lexicon

As noted earlier, our primary point of departure is the implicit assumption that a scientific field shares a common identity and language which is reflected through its lexicon. To distill the distinctive vocabulary of entrepreneurship and small business management, we conducted a computer-aided content analysis using NVivo software. Following the procedure suggested by Nag et al. (2007), we decided to focus on individual words since the alternative of examining entire phrases, word groups or word relationships has notable drawbacks. For instance, phrases such as 'venture capital', 'opportunity recognition', or 'entrepreneurial orientation' are

commonly used within both domains, but predetermining these phrases would have led to significant bias in our analytical procedure. Besides the biased *a priori* judgment, the great number of possible word combinations inhibits systematic and proper analysis. As a consequence examining individual words minimizes these biases and was therefore our chosen analytical approach.

Our content analysis yielded over 42,000 words. To make this large body of text analytically tractable we imposed multiple restrictions on the words we would include in our analysis, but in a way that would not bias the results. As a first step we excluded duplicates, proper nouns, prepositions, articles, numbers, and certain common descriptors (e.g., 'very', 'much', and 'many'). Next, we consolidated all variations of a root word (e.g. finance, financial, financed) after which step, 1,696 unique root words remained. Then we excluded all words that appeared fewer than ten times among all our abstracts. This was our most significant restriction, but those words were used so rarely that they could not be considered part of any distinctive lexicon. As a result, this analytical procedure yielded a total of 469 unique root words, or lexemes, which became the basis for our analysis.

In the next step, we identified words that were far more prevalent in those abstracts coded by our raters as entrepreneurship (ratings $E > 3$), small business (ratings $SB > 3$) and the interface (ratings E and $SB > 3$) than in abstracts rated as neither entrepreneurship nor small business (E or $SB \leq 3$). For each word, we calculated the biserial correlation between a) the number of times the word appeared in an abstract and (b) whether the abstract was coded E , SB , interface or misc. Biserial correlations are appropriate for examining the association between an interval variable and a dichotomous variable (Nunnally & Bernstein, 1994; Tate, 1955 as cited in Nag et al, 2007). A total of 30 words appeared in entrepreneurship abstracts with significantly greater frequency ($p < 0.05$) than in non-entrepreneurship abstracts, 26 in small business studies ($p < 0.05$) and 23 at the interface of both fields ($p < 0.05$).

Results

Imputing the implicit definitions

We conducted this inductive exercise in an iterative manner. As a first step, we developed tentative categories consisting of conceptual clusters of words derived from our text analysis individually for each field and the interface (Nag et al. 2007). To give an example, in the field of entrepreneurship, several words were associated with individuals (e.g., expert, entrepreneur, founder, psychology); some referred to growth (e.g., development, drive, improvement, achieve), some dealt with creation (e.g., start, new, build), while others could be attributed to other tentative categories. The full list of the categories for each field and the interface between them is reported below.

Next, we turned to existing definitions to identify conceptual elements recurring when scholars define their field. Despite their diversity in terms of scope, these definitions do have some common elements. For example, in the case of entrepreneurship, some refer to opportunity, some refer to firm formation, and some specify the individual as the unit of analysis, and so on. By relying on past efforts to define each field and comparing them to our tentative conceptual categories, we were able to identify the major elements that constitute the implicit, consensual definition of each field and their shared interface.

Table 2: Distinctive Vocabulary of Entrepreneurship Research

Distinctive words	Definitional elements (“Entrepreneurship research explores how...”) ...individuals...
Entrepreneur	
Expert	
Founder	
Psychology	
Opportunity	...on the basis of opportunity...
Potential	
Return	
Need	
Effective	...effectively organize...
Key	
Goal	
Importance	
Limit	
Specific	
EO	...any...
Sustainability	
Culture	
Growth	...growth-oriented...
Improvement	
Achieve	
Capture	
Drive	
Development	
Become	
Start	...creation process.
Process	
New	
Build	
Venture	
Create	

Finally, we engaged in multi-way discussions to assign the individual words of each field and their shared interface to their respective conceptual categories. The category attribution was carefully conducted with particular regard to definitional fit and coherence within each category. Whenever possible, we used the conceptual nomenclature from existing definitions, but at the same time, we did not want to be constrained by prior definitions. For the sake of parsimony and to maintain simplicity, we developed as few definitional elements as possible, so that every word could be assigned to just one category, although they could also be related to additional categories.

Entrepreneurship definition

From our analytical procedure, we identified 30 unique words for the field, which led us to create the following definition for entrepreneurship research:

Entrepreneurship research explores how a) individuals b) on the basis of opportunity c) effectively organize d) any e) growth-oriented f) creation process.

The first definitional element, “individuals”, as shown in Table 2, is represented by words such as “entrepreneur”, “expert” and “founder” which are at the same time the key actors and focal unit of analysis in entrepreneurship research. We also included “psychology” in this element since its very nature is clearly related to individuals. In the second element of the definition, “on the basis of opportunity”, we assembled words such as “potential” and “return” which are commonly applied attributes of opportunities. Moreover, we included “need” due to it being closely related to this element. The third definitional element, “effectively organize”, pertains to the “goal”- oriented way entrepreneurs assemble and arrange resources. This element consists of terms such as “importance”, “key” and “specific” which all indicate that the resources in use are scarce and have to be arranged economically. The fourth element, “any”, indicates a potentially broader context of entrepreneurship. In particular, the terms “EO” and “culture” could be attributed to corporate entrepreneurship whereas “sustainability” could be predominantly linked to the domain of social entrepreneurship. The fourth element, ‘growth-oriented,’ conceptualizes the key objectives or outcomes that are of interest in the field; words such as “development”, “improvement” and “achieve” align with this definitional element. Finally, the sixth element, “creation process”, contains words such as, “new” “create” and “build” which all reflect the emergence of something that did not previously exist.

Small Business definition

For the field of small business research, we identified 26 distinctive words, which we arranged in four definitional elements. Our analysis based on the distinctive vocabulary led us to devise the following definition for the field:

Small business research explores how a) management practices b) for small firms c) can help overcome barriers to internationalization, innovation or commercialization d) resulting in organizational change.

The first definitional element, “management practices”, as shown in Table 3, is signified by words such as “establish”, “implement”, “achieve” and “adopt” which refer to the use of relatively deliberate, planned initiatives whereas “skills”, “personality” and “orientation” can be attributed to leadership as a means to initiate organizational change. The second element of the small business definition, “for small firms” specifies the scope of application whereas, as imputed from the distinctive lexicon, “size” remains critical for the field of small business research. The third definitional element, “can help overcome barriers to internationalization, innovation or commercialization” addresses common challenges faced by small businesses such as expanding internationally, innovation management or the commercialization of products and services which is signified by words such as “marketing”, “markets” and “export”. The final element of the definition, “resulting in organizational change”, comprises terms such as “change”, “decline”, “intensity” and “internal” that are devoted to the in-bound impact management practices have on their firm.

Table 3: Distinctive Vocabulary of Small Business Research

Distinctive words	Definitional elements (“Small business research explores how...”)
Management	...management practices...
Skills	
Personality	
Orientation	
Ethics	
SME	...for small firms can help...
Business	
Size	
Ownership	
Firm	
Manufacturing	
Enterprise	
Barrier	...overcome barriers to internationalization, innovation or commercialization...
Innovation	
Marketing	
Markets	
International	
Export	
Change	...resulting in organizational change.
Decline	
Intensity	
Achieve	
Establish	
Internal	
Implement	
Adopt	

The interface between entrepreneurship and small business research

To capture the interface between entrepreneurship and small business research, we arranged the 23 distinctive words in 3 definitional elements resulting in the following definition for the boundary-spanning space between both fields:

The interface of entrepreneurship and small business research explores a) which resources, skills, abilities, competences, and cultural factors b) support growth strategies c) in small firms.

The first definitional element, “resources, skills, abilities, competences, and cultural factors” is devoted to the resources and capabilities entrepreneurs and small business managers use to implement and support their growth strategies, as is shown in Table 4. Apparently, cultural factors are equally important, signifying the importance of internal and personal adjustment to growth and to an increasingly complex organization. The second definitional element “support growth strategies” refers to words such as “international” and “orientation” implying means and

initiatives tailored to the firm and directly linked to “growth” aspirations. Finally, the focus of attention and primary level of analysis in the interface between entrepreneurship and small business research is the “small firm”.

Table 4: Distinctive Vocabulary of the Interface of Entrepreneurship and Small Business Research

Distinctive words	Definitional elements
	(“The interface of entrepreneurship and small business research explores...”)
Resource	...which resources, skills, abilities, competences, and
Skills	cultural factors...
Ownership	
Requirement	
Ability	
Competence	
Incubator	
Culture	
Human	
Person	
Behavior	
Support	...support growth strategies...
Start	
Growth	
Achieve	
Sales	
Strategy	
Orientation	
International	
Business	...in small firms.
Small	
Company	
Industry	

Discussion and implications

Entrepreneurship research and small business management are clearly related but certainly not synonymous concepts. To shed some light on the relationship between both fields we thought to look at the community of researchers, since they constitute and shape the nature of their field and have an implicit (or even explicit) understanding of what constitutes their discipline. Based on the distinctive lexicon of each domain, we were able to impute consensual definitions for entrepreneurship and small business research as well as for their shared interface, in other words, the boundary-spanning space where both fields enrich each other. We did not aim to impose rigid or closed definitions since to do so might harm the future development of both fields given the dynamic and multidisciplinary character of both domains. Instead, our definitions are intended to reflect scholars’ latent perceptions of what really constitutes their field. Taken together, the three definitions clarify the distinctive domains of both areas of research and illuminate how the two

related fields can and do enrich each other.

Kuhn (1962) asserted that a scientific community does not need a unifying paradigm to exist, but it does need a shared identity. Our research contributes to an understanding of what constitutes the identity of the field of entrepreneurship and small business research. Despite the fact that scholars active in both fields have diverse but complementary conceptual lenses and tools, they agreed to a significant extent in their assessments of the fields' implicit definitions, suggesting that there is a relatively strong common bond within each field which, in turn, partly explains the rapid advances in both domains.

According to our analysis, the consensual definition of the field of entrepreneurship consists of six elements, each with several sub-elements. The definition covers the field in a very broad way, allowing for inclusion of phenomena such as social entrepreneurship or corporate entrepreneurship beyond more traditional perspectives on entrepreneurship. Each single component can be examined in various ways providing for exceedingly fertile research opportunities. As shown by our analysis, scholars' latent perceptions of the field of entrepreneurship research include the opportunity view (Shane & Venkataraman, 2000) to the same degree as the firm formation view (Gartner, 1989). As a consequence, the consensual definition bridges both perspectives, perhaps contributing to the solution of the ongoing dispute within the field.

The definition for small business research differs fundamentally from the predominantly quantitative efforts since it *de facto* represents the way the community of researchers thinks about their field, rather than the way they should or might or want to think about the field. The small business definition, based on the distinctive lexicon of the field, informs scholars about the very nature of their discipline. This study reveals the field of small business research to be more problem focused and apparently to address a number of common challenges faced by small businesses. The field is apparently able to absorb and benefit from considerable variety in approaches to framing and exploring small business issues.

Moreover, we have been able to define the nature of the boundary-spanning space where entrepreneurship and small business research can and do enrich each other. Conceptualizing the interface might help scholars to discover further research opportunities. Our analysis identified numerous conceptual elements, thus allowing exploration of a wide array of theoretical and practical issues related to both disciplines. Apparently, when entrepreneurship and small business research meet, the entrepreneurial idea is utilized to help small business achieve growth goals in a positive way.

Future research

Our study suggests several opportunities for future research. First, the relationship between entrepreneurship research and small business management could be examined from other angles. We based our analysis on the lexical distinction revealed in article abstracts in leading entrepreneurship and small business journals. Future research could complement our findings by contrasting both fields based on other meaningful criteria such as methodology, applied concepts, or underlying theories, assuming the availability of suitable source materials in sufficient quantity. Moreover, we examined only those journals with the highest academic impact according to the Social Science Citation Index, while omitting less influential academic journals, and other publication channels such as conference proceedings or edited books. Future research could extend our analysis by incorporating these additional sources.

Our objective was to disentangle the relationship between entrepreneurship and small business management; therefore we cannot draw any conclusions on how both fields differ from, or relate to, other academic disciplines such as management, marketing, or sociology. The limits of the current research mean a second research avenue opens: the methodology might be used to disentangle the relationships of entrepreneurship and/or small business management with other academic fields. For example, our analytical approach, based on the community members' views, could be used to develop a more profound understanding of how entrepreneurship and/or small business management differs from other disciplines such as innovation management or strategic management. Our study not only sheds light on the nature of both fields and their shared interface, but also offers an analytic roadmap with the potential to disentangle the relationship with other academic disciplines as well.

Finally, further research could replicate our assessment in the future. In particular, tracking members' altering perceptions of both fields over time would be a valuable source for future research. We have avoided any type of longitudinal analysis since we gathered the community's perceptions at a single point in time. As mentioned before, the fuzzy and fragmented character of both fields might result in an altered scope and essence for either or both. It would be interesting to see how perceptions evolve and members view the fields in terms of what is inside, what is outside them, and what form their implicit consensual definitions would take in say five or ten years' time.

Conclusion

Entrepreneurship and small business management has made considerable progress in the past despite, or perhaps because of, the lack of a broadly agreed definition. As some scholars have lamented, the amorphous boundaries of both domains within the broader context of management sciences in particular may have contributed to some extent to the success of both fields. Therefore, one could conclude that defining both disciplines could harm their future development, especially if such a definition were to be too rigid and incapable of reflecting the multidisciplinary and fragmented character of both fields. However, as our study indicates, scholars from both fields are linked by a fundamental implicit consensus opinion of what their field is really all about. Therefore distilling the essence of entrepreneurship and small business management and disentangling their relationship not only represents the latent perception held by the community of researchers, but also contributes to a profound understanding of how transfer and mutual exchange works between both fields. The definitions proposed here are therefore an important building block that helps both disciplines to cohere, maintain momentum, and shape their identity.

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IMMIGRATION AND ENTREPRENEURSHIP: REVIVING THE AMERICAN DREAM

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Immigration and Entrepreneurship: Reviving the American Dream

Several recent studies demonstrate that Indian American immigrant entrepreneurs play an increasingly important role in the economic growth in the United States. In part due to the compelling evidence of entrepreneurial success amongst immigrants, there is a renewed interest among policy makers in the StartUp Visa Act proposal which aims to drive job creation by helping foreign entrepreneurs secure immigrant visas to the United States. Our multiple-case study analysis that involved raw data collected from high-growth Indian American immigrant entrepreneurs in the technology industry suggests the several modifications are essential for the StartUp Visa proposal to produce results.

INTRODUCTION

Several recent studies demonstrate that Asian American immigrant entrepreneurs have been playing an increasingly important role in the economic growth in the United States. According to Fairlie (2008), Asians have the highest self-employment rates and highest rate of business ownership among all minority groups. In a pioneering study on the contributions of skilled immigrants in Silicon Valley to the economy of California, Saxenian (1999) noted Chinese and Indian entrepreneurs founded and managed 24% of the technology start-ups between 1980 and 1998 and concluded foreign-born scientists and engineers were generating new jobs and wealth for the California economy. Further extensions of Saxenian's study reported that companies with a foreign-born key founder produced \$52 billion in sales and employed over 450,000 (as of 2005), finding "a pattern of skilled immigrants leading innovation and creating jobs and wealth had become a nationwide phenomenon" (Wadhwa, Saxenian, Rissing, & Gereffi, 2007, p. 4).

There is a broad recognition among policy makers, researchers and the media about the importance of immigrant entrepreneurs to the economy of the United States. Per Hart, Acs, and Tracy (2009, p.4), "United States policymakers are focused as never before on the linkage between foreign-born talent and high-tech entrepreneurship." Similarly, the Organisation for Economic Co-operation and Development (OECD), which represents 34 member nations including the United States, the United Kingdom, and Germany, reported in 2010 that immigrant entrepreneurs have a distinct advantage with regard to globalization and exploiting foreign markets because the entrepreneurs have an understanding of their country of origin. In 2011, British Prime Minister David Cameron established a new *entrepreneurs visa* for immigrant entrepreneurs.

The recession of 2007-2009 is characterized by a significant shortfall in net job creation. While gross job losses were painful, entrepreneurs were creating remarkably few gross new jobs yielding record deficits in net job creation. Entrepreneurial job creation is thus critical to economic recovery (Stangler & Litan, 2009). We thus look at a subpopulation that created jobs through the recession.

The StartUp Visa was proposed in 2010 by Senators John Kerry and Richard Lugar, calling for a new, less restrictive visa for immigrant entrepreneurs who can create jobs in the United States (Haniffa, 2010). Immigrant entrepreneurs would receive a 2 year visa if a qualified US investor is willing to invest a minimum of \$250,000 in the startup. Under the Kerry-Lugar bill, if after two years of securing the initial investment the immigrant entrepreneur can generate a minimum of 5 full time jobs in the U.S. and generate a revenue of \$1 million or above or attract additional \$1 million in additional capital he/she will be eligible to receive permanent resident status in the United States. Despite its broad support among researchers, venture capitalists, the

media, and the Kauffman Foundation the Kerry-Lugar proposal was derailed by the mid-term elections and other legislative priorities during 2010.

Senators Kerry, Lugar and Udall reintroduced the StartUp Visa Act of 2011 to drive job creation by helping immigrant entrepreneurs secure visas to the United States. Interestingly, the 2011 proposal independently confirmed the initial recommendation of the researchers (Kumar, 2011) that pools of eligible immigrants include highly skilled workers holding H1 visas and foreign students with advanced degrees. While the 2011 proposal is an improvement over the 2010 proposal, the findings of the current study shows that it does not go far enough and there are several important gaps that would enhance the program results. This paper provides empirical evidence on the changes needed and contains specific recommendations that we believe will help make the StartUp Visa Act proposal more effective.

The Principal Topic

Empirical evidence shows Asian American immigrant entrepreneurs of Indian origin have been playing an increasingly important role in the economic growth in the United States, especially in the high technology industry. Despite the extraordinary success achieved by Indian American immigrant entrepreneurs in the high-tech industries (Hart et al., 2009; Saxenian, 1999, 2006), the cognitive, behavioral, and situational factors that undergird their success remain largely unexplored. Qualitative studies on successful Indian American immigrant entrepreneurs are underwhelming: Why they take up entrepreneurship, the challenges they face and the foundations of their success. The current study thus involved a holistic qualitative exploration of entrepreneurial cognitions, behaviors, and situational factors involved with the seeing of and acting upon opportunities for this population. Using a multiple-case study research design, the study takes into account the call by experts that the domain of entrepreneurship must focus on high-growth entrepreneurs by the use of in-depth, descriptive, and theory-building approaches (Davidsson, 2008; Bygrave, 2007).

Significance

The current study is significant from two perspectives. First, with the focus on successful growth entrepreneurs who are immigrants from a specific ethnic and cultural background, the findings of the current research study could be of significance to important policy areas such as immigrant, minority and transnational entrepreneurship. We show how understanding the social and cultural factors that drive the success of Asian American immigrant entrepreneurs of Indian origin might offer a valuable framework for the development of policy and guide future research. Second, the most recent global economic crisis of 2007-2009 presented a unique opportunity to study successful high-growth Indian-American immigrant entrepreneurs under severe resource constraints and high economic uncertainty.

RESEARCH DESIGN AND METHODOLOGY

A qualitative method with a multiple-case study research design used in the current research study is necessary given (a) complexity of the process under study, (b) the need for new perspectives, and (c) need for better fit between data and the situation (Yin, 2009). Entrepreneurship is a complex socioeconomic phenomenon that calls for investigation using diverse tools and qualitative methods (Neergaard & Ulhoi, 2007). Among the different case study designs, exploratory theory-building approaches are justified when a need exists for new perspectives (Hitt, Harrison, Ireland, & Best, 1998). Given the nature of the current research study, which was on the complex social phenomenon of entrepreneurship and involved exploring a special under-studied population, a qualitative methodology with a multiple-case study design was appropriate (Lechner & Leyronas, 2009). The multiple-case design helped to enhance validity and stability of the results and to eliminate any accidental similarity between the theory and result (Neergaard & Ulhoi, 2007).

Population

The cases were selected from those that met the following criteria: (a) the entrepreneur, who was one of the key founders, was an immigrant (foreign born) of Asian Indian origin, (b) the business had a revenue growth rate of 20% per year over a 5 year period and had a minimum of 20 full time employees, (c) the business was between 5 and 10 years old on December 31, 2009, (d) the main activity of the business is related to one of the services sectors of the high-tech industries, (e) the company did not receive startup capital from nontraditional sources such as venture capital or an IPO, and (f) the head office of the business was located on the East Coast of the United States. Additional criteria used for case selection included the researcher's access to the business site and the entrepreneur's willingness to cooperate with the extensive data collection and review process required by the case study design. As each case in the study was carefully pre-screened and selected taking into account multiple delimiting factors and after incorporating findings from the pilot study, data saturation was achieved after 5 cases.

Data Collection and Analysis

The data collection was done on five entrepreneurs of Asian Indian origin who were affiliated with the Indus Entrepreneur (TiE) and also featured on national ranking of high-growth firms such as the INC 500 and the Deloitte and Touche Fast 500. Data were collected from multiple sources using a triangulation strategy, including in-depth interviews with the entrepreneurs and key informants, public sources, and company documents. Data analysis involved identifying common themes of thinking and acting reported by the entrepreneurs as well as repeated iterations between the data and existing literature.

FINDINGS, DISCUSSION AND IMPLICATIONS

For the purpose of this paper, we present the data relevant to the discussion on the StartUp Visa and related immigration issues. To maintain confidentiality the five ventures/entrepreneurs are identified as Case A, Case B, et al.

Company Demographics

Demographic data on the ventures are shown in table 1 below.

Table 1: Company Demographics

Data type	Case A	Case B	Case C	Case D	Case E
Year established	2005	2002	2000	2003	2000
Breakout year	2009	2008	2004	2007	2003
Location	Northern VA	Northern VA	New York City	South NJ	Central NJ
Activity	IT strategy services	IT program management	Online advertisement	IT project management	IT consulting
Primary clients	Government	Government	Commercial	Commercial	Commercial
2009 revenue	\$20.5 million	\$13.6 million	\$27.1 million	\$5.1 million	\$26.5 million
2009 employees	155	105	120	42	245
Majority equity	Entrepreneur	Entrepreneur B	Entrepreneur	Cofounders	Cofounders
(Start-up year)	A		C	equally	equally
Majority equity (2010)	Founding team	CEO/cofounder	Founding team	Cofounders equally	Cofounders equally
Effective control	Entrepreneur	Entrepreneur B	Entrepreneur	Entrepreneur	Entrepreneur
	A		C	D	E

Four of the five businesses were initially established between 2000 and 2003, which was either during or immediately following the U.S. economic recession of 2000-2002. In all five cases, the firms exceeded the high-growth criteria of the current research study in terms of revenue growth as well as by number of full-time employees. A common factor for all five businesses was that although they started off relatively well, it took on average approximately 4 years for the business to experience the first significant growth year measured in terms of absolute revenues. The year is indicated as the breakout year in Table 1.

Two of the five businesses were located in Northern Virginia (Cases A and B) and provided IT services to the U.S. federal government and its various agencies. Geographical proximity to federal government offices and the prior experience of Entrepreneurs A and B in working with government business helped the growth of the businesses. The three other cases (C, D, and E), located in New Jersey and New York City, provided services primarily to commercial clients in the private sector.

Entrepreneur Demographics

Demographics of the 5 entrepreneurs are displayed in table 2 below.

Table 2
Entrepreneur Demographics

Data type	Case A	Case B	Case C	Case D	Case E
Place of birth	India	Zambia	India	India	India
Age (9/2010)	54	37	37	42	36
Gender	Male	Male	Male	Male	Male
Citizenship (2010)	USA	USA	India	USA	USA
Education	BS (India) CA (UK)	BS (USA) MS (USA)	B.Tech. (India)	BS (India) MS (USA) MBA (USA)	B.Tech. (India) M.Tech (India) Some
Family history in business	No	No	No	No	No
First U.S. entry	1980	1989	1997	1991	1997
Reason for immigration	Employment	Higher education	Employment	Higher education	Employment
Visas held	H1	F1, H1	H1	F1, H1	H1
Prior work experience (years)	UK (2) USA (15)	USA (5.5)	India (4) USA (4)	India (1) USA (10.5)	India (1) USA (2.5)
Prior ventures	1	0	1	0	0
Job title used	President & CEO	President	Chairman & founder	CEO & cofounder	Founder & co-CEO
Primary reason for entrepreneurship	Exploiting opportunity	Control over own destiny	Control over own destiny	Control over own destiny	Exploiting opportunity

A majority of the entrepreneurs started their ventures young. Of the five entrepreneurs, three started in their early to mid-30s and the youngest was 26 years old. Entrepreneurs C and E had decided to try their entrepreneurial journey early, as they both believed that in case they did not succeed it was better to fail early on in life. All five entrepreneurs were male, and two of the five key informants interviewed were female. Possessing an advanced degree in technology or a science field was a common factor among all five entrepreneurs in the current study. Four entrepreneurs completed their bachelor's degree in India, and one did so in the United States. Two entrepreneurs had a master's degree from the United States, and one had a master's degree from India.

Of the five entrepreneurs, three came to the United States on an H1 visa for employment purposes and two came as students on a F1 visa to pursue higher education. Due to their temporary non-immigrant visa status, all five entrepreneurs had to take up employment with an employer in the United States willing to sponsor their H1 visa. The two entrepreneurs who came as students reported delays and difficulties in finding an employer willing to sponsor the H1 visa. The period of employment in the United States prior to starting their entrepreneurial venture averaged 7.5 years. This period roughly represented the average time taken for the entrepreneurs to settle into their jobs and apply for and obtain their permanent residency in the United States.

As of mid-2010, four entrepreneurs had become naturalized citizens of the United States, while the fifth (Entrepreneur C) was considering it seriously.

All five entrepreneurs who participated in the current research study possessed high human capital and initially came to the United States to pursue either higher education or employment. In a majority of the cases, the entrepreneurs had intentions to start an entrepreneurial venture sometime in the future even before they arrived in the United States. Shortly after starting to work, the entrepreneurs asked their employers to start the application process for permanent residence in the United States.

The lengthy process to obtain permanent residency delayed the start of the entrepreneurial journey of the entrepreneurs by several years. All the five entrepreneurs in the current study effectively used the work experience in the United States prior to starting their ventures to gain valuable work and industry experience, to enhance their technical knowledge, and to develop business and sales skills. The learning that took place while working in the United States prior to their entrepreneurial venture proved to be valuable to the success of every entrepreneur in the current study.

The work experience in the United States helped the entrepreneurs in the current study assimilate culturally with their American coworkers and clients, develop their social skills, enhance their communication skills, and build their confidence. One of the most important findings was that during the period when they were employed under the H1 visa, the entrepreneurs gained valuable insights about problems and potential opportunities related to their clients and industry. These insights, in a majority of the cases, turned out to be the foundational ideas for their entrepreneurial ventures.

Two of the five entrepreneurs, Entrepreneurs A and C had prior entrepreneurial experience. Both of them had leveraged their prior entrepreneurial experience to grow their current firms rapidly. Their firms had showed high rates of growth in revenues as well as in employment during the years 2005 to 2009. In both these cases, the ventures had senior management teams composed mostly of people who were not co-ethnics. The primary reason given by three of the entrepreneurs for starting a new venture was to have better control over their own destiny. On closer examination, control over own destiny translated to having the freedom to do what they wanted to do, the freedom to work with people they liked, and the freedom to be creative.

The Role of Human Capital

All five entrepreneurs had high levels of human capital represented by advanced education, work experience, technical skills, and managerial expertise. All five entrepreneurs used the years spent working in the United States under an H1 visa very effectively to gain valuable real-world business and industry experience. The H1 employment period afforded the entrepreneurs in the current study the opportunity to learn how to conduct business in the United States. A majority of the entrepreneurs in the study reported that their learning when working under the H1 visa was enhanced due to demanding employers entrusting them with diverse and challenging assignments with large corporations and the federal government in the United States. All five entrepreneurs faced situations that required technical skills, sales skills, and social skills when working under the H1 visa. Indian American immigrant entrepreneurs in the study invested in enhancing their human capital further by taking advantage of their easy access to ethnic professional networks to gain knowledge of industry trends, markets, and regulations and by mentoring relationships with their managers (Kumar & Kreuger, 2012)

As the entrepreneurs in the current study represented their employer at the client site, many of the work assignments afforded them opportunities to think and act like an entrepreneur. Entrepreneur C recalled, "My job was quite entrepreneurial. I was given independent charge of my business unit and it helped me learn how business was done in the United States. In many ways, it prepared me for my entrepreneurial venture." Similarly, Entrepreneur B recalled having the opportunity to learn from

government clients about gaps in existing services. Some of the gaps were large enough to present Entrepreneur B with the foundational ideas for his venture.

The entrepreneurs in the current study went beyond these traditional measures of human capital and worked to develop their social, communication, and managerial skills. During the period they were employed under the H1 visa, entrepreneurs in the current study often had opportunities to think and act in an entrepreneurial manner. This finding in general agrees with some of the existing studies that have reported that the majority of the foreign-born students join the labor force in the United States and their work experience combined with their education equip them well for immigrant high-tech entrepreneurship (Hart et al., 2009; Wadhwa, et al., 2009).

Entrepreneurs who had longer and more diverse work experience in the United States had larger ventures and experienced higher rates of growth. A case can be made for encouraging entrepreneurship among Asian American immigrant entrepreneurs of Indian origin who might have had their higher education either in their home country or in the United States but who also has a rich and varied professional work experience in the United States early on in their professional careers.

Entrepreneurial Intentions

A majority of the entrepreneurs in the current study had intentions to start their own ventures before or soon after they took up employment in the United States. Two of the entrepreneurs had entrepreneurial intentions even prior to immigrating to the United States. A majority of the entrepreneurs had vivid vision of starting their own ventures and growing it successfully. Entrepreneur C explained his intentions as follows:

“I wanted to come to the United States to become an entrepreneur. But the problem I faced was that the United States immigration rules did not allow me to do this. So I took an employment under the H1 visa as a path to my green card, which I knew would allow me the freedom to pursue my goal of entrepreneurship. The day I got my green card, I quit.”

This finding on entrepreneurial intentions supports the observation of Krueger (2000, 2010) that that intention to act is the most consistent predictor of planned behavior. Krueger's model built on the model proposed by Shapero where entrepreneurial intent was driven by entrepreneurs' perceptions of the desirability and feasibility of launching a new venture combined with some propensity to act on opportunities, and triggered by some precipitating event. Shapero argued that displacement (such as immigration) was a very common trigger. Moreover, a displacing event such as immigration would likely give individuals new and often very different opportunity sets. Finally, in the intentions model we know that social/cultural influences affect perceived desirability and probably perceived feasibility (eg, Krueger 2000, 2010).

The primary reason given by a majority of the entrepreneurs in the current study for starting a new venture was to have better control over their own destiny. Control over one's own destiny translated to having the freedom to do what they wanted to do, the freedom to work with people they liked, and freedom to be creative. The exploitation of a known opportunity was given as a second reason.

Exposure to Entrepreneurship

The entrepreneurs here typically reported experiencing specific events during their prior professional careers in the United States that either exposed them to the idea of starting their own businesses or helped solidify the idea. Four of the five entrepreneurs in the current study recalled specific experiences and incidents when they were employed where they were exposed to the fundamental ideas of entrepreneurship such as recognizing opportunities, problem solving, mobilizing resources, managing projects, and teamwork. The events reported by the entrepreneurs in this study included mentoring by their manager or company owner, feedback from clients about the products and

services, sharing of ideas with coworkers, participation in a strategy development process, crisis management, and professional training programs.

The entrepreneurs in the current study reported gaining valuable experience in problem solving, identifying potential opportunities, working with limited resources, decision making, and working with teams, increasing their perceptions that a growth venture was both desirable and feasible. The positive work experiences of all five entrepreneurs in the current study seemed to trigger the entrepreneurial intentions of the entrepreneurs. Entrepreneurs with more varied work experience in the United States and those who experienced diverse opportunities at work prior to starting their ventures did create firms that were larger and grew at a faster rate. This finding supports Shane (2003), who reported that individuals exposed to entrepreneurship and entrepreneurs are more likely to start businesses themselves and that the specifics of that exposure merit closer examination.

Triggering Events

Entrepreneurs of the current study experienced one or a series of micro-entrepreneurial events that put them firmly on the path to entrepreneurship. These triggering events included one or more of the following: (a) being given challenging independent assignments, (b) working on special projects with senior client managers, (c) being given greater managerial responsibilities, and (d) mentoring relationships with the founder and other senior executives of their firms. Obtaining permanent residency was seen by a majority of the entrepreneurs in the current study as a precipitating event for entrepreneurship as it gave them freedom to start their own ventures.

The entrepreneurs made plans to work toward their goals at a very early stage by seeking out employers who would process their H1 visa and then process their applications for permanent residency. Typically, the entrepreneurs in the current study paid the high fees involved in the permanent residency processing as the complicated, time-consuming immigration processes risked delaying and in some cases even ending the entrepreneurial intentions.

Opportunity Recognition

The Indian American immigrant entrepreneurs in the current study showed distinct patterns of cognition and behaviors involved with seeing and acting upon opportunity (Table 3). In all five cases, the entrepreneur saw and recognized an opportunity by virtue of a prior professional association or work experience in the United States. Of equal importance to prior work experience was ethnic professional networks. All the five entrepreneurs in the current study saw and recognized opportunities by virtue of ethnic professional networks represented by professional organizations such as The Indus Entrepreneur and various other alumni associations that represented the educational institutions in India where the entrepreneurs had studied. None reported stumbling across their opportunity.

Table 3:
Sources of Opportunity for Current Venture

	Case A	Case B	Case C	Case D	Case E
Education/training	No	Yes	Yes	No	No
Prior work experience	Yes	Yes	Yes	Yes	Yes
Friends and family	No	No	No	No	Yes
Coworkers	Yes	No	Yes	Yes	Yes
Research	Yes	No	Yes	No	No
Professional networks (ethnic)	Yes	Yes	Yes	Yes	Yes
Professional networks (non-ethnic)	Yes	Yes	Yes	Yes	No
Accidental discovery	No	No	No	No	No

Following prior work experience and ethnic professional networks, coworkers from prior jobs played an important role with respect to the recognition, evaluation, and exploitation of opportunity. Education in the United States, recommendations from friends and family, and research or information search played lesser roles in the recognition and exploitation of opportunity.

The work experience of the entrepreneurs in the current study in the United States prior to starting their ventures played the most significant role in opportunity recognition. Entrepreneurs in the current research study initially saw and recognized opportunities when they were employed. In a few cases, the entrepreneurs in the current study, when working prior to starting the ventures, identified problems and took the problems to their managers. However, their ideas were often overlooked or not acted upon, prompting them to think in terms of starting their own venture. The entrepreneurs in the current study typically recognized the opportunity when they were employed as consultants under the H1 visa as they interacted with clients in providing services. A majority of the entrepreneurs refined and validated the initial idea during the early part of their new venture.

Except for one case, the opportunities can be considered an incremental innovation that represented an improvement over an existing product or service by combining new technologies and processes with existing ones. This finding supports that of Ko and Butler (2003), who studied Asian high-tech entrepreneurs and concluded that the bisociative thinking ability of an entrepreneur, which is the ability to combine seemingly unrelated matrices of information mediates the relationship between alertness and the discovery of opportunity.

The implication of this finding is that Asian American immigrant entrepreneurs of Indian origin in the current study showed a distinct preference for opportunities that they have an intimate knowledge about through their previous work experience and ethnic professional networks. This finding supported existing literature that past work experience (Shane, 2003) and strong social ties (Katz 2007) play critical roles in stronger performing ventures. Contrary to popular belief, none of the entrepreneurs reviewed multiple business ideas and then made a decision to go with the one that made the most business sense. Rather than maximizing the list of potential opportunities, successful Indian American growth entrepreneurs in the current study preferred to eliminate choices and focus on the single most-informed opportunity.

Resource Mobilization: Start-up Capital

The predominant source of the initial start-up capital was personal savings; funding from cofounders, friends, and family; and bootstrapping (Table 4). All five entrepreneurs in the current study used personal savings to meet start-up expenses. The entrepreneurs used their friends and family very selectively to raise funds, approaching only a small circle of trusted people who the entrepreneur knew very closely.

Table 4
Sources of Start-up Capital

	Case A	Case B	Case C	Case D	Case E
Person savings	Yes	Yes	Yes	Yes	Yes
Friends and family	No	Yes	Yes	Yes	Yes
Cofounders and partners	Yes	Yes	Yes	Yes	Yes
Bootstrapping	Yes	Yes	Yes	Yes	Yes
Loans from banks	No	No	No	No	No

In all five cases, bootstrapping was a preferred method used by the entrepreneurs for generating capital and meeting cash flow needs. The most widespread form of bootstrapping during the start-up period was savings from the cash flow generated by the professional services the entrepreneur and other cofounders provided to their clients. In a majority of the cases, the entrepreneurs knew the clients from

their days as consultants when working under the H1 visa. The payment for the consulting services was routed through their business, from which the founders took a nominal salary and used the balance to meet the expenses of the business and fund product development.

Contrary to existing literature (Baum, 2003), all the five entrepreneurs in the current study preferred to avoid borrowing, institutional loans, and leveraged financing at the start-up stage. Although none of the entrepreneurs used bank loans for start-up capital, it was not because they did not need capital. In a majority of the cases, entrepreneurs made attempts to obtain bank financing at the start-up stage but were unsuccessful. The reasons given by entrepreneurs for not using bank loans for start-up included the following: (a) uncertainty about approval given their limited personal credit history, (b) lack of understanding of they perceived to be a complex application procedures, (c) the legal requirements for providing sweeping personal guarantees, and (d) the requirement of banks to demonstrate a business track record, which was nonexistent for a new business.

ADDITIONAL FINDINGS

All five entrepreneurs in the current research study experienced the most recent economic recession (2007-2009) in the United States, considered by some experts to be the worst ever in terms of net jobs lost (Stangler & Litan, 2009). Of the five ventures in the current study, three had been being through two major economic downturns, which presented a good opportunity to gain insight into the patterns of thinking and action that helped the entrepreneurs survive lean periods. A discussion on some of the additional findings related to patters of thinking and acting reported by the entrepreneurs follow.

Self-efficacy versus Collective Efficacy

An interesting finding that did not have precedent in existing literature was that when it came to evaluating and acting upon opportunities, high-growth Indian American entrepreneurs in the current study gave greater importance to the collective efficacy or the collective ability of their team to execute the opportunity. The entrepreneurs engaged with opportunities that they had confidence their key team member possessed the knowledge and skills to take on and execute. One of the reasons for this was that as entrepreneurs got busy with the general management issues of their firms, they found it difficult to keep abreast of the rapid pace of the technological changes. Entrepreneurs had to rely on their executive teams for the evaluation and selection of opportunity. Perhaps this inclusive view made the opportunity viable as the entrepreneurs in the current study made a more objective assessment of the ability of their team to execute and deliver on the opportunity. The emphasis on collective efficacy also resulted in a greater sense of team ownership of the idea.

Strategies for Survival during Recessionary Periods

Entrepreneurs in the current study used a wide range of strategies and tactics to survive the economic crisis. Many of the strategies had cultural roots and some had links to prior experiences and learning. The common survival strategies included the following: (a) during the period marked by severe resource constraints, the entrepreneurs in the current study due to their prior experience and deep industry knowledge remained optimistic and committed to their vision of getting their business off the ground, (b) the entrepreneurs current study helped them display extraordinary patience in rolling out their plans without an overcommitment of resources, (c) formal planning was kept to a minimum, but was masked by a deep knowledge of the industry and markets that allowed entrepreneurs in the study to avoid an overcommitment of scarce resources and to take advantage of unexpected opportunities, (d) the willingness to make personal sacrifices, especially during the early years, to help ease the financial burden on the company, which was critical to the survival of the business, (e) entrepreneurs in the current study reported a disciplined lifestyle that included a strict financial discipline for themselves and

their ventures giving them in the words of Key Informant E, “the ability to go long distances even on a near empty tank.”, (f) displaying confidence and commitment to shareholders, employees and clients, (g) avoidance of exit planning due to the deep emotional ties to their venture, (h) the ability to retain key employees through period of economic uncertainty by using nonfinancial incentives, and (i) successful Asian American entrepreneurs of Indian origin in the current study demonstrated the ability to convert their human capital such as education, skills, and experience into social capital such as trust, loyalty, goodwill, and strong professional and social relationships.

Views on Challenges to Continued Growth

When asked about their views on challenges to continued growth of their businesses, a majority of the entrepreneurs reported high levels of federal, state, and local taxes, availability of highly skilled workers, excessive regulations, the high cost of doing business, and economic uncertainties as their primary challenges. Entrepreneurs in the current study reported uncertainties related to the availability of highly skilled workers due to increased restrictions, delays, and cost escalation related to H1 visas and the permanent residency process as major hurdles to continued growth.

Some of the other common challenges to continued growth reported by a majority of the entrepreneurs in the current study included (a) the slow pace of economic recovery in the United States, which inhibited spending by large firms; (b) excessive regulations and the high cost of doing business due to rapid escalation in the cost of medical insurance and business insurances; (c) difficulties in securing lines of credit for working capital needs from banks and other financial intuitions; (d) the high cost of legal fees; (e) the increased preference of large corporations to work with very large offshore business process outsourcing firms; and (f) the complex procedures for doing business in multiple states within the United States.

RECOMMENDATIONS

This study involved a holistic qualitative exploration of the personal backgrounds, situations, cognitions, and behaviors involved with the seeing of and acting upon opportunities among high-growth Indian American immigrant entrepreneurs. The entrepreneurs in the study reported distinct patterns of cognition and behavior that enabled them to exploit opportunities, survive during economic downturns, and thrive during periods of growth. This section contains our recommendations.

Modifying the StartUp Visa Proposal

The first set of policy recommendations relate to enhancements to the StartUp Visa Act that was proposed the United States Congress, first in 2010 and reintroduced again in 2011. The proposal has broad bipartisan support due to its important economic implications to the United States. The focus of the original proposal was to find a way for foreign entrepreneurs to enter the United States by offering them a special visa for starting a new venture that can attract capital and create jobs. The findings of the current study indicated that in all the cases the entrepreneur had come to the United States either as students to pursue higher education or as highly skilled workers for employment. The factors critical to the success of the entrepreneur included professional work experience in the United States, ties to ethnic professional networks in the United States, and relationship with coworkers in the United States.

Without the advantage of work experience and ethnic professional network ties in the United States and without the critical social and cultural skills to cope with their new environment in the United States, these transplanted entrepreneurs are severely disadvantaged unless they are closely connected. We recommend that the focus of the StartUp Visa proposal be shifted from foreign entrepreneurs to skilled professionals and students who are already in the United States. To enhance the

probability of success, it would be prudent for the StartUp Visa to be suitably modified to be a *StartUp Green Card* and targeted to Asian Indian and other immigrants with high human capital already in the United States who have professional work experience and are tied into the ethnic professional networks.

Foreign Entrepreneurs vs. Skilled Immigrants

As the current study did not include the population that the StartUp Visa proposal had originally targeted - foreign entrepreneurs who are not currently in the United States – a comparison between them and the participants of the current study, immigrant entrepreneurs who are currently in the United States was not possible. The researchers are not suggesting that foreign entrepreneurs be completely excluded from applying for the StartUp Visa. The results do indicate that there has to be better support structures for foreign entrepreneurs to enhance their chances of success. In order to improve the chances of the success for foreign entrepreneurs entering the United States, it may be required to provide them with training and mentoring that will help get them up to speed with the way business is conducted in the United States and to develop their ties with ethnic and professional networks within the United States.

Requirement for Raising Capital

The insistence on a capital funding from qualified U.S. investors as a necessary criteria for the StartUp Visa seems misplaced. While access to capital is an important factor for some ventures, all the five entrepreneurs in the current study bootstrapped through their initial years and rapidly grew their ventures without any outside capital or loans. Entrepreneurs in the study accessed bank loans only after they achieved high-growth. These entrepreneurs have in effect developed a lean startup model that is not dependent on professional investors or institutional loans.

Given that highly skilled immigrant entrepreneurs in the study successfully established and grew high-growth ventures that create hundreds of jobs without outside funding we recommend that the criteria for securing capital from accredited investors be removed. However, we do recognize that this requirement provides an opportunity for expert vetting of the entrepreneur and built-in mentoring support from a Venture Capitalist or a super-angel. Could this vetting and mentoring be done differently?

Based on the findings and discussion enumerated above we summarize below our specific recommendation for the making the StartUp Visa Act of 2011 more effective.

- a) *Shifting the Focus to Skilled Non-Immigrant Workers and Foreign Students Already in the United States*: Based on our finding that founders of high-growth firms in the current study came to the United States either as skilled workers under the H1 visa or as foreign students under the F1 visa, we recommend that a majority of the total visas under the StartUp Visa be reserved for these 2 groups not just foreign entrepreneurs. A relatively simple way to encourage H1/F1 visa holders to start new venture is by fast tracking their permanent residency application (green cards). Remember that entrepreneurs delayed starting their ventures until after they obtained their permanent residency, which was an important event that seemed to trigger the entrepreneurial intentions leading to the startup. The eligibility criteria for the fast-track to permanent residency under the StartUp Visa act should be based on the indicators of entrepreneurial potential, including entrepreneurial intentions, richness of prior work experience in the United States, and the extent of professional, social and financial embeddedness in United States. Evidence argues that those who successfully navigate being embedded in two cultures reap disproportionate results (Galbreath, et al. 2007; Leung 2001; Pare, et al. 2008).

- b) *Selection Criteria for Foreign Entrepreneurs*: For those coming to the United States for the first time, weight has to be given to those who have a proven track record as serial entrepreneurs and those who are currently providing products and services to client in the United States. Due consideration has to be given to other factors that are critical to their eventual success in the U.S. including knowledge of technology tools, social media marketing, familiarity with the English language, and contacts with ethnic/professional networks in the United States.
- c) *Mandatory Training for Foreign Entrepreneurs*: Our findings argue that work experience in the United States was the most critical factor in entrepreneurial success; we recommend that the Startup Visa Act has to have provisions wherein it be mandatory for foreign entrepreneurs to get specialized training that will help them quickly understand the socio-political, economic, legal, policy, and strategy framework for startups in the United States. Equally important is training that will help connect them with the entrepreneurial ecosystem of the United States, which includes vibrant ethnic and professional networks that support entrepreneurs. An easy way to implement this is via pre-existing training and mentoring programs such as those developed by organizations like the Kauffman Foundation, Startup Weekend, et al.
- d) *Revision of the Benchmarks for Measuring Startup Success*: The requirement of the StartUp Visa Act of 2001 for raising capital from qualified investors in the United States has to be reconsidered. Raising capital is a time consuming and daunting task even for seasoned entrepreneurs and will be even more so for foreign entrepreneurs with limited exposure to the U.S. As was discussed previously all the entrepreneurs in the current study were able to grow high-growth ventures without reliance on capital from qualified investors or institutional loans. Instead of reliance on capital from qualified investors, we recommend that the benchmark of success for the entrepreneurs be the number of jobs created in the United States over a 5 year period. Our study shows that in every case, the new venture started slow and after about 4 years achieved rapid growth in terms of both revenues and number of employees. Based on this finding we recommend a lower target for years 1 thru 3, with an increase in years 4 and 5. In addition to job creation goals, we recommend a multi-dimensional scale to measure the success of the startup that includes the ability to attract experienced co-founders, the ability to attract corporate and government clients, and the ability to bootstrap, and the ability to build network ties with ethnic and professional networks.

General Immigration Policy Reforms

We discuss below some recommendation related to immigration reforms in the H1 visa program for skilled workers that are in need of urgent policy intervention. Based on these findings and empirical evidence (e.g., studies including those supported by the Small Business Administration and Kauffman Foundation) showing that even ‘temporary’ immigrants who arrive as students and skilled workers have a high propensity to establish high-growth firms. A decrease in H1 visas will mean lower numbers in the pool of potential high-growth entrepreneurs in the United States.

Impact of Current Immigration Policy on Startup Ventures

The restrictions on H1 visas and delays in processing applications for permanent residency in the United States are especially severe on small entrepreneurial startups that need the services to provide highly skilled technology workers at a reasonable cost to exploit opportunities, innovate, and compete equally with mega-corporations. Faced with an immigration policy climate characterized by uncertainty, red tape, unreasonable delays, errors, and high cost, many high-growth entrepreneurs have no choice but to send work that could have been done by tax-paying workers in the United States to offshore locations. Entrepreneurs in the current study reported having to resort to sending work overseas since 2009 due to the steep increase in costs and the uncertainties involved in the H1 visa

process. This short-sighted policy has resulted in high paying and tax generating jobs leaving the United States for offshore locations and had compounded the problems faced by the U.S. economy.

High Tech Industries

Entrepreneurs face numerous risks and uncertainties on a daily basis. This is even more so in the case of immigrant entrepreneurs starting their new ventures in the rapidly changing high-tech industries during periods of economic recession. Due to the limited economic visibility and tight margins entrepreneurs do not have the luxury to staff their teams in advance of getting client orders. As they develop their business strategies, make plans to bid for projects, and pitch their services to clients, it is critical entrepreneurs have access to a reliable, on demand supply of highly skilled technology workers. The findings of this study argue that the processes and issuance of these visas are full of uncertainties, unreasonable delays, and high costs. These challenges add to the risks and uncertainties that entrepreneurs who need the services of highly skilled technology workers face. Immigration policy should be reformed to support entrepreneurs.

Training of Immigration and Consular Officials

Currently the immigration regulations related to H1 visas are heavily tilted in favor of larger and established corporations with lengthy financial track records. It will help if government officials who adjudicate visas in the United States and those who are involved in issuing the visas at U.S. consulates overseas are given training from the perspective of the strategic planning and flexible manpower needs of a new entrepreneurial venture. Such training will help the USCIS and U.S. consular officers see the bigger picture of how skilled immigrants with high human capital help grow the U.S. economy by starting new ventures with little capital and limited resources. Rather than focus on the past financial performance of the new venture, which in the case of a startup venture is usually weak or in many cases non-existent, while making decisions on visas, consular officials should focus on the potential of the entrepreneur to bootstrap, leverage their human capital and prior work experience to exploit opportunities, grow and create jobs in the United States. Given experiences such as the EB-5 program, this should be easily implemented.

Economic Downturns and Immigration Policy

The current study found that high-growth firms owned by immigrant entrepreneurs provide critical services to the U.S. federal government and larger U.S. corporations (Kumar, 2011). Other studies have reported that skilled immigrant entrepreneurs create jobs and play the role of catalysts in enhancing productivity of the U.S. economy. The findings of the current study support the view that the influx of large numbers of youthful and skilled workers through immigration has been advantageous to the growth of entrepreneurial capitalism in the United States (Baumol, Litan, & Schramm, 2007) and will remain central to its ability to invent the future (Zakaria, 2008).

Despite the evidence of the economic contributions of immigrants, during the recent economic downturn and the resultant higher rates of unemployment, a protectionist mindset has developed among the general public in the United States and many European nations (Organisation for Economic Co-operation and Development, 2010). As a consequence, politicians, regardless of their party affiliation, are reluctant to address the issue of immigration reform. To take advantage of the job creation potential of immigrant entrepreneurs, the U.S. government has to design immigration policies that are friendly to highly skilled workers and foreign students seeking higher education in the United States. Policy makers should separate the debate on highly skilled legal immigrants from the debate on illegal immigrants.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

An urgent need exists for an immigration policy focused on skilled information technology workers that will address the problems currently faced by entrepreneurs in need of skilled workers. A simplified, fast, inexpensive, and efficient mechanism that will help skilled immigrant workers already in the United States become permanent residents and start new ventures could give a much-needed boost to economic growth and job creation in the country. Studies indicate that many of the highly skilled immigrants, who come to the United States for employment or higher education, take on the challenge of entrepreneurship. Many of them establish new ventures that become high-growth firms that create large number of jobs.

The importance of the topic of high-growth immigrant entrepreneurship from a policy perspective justifies a larger quantitative study informed by the results of the current study. The quantitative analysis could allow us to confirm our findings in a larger Indian American immigrant entrepreneur population and also to provide a much-needed comparison set of non-Indian American 'gazelles'. Combined with the qualitative analyses, this research should offer significant insights into the factors that undergird the success of immigrant entrepreneurs. Not just a fascinating research question, many of these ventures could grow to scalable businesses and give the much-needed boost to economic growth and job creation in the United States.

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HOW DO HIGH-GROWTH ASIAN AMERICAN IMMIGRANT ENTREPRENEURS PERCEIVE RISK?

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How Do High-growth Asian American Immigrant Entrepreneurs Perceive Risk?

ABSTRACT

Despite the extraordinary success achieved by Indian American immigrant entrepreneurs of Indian origin in the high-tech industries (Hart et al., 2009; Saxenian, 1999, 2006), the key cognitive and behavioral drivers of their success remain largely unexplored. The purpose of this qualitative multiple-case study was to explore the linkages between the perceptions of risk and opportunity among Indian American immigrant entrepreneurs. The cases represented high-growth firms that were ranked in the 2009 Inc 500 list that had an Indian American founder. Indian American immigrant entrepreneur routinely undertook financial risks, however in their mind they separation of traditional from nontraditional risks. Entrepreneurs attributed greater importance to nontraditional risks. The separation of traditional risks from nontraditional risks seems to be an interesting extension of the literature.

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INTRODUCTION

Within the population of entrepreneurs in the United States there is mounting evidence of the important role played in economic growth and job creation by two subgroups: (a) high-growth or high-impact companies (Acs, Parsons, and Tracy 2008), in particular firms that are new and smaller, called *gazelles* by Birch (1987) and (b) skilled immigrant entrepreneurs, in particular Asian Americans of Indian origin, in the high-technology (high-tech) industries (Hart, Acs, and Tracy, 2009; Wadhwa, Saxenian, Rissing, and Gereffi, 2007). Within the group of high-growth firms, business in the high-tech industries is significant because of the “positive externalities they generate for companies in the rest of the economy” (Hart et al., 2009, p. 29).

The relationship between immigrants and high-growth entrepreneurship has been well established by multiple studies over the past 5 years (Hart et al., 2009; Wadhwa, Saxenian, et al., 2007). In a pioneering study on the contributions of skilled immigrants in Silicon Valley to the economy of California, Saxenian (1999) noted Chinese and Indian entrepreneurs founded and managed 24% of the technology start-ups between 1980 and 1998 and concluded foreign-born scientists and engineers were generating new jobs and wealth for the California economy. Further extending Saxenian’s study, a series of studies on skilled immigrant entrepreneurs conducted by researchers at Duke University and the University of California, Berkeley found “a pattern of skilled immigrants leading innovation and creating jobs and wealth had become a nationwide phenomenon” (Wadhwa, Saxenian, et al., 2007). Studies on high-tech entrepreneurs such as alumni from the Massachusetts Institute of Technology (Hsu, Roberts, and Eesley, 2007) and venture-backed companies (Bhide, 2008) revealed that foreign-born individuals in these groups are more likely to be entrepreneurs than people born in the United States.

There is a broad recognition of the importance of immigrant entrepreneurs to the economy of the United States. The Startup Visa Act of 2010, initially proposed by Democrat Senator John Kerry and Republican Senator Richard Lugar, called for a new, less restrictive visa for immigrant entrepreneurs who create jobs in the United States (Haniffa, 2010). According to Hart et al., (2009), “United States policymakers are focused as never before on the linkage between foreign-born talent and high-tech entrepreneurship” (p. 14).

Principle Topic

While there has been a growing recognition of the economic contributions of immigrant entrepreneurs, the theoretical framework to study immigrant entrepreneurship is inadequate (Sequeira, Carr, and Rasheed, 2006). Despite the extraordinary success achieved by Indian American immigrant entrepreneurs of Indian origin in the high-tech industries (Hart et al., 2009; Saxenian, 1999, 2006), the key cognitive and behavioral drivers of their success remain largely unexplored. The purpose of this qualitative study was to explore the linkages between the perceptions of risk and opportunity among Indian American immigrant entrepreneurs. This study research study involved an in-depth qualitative exploration of how Asian American immigrant entrepreneurs of Indian origin who have established high-growth ventures in the high-tech industries experience and enact entrepreneurial cognition and behavior involved with the seeing of and acting upon opportunities. With the use of a multiple-case study research design the current study took into account the call by experts that the domain of entrepreneurship must focus on high-growth entrepreneurs using descriptive, theory-building approaches (Bygrave, 2007; Davidsson, 2003). Following the economic recession of 2007-2009, the study of entrepreneurial thinking and actions is significant from a policy perspective as according to the 2008 GEM report, "Entrepreneurship is thought to be one of the mechanisms that helps turn around recessions by reallocating resources in such a way that promising new activities replace obsolete economic activities" (Bosma, Jones, Autio, and Levie, 2008, p. 36).

Significance

This study is important as it studies Indian American immigrant entrepreneurs, a group which has demonstrated a high proclivity for entrepreneurship. A review of the literature indicated that this study is among the very few qualitative study among high-growth Asian Indian immigrant entrepreneurs that took an indepth multiple-case study approach. A second significance of this study is that the researcher is also an practicing entrepreneur, which helped obtain easy access to collect raw data from the field and unique insights that helped frame the interview questions in the proper context. A better understanding of Indian American immigrant entrepreneurs, in particular those who have business and social relationships in the United States as well as in India, is of significance from the perspective of the continued global political and economic leadership role of the United States. According to recent studies of demographic trends in India by the Heritage Foundation, more than two thirds of India's 1.1 billion people are under age 35, and almost 90 million people will join the workforce by 2013. These demographic trends will result in India simultaneously having the youngest age profile among large economies and the largest national workforce, which would position the country as one of the three largest economies in the world by 2013 and make it a valuable partner for the United States (Kaffenberger & Scissors, 2009).

Research Question

There is broad agreement among researchers that the recognition and acting upon opportunity is at the heart of entrepreneurship (Stevenson and Jarillo, 1990). According to Kihlstrom and Laffont (1979), understanding risk aversion, is at the core of the understanding of entrepreneurial behavior. The fundamental premise of the current research study was that because the recognition and exploitation of opportunity is fundamental to entrepreneurship and because risk aversion and perception of risk plays an important role in the process of opportunity recognition, a deeper understanding of how successful Indian American immigrant entrepreneurs perceive risk in the context of business opportunities could yield insights into high-growth immigrant entrepreneurship. The important role of risk perceptions upon opportunity recognition was reflected in the research questions which were framed as follows:

RQ: What are the linkages between the perceptions of risk and opportunity among high-growth Indian American immigrant entrepreneurs that lead to successful new venture outcomes?

Definition of Terms

Asian American immigrant entrepreneur of Indian origin or Indian American entrepreneur refers to a person of Asian Indian origin or ethnicity who was born in India or another foreign country and subsequently immigrated to the United States for employment or higher education (Wadhwa, Saxenian, et al., 2007). The term entrepreneur as used in this study refers to a key founder of a business is one of the principle owners of the firm from the date it first began to pay salaries and wages (Hart et al., 2009) and is currently is in a strategic leadership role in the company. High-growth or successful entrepreneurs or businesses were those that meet any one of the following criteria for growth: (a) sales has doubled over the a recent 4-year period (Hart et al., 2009), (b) average sales growth of 20% per year over a 5-year period starting with a base of \$100,000 (Birch, 1987), or (c) added 20 or more full-time employees over a recent 4-year period.

RESEARCH METHOD AND DESIGN

The case study research design used in the current research study was justified on multiple grounds, including (a) complexity of the social process under study (Bygrave 2007; Lechner and Leyronas, 2009; Yin, 2009), (b) the need for new perspectives (Hitt, Harrison, Ireland, and Best, 1998), (c) a better fit between data and the situation (Neergaard and Ulhoi, 2007), and (d) the need for retaining the holistic and meaningful characteristics of real life events (Yin, 2009). Exploratory theory-building approaches are appropriate for situations where the researcher is able to identify a novel viewpoint or has a unique means to facilitate an understanding of the complexity of social phenomena (Dougherty, 2002). The researcher's personal experiences as an immigrant entrepreneur who has established a high-growth business in the high-tech industry helped gain access and bring novel insights into the research design, analysis of the data, and in the interpretation of the results.

Population and Sampling

As there were no readily available databases that include all high-growth firms owned by Indian American immigrant entrepreneurs in the high-tech industries in the United States, the current research study primarily involved a reliance on the researcher's access to the population for screening and selecting cases. The professional associations included The Indus Entrepreneur (TIE), the annual INC. 500/5000 listing for the fastest growing private firms by *Inc.* magazine, and the annual Fast 500 by Deloitte. A multiple-case design was used to enhance validity and stability of the results and to eliminate any accidental similarity between the theory and result (Neergaard, 2007). As each case in the study was carefully pre-screened and selected taking into account multiple delimiting factors and after incorporating findings from the pilot study, data saturation was achieved after 5 cases. Given the systematic and stringent nature of case selection data saturation was achieved even with a relatively small number of cases. The maximum variation strategy, a popular sampling method in multiple-case study research (Neergaard, 2007), which documented the variations and identified the patterns of commonality between the cases was used to enhance the robustness of findings.

Delimitations

The delimitations of the study were as follows: (a) the study was confined to Asian American immigrant entrepreneurs of Indian origin who are key founders of high-growth firms in the high-tech industry, (b) to ensure the cross-case comparisons would be appropriate, the size of the firms was between \$1 million and \$50 million in 2009 revenues with less than 500 employees on December 31, 2009, (c) the businesses were privately owned with a capital structure restricted to funding by means of bootstrapping, personal capital and private capital raised from founders, friends, family, and borrowing. Firms funded by nontraditional sources such as venture capital or initial public offerings were excluded from the study as they represent a very small number of total firms (Bygrave, 2007), (d) the businesses were restricted to the services sector of high-tech industries, which accounts for the vast majority of all high-tech firms (Hart et al., 2009), (e) to ensure the cases represent young firms that are also well established as well as for practical reasons of identifying the right cases, the age of the businesses was between 5 and 10 years on December 31, 2009, and (f) the head office of the business was located on the East Coast of the United States.

Data Collection

As per the established norms of case study research each case consisted of multiple key elements including the entrepreneur, the organization, and key informants. In accordance with the principles of exploratory qualitative investigations, data for the current research study were collected from multiple sources including the entrepreneur, company records, and online sources using the triangulation strategy (Yin, 2009). Data collection was done primarily through interviews of the entrepreneur that were semistructured and centered around the process of entrepreneurial thinking and actions dating back to the pre-venture days to the present. Data collection for the current

research study took place from May 2010 through December 2010. When gathering data, while the focus was on the research questions, the format allowed the researcher the flexibility to capture the richness inherent in the experiences of the participants. A few open-ended general questions were planned during the interview process with the intent to be conversational and unstructured to facilitate participants describing their experiences to address the research questions. To obtain a more complete context and unbiased picture of the events, a key informant familiar with both the entrepreneur and the business was also interviewed.

FINDINGS AND DISCUSSION

Although separate questions were asked on entrepreneurial cognition and behavior, the data analysis showed that it was difficult to separate the data collected under these topics. Entrepreneurs reported that thinking and acting had a closely intertwined cause and effect relationship, making it challenging to say what came first and what followed. The key findings are discussed below.

Company Demographics

Information was collected on the businesses established by the five entrepreneurs in the current study. The key demographics of the five businesses are summarized in Table 1, followed by a discussion on the data.

Table 1: Case Description: Company Demographics

Data type	Case A	Case B	Case C	Case D	Case E
Year established	2005	2002	2000	2003	2000
Breakout year	2009	2008	2004	2007	2003
Location	Northern VA	Northern VA	New York City	South NJ	Central NJ
Activity	IT strategy services	IT program management	Online advertisement	IT project management	IT consulting
Primary clients	Government	Government	Commercial	Commercial	Commercial
2009 revenue	\$20.5 million	\$13.6 million	\$27.1 million	\$5.1 million	\$26.5 million
2009 employees	155	105	120	42	245
Majority equity (Start-up year)	Entrepreneur A	Entrepreneur B	Entrepreneur C	Cofounders	Cofounders
Majority equity (2010)	Founding team	CEO/cofounder	Founding team	equally Cofounders	equally Cofounders
Effective control	Entrepreneur A	Entrepreneur B	Entrepreneur C	Entrepreneur D	Entrepreneur E

The cases selected involved independently owned high-growth business ventures in the high-tech industries founded by Asian American entrepreneurs of Indian origin. All the businesses were between 5 and 10 years old on December 31, 2009. Four of the five businesses were initially established between 2000 and 2003, which was either during or immediately following the U.S. economic recession of 2000-2002. In all five cases, the firms met the high-growth criteria of the current research study in terms of revenue growth as well as by number of full-time employees. A common factor for all five businesses was that although they started off relatively well, it took on average approximately 4 years for the business to experience the first significant growth year measured in terms of absolute revenues. The year is indicated as the breakout year in Table 1. None of the five entrepreneurs presently owned a majority of the equity.

Entrepreneur Demographics

Personal information was collected on the five entrepreneurs in the study. The demographic data on individual entrepreneurs is important as it helped trace the background of the entrepreneurs and the timeline of the business. The key demographic data of the five entrepreneurs are in Table 2 below.

Table 2: Case Description: Entrepreneur Demographics

Data type	Case A	Case B	Case C	Case D	Case E
Place of birth	India	Zambia	India	India	India
Age (9/2010)	54	37	37	42	36
Gender	Male	Male	Male	Male	Male
Citizenship (2010)	USA	USA	India	USA	USA
Education	BS (India) CA (UK)	BS (USA) MS (USA)	B.Tech. (India)	BS (India) MS (USA) MBA (USA)	B.Tech. (India) M.Tech (India)
Family history in business	No	No	No	No	Some
First U.S. entry	1980	1989	1997	1991	1997
Reason for immigration	Employment	Higher education	Employment	Higher education	Employment
Visas held	H1	F1, H1	H1	F1, H1	H1
Prior work experience (years)	UK (2) USA (15)	USA (5.5)	India (4) USA (4)	India (1) USA (10.5)	India (1) USA (2.5)
Prior ventures	1	0	1	0	0
Job title used	President & CEO	President	Chairman & founder	CEO & cofounder	Founder & co-CEO
Primary reason for	Exploiting opportunity	Control over own destiny	Control over own destiny	Control over own destiny	Exploiting opportunity

A majority of the entrepreneurs started their ventures young. Of the five entrepreneurs, three started in their early to mid-30s and the youngest was 26 years old. Entrepreneurs C and E had decided to try their entrepreneurial journey early, as they both believed that in case they did not succeed it was better to fail early on in life. Four of the five entrepreneurs completed their bachelor's degree in India, and one did so in the United States. Two entrepreneurs in the current study had a master's degree from the United States, and one had a master's degree from India.

Of the five entrepreneurs, three came to the United States on an H1 visa for employment purposes and two came as students on a F1 visa to pursue higher education. Due to their temporary nonimmigrant visa status, all five entrepreneurs had to take up employment with an employer in the United States willing to sponsor their H1 visa. Entrepreneurs who came to the United States as students reported delays and difficulties in finding employers willing to sponsor the H1 visa. The period of employment in the United States prior to starting their entrepreneurial venture averaged 7.5 years. Two of the five entrepreneurs, Entrepreneurs A and C had prior entrepreneurial experience. The primary reason given by three of the entrepreneurs for starting a new venture was to have better control over their own destiny.

Role of Human Capital on Entrepreneurial Success

All five entrepreneurs had high levels of human capital represented by advanced education, work experience, technical skills, and managerial expertise. All five entrepreneurs used the years spent working in the United States under an H1 visa very effectively to gain valuable real-world business and industry experience. As the entrepreneurs in the current study represented their employer at the client site, many of the work assignments afforded them opportunities to think and act like an entrepreneur.

Entrepreneur C stated, "My job was quite entrepreneurial. I was given independent charge of my business unit and it helped me learn how business was done in the United States. In many ways, it prepared me for my entrepreneurial venture." The finding supported literature that indicated successful entrepreneurs gain knowledge by investing in human capital such as education, experience, and information acquisition to reduce the uncertainty and risks of ventures.

A finding that extended the literature was that the country where the entrepreneur received higher education did not seem to have a significant influence on the level of success of the entrepreneurs in the current study. Entrepreneurs who did not formally study in the United States did as well as, and in some cases even better than, entrepreneurs who had formal higher education in the United States. The opposite was true with respect to work experience. Entrepreneurs who had longer and more diverse work experience in the United States had larger ventures and experienced higher rates of growth. A case can be made for encouraging entrepreneurship among immigrant who

might have had their higher education in their home country but who has rich and varied professional work experience in the United States.

Proposition 1A: Human capital of Asian American entrepreneurs of Indian origin represented by professional work experience in the United States prior to starting their venture had a significant role in entrepreneurial success.

Proposition 1B: The country where Asian American immigrant entrepreneurs of Indian origin obtained their higher education does not have a significant impact on entrepreneurial success.

Precipitating and Micro-entrepreneurial Events

As highly skilled technology consultants representing their employers at far-off client locations, the entrepreneurs in the current study gained valuable experience in problem solving, identifying potential opportunities, working with limited resources, decision making, and working with diverse teams. In four cases entrepreneurs reported experiencing specific events during their prior professional careers in the United States that either exposed them to the idea of starting their own businesses or helping them to solidify the idea. These events exposed the entrepreneur to the fundamental ideas of entrepreneurship such as recognizing opportunities, problem solving, mobilizing resources, managing projects, and teamwork. The reported events included one or more of the following: (a) being given challenging assignments and responsibilities, (b) working on special projects with client managers, and (c) mentoring relationships with the founder and other senior executives of their firms.

The entrepreneurial events reported by entrepreneurs could be compared to the precipitating events (Shapero and Sokol, 1982) that put them firmly on the path to entrepreneurship. The positive work experiences of all five entrepreneurs in the current study seemed to trigger the entrepreneurial intentions of the entrepreneurs. Entrepreneurs with more varied work experience in the United States and those who experienced diverse opportunities at work prior to starting their ventures did create firms that were larger and grew at a faster rate. This finding supports Shane (2003), who reported that individuals exposed to entrepreneurship and entrepreneurs are more likely to start businesses themselves. Obtaining permanent residency (green card) was seen by all the entrepreneurs as a precipitating event as it gave them freedom to start their own ventures.

Proposition 2: Successful Asian American immigrant entrepreneurs of Indian origin, while employed prior to starting their ventures, actively pursued and experienced one or a series of micro-entrepreneurial events or precipitating events that seemed to trigger or accelerate their entrepreneurial intentions.

Opportunity Recognition

The work experience of the entrepreneurs in the United States prior to starting their ventures played the most significant role in opportunity recognition. Entrepreneurs

in the current research study initially saw and recognized opportunities when they were employed under the H1 visa as they interacted with clients in providing services. Of equal importance to prior work experience was ethnic professional networks represented by professional organizations such as The Indus Entrepreneur (TIE) and various other alumni groups. Table 3 lists the various sources of opportunity for the business.

Table 3: Sources of Opportunity for Current Venture

	Case A	Case B	Case C	Case D	Case E
Education/training	No	Yes	Yes	No	No
Prior work experience	Yes	Yes	Yes	Yes	Yes
Friends and family	No	No	No	No	Yes
Coworkers	Yes	No	Yes	Yes	Yes
Research	Yes	No	Yes	No	No
Professional networks (ethnic)	Yes	Yes	Yes	Yes	Yes
Professional networks (nonethnic)	Yes	Yes	Yes	Yes	No
Accidental discovery	No	No	No	No	No

Successful Asian American immigrant entrepreneurs of Indian origin in the current study showed a distinct preference for a single opportunity that they have an intimate knowledge about through their previous work experience and ethnic professional networks. In this context, the opportunities are similar to those received by an antenna tuned to a certain frequency as suggested by Shapero and Sokol (1982) to explain why some entrepreneurs are able to catch cues and see opportunity that others might not. The focus on a single opportunity aligns with Gifford's (2005) contention that the limited attention of entrepreneurs as a scarce resource can be allocated only to one of any number of alternatives.

Proposition 3A: Successful Asian American immigrant entrepreneurs of Indian origin see and act upon opportunities that they have an intimate knowledge about through prior work experience and through their ethnic professional networks.

Proposition 3B: Successful Asian American entrepreneurs of Indian origin are able to narrow the field of opportunities and focus their attention on one that they are most equipped to deal with.

Resource Mobilization: Start-up Capital

The predominant source of the initial start-up capital was personal savings; funding from cofounders, friends, and family; and bootstrapping. All five entrepreneurs in the current study used personal savings to meet start-up expenses. The entrepreneurs used their friends and family very selectively to raise funds, approaching only a small circle of trusted people who the entrepreneur knew very closely. The most widespread form of bootstrapping during the start-up period was savings from the cash flow generated by the professional services the entrepreneur and other cofounders provided to their clients. Table 4 gives the sources of start-up capital.

Table 4: Sources of Start-up Capital

	Case A	Case B	Case C	Case D	Case E
Person savings	Yes	Yes	Yes	Yes	Yes
Friends and family	No	Yes	Yes	Yes	Yes

Cofounders and partners	Yes	Yes	Yes	Yes	Yes
Bootstrapping	Yes	Yes	Yes	Yes	Yes
Loans from banks	No	No	No	No	No

In a majority of the cases, entrepreneurs made attempts to obtain bank financing at the start-up stage but were unsuccessful due to the following reasons: (a) the legal requirements for providing sweeping personal guarantees; and (b) the requirement of banks to demonstrate a business track record, which was nonexistent for a new business. Entrepreneurs in the current study did not see banks as reliable partners as described in the following comment by Key Informant E:

We really had no choice but to bring our hard-earned money to the table. Banks were reluctant to give us a loan when we needed money at the time of start-up. After we started to do well, they were after us to provide us with loans that we did not need. Few years ago when our growth has slowed down a little, we knew they will turn their backs again.

A closer examination revealed that in the case of two entrepreneurs, an important reason for not pursuing or for delaying a bank loan or a line of credit was cultural and family norms that viewed a bank loan as an obligation that was not a preferred option.

Proposition 4: Asian American immigrant entrepreneurs of Indian origin used personal savings, funds from cofounders, and bootstrapping as the predominant sources of startup capital.

Entrepreneurial Intentions

Three of the entrepreneurs (A, C, and E) had already made up their minds to become entrepreneurs even before they took up employment in the United States. All the three entrepreneurs had vivid vision of starting and growing their ventures. Two of the entrepreneurs had entrepreneurial intentions even prior to immigrating to the United States. Entrepreneur C explained his intentions as follows:

I wanted to come to the United States to become an entrepreneur. But the problem I faced was that the United States immigration rules did not allow me to do this. So I took an employment under the H1 visa as a path to my green card, which I knew would allow me the freedom to pursue my goal of entrepreneurship. The day I got my green card, I quit.

This finding supports the observation of Krueger (2005) that that intention to act is the most consistent predictor of planned behavior. The entrepreneurs who had intentions to start their own venture made plans to work toward their goals at a very early stage by seeking out employers who would process their H1 visa and applications for permanent residency. For a majority of the entrepreneurs in the current study, the complicated and time-consuming immigration regulations and processes delayed their entrepreneurial intentions. The primary reason given by a majority of the entrepreneurs in

the current study for starting a new venture was to have better control over their own destiny. Control over one's own destiny translated to having the freedom to do what they wanted to do, the freedom to work with people they liked, and freedom to be creative.

Proposition 5: Successful Asian American immigrant entrepreneurs of Indian origin often have intentions and visions to start their own ventures at an early stage and make plans to work toward it. The primary reason for entrepreneurship for Indian American entrepreneurs was the prospect of having better control over their own future.

Role of Innovation in Opportunity

Except for one case, the opportunities can be considered as incremental innovation that represented an improvement over an existing product or service by combining new technologies and processes with existing ones. In four out of the five cases the improvements represented an incremental innovation driven by the needs of the clients for better technology and enhanced delivery of the services. The opportunity identified was defined as a small yet significant improvement through which the entrepreneur was able to find more efficient, effective, and personalized ways to provide an existing product or service. Entrepreneur C explained, "I identified the opportunity by asking questions about how things can be done better. I believe that all entrepreneurs are curious by nature and like to change the environment that they live in." Table 5 shows a summary of the type of innovation.

Table 5: Type of Innovation

	Case A	Case B	Case C	Case D	Case E
Improving an existing product or service	Yes	Yes	Partial	Yes	Yes
New product or service	No	No	Partial	No	No

The finding of the current study, that innovation does not necessarily have to be about creating something new, supports the observation of Hargadon (2010), who noted that more often innovation is the result of enabling existing ideas, resources, products, and technologies to be connected in unique ways to create value. The findings of innovation within existing business models supports that of Ko and Butler (2003), who studied Asian high-tech entrepreneurs and concluded that the bisociative thinking ability of an entrepreneur, which is the ability to combine seemingly unrelated matrices of information mediates the relationship between alertness and the discovery of opportunity.

Proposition 6: By use of an incremental innovation process that involves recombining and connecting known ideas, resources, products, and technologies in unique ways, successful Asian American entrepreneurs of Indian origin are able to create value for their ventures and clients.

Entrepreneurs' Attitudes and Perceptions about Risk

Successful Asian American immigrant entrepreneurs of Indian origin in the current study exhibited a high tolerance for risk taking. The forms of risk-taking behavior included commonly accepted measures of risk such as investing personal savings, seeking capital from friends and cofounders, leaving secure high-paying jobs with good career prospects, and providing personal guarantees for loans and lines of credit. All five entrepreneurs and five key informants had at some point during the start-up period or periods of economic recessions deferred, delayed, or foregone salaries and benefits for extended periods of time to ease the cash flow challenges of the business. A majority of the entrepreneurs did not perceive themselves as taking high risks and saw risks as what “comes with the territory” as stated by Entrepreneur A when starting a new venture.

In addition to taking traditional risks, the Asian American immigrant entrepreneurs of Indian origin in the current study perceived themselves as taking many nontraditional entrepreneurial risks, including the risk associated with personal credibility, reputation of the family, attracting personal friends and professional associates to join the venture, and sharing authority, responsibility, and ownership with cofounders and other key employees. Another form of nontraditional risk taking was marketing for and taking on projects and deadlines that they knew were beyond their current resources and known capabilities to execute. All five entrepreneurs saw the nontraditional risks as more important than the traditional risks in the growth of the business.

In spite of their relative high levels of comfort with risk and the risk-taking behavior that they displayed in real life, entrepreneurs in the study did not see themselves as taking high risk. A majority of the entrepreneurs used terms such as “calculated risk”, “manageable risk,” or “affordable risk” to describe their perceptions of risk. Some of the entrepreneurs saw entrepreneurship as less risky. Entrepreneur C described his view of risk:

There is risk in every decision you make. Let's assume I worked for Goldman Sacks and I get laid off; there is risk involved. So the real question is can the risk be managed? I really do not see any risk with my decision to start my business as long as I have some reasonable criteria to measure and manage it. I actually see entrepreneurship as less risky as compared to taking up a job. At the very least, I will never get fired without my permission.

The primary reason for the comfort with risk was due to the special knowledge that the entrepreneur and the entrepreneur's key employees possessed about the product, the service, or the industry. Entrepreneur E explained,

I had worked in the industry for many years and I knew exactly what I was getting into. I did not see any risk as I knew exactly what I should do and what results to expect. So while it may have appeared as risky to an outsider, to me the risks were insignificant as compared to the opportunity. Moreover, once I made the decision to get started, I was too busy to think about risk.

Another important reason for the entrepreneurs' perception of the risk to be affordable risk was their confidence in their high human capital. The entrepreneurs knew they could fall back on their experience and technical skills to restart a career if required. Entrepreneur B described his perception of risk as follows:

I was not unduly bothered with the risks I took. I knew that in the worst case, if my business did not take off as planned, I could always get a good job as a project manager with virtually any Fortune 500 firm and pay off my debts in a year. This knowledge made me confident.

Confidence in their high human capital also played a role in the decision of key informants to stay with the ventures through the start-up years and during periods of economic recession.

Discussion on Linkages between Perceptions of Risk and Opportunity

High human capital played a key role in mediating the risk perception of successful Asian American immigrant entrepreneurs of Indian origin. Despite their apparent willingness to take risks, both conventional and unconventional, the majority of the entrepreneurs did not perceive themselves as taking high risks. This finding agrees with Sarasvathy, Simon, and Lave, (1998) who found that an individual's attitude toward risk depends on cognitive factors such as the perception of risk. The entrepreneurs in the current study were aware that the high human capital they had acquired through education, industry experience, and skills made them highly employable, and this made them more willing to take risks.

The awareness that they possessed the experience and special skills to fall back upon to get a good job gave the entrepreneurs the confidence to take the risks involved in entrepreneurial ventures. This pattern of thinking is similar to the principle of affordable loss, as established by entrepreneurship research and supports the observation by Hart et al. (2009) that immigrants are more likely to undertake entrepreneurial pursuits because they have less to lose from taking risks. Another factor that lessened the risk perception was the expert knowledge that the entrepreneurs had about the industry and the opportunity.

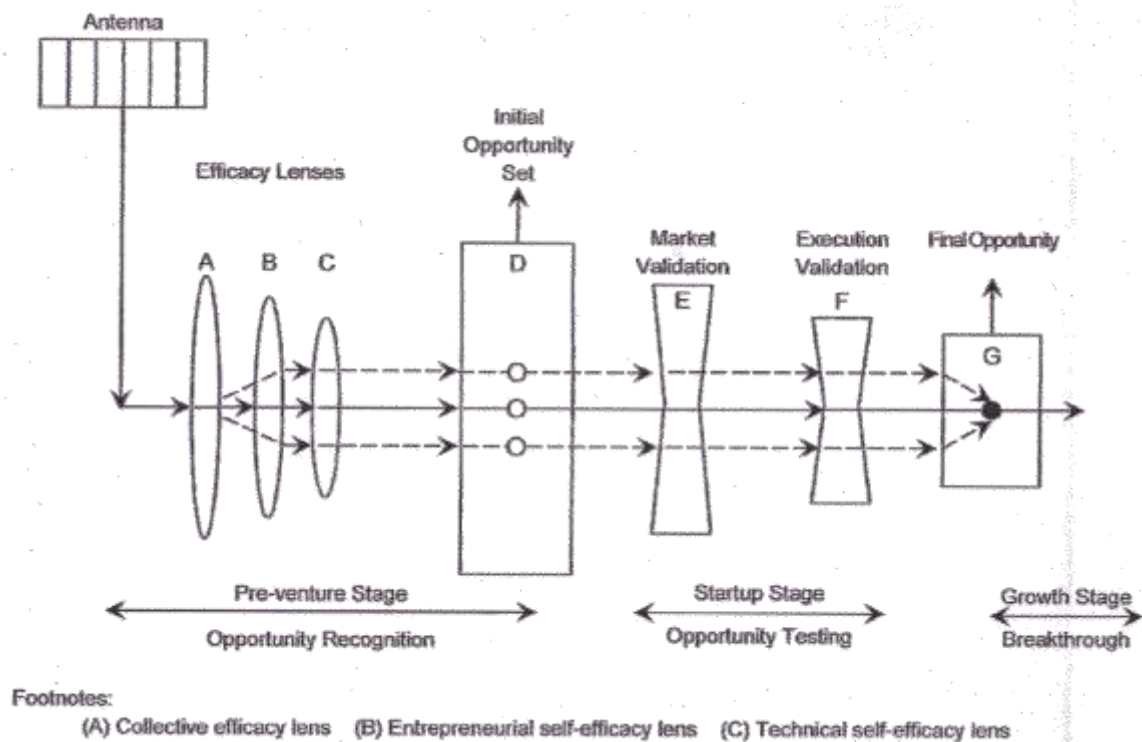
The perception of risk for all the entrepreneurs in the current study was also lessened by their focus on a single opportunity about which they had expert knowledge. This finding supported Gifford's (2005) contention that entrepreneurs derive risk-averse behavior as a result of their limited attention, which as a scarce resource can be allocated to only one of any number of alternatives. The findings of the current study also support the finding of Baron (2000) that the lower perceptions of risk by entrepreneurs is partly due to a lower ability to engage in counterfactual thinking, that is, how past events might have turned out differently. The findings of the current study seemed to support the theory of Kihlstrom and Laffont (1979), who noted risk aversion, is at the core of the understanding of entrepreneurial behavior.

Proposition 7: The perception of risk taking by successful Indian American immigrant entrepreneurs is mitigated by an awareness of their high human capital, expert knowledge about the industry and the opportunity, cognitive biases, limited attention, and lower counterfactual thinking ability.

Opportunity Processing Model for High-Growth Indian American Immigrant Entrepreneurs

Based on the findings, conclusions and propositions enumerated in the previous sections, a model was developed for opportunity processing by Asian American immigrant entrepreneurs of Indian origin. The model as shown in figure 1 below was derived on the following important conclusions on the patterns of cognitions and behaviors reported by the entrepreneurs in the current study: (a) opportunities are seen and recognized almost entirely based on prior work experience; (b) the entrepreneurs' attention is limited to a single known opportunity and there are no unknown opportunities; (c) during the preventure stage when the entrepreneurs begin the process of opportunity evaluation, the reality of the opportunity is perceived through multiple efficacy lenses; (d) the efficacy lenses are arranged in a certain order from most powerful to less powerful in terms of influence on the opportunity; (e) the lenses, in order of decreasing impact or power, consist of a collective efficacy lens, an entrepreneurial self-efficacy lens, and a technical self-efficacy lens; (f) opportunities that are minor variations of the initial opportunity that pass through the efficacy lenses form the initial set of opportunities; (g) during the start-up stage of the venture, entrepreneurs take the time and make the effort to validate the opportunity from the perspective of the market and the ability of the team to execute; (h) after the opportunities are test, validated, and fine-tuned, the final opportunity is determined; and (i) following the selection of the final opportunity, the venture gets into a high-growth mode and achieves breakthrough growth.

Figure 1.
Opportunity Processing Model for Asian Indian immigrant Entrepreneurs



The proposed model combines takes into account the common patterns of cognitions, and behaviors reported by successful Asian American immigrant entrepreneurs of Indian origin. The model can serve as a framework for how this special population of entrepreneurs see and act upon opportunities. Upon further empirical validation using qualitative methods with larger numbers of entrepreneurs the proposed model could be the building blocks for theory development.

RECOMMENDATIONS FOR POLICY

This study involved a qualitative exploration of entrepreneurial cognitions, and behaviors involved with the seeing of and acting upon opportunities among Indian American immigrant entrepreneurs. The entrepreneurs in the study reported distinct patterns of cognition and behavior that enabled them to exploit opportunities, survive during economic downturns, and thrive during periods of growth. This section contains recommendations gleaned from the findings of this study.

Understanding and Supporting the Drivers of High-growth Immigrant Entrepreneurship

Experts in entrepreneurship and business such as Bygrave (2007) and Bennis and O'Toole (2005) have long called for business schools and researchers to use methods grounded in reality and produce results that are relevant to practitioners. One way to achieve this result would be by targeting research to specific groups of immigrants that have demonstrated a higher proclivity for entrepreneurship, such as immigrant

entrepreneurs from India, China, and Korea. According to Meyer (2011), the academic field of entrepreneurship is “stalled” due the use of econometric methodologies and secondary databases that “distance researchers from actual people and behaviors that catalyze entrepreneurs and entrepreneurship” (p. 7). Research grounded in reality and that includes qualitative procedures that are appropriate for an emerging field such as entrepreneurship presents a window to take a closer look at the elusive black box of entrepreneurs. Qualitative research that further investigates the link between immigration, opportunity, innovation, culture, and high-growth entrepreneurship would be valuable to policy makers.

The findings of the study indicated that simple but effective policy interventions could help facilitate high-growth entrepreneurship among high-growth immigrants. Policy makers and government agencies can help facilitate entrepreneurship among more entrepreneurial immigrant ethnic groups such as Asian American immigrant entrepreneurs of Indian origin by supporting their vibrant ethnic professional networks, by providing financial support such as guaranteeing loans during start-up, providing market information, by reducing taxes, and by removing excessive regulations.

Immigration Policy: Modifying the StartUp Visa Proposal

The second policy recommendations relate to enhancements to the StartUp Visa that was first proposed in 2010 and reintroduced again in 2011, which has broad bipartisan support due to its important economic implications to the United States. Given the findings of this study related to the key role played by work experience in the United States, it is recommended that the StartUp Visa proposal be modified and its focus shifted toward from foreign entrepreneurs to skilled professionals and students who are already in the United States. It is tempting to think that an entrepreneur can be transplanted from overseas to the United States. However the real question is what their chances of success will be after they come into the United States? The finding of the study indicate that without the advantage of work experience and ethnic professional network ties in the United States and without the critical social and cultural skills to cope with their new environment, the chances of entrepreneurial success are questionable. To enhance the probability of success, it would be prudent for the StartUp Visa to be suitably modified to be a *StartUp Green Card* and targeted to Asian Indian and other immigrants with high human capital who have professional work experience and strong professional and social network ties in the United States.

CONCLUSION, LIMITATIONS, AND SUGGESTIONS FOR FUTURE RESEARCH

The findings of this study further illuminate and extend existing theories and constructs in the field of entrepreneurship. More importantly, some of the findings diverged from existing literature and points toward new directions for entrepreneurial research. Several of the findings did not have adequate precedent in existing literature and therefore could be unique to this population of immigrant entrepreneurs. These finding include the following: (a) focus in a single opportunity that the entrepreneur had a

good knowledge about due to prior work association; (b) involvement with one or a series of microentrepreneurial events at prior jobs that seemed to trigger their entrepreneurial intentions; (c) lean startup model without the use of loans; (d) a patient approach during the initial start-up years to test and validate the business idea; (e) splitting of self-efficacy into two distinct components, entrepreneurial and technical, in the evaluation of opportunities; (f) giving greater importance to collective efficacy over self-efficacy in the evaluation and acting upon opportunities; (g) separation of traditional risks from non-traditional risks; (h) perception of nontraditional risks as more important than the traditional risks in the growth of the business. These unique findings open the door for future research that could extend literature and lead to new theory development.

One of the potential limitations of the study is that the generalizability of the findings in case studies is to existing theory and not to a larger population (Yin, 2009). The small number of cases was intended to offer a systematic, rigorous, and in-depth exploration of the research questions. Small samples are consistent with the principles of strategic and purposeful sampling used in several qualitative research designs and some researchers contend that if the current research study follows generally accepted principles of rigor and quality, the small number of cases will not interfere with generalizability or theory development (Verschuren, 2003).

The importance of the topic of high-growth immigrant entrepreneurship from a policy perspective justifies a larger quantitative study informed by the results of the current study. The quantitative analysis could allow us to confirm our findings in a larger Indian American immigrant entrepreneur population and also to provide a much-needed comparison set of non-Indian American 'gazelles'. Combined with the qualitative analyses, this research should offer significant insights into the factors that undergrid the success of immigrant entrepreneurs. Not just a fascinating research question, many of these ventures could grow to scalable businesses and give the much-needed boost to economic growth and job creation in the United States.

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**EXPLORING PROCESSES OF OPPORTUNITY INSIGHT AND INTENTION:
TIME, CONTEXT AND THE ENTREPRENEURIAL JOURNEY**

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Exploring processes of opportunity insight and intention: time, context and the entrepreneurial journey

ABSTRACT

This paper provides insight into the enabling role of the social context in how opportunities come about. Although the social context has been acknowledged as playing an important role in our understanding of entrepreneurial opportunities, research has tended to give primacy to the role of the entrepreneurial agent in instigating change. By employing Giddens' structuration theory, we pay particular attention to the role of the social context, whilst at the same time mindful of the actions of the entrepreneur. Based on the in-depth stories of nine entrepreneurs, we identify how, contrary to existing research which suggests actors enact structure (entrepreneurs as change agents), our findings suggest that the social context plays a much more important role in enabling action. Entrepreneurs may not be alert to opportunities, but instead may react to opportunities presented to them by the social context. This has important implications for future research on entrepreneurial opportunities. First, our findings point to how giving primacy to entrepreneurial actions removes the dancer from the dance. Second, at the same time we need to recognise that entrepreneurship is not just about proactive individuals being alert to opportunities; entrepreneurship may come about through entrepreneurs reacting to opportunities presented to them. Third, our findings challenge views of opportunity discovery as a linear process demarcated into distinguishable stages; we argue that to do so runs the risk of foregrounding individual actions and drawing attention away from the role of the social context in how opportunities come about.

INTRODUCTION

Opportunities and the process of opportunity emergence are key concepts which define the field of entrepreneurship research (Busenitz et al., 2003; Fletcher, 2006). Understanding how opportunities come about, especially the source of opportunities and the processes of opportunity discovery, evaluation and exploitation, has been posited as a central goal of entrepreneurship research (Shane and Venkataraman, 2000; Venkataraman, 1997). Since these seminal works, research has slowly drifted away from identifying entrepreneurs, to understanding the nexus of entrepreneurs and opportunities within the entrepreneurial process (Eckhardt and Shane, 2003).

While such work has extended knowledge and understanding, there has been a tendency for research along these lines to largely assume an independent relationship between the entrepreneur and the opportunity. This has led to scholars focusing on either the nature of the individual entrepreneur or the nature of the opportunity (Sarason et al., 2006). Focusing on the entrepreneur has been beneficial in providing individual explanations of opportunity discovery (Shane and Venkataraman, 2000). Yet while this body of research has been insightful, it has also been criticised for providing little regard to the social context (Fletcher, 2006; Sarason et al., 2006). Equally, studies which focus on the nature of opportunities have been accused of not only doing so with little regard for the actions of the individual entrepreneur (Fletcher, 2006). Foregrounding the individual or the opportunity provides little opportunity for explaining the idiosyncratic nature of the relationship that we know exists between entrepreneurs and their individual social context (Dimov, 2007a; Fayolle, 2014). It also does little to expand understanding about the processual nature of entrepreneurship and the growing perspective that entrepreneurs are embedded in a social context which can impact on opportunities and the way they are shaped and formed (Aldrich et al., 1983; Greve

and Salaff, 2003; Hite, 2003; Jack, 2005). Although we have recently seen a shift towards acknowledging the important role of social interactions in how opportunities emerge (Crossan et al., 1999; Dimov, 2007a; Ozgen and Baron, 2007), we have seen less consideration of the social context more broadly. As such we so far have limited understanding about the complex relationship that exists between the entrepreneur and his/her social context and how this might impact on how opportunities come about.

In this paper we use Giddens' (1986) structuration theory as a lens through which to investigate the source of entrepreneurial opportunities and to explore the broad research agenda of how opportunities come about. We assume an interdependent relationship between the entrepreneur and their social context and use this as a basis to further our knowledge of the recursive interplay of social context and entrepreneurial action for opportunity emergence. In so doing, we contribute to an important gap in understanding the socially constituted nature of entrepreneurial opportunities (Chiasson and Saunders, 2005; Sarason et al., 2006). We also address an important call for more empirical research on opportunity discovery and emergence (Dimov, 2011; Short et al., 2010).

In the remainder of the paper we start with a discussion of the literature about entrepreneurship and opportunities. In the section following this we illustrate our method. Thereafter, we present our findings and their analysis. Finally, the conclusions and implications from our work are presented.

ENTREPRENEURSHIP AND OPPORTUNITIES

Opportunities are central to entrepreneurship. Opportunities are one key concept which defines the field of entrepreneurship research (Busenitz et al., 2003) and the process of opportunity identification is unique to entrepreneurship research (Fletcher, 2006). Understanding the process of opportunity discovery is therefore central to understanding entrepreneurship more broadly (Venkataraman, 1997). Since Venkataraman's seminal work on opportunities there has been an increasing body of literature which seeks to understand how and by whom entrepreneurial opportunities are discovered, evaluated and exploited. In line with this, research has moved away from identifying entrepreneurs, to looking to "explain the role of opportunities in the entrepreneurial process" (Eckhardt and Shane, 2003: 333). It has also acknowledged the idiosyncratic nature of entrepreneurs and the opportunities that they identify (Shane and Venkataraman, 2000).

There has been a divide, however, in the unit of analysis. Broadly speaking, research on opportunities has focused on three different areas: the individual entrepreneur, the opportunities themselves, or on the wider economic environment which gives rise to opportunities. Research on the individual entrepreneur has sought to understand the reasons why some individuals are more likely to discover opportunities. There has been a variety of explanations. For instance, research has suggested that opportunity recognition can be positively influenced by an entrepreneur's: experience (Baron and Ensley, 2006; Bingham et al., 2007), access to knowledge (Choi and Shepherd, 2004; Shane, 2000; Shepherd and DeTienne, 2005; Ucbasaran et al., 2009), existing knowledge (Haynie et al., 2009), learning style (Dimov, 2007b), or perceptions of the possible loss or gain from the opportunity (Mullins and Forlani, 2005). The second area of research has explored the nature of the opportunities themselves. This body of research has been largely dominated with an on-going debate as to whether opportunities are discovered (Ardichvili et al., 2003; Bingham et al., 2007; Shane, 2000), created (Mitchell et al., 2008; Ucbasaran et al., 2009) or a combination of both creation and discovery (see Alvarez and Barney, 2007 for a detailed discussion; DeTienne and Chandler, 2007; Hmieleski and Baron, 2008). Needless to say, these studies

continue to give primacy to the individual entrepreneur, whether their actions are ones of alertness to opportunities (i.e. discovery) or whether their actions are ones of opportunity creation, where “entrepreneurs ‘carve out’ space within the social context [...] in pursuing opportunities entrepreneurs elbow themselves in the market space and seek to secure and sustain an area in which to run their venture” (Dimov, 2011: 65). For an opportunity discovery perspective, opportunities are assumed to arise within the social context and be only visible to alert entrepreneurs (Ardichvili et al., 2003; Harper, 1996); for opportunity creation, primacy is given to how entrepreneurial actions shape existing structures to create new opportunities (Dimov, 2007a). The third area of research explores different ways in which the social context gives rise to opportunities. This body of research has a strong underpinning in macro-economics. Consequently there has been much research to provide support to the idea that opportunities emerge at times of significant industry change such as the introduction of new technology (Eddleston et al., 2008; Shane, 2000; Shane, 2001; Wiklund and Shepherd, 2003).

Independently exploring entrepreneurial actions, the nature of opportunities or macro-economic conditions that give rise to opportunities provides an important contribution to entrepreneurship research. Yet in order to address the broader call to understand the nexus of entrepreneurs and opportunities we also need to understand the individually idiosyncratic nature of how opportunities emerge (Shane and Venkataraman, 2000). It is this area that we wish to contribute towards. We therefore need to go beyond research which gives primacy to the actions of individual actors and focus instead on the unique set of circumstances in the social context which enables opportunities to come about (Chiasson and Saunders, 2005; Sarason et al., 2006).

The role of the social context in opportunity emergence: state of research

There has been some progress towards understanding the complex interplay between entrepreneurial actions, opportunities and social context. Research broadly fits into two main areas: the role of social interactions and the embeddedness of the entrepreneur. The first area of research acknowledges the important role of social interactions in the opportunity identification and development process. This body of research acknowledges that the individual is part of a larger social system of other actors (McMullen and Dimov, *Forthcoming*). Research has thus focused on specific forms of social interaction, such as: participation in forums or the use of mentors (Ozgen and Baron, 2007), people from inside their immediate social or business circle (Dimov, 2007a), or the role of the entrepreneur’s more broader social network (Ardichvili et al., 2003; Dutta and Crossan, 2005). A second area of research takes the social context one stage further to explore the role of social embeddedness of the entrepreneur within their immediate social context. For example, social embeddedness has been found to enable entrepreneurs to fit their opportunities to the specific needs of their environment (Jack and Anderson, 2002). Transformations in the nature of the embeddedness of family business has also been suggested in impact on opportunity emergence (Aldrich and Cliff, 2003). Yet in both these areas of research, despite acknowledgement of the role of the social context, attention is still drawn to the actions of the entrepreneur in how they relate to other actors or how they embed their ideas within their social context. There remains a gap in understanding the role that the social context plays in enabling or constraining entrepreneurial actions. Through focusing on the relationship between the social context and the entrepreneur, we still need to further understand the “idiosyncratic life circumstances of each person in the population” (Shane and Venkataraman, 2000 :222) that may give rise to opportunities; and “how and why business ideas ‘locate’ with particular individuals at particular points in time” (Fletcher, 2006 :436).

In this paper we look to progress current understanding through addressing the question: how does the social context enable or constrain entrepreneurial actions to bring about opportunities? To do so, we do not wish to give primacy to the social context, but instead we take a view that we can only understand how opportunities come about through exploring individual-social context combinations at particular points in time. Given the nature of our interests, we draw on Giddens' (1986) structuration theory as the mechanism for recognising how social structures and individual action are co-constituted in the emergence of unique opportunities. Giddens' perspective deals with structure and agency as a duality. In doing so, Giddens' (1986) recognises how through (inter)action between the agent and the structure, change comes about. In the case of entrepreneurship, that change might be said to reflect the realising of opportunities. A structuration perspective provides a basis for understanding the recursive relationship between entrepreneurial opportunities and the social context (Chiasson and Saunders, 2005; Sarason et al., 2006). This perspective acknowledges that structure may not only constrain entrepreneurial opportunities, but that structure may also play an important role in enabling actors to do things which they would otherwise be less able to do. This provides an avenue in which entrepreneurial actions may not necessarily be instrumental and where (prospective) entrepreneurs may not always be consciously searching for new opportunities. In seeking to further our understanding of the unique circumstances which give rise to the emergence of opportunities, we are also contributing to an important gap in the need for more empirical work on opportunity discover (Dimov, 2011; Short et al., 2010).

METHODOLOGY

This research is concerned with the role of the social context in enabling how opportunities come about. Given our focus is on exploring an outcome from the relationship between the individual and the social context, we chose a qualitative approach to the research. This meant we could focus on understanding "how" entrepreneurs actually lived their lives (Gartner and Birley, 2002; Oinas, 1999; Pratt, 2009).

To identify respondents, purposeful sampling was used (Gartner and Birley, 2002; Pratt, 2009) in that we purposefully sought individuals who had been involved in business start-up. While this did show variation in our sample, it also fits with our approach and the reality that entrepreneurs are different in terms of their background, knowledge, experience and activity (Clarke, 2011). Our sample was also theoretical in that respondents showed characteristics which met our interests and so respondents were also selected for what they might contribute to the emerging theory.

One of the authors used his knowledge about the entrepreneurial community to select initial respondents. These respondents were known to this author, he had also known them for a period of time over which a strong and trusting relationship had developed. This allowed good access to respondents which we could use to generate insight and understanding. Nine respondents were purposefully selected. These respondents are presented in Table 1.

Table 1: Respondents

Entrepreneur	Age	Opportunities
David	45	Mobile disco Merchandising Drive-through chip and fish restaurant Management buy-in into an advertising

		agency Set up management buy-in recruitment company Partnership within management buy-in company Multi-lingual travel services
Stephen	42	High-tech IT
Susan	52	Recycling business Public relations business
Martin	55	Health care products “Health Care X” Merger with supplier “Health H-Tech” Community care business Buy-back of “Health H-Tech”
Jason	40	Instrument for Dental Industry
Gill	62	Local produce retail outlet Restaurant Deli-bar
Sally		Credit card technologies Freelance consultancy
Dan	38	Party products Merchandising Social networking site
Lucy	35	Teaching English abroad

For data collection, in-depth interviews exploring the life story of each of the nine entrepreneurs were carried out. These life stories were detailed in describing each respondent’s journey into entrepreneurship. Each entrepreneur had been involved in the development of a number of entrepreneurial opportunities during their careers, and they each have a plethora of successes and failures. The fact that one of the authors had known each of the entrepreneurs on a personal level for a number of years and had closely followed their entrepreneurial career helped overcome issues of recollection bias.

The life-story interview was used to provide a detailed account of the entrepreneur’s background, family, previous careers and for us to gain an insight into the social context in which they developed their entrepreneurial ideas. After conducting an initial interview which lasted between 1.5 and 2 hours, we later revisited the entrepreneurs to ask more specific questions relating to opportunity emergence.

The constant comparative method and an inductive approach to data analysis was used (Alvesson, 2009; Glaser, 1967; Silverman, 2013). This constant comparative approach to data analysis (Alvesson, 2009; Glaser, 1967; Silverman, 2013) meant an iterative reviewing of data with emerging categories and concepts (McKeever et al., *forthcoming*). The themes used for data analysis were social context, opportunity and how opportunities came about. This meant exploring the entrepreneur’s accounts of how opportunities emerged for them. And, so, an iterative reviewing of data with emerging categories and concepts took place.

This approach is typical when trying to understand entrepreneurship and the context in which it takes place (Hill et al., 1999; Human and Provan, 1996; Jack, 2010).

This approach follows that offered by Jack et al (2010) and Bogdan and Biklen (1992), who described qualitative analysis as “working with data, or organizing it, breaking it into manageable units, synthesizing it, searching for patterns, discovering what is important and what is to be learned and deciding what you will tell others (p. 145). It is also consistent with the process used in other entrepreneurial settings and as described by Jack et al (2008) and McKeever et al (*forthcoming*). Organising raw data into meaningful categories and then looking at these categories in a more “holistic fashion”, allowed us to deal with some of the challenges that tend to face researchers when looking to analyse qualitative data (Hoepfl, 1997: 55).

FINDINGS

The purpose of this paper is to explore the role of the social context in how opportunities come about. We do so through exploring the unique combinations of entrepreneurial actions and social context which give rise to opportunities at particular moments in time.

Entrepreneurs and their social contexts: background to the entrepreneurial journeys

The ages, experiences and contexts of our nine entrepreneurs varied considerably. Seven of the nine entrepreneurs were employed and enjoying their organizational careers prior to their first business. Jason, Stephen, Dan and Sally’s careers had developed around areas which required specialist knowledge. Jason was a University researcher specialising in dental implants, Stephen was a technical specialist for a small software company and was designing new features for micro-chip technologies. Sally was working for a large corporate in the banking sector on credit card technologies. Dan was an IT consultant specialising in web technologies, which had become a booming industry in the early 2000’s.

Martin, having recently left University, was on a graduate training programme with a large manufacturer; other than experience with his family’s business in the health care sector, he had very little experience in business. Gill had a number of administrative roles before giving up work to become a full time mother for her two children, because one of her children had been seriously ill she had spent considerable time looking after her. Gill lived in a small rural village, and although Gill had moved into the local area, her husband and children had all been born and brought up in the same village in which they now lived and as a family they played an active role in the local community.

Susan and Lucy had much more diverse backgrounds. Susan had left school at 16 and worked in a variety of roles for numerous organizations. She eventually ‘fell into’ a career in PR and having settled on that began to work her way up the career ladder until she became Director. Lucy described herself after attending and then dropping out of University (at the age of 27) as ‘a lost soul [...] I was a bit rudderless really I didn’t know what I was doing’. After trying her hand at numerous jobs, she eventually decided to go travelling, ‘to find herself’, she taught English first in Japan, followed by a trip to Australia and then Greece. She described how these trips had really made an impact on her life and provided her with some direction in what she wanted to do. She returned to the UK to become a youth worker working with children from deprived areas.

David was very different to the other eight entrepreneurs in that he was the only one who had described how, at school, he had been chasing new ideas for making money. At school he had set up a mobile disco business, and then began selling merchandising based on the local

football and rugby teams. After school, he worked for an organization as a marketing and advertising executive, but was always on the look-out for new ideas.

Opportunities emergence: the start of the entrepreneurial journey

For Jason, Sally, Martin, Stephen and Susan it was a combination of events within their social context which led to them facing cross-roads which required a decision on what to do. For Stephen, Martin, Jason and Sally, the events were tied closely to their careers and specialist areas of expertise, particularly with the people that they knew. Stephen's company was facing financial difficulties and the owner / director of the business presented him with an opportunity to take the ideas Stephen had developed (which no longer formed the core of the business) and set up a new business:

“[large contracts and money coming in]...it became apparent that it wasn't going happen every month and they needed really to cut back a little and rather than make people redundant I got the opportunity to take this prototype off their hands, start A- TECH, and take some of their staff with me... the pressure was building a lot all along and then this was like the catalyst to make it occur so it probably took about two seconds to decide...Once I saw the opportunity I mentally I made the decision instantly it was like so there was no yes no thinking about that.” (Stephen)

Similarly, Martin was approached by his brother, who had extensive experience from his family's health care business and had recognised an opportunity to set up a new health care business that would complement the family business. Sally too was approached by a colleague who also worked in the area of credit card technologies who had an idea of setting up a spin-off business based on their experiences of the technologies and the industry. It was Jason's employer who raised the opportunity of Jason commercialising his research:

“[...] what happened [is that] Imperial College said “this technology transfer is this going to need commercial application”. We had filed patents on it from a very early stage so it was protected and I was quite interested in technology transfer so we said yes so it was Imperial's prompting to form a spinoff company which was called In-D which we formed a very small company with Peter and myself and a Swedish electronic designer who was very, very talented and so basically [...] made it a commercial instrument which was very interesting.” (Jason)

For Susan it was a combination of events both inside and outside of her career which provided a spark for looking for something new. Having reached Director-level, her organization was facing a large take-over bid, although she knew she would have a career path within this new organization, she was at the stage where she would like to do something new. At the same time, she had recently met her husband to-be, but they lived 200 miles apart and were spending considerable time travelling between each other's homes at the weekend; adding to this there had been recent discussions about marriage. Susan made the decision that this was a good point at which she could make a change in career at the same time as move away from London to be closer to her partner. It was also a point at which she needed to decide about what she could do. She used contacts within the PR industry to seek opportunities further North in the UK, after a few false starts, she eventually found a contact who was looking to set up a PR agency in Yorkshire and would be interested in joining forces to make this happen:

“So I can't quite remember the order of all of that but he did propose on August 13th and I am thinking what the hell can I do and it had become right I need to get this sorted out. I have always wanted a business ... now is the moment, what the hell can

I do? And I thought well you have got PR experience. It is too pretty light weight to be honest and I had never worked in an agency and I thought oh well ring up the Yorkshire Post what is the PR market like up there? And they said there are not very many good companies, there are not very many companies and then said do you think there is room for somebody to open up there, that was the sum total of my market research, and they said yes and so I said right have lunch with Max at the Financial Times and he is still there and still a friend and I said I am thinking of opening this business and he thinks it is hilarious because I am not an orderly type person at all whatever that means and he is taking the mickey out of all of these names and he puts Northern Lights in there and I said that is the one”

For Lucy and Gill, the opportunities emerged through a combination of both social needs and their own experiences. They basically put two and two together. For Lucy, the opportunity arose after children from her youth class began asking her about her travels, she wanted them to have the same opportunities as she did, but realised that, at the time, gap- years for students were only possible for those from backgrounds which could afford to send their children away for a year, the students she was working with were from deprived areas. It was afterwards when chatting to a friend and teacher that she realised that there could be an opportunity to send her students on a gap-year by using the opportunities for teaching English abroad; it was something that the schools would be able to support and also to fund. It also allowed her to bring together her own experience as well as the contacts that she had made whilst working abroad to make this opportunity happen. Gill was part of the community and was looking to do something different for herself and to re-start her career after her daughter was recovering from a serious illness. At the same time, she had met a few people in the village whose children had also been ill from food related problems. It was this, combined with Gill’s own interests in food from her own child’s illness, which sparked an opportunity to sell fresh, local produce within the local community. This would not only satisfy Gill’s need to find her own identity, but would also provide something back to the community. This was the mid 1980’s, which was a time when such specialist food stores were very rare, particularly in small rural villages.

David and Dan were on the look-out for new ways of making money. At school, David had joined forces with friends to start businesses, after leaving school he continued those relationships and together they thought about a new opportunity to sell a fish by-product to fish and chip retailers:

“I got into drive-through fish and chips [...] That was an idea with a friend (Martin) who is big in the fish industry, they produced all the cod for Birds Eye fish fingers they were the biggest fishers for cod in Europe and the filling was a by-product which they supplied to food service people like Sainsbury’s cafes, Little Chef etc. so you had perfect portions and cost control. I was in the marketing and advertising business and we bought in a third friend who was in fish and chip retail. This had never been done before and what it really allows you to do as a fish and chip owner potentially is build a chain with guaranteed cost and quality” (David)

Dan left his employment to set up as an independent consultant, but to also work on new business ideas. Knowing Dan’s skills in new web technologies, a friend from the industry invested £50,000 for Dan and his friend Jason to try out new ideas. They decided to try out 10 different ideas each with £5000 investment, if by the time they had spent £5000 the idea was not working, they would ditch it and move onto the next. They tried a number of different ideas, all of which were bring in small amounts of money, but nothing of any significance. In parallel with this, Dan’s wife, Julie, was pregnant and in the time that she had off work, she

decided to play around with some of her own ideas, on a personal basis, rather than to make money. Dan described how she had to continually ask for assistance from Dan in designing a web site around her idea, which was to enable her to communicate with her old school friends which she had lost contact with over the years; she saw that there was an opportunity to use web technologies to bring them together. Meanwhile, Dan and Jason were pushing ahead with their own ideas. It was not until Julie's idea began to bring in money that Dan and Jason realised that this could potentially be an opportunity to make money and it was only then that they began to happily provide more assistance in making it work.

The entrepreneurial journey & the changing social context

In this section we look more closely at two of the entrepreneurs, Martin and David, who continued to develop new ideas and set up new businesses. We use the stories of these two entrepreneurs as examples to illustrate the changing nature of the entrepreneur within their social context and how the dynamic nature of this relationship gives rise to different opportunities at different points in time.

Martin's career has continued within the health care sector. After setting up his Health Care X business with his brother, he was involved in a number of further opportunities. For Martin, each of these opportunities emerged from the social context and were based on Martin's contacts as well as his reputation within the sector. Table 2 below outlines each of the opportunities.

Table 2: Martin's entrepreneurial journey of opportunities

Opp.	Source of opportunity	Context	Supporting story
Merger to form "Health H-Tech"	Health Care X Flourishing Reputation of Health Care X	Approached by one of their suppliers (H-Tech) (NOTE: Martin and his brother later sold Health Care X)	"[...] we were approached by a supplier of ours at the time called H- Tech, a very successful quoted company [...] they approached us with a view of setting up a joint venture [...] the idea being they would become 50/50 partners in the business with a significant capital injection, we saw it as a way of taking the business forward five years [...] we felt that it was the right fit"
Takeover of "Community-Care"	Contacts and reputation within the Health Care sector	Approached by a friend who worked in the sector who thought Martin would be an ideal person to turn the business around	"[...] by chance really I got involved in or had the opportunity to get involved in a community care business which was floundering should we say. It was a business that had a block contract with a local authority in the North West and it intrigued me as a business."
Takeover of "Health H-Tech"	Old friends who worked for Health H-Tech	Rumours that the company was struggling and looking to sell	"[...] the rumours started to come out of Health H-Tech that things were not well [...] within twenty four hours we were having a meeting with two main board directors and in forty eight hours we had negotiated a stock asset goodwill purchase

			of the old business back from Health H-Tech.”
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David's story is slightly different in that David's early ideas are developed through David's continued commitment to chasing new ideas and searching for the elusive idea that will make him rich. After his drive-through fish and chip shop which had initial success, but then suffered from supply problems, he joined an advertising agency as a PR executive. Through his career and his business ideas, he slowly builds up his social network which lends itself to the creation of new opportunities. However, based on his reputation as someone with a wealth of experience of creating new businesses, as well as many disasters along the way, in his later career, this experience and reputation then leads to opportunities coming his way, rather than him having to search for them. Table 3 provides an overview of these different opportunities and the different ways in which they arose.

Table 3: David's entrepreneurial journey of opportunities

Opp.	Source of opportunity	Context	Supporting story
Management buy-in: "Sheffield PR"	Joined forces with two friends from his PR job	Experience in working in PR	"[...] I thought we will buy an advertising agency. The elder of the three of us had the credibility to raise a bit of money and we bought a 50 year old advertising agency in Sheffield from the chairman who was second generation and looking to retire"
Started a new business: "MNGT BUY-IN"	Contacted by a number of people to ask for advice about management buy-ins	Experience of management buy-in through "Sheffield PR" Built up a reputation in London	"[...] I was aware that there was an increase in corporate people wanting to get into management buy-ins because they kept banging on my door and saying "you did one David how do I get it?" I have always loved introducing A to B. I have always been able to spot an opportunity. With my social links and with my business head on and say you and you should meet each other and make some money. So I set up a register of people willing to do these management buy ins [...]"
Business partnership for "MNGT BUY-IN"	Chance meeting with someone from 3I	Company wasn't making money because of a need for a clearer focus	"[...] on the way [to a meeting] I met a guy who had just left 3I and was looking to invest some money. He was very pleasant but ripped half of my business model to shreds [...] after my first year he said "how are you doing" and I said "fantastic work in progress this that and the other" and he said "I know but spare me the bullshit I know everything is fantastic but you are not making much money are you?" [...] He said I have got some ideas of how we can improve and change your model and I am prepared to invest in you."
Partnership "Travel X"	Chance meeting for	Reputation for ideas	"[...] lots of people try and come and see me saying I have got this idea and that idea [one

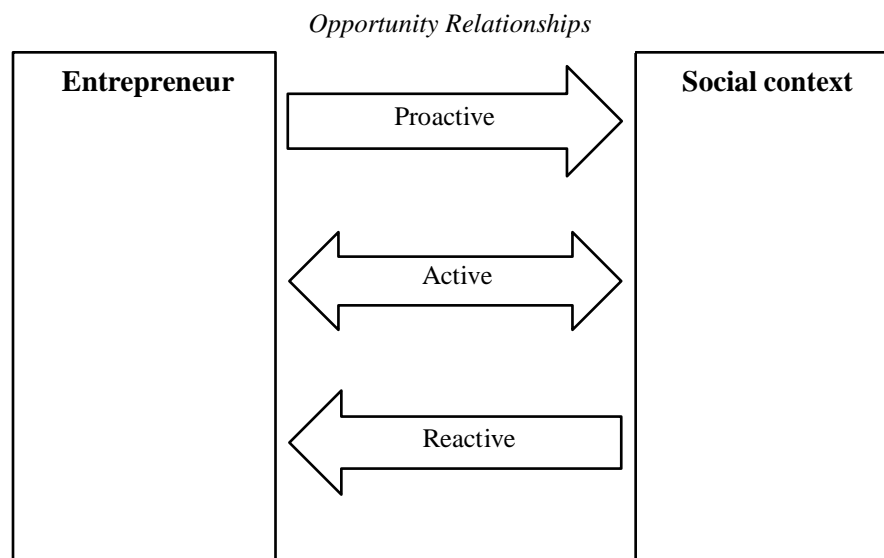
	coffee with someone with a business idea	and opportunities Helping people with their ideas	day] I had lunch with this guy [Col] and I realised after an hour (a) it was a brilliant idea and (b) he was a brilliant entrepreneur and like me he would never ever give up. And I said to him at the end of the meeting right I love you so much I am going to buy into your company.”
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INTERPRETATION AND ANALYSIS

Relationship between the entrepreneur and the social context

Our findings point to three distinct relationships between entrepreneurs and their social context for opportunity emergence. Although recent research highlights the importance of the social context (Dimov, 2007a; Jack and Anderson, 2002), historically research has assumed that entrepreneurial actions are crucial to initiating change. Our findings, however, point to very different relationships between entrepreneurs and their social context which indicate that it is not enough to say that the social context is important; we find that it is important in very different ways. Figure 1 below outlines the three different entrepreneur-social context relationships for opportunity emergence.

Figure 1: Entrepreneur-social context opportunity relationships



By *proactive*, we refer to a relationship which has been assumed in a number of studies on opportunities (e.g. Kaish and Gilad, 1991; Shepherd and DeTienne, 2005); it is the view of entrepreneur as change agent. That is, it is the entrepreneur who drives forward new ideas and opportunities into the market place, creating changes to the existing structure. By *active*, we refer to opportunities arising through a more harmonious, yet active, relationship between the entrepreneur and their social context which is borne out through a combination of the entrepreneur’s own experiences and the needs of the social context. The structure plays an important role in enabling actions, but at the same time, entrepreneurial actions shape (rather than carve-out) the structure for the opportunities to be realised. Existing research on embeddedness acknowledges these kinds of relationship (e.g. Jack and Anderson, 2002).

Reactive is perhaps the most interesting finding from this research. *Reactive* refers to an opportunity relationship which is less acknowledged within the literature, yet presented itself in all nine entrepreneurs. Here it is the social context which presents opportunities to entrepreneurs; entrepreneurs react to those opportunity situations.

Understanding the different opportunity relationships raises an important consideration for entrepreneurship research. Although what we label here as *proactive* and *active* relationships are often considered by entrepreneurship scholars, the *reactive* nature of opportunity relationships are less often acknowledged, but we suspect quite common.

Opportunity discovery as a non-linear process

The opportunity discovery process is often referred to as a linear beginning with an idea, followed by processes of evaluation and exploitation (e.g. Dimov, 2007). Our findings indicate that representing opportunity discovery as a linear process may fail to represent the complexity of the opportunity process. The stories of our entrepreneurs highlight how the opportunity discovery process is embedded within a complex and dynamic social context where the processes of opportunity insight and intention (Dimov, 2007) may occur in parallel. For example, it is difficult to separate the idea and evaluation processes for Jason and Stephen, who had both been developing their ideas within an organization context, without realising that one day these ideas would create spin-off organizations. In effect, they had already generated the idea and evaluated them as opportunities within the marketplace even before they had decided to go ahead and create organizations around them. This suggests that the way in which the social context influences opportunity emergence may force us to reconsider our understanding of opportunities being driven by visions of future possibilities.

CONCLUSION

This paper provides an important contribution to our understanding of how opportunities come about. First, the paper highlights the important role of the social context, but in so doing, identifies distinct relationships between the entrepreneur and their social context which give rise to three distinct opportunity relationships. Second, the paper highlights how views of the opportunity process as linear may help our understanding of entrepreneurship, but at the same time may not provide a complete picture of the complexities of the entrepreneur's interaction with the social context. Third, the paper also highlights the dynamic nature of the entrepreneurial journey, particularly the entrepreneur's relationship with their social context. It also highlights how the entrepreneurs in this study who were embedded within their social contexts were provided with numerous opportunities through the people they knew and their reputation and experience within that particular field.

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**A PERSON-VENTURE FIT PERSPECTIVE ON MATCHING ENTREPRENEURS'
WORK-FAMILY VALUES WITH VENTURE GROWTH**

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A person-venture fit perspective on matching entrepreneurs' work-family values with venture growth

ABSTRACT

Entrepreneurial success has traditionally been represented by hard measures such as revenues and growth. Recently, however, entrepreneurship scholars have called for the inclusion of soft measures such as entrepreneurs' psychological well-being and satisfaction as indicators of entrepreneurial success. As business ventures need financial success to be sustainable, and at the same time entrepreneurs' well-being is important for them to sustain their passion and effort in building their ventures, a more balanced view in considering both the hard and soft measures of success in entrepreneurship is warranted. In studying a group of entrepreneurs who have attained success in both the hard measure of achieving venture growth and the soft measure of experiencing low level of work-family conflicts, we theorize how entrepreneurs can pursue a fulfilling entrepreneurial career without experiencing a high level of work-family conflict by proposing a person-venture (P-V) fit perspective.

1. Introduction

Entrepreneurial success has traditionally been represented by hard measures such as firm size (by revenue and by number of employees), profit, return on investment, and growth rate (Murphy et al., 1996; Stam and Elfing, 2008). Recently, however, a growing number of entrepreneurship scholars have called for the inclusion of soft measures such as entrepreneurs' well-being and satisfaction as indicators of entrepreneurial success (Shepherd and Haynie, 2009; Uy et al., 2012). As business ventures need financial success to be sustainable, and the entrepreneur's well-being is also important to sustain the entrepreneurial passion and venture effort, a more balanced view in considering both the hard and soft measures of success in entrepreneurship is warranted. In studying a group of entrepreneurs who have attained success in both achieving desired venture growth (hard measure) and experiencing low levels of work-family conflict (soft measure), this study explores the research question of how entrepreneurs can attain success for both the individual entrepreneur and the business venture.

In this paper, we theorize that one way entrepreneurs can achieve a more balanced view of success for both the person and the venture is through the enactment of person-venture (P-V) fit. We developed our model on the enactment of P-V fit by drawing on the person-environment (P-E) fit research, and integrating concepts from the work-family and venture growth literatures. The core tenet of our P-V fit model emphasizes the use of different work-family management strategies to shape the venture environment (by pursuing different venture growth models) in accordance with one's personal values. Our qualitative data from eight case studies indicate that the relative work and family role salience of entrepreneurs determines whether they choose segmentation or integration strategies in managing the work and family domains, and whether they pursue high or moderate/controlled growth models.

By considering the interplay between the hard and soft measures of success in entrepreneurship, our study introduces a more balanced view on entrepreneurial success. More importantly we tease out the intricate relationships among entrepreneurs' work-family values and perceptions, the strategies and practices they employ in crafting a venture that satisfies both the personal and venture needs, with the end result of having a venture with sustainable growth without jeopardizing their well-being. Our study also enriches the venture growth choice literature. In the past two decades, the question of why some entrepreneurs pursue high growth

models while others do not has piqued the interest of many scholars (e.g., Davidsson, 1989; Jennings and McDougald, 2007; Wiklund et al., 2003). Previous research indicated that the desire to pursue growth should not be assumed as automatically upheld by all entrepreneurs, as some business owners deliberately refrain from pursuing high growth venture models (Gundry and Welsch, 2001). Because people engage in entrepreneurship not merely for economic goals (i.e., profit maximization), but also for non-pecuniary reasons (Douglas and Shepherd, 2002; Kolvereid, 1992), their willingness to grow the venture would also vary. Through our P-V fit theorizing which aims to illuminate how entrepreneurs arrive at different growth choices, we enrich extant literature by highlighting the role of internal factors such as entrepreneurs' work-family role values.

Notably, P-V fit builds on and extends the P-E fit theory by highlighting the dynamic, agentic role of the entrepreneur in deliberately pursuing a venture growth model that fits with one's values and preferences. Previous studies have mostly regarded the fit perspective as a static match between the person and the environment. Such passive view treats the environmental factors as givens. These studies are also silent on whether the individual can actively influence the environment to reach the compatibility between the person and the environment. Our P-V fit model stresses the agentic, proactive role of the individual, particularly the entrepreneur in designing and engineering one's venture environment to achieve the match with one's personal values.

Furthermore, research examining the relationship between work-family interface and growth in entrepreneurship focuses mostly on the influence of gender on growth choices, and the gender role constraints on venture growth. Yet with changes in rigid sex-role divisions (Spence et al., 1985), the relative importance people place on work-family balance can be associated with value rather than gender difference (Rothbard et al., 2005). Our proposed model views the relationship between work-family interface and venture growth from a "choice" rather than a "constraint" perspective.

2. Theoretical background: Conceptualization of P-V Fit

Our conceptualization of P-V fit is grounded on the P-E fit literature. P-E fit is broadly defined as the compatibility that occurs when the characteristics between an individual and the work environment are aligned (Kristof-Brown et al., 2002). Based on this definition, P-V fit can be regarded as the compatibility that occurs when characteristics of the entrepreneur and the venture are well matched. Such a concept can be applied to various contexts, such as a match between the entrepreneur's vision and key components of the venture (e.g., concerning targeted market segment, growth strategy, management philosophy, etc.); between the entrepreneur's work experience and industry anchor of the venture (e.g., creating a venture in the industry in which the entrepreneur has prior knowledge, experience and/or network); and between the entrepreneur's personal values and the venture type (e.g. creating a for-profit venture or a social enterprise to fulfill economic and/or non-economic goals), to name just a few. More narrowly, however, P-E fit can represent the fit between the interests, preferences and goals of the person and the aspects of the environment that may fulfill one's personal values (French et al., 1982). We develop the P-V fit concept by focusing on the relationship between the entrepreneurs' life role values, or the degree of importance entrepreneurs attach to their work and family roles, and the venture growth model.

2.1. Life Role Values and Venture Growth Model

Life role values can be defined as "the system of values an individual holds regarding work

and family domains based on what individuals believe to be important and central to their lives"

(Carlson and Kacmar, 2000, p. 1032). Values motivate action and are the basis from which individuals define their roles (England and Harpaz, 1983; Schwartz, 1992). Though life has various domains, research has focused mainly on work and family domains as they are the two most important spheres in a person's life. While research on entrepreneurship and family interaction is increasing (e.g., Jennings and McDougald, 2007; Loscocco and Leicht, 1993), the focus has been mostly on personal characteristics and situations (such as gender, life stage, and family responsibilities) and less so on individual life role values. Life role values serve as guiding principles for decisions and actions (Schwartz, 1992). It is thus critical to highlight life role values in our theorizing.

Life role values are reflected in life role salience, which can be captured in two facets: "a) the personal importance or value attributed to participation in a particular role, and b) the intended level of commitment of personal time and energy resources to enactment of a role" (Amatea et al., 1986, p. 831). Linking role salience to attitudes and behaviors, Lobel (1991) put forward the concept of role investment, which refers to specific attitudes and behaviors associated with people's devotion to work roles. Family investment refers to specific attitudes and behaviors associated with people's devotion to family roles. According to Lobel (1991), "the more a person expresses attitudes and behaviors in support of a role, the greater that person's degree of role investment" (p. 508). Investing time and energy in domain-consistent activities is driven by the subjective importance or value placed by the individual on a particular life role, and these activities undertaken voluntarily reinforce one's role identity (Burke and Reitzes, 1981), be it work or family role identity. In this paper we use the entrepreneurs' motivation to pursue an entrepreneurial career, and their relative work and family role investment (indicated by devotion to work and family roles) as per Lobel's (1991) definition, to capture the value and commitment facets in both work and family domains.

Growth orientation has been used as one of the key criteria to differentiate entrepreneurs from small business owners (Carland et al., 1984). However, not all entrepreneurs experience the same level of growth in their firms (e.g. Wiklund et al., 2003). Moreover, limited growth is not always associated with inability to grow, but may actually reflect the entrepreneur's *lack of desire* to grow the firm (Cliff, 1998). Wiklund et al. (2003) found that entrepreneurs' attitudes towards growth are influenced by their beliefs on whether the growth of the firm may compromise the well-being of employees, the independence of the firm relative to key stakeholders, and the owner's ability to control the growth and ensure that the firm would survive any crisis. Baum and Locke (2004) found that venture growth is shaped by the goals entrepreneurs set for the firm, the vision they communicate to their employees, and their belief in their ability to achieve the desired growth. These findings suggest that "how much to grow" can be a *conscious decision* among entrepreneurs. Building on this argument, we highlight the "agentic" role of entrepreneurs in our theorizing. Importantly, as the focus of our study is on opportunity entrepreneurs who have growth potentials based on market forces, but exercise choice on "how much to grow" (Kolvereid, 1992), we classified venture growth model into high growth and moderate/controlled growth.

2.2. Fit Enactment Strategies

In conceptualizing P-V fit, we also argue that the influence of entrepreneurs' life role values on the type of venture growth model emerges through a set of fit enactment strategies. In other words, we view P-V fit as dynamic process of enactment rather than just a static match of personal values to venture characteristics. Enactment is the process of making ideas, structures,

and visions real by acting upon them, and the outcome of this process is 'an enacted

environment' (Weick, 1988) that fits with the vision and values of the actor. We theorize that the attainment of P-V fit is facilitated by the adoption of specific strategies that enact a family and a venture environment that matches with the values of the entrepreneur (Voydanoff, 2005). Fit enactment strategies are directed more towards shaping the *external environment*, be it home or work, that subsequently facilitate the pursuit of a venture growth model that fits with the entrepreneur's life role values. In the following sections we capture these enactment strategies through qualitative data from eight case studies and interpret how these strategies connect entrepreneurs' life role values with their respective growth models.

3. Method

Our main purpose is to explore how entrepreneurs enact P-V fit by creating a venture environment that fits with their life role values. We used a qualitative methodology of multiple case studies to develop, rather than test, theory (Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 1981). The primary source of data was collected through in-depth interviews, supplemented by a questionnaire on demographic and venture information.

Our sampling region consists of two major cities on the west coast of Canada, where work-life balance is highly valued. We employed a theoretical sampling strategy (Eisenhardt, 1989) to identify entrepreneurs who have achieved a reasonable level of work-family balance. The level of work-family conflicts experienced by the entrepreneurs we selected are relative low (the average score of their work-family conflict was 1.84 on a 5-point scale, ranging from 1.33 to 2.42, where a 5 indicates high work-family conflict).

According to the Global Entrepreneurship Monitor (Reynolds et al., 2002), entrepreneurs can be typically classified into necessity entrepreneurs (those who started new businesses because they have no other better options to earn a living) and opportunity entrepreneurs (those who started new enterprises based on a perception that a promising business opportunity exists). The latter is more fitting to our research question because opportunity entrepreneurs are in relatively favorable circumstances and have more promising alternatives than necessity entrepreneurs, and they are pulled to entrepreneurship more because of a conscious decision to pursue a venture opportunity. Our case studies therefore consist only of "opportunity entrepreneurs" who have the potential for exponential growth to underscore personal choice/volition in the enactment process - the process of making ideas, structures, and visions real by acting upon them (Weick, 1988). For simplicity, our use of "entrepreneurs" throughout the paper refer to "opportunity entrepreneurs".

We recruited entrepreneurs referred by a well-connected local entrepreneur of our targeted region and, from there, applied the purposive snowball sampling technique whereby interviewees were asked to recommend additional entrepreneurs. While there is no ideal number of cases, a number between four and ten cases usually works well "given the balance between reaching theoretical closure and manageable complexity and volume of data" (Eisenhardt, 1989, p. 545). These eight cases represent sufficient variability among entrepreneurs with different life role values, and ventures of different sizes and growth models, allowing us to theorize the P-V fit process. Table 1 provides a summary description.

3.1. Qualitative data analysis

The two authors analyzed and coded the interview transcripts based on the broad constructs of life role values, venture growth models, and enactment strategies. We achieved over 85% of agreement in our first coding, indicating strong inter-rater agreement (LeBreton and Senter, 2008). In the pre-interview questionnaire and during the interview, we assessed their motivations to starting their ventures and work-family investment (Lobel, 1991), including their

work- and family-life role values in terms of work and family role salience (Amatea et al., 1986). How much value individuals put on work over family and vice versa could impact their reactions on experienced work-family conflict and potential consequences of such conflict (Carlson and Kacmar, 2000). Based on participant reports and interview data, we categorized entrepreneurs as those who are high in work role salience, those who are high in family role salience, and those who are high in both.

Because all the ventures in our case studies are experiencing growth in various rates, we captured venture growth model based on the growth orientation expressed by the entrepreneurs when they talked about their ventures—whether they expressed a strong desire to pursue high growth models or not. Such information allowed us to classify ventures into high growth and moderate/controlled growth models, regardless of absolute revenue levels. Work-family management strategies and practices were first identified and subsequently classified into different types, taking reference from extant literature and allowing for emergent themes. In the next section, we present our findings on how entrepreneurs enact P-V fit, arriving at a set of propositions and a conceptual model.

3.2. The fit between life role values and venture growth models

Individuals whose motivations are shaped by conventional business-oriented meaning and primarily driven by profitability would tend to have a high degree of work role salience and willingness to spend a lot of time and energy in their ventures. They define venture success in terms of objective performance indicators and their dedication to work is viewed as a fulfillment of their passion. Quoting from an entrepreneur pursuing a high growth venture (*Case 2*):

“I love the dynamic(s) of the business. I love the uncertainty, the challenge of the next right decision. I love the excitement of collaborating ...with people to grow the business, or looking for different ways of managing and running the business, I really enjoy that.”

Other entrepreneurship research highlighted motivations related to meeting the need for work-family balance (DeMartino and Barbato, 2003) as a primary driver to pursue entrepreneurship. For these entrepreneurs, success in the family domain is more important than success in the work domain. Instead of putting growth and profit as primary objectives, the venture is used as a vehicle to attain a certain type of lifestyle that could generate sufficient income while having the flexibility to structure work activities around family needs. These entrepreneurs have a high degree of family role salience, as exemplified in the words of this entrepreneur pursuing a moderate growth model (*Case 3*):

“When we started, we decided that we would do it much more relaxed. We promised ourselves we wouldn’t have any employees and that we would decide the lifestyle and then build the business that would fit the lifestyle, instead of starting a business and then fitting a lifestyle around what’s left.”

Entrepreneurs motivated to attain wealth and recognition, as well as fulfill their needs for achievement and challenge, are likely to pursue a growth-oriented venture. Their high level of work role salience suggests that venture success in terms of size, growth rate and profit will give them satisfaction. As an entrepreneur of a high growth venture expressed it (*Case 2*):

“I want to double or triple my growth in three years. ... I want the company to be the top custom install firm in North America. The size? 10 million plus. We’re about 2.5 [now].

Entrepreneurs who are motivated by their desire to have a better quality of life, on the other hand, may be more likely to pursue moderate/controlled growth at levels in line with their organizational practices, lifestyles, and family needs (Morris et al., 2006). Such venture provides the flexibility to shape work activities around family responsibilities. Although moderate growth

ventures may be considered as sub-optimal operations, this type of venture model may provide the highest level of satisfaction to entrepreneurs who attach more salience to their family. As expressed by a male entrepreneur of a controlled growth venture (*Case 3*):

“The most important thing for me is to do what I need to do for my children and (wife’s name). It’s to be there when the kids are doing homework and music, to coach them...We had no turnover target. We said “this money will last us until August next year”. So in Feb 2003, we said “now we could do nothing and we can be fine until Aug 2004”. But it’s also a very simple life style. We cut down a lot of expenses, we live very simply, and we’re very frugal...”

Based on our interview data, we propose the following:

Proposition 1: Entrepreneurs high in work role salience are more likely to pursue high growth ventures; those high in family role salience are more likely to pursue moderate growth ventures.

3.3. Enactment strategies for P-V fit

While entrepreneurs’ life role values may impact the type of venture they pursue, designing a venture environment in congruence with their values requires deliberate strategies. As the key engineers of their organization, entrepreneurs are in the position to formulate their organization’s systems and practices, and consequently enact P-V fit through the choice of different strategies. Research on work-family management strategies has focused on psychological, internally driven means of coping with emotions resulting from work-family conflict, such as segmentation (the suppression of behavior, thoughts, and feelings from one domain while participating in another); compensation (intensive involvement in one domain to counteract negative outcomes in the other); accommodation (limited psychological involvement in one domain to accommodate demands from another); and management of role transition (psychological movement between roles, including disengagement from one role and engagement in another) (Edwards and Rothbard, 2000). Yet, externally focused work-family management strategies have received little attention. Shelton (2006) put forward three types of externally focused, structural strategies for reducing the level of work-family conflict among entrepreneurs: role elimination, role reduction and role sharing (we provide explanations of each in the next section). However, the article was silent about predictors of such strategies. Extending Shelton’s (2006) arguments and informed by our interviews, we explain how externally focused strategies can be shaped by entrepreneurs’ life role values, which could in turn help enact a venture environment that fits with entrepreneurs’ life role values. We term these strategies *enactment strategies for P-V fit*.

3.3.1. When role salience of one domain is higher than the other

Role identity research indicates that people strive for identity-relevance in their decisions and actions (Stets and Burke, 2000), and that entrepreneurs’ role values can be reflected in the work/family choices they make. For entrepreneurs who are predominantly higher in one life role value than the other, they could make deliberate efforts to reduce or eliminate roles in one domain in order to accommodate demands from roles in the domain consistent with their predominant life role value. In particular, those with higher work role salience relative to their family role salience and aspiring to build a high-growth venture could opt to reduce or eliminate some of their family roles. Strategies towards that end may include choosing to be single, delaying having children after marriage, and having few or no children at all (Jennings and McDougald, 2007; Shelton, 2006). Quoting an entrepreneur of a high growth venture about her conscious decision not to have children (*Case 2*):

“I can’t imagine making that commitment (to work) and be as intense as I am with kids. One of them would have failed. It’s a very conscious choice. My husband and I were very clear that we didn’t want children. I was very clear because I knew I was fairly ambitious. Not ambitious

financially, but ambitious for my own learning and being in business. I just never believed I'm a wonder woman."

To realize a high growth venture, entrepreneurs high in work role salience also need to establish venture-related organizational structures and practices to support growth (Hollenbeck, et al., 2002). Building self-managing teams, for example, creates the structure that could facilitate building organizational capacity beyond the entrepreneur's own capacity:

"By building the team, to a large extent I [would] rather not [to] be a micro manager. I [would] rather find people who can deal with the depths in order to satisfy my need that the job is being done. I set up weekly debriefs, so that I know the basic things that are going on in the work, in the area of managers, so that I can be satisfied and don't need to dig in. (Case 1)

Another enactment strategy is to build an organizational culture that encourages productivity and accountability:

"We acknowledge people ... in terms of their contribution to the company. People who really step up to the plate, roll their sleeves and want to take on more; ... We have a really high sense of corporate culture here. And we have specific corporate culture statements that we've actually developed and that gear and guide us. The people who embody those statements, the people who I feel embody most those statements through their activities and how they operate over the year get that award. Things like people who have really added something substantial to the bottom line. So there are a number of awards of that nature to recognize those people who work all over the year." (Case 1)

Entrepreneurs high in family role values relative to their work role values may employ different sets of enactment strategies to control their venture growth at a moderate level, to protect their family roles. Such strategies can be role elimination/reduction strategy in the work domain. An example of this would be having no employees:

"When we started ... we promised ourselves we wouldn't have any employees. ... Managing people has a lot of implications. I have managed 15 of 20 people in Asia and we had joint ventures in the Philippines and Singapore. In direct management, I was responsible for a lot of people. I have fired more people than I can remember. So it's really another level of complexity. The employees give you as much pressure and as much source of stress as is actually doing the business part. I don't know what other entrepreneurs think, but having no employee means you're half on holidays." (Case 3)

Entrepreneurs with high family role values could also control growth and keep work demands at bay by controlling the number of products and customers:

"Many people (customers) we knew were troublesome, and we could have sold to them. But (managing) troublesome (customers) increases your stress. So we were extremely cautious and we let go sales to prevent the stress. ... we only have good clients. Then you can serve them very well because you're not busy with the bad clients. ... Then the other obsession was the choice of the number of new products. Until this year, for most of the years, we made less than 10 products a year. That was a conscious choice. ... In publishing, if you choose not to do many products, then you don't have much work to do!" (Case 3)

Entrepreneurs with higher family role values relative to their work role values can also minimize responsibilities in managing employees. An entrepreneur of a moderate-growth venture talked about how she managed her sales people by having a 100% commission-based system:

"They're out there; they're allowed to create their day. All I want to see is that they're selling, and they're looking after the customers. If they want to go to a manicure at 2pm, I don't care. They don't need to be looked after and I see that the sales are coming in. I find that the type of

persons that go into commission sales is usually pretty entrepreneurial too.”(Case 4)

To summarize, entrepreneurs whose role salience in one domain is markedly higher than the other domain (e.g., high-work/low-family, or high-family/low-work) would likely choose role elimination/reduction strategies to reduce the demands in the less salient domain. Enacting this strategy in turn shapes the type of venture they create. Specifically, by reducing their role demands in the family domain, entrepreneurs with high work role salience can devote more time and energy to growing the business (Jennings and McDougald, 2007), which fits well with their aspiration of building growth-oriented ventures. In the venture domain, entrepreneurs can use enactment strategies focused on building organizational capability and capacity for growth, such as building self-managing teams or promoting a culture that emphasizes productivity and accountability. Similarly, by choosing to eliminate or reduce some roles in the work domain, entrepreneurs with high family role salience are able to contain the growth pace and operation of their venture within the parameters that allow them the time and flexibility to have high involvement in family activities and responsibilities (Jennings and McDougald, 2007; Morris, et al., 2006), facilitating the fit between their life role values and their venture model.

Proposition 2: Entrepreneurs with higher work role salience than family role salience tend to create a high growth venture by employing growth facilitating enactment strategies that (a) reduce family responsibilities, such as role reduction in the family domain; and (b) focus on building organizational capacity, such as building self-managing teams and high performance culture and practices.

Proposition 3: Entrepreneurs with higher family role salience than work role salience tend to create a moderate growth venture by employing growth constraining enactment strategies that (a) reduce work responsibilities, such as role reduction or elimination in the work domain; and (b) focus on conserving organizational resources, such as capping the number of products and customers.

3.3.2. When work role salience and family role salience are equally high

Even though some entrepreneurs put distinctively higher importance on one domain versus the other, others attach as much importance to their work roles as to their family roles (i.e., high work and family role salience). For these entrepreneurs, enacting P-V fit would involve building a growth venture without compromising their family activities and responsibilities. The involvement in multiple roles can be complex and stressful, given conflicting demands from different domains (Edwards and Rothbard, 2000; Kossek et al., 1999). Juggling demands as head of the venture while staying highly involved in family roles as parents and care providers can lead to role overload and role conflicts (Parasuraman et al., 1996).

Social identity theory suggests that it is common for individuals to hold multiple identities based on their association with different social groups (Tajfel and Turner, 1985). Based on this premise, Lobel (1991) suggested that a person may achieve work-family balance a) by ensuring that conflicting identities are physically, temporally, or psychologically separate or b) by applying consistent values across both identities (Allen et al., 1983; cf. Lobel, 1991). The enactment strategies utilized by entrepreneurs with high/high role salience seem to map well with such theories. We captured both separation (physical and temporal only, as we are focusing on external strategies) and value integration strategies. For example, *Cases 5 and 7* indicated the use of temporal strategies to separate work and family domains:

“I typically don’t look at my emails at home. I look at my Blackberry but I’m not addicted to it. It automatically turns off at 10:30pm, goes on at 7:30am. When I’m home, I’m home. I tend to get home at 7-7:30pm, and during the week I hardly work at home. Or less than 2 week day a year.

Very little. But weekend I do; I'll take 4 hours in the weekend and then I'll talk with my wife around to know when would be the best time".

"I usually work from 9:30am to 6pm and then sometimes I spend some more hours in the evening, but when I come home from work, usually from 6:30 to 8:30 I spend time with my son."

Physical separation can be another enactment strategy, as can be seen in Case 8:

"I have a designated office space which is MY OFFICE SPACE, and the kids know that. And I would not carry a portable phone or a cell phone, walking around the house talking to a client, working, outside of that area. You have to do that all the time, those little things so that the kids know when mom is mom, and when mom is at work."

Entrepreneurs could also integrate family values into the work domain. An entrepreneur who appreciates having fun with his family doing outdoor activities translated these into a fun culture of "family-ness" in the venture organization (Case 7):

"We make different things to make it a fun place to work. Every month, 200 dollars go to a fund bank controlled by the employees. With this, we've bought a nice espresso machine, we've gone to a hockey game, we've gone kayaking, sailing, we've had lunches brought in. Every Thursday we have a group of people going to Pilates, we have golf day, once a year I invite everybody to my house. The Christmas party is at one of our board's member's house so it's more a big banquet at home."

A large portion of the work-family literature is based on the idea that people have a fixed amount of resources to expend and that they must make tradeoffs (Rothbard, 2001). In a related vein, it has also been argued that individuals strive to maintain resources, and these resources could include objects, conditions, personal characteristics, and energies (Hobfoll, 1989). Juggling work and family roles could likely deplete one's resources. Research on role conflict suggests that demands from one role create strain for the individual, which inhibits functioning in the other role (Greenhaus and Beutell, 1985). One of the key characteristics of successful entrepreneurs, however, is the ability to acquire resources not in their control (Shane and Venkataraman, 2000). In the earlier sections which focused on entrepreneurs who are high in one domain and low on the other, the strategies they tend to employ can be considered resource conservation strategies (Hobfoll, 1989). In comparison, the high-high entrepreneurs are likely to employ strategies of resource expansion in order have the capacity to manage both work and family roles without experiencing high level of work-family conflict. Our interviews provided some illuminating examples, such as Case 8 who emphasized the importance of having business partners with complementary skills:

My other two partners are more technically oriented. I had business background, so we had very different skill sets. When we joined together, I became the "business person". I am a very "big picture" macro person, and they are more "micro", yet we all understand design.

She also acquired additional resources to help manage her family role by hiring help at home, and considering it as "part of the cost of doing business":

"I always have a nanny, I had a nanny even when I was working from home, and I think that's a big part of success. I think when people work from home and they have small children, and a household to run, they can get into situations like, I see it all the time – you have a deadline to meet, you have laundry you need to run, and you have a child who's sick ...and no support. But I think if you are going to do this (be an entrepreneur), you have to be smart about it. You have to realize you need support – whether it is a family member that helped out at the busiest time of the day, be that first thing in the morning, or when the kids come home from school, or when is it – you know what, if you want to succeed, it is a cost of doing business, and you have to pay for it."

The above examples illustrate that entrepreneurs can be equally high in both work and family role salience: those who put high priority in their family domain may also aspire for a growth-oriented venture. We thus propose the following:

Proposition 4: Entrepreneurs high in both work and family role values tend to employ a wider range of fit enactment strategies, such as physical or temporal separation strategies, value integration strategies, and resource expansion strategies.

3.4. Moderating effect of gender and family context of the entrepreneur

For entrepreneurs who are high in both work and family role salience, their choice of whether to pursue a high-growth or moderate growth venture may be moderated by some other personal factors. Personal factors such as gender and family context of the entrepreneur can influence the dynamics of fit. Research to date suggests that the trade-off between work-family balance and venture growth is a typical dilemma faced by female entrepreneurs more than male entrepreneurs (Morris, et al., 2006; Shelton, 2006). Work is traditionally believed to be more salient for men while family is more salient for women (Barnett and Hyde, 2001). Pleck (1977) also argued that in the work-family role system, there are “asymmetrically permeable boundaries between work and family roles for both men and women. (p. 423)”, such that women’s family demands interfere with their work demands (more than the other way around), while for men, work role tends to impinge on their family role demands. Westman (2001) argued that because women tend to be more involved in the family than men, they become more sensitive to other family members’ stressful events and are more likely influenced by those experiences. Among our case studies, four entrepreneurs (two men, two women) fell in the high/high quadrant, being high in both family and work role salience. While the male entrepreneurs in this group both pursue a high growth venture model, the two female entrepreneurs pursue moderate growth ventures despite their high work role salience, suggesting a weaker link between growth facilitating strategies and the venture growth model.

Proposition 5: For women entrepreneurs, the relationship between family role salience and growth constraining strategies will be stronger, while the link between work role salience and growth facilitating strategies will be attenuated.

Family context could also influence the relationship between life role values and venture model pursued, as varying family demands may lead to different choices regarding work commitments (Kossek et al., 1999). One adjustment strategy could be to pursue different venture models at different life stages. Entrepreneurs with young children, or facing increasing childcare responsibility, may decide to get off the fast track of building a high growth venture at that particular phase of their lives to mitigate potential work-family conflicts. In our samples, one entrepreneur who had grown his business from 6 people to over a hundred, and revenue from 2 million to 17 million in two and a half years, explicitly stated that the growth pace would change, not only because the business was at a different growth stage, but also because they were expecting twins.

“So we’re trying now to keep it more fun, to keep it as a family moment versus bringing work home. So yes, it’s a conscious effort” (case 5).

By the same token, entrepreneurs who had carefully controlled their venture growth during their child-raising period may switch gears as their life circumstances change, with grown children and reduced family demands. As one of the entrepreneurs put it (case 6):

“In earlier days of the business we actually turned a lot of work away for a number of years, because we were as busy as we wanted to be. And once our kids were getting to an age where they were more independent, that’s when we decided to grow the business.”

Hence, we propose the following:

Proposition 6: For entrepreneurs high in both work and family role salience, those with increasing child responsibilities will tend to switch from a high growth to a moderate growth venture, while those with decreasing child responsibilities will tend to switch from a moderate growth to a high growth venture.

A model of person-venture fit is shown in Figure 1.

4. Discussion

We explore the question of how an entrepreneur can pursue a fulfilling entrepreneurial career while mitigating work-family conflict. Building on the fit literature, we conceptualize how entrepreneurs can enact a venture environment by choosing different growth models that fits with their life role values, through appropriate strategies and practices that shape both the business venture and family environments. Our study shifts the heavy focus on economic considerations to personal considerations in the pursuit of entrepreneurship, and highlights the entrepreneur's choice.

We build on the main tenets of the P-E fit research which suggests that the match between individual values and those of the organization will have a positive impact on the person's well-being. We propose P-V fit as an important state to mitigate work-family conflicts. Rather than a static match, our model highlights the dynamic, agentic role of the entrepreneur in establishing the fit between one's life role values (i.e., work role salience, family role salience) and venture growth model (i.e., high vs. controlled growth), through the employment of appropriate enactment strategies in both the work and family domains. Entrepreneurs' businesses and families are often inextricably intertwined (Aldrich and Cliff, 2003). Work-family conflicts can have significant implications for venture outcomes such as venture growth, size and revenue (Jennings and McDougald, 2007) as well as individual outcomes such as stress and life satisfaction (Parasuraman et al., 1996). We extend this literature by exploring how entrepreneurs can adopt various enactment strategies to create a venture model that fits with their life role values. Extant literature tends to focus on environmental and situational factors as the dominant sources of work-family conflict (Parasuraman and Greenhaus, 2002); our proposed model brings life role values and enactment strategies into the equation, emphasizing agency and choice.

Our study also complements the entrepreneurial venture growth literature. Davidsson (1989) emphasized that growth willingness is impacted not only by non-psychological factors such as industry and firm size but also by psychological factors such as need for achievement and locus of control. Davidsson (1989) encouraged future research to examine other individual-level factors that could explain the entrepreneur's willingness to grow and actual venture growth. The P-V fit extends this line of research by offering a meaningful explanation to the entrepreneur's willingness to pursue growth based on life-role values.

From a practical standpoint, studies have shown that entrepreneurs enjoy greater freedom, autonomy and opportunity for self-fulfillment than regular employees (Mannheim and Schiffrin, 1984); the desire to obtain these conditions may be one important reason why they become entrepreneurs (e.g., Baron, 2010). Despite the independence and autonomy, however, entrepreneurs work long hours (Hornaday and Aboud, 1971), and experience greater work-family conflict (Parasuraman and Simmers, 2001). Entrepreneurs in fact can have a better chance in attaining fit than those seeking a job in organizations, as they can actively enact their venture environment. The various enactment strategies put forward in this paper can also serve as a reference for entrepreneurs, to encourage them to enact their own strategies in creating a venture that fits with their life-role values.

4.1. Future Research

With the intention of building rather than testing theory, this study focuses on exploring how entrepreneurs can achieve personal well-being while pursuing venture growth using case studies of a group of entrepreneurs who experienced a relatively low level of work-family conflict. Future research can conduct systematic empirical studies to validate our model. Our framework can also be extended to incorporate other factors that could potentially enrich the P-V fit process and depict a more nuanced relationship among the constructs of interest. Moreover, different levels of analysis ranging from individual-level, couple-level, and team-level can also be used to provide additional insights on the nature of the relationships and the predictive power of the variables of interest.

We encourage scholars interested in examining the relationships proposed in our research model to conduct longitudinal, process-oriented studies that accommodate the dynamic nature of the P-V fit framework. Rather than asking entrepreneurs to engage in retrospection about how they went about starting their ventures and what kinds of enactment strategies they employed in building their respective ventures, a better approach would be to begin surveying them at the initial stages of their venture implementation and tracking them over time. One could adopt a longitudinal multi-wave panel design and test how the magnitude and direction of the relationships proposed change over time. As the initial, early-stage period usually takes about one to three years (Reynolds and White, 1997), we would recommend collecting at least three to five years of longitudinal data to monitor the alignment of life role values, enactment strategies, and venture model. Moreover, scholars can conduct empirical studies on the impact of P-V fit on the entrepreneurs' well-being, as well as the variability of within-person well-being over time. Because well-being is a state (Diener, 1984), we need to assess it using methods such as diary studies (Bolger et al., 2003) and experience sampling methodology (Uy et al., 2010) that require entrepreneurs to record repeatedly at particular intervals their daily venture-related activities, events, and enactment strategies.

To conclude, our model provides an initial step to understanding how entrepreneurs can attain the dual goals of growth and success in their ventures, and high levels of satisfaction in their family lives, by choosing and enacting strategies that maximize P-V fit. Additional research can be done to empirically test the key relationships in the propositions along with potential moderating variables. Our conceptualization also provides the impetus for future empirical research using different levels of analysis. To the extent that we obtain support from future empirical research, our P-V fit model could shed some light in our search to address the question of whether entrepreneurs could possibly "have it all" - high levels of business success, satisfying family life, and high levels of personal well-being.

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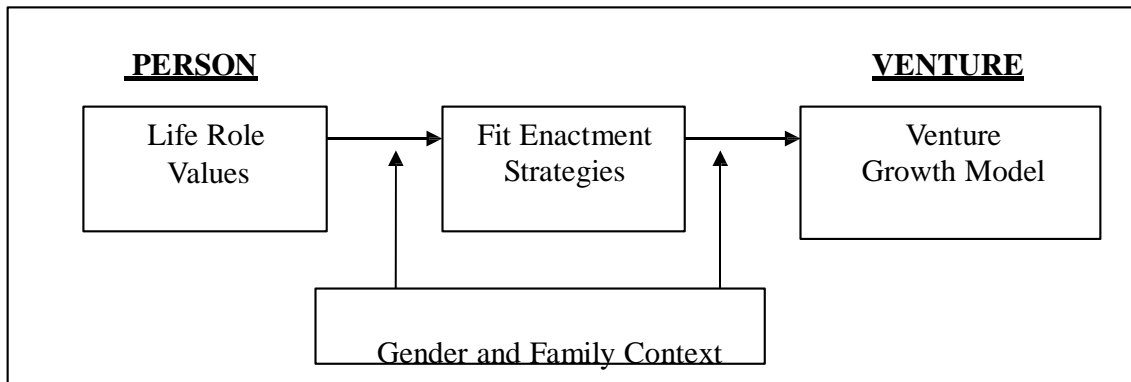
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Table 1 Summary information about the entrepreneurs and their ventures

	<i>Age</i>	<i>Gender</i>	<i>Married</i>	<i>Child bl 6</i>	<i>Child 6-18</i>	<i>Growth Model</i>	<i>Firm Age</i>	<i>Revenue</i>	<i>Industry</i>
1	50	Female	Y	No	No	High growth	5	18000000	Consumer goods manufacturing
2	57	Female	Y	No	No	High growth	15	4000000	Home management technology
3	39	Male	Y	Yes	Yes	Moderate growth	5	1000000	Publishing
4	53	Female	Y	No	Yes	Moderate growth	16	9890000	Corporate gift
5	31	Male	Y	Yes	Yes	High growth	4	17000000	Software
6	51	Female	Y	No	No	Moderate growth	22	10000000	Travel agent
7	36	Male	Y	Yes	Yes	High growth	21	5000000	Pet/garden devices
8	43	Female	Y	No	Yes	Moderate growth	10	900000	Graphic Design

Figure 1: The Conceptual Model of P-V Fit



A COMPARISON OF THE EFFECTIVENESS OF ENTREPRENEURIAL EDUCATION APPROACHES

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A comparison of the effectiveness of entrepreneurial education approaches

Abstract

Entrepreneurship education is usually taught with the intention of increasing entrepreneurial activity. Entrepreneurial intention is thought to predict entrepreneurial behaviour and is linked to a type of self confidence called 'self-efficacy'. Increases in entrepreneurial 'self-efficacy' are linked with increased entrepreneurial intent and ultimately the desire to start a business.

Numerous studies suggest enterprise education increases 'self efficacy' through teaching pedagogies that include opportunities for a combination of four elements: mastery experiences, modeling, social persuasion, and judgments of our own physiological states.

Whilst there is research about the combination of these pedagogies little has been done to evaluate the four key methodologies individually to understand the influence of each. The research reported in this paper provides insights into how different pedagogies contribute to the development of self-efficacy.

This exploratory study reports on the experiences of three groups of post-graduate students who experienced similar entrepreneurship and innovation management courses with similar content but who were taught using different pedagogies.

Given the importance of entrepreneurship and the high levels of investment in entrepreneurship education, these insights on the effectiveness of teaching pedagogies are valuable and fill an important gap in the literature.

Introduction

A primary aim of the global proliferation in entrepreneurship education courses is to increase entrepreneurial activity (Katz, 2003; Kuratko, 2005). In many cases the funding has been made available by governments who, based upon the work of early scholars such as Schumpeter (1934), believe that having a vibrant entrepreneurial sector leads to economic growth and job creation. Entrepreneurship education has been strongly promoted as the way to create more entrepreneurs with stronger abilities (Gorman et al, 1997; Katz, 2007; Pittaway and Cope, 2007).

Many studies have set out to show a link between enterprise education, entrepreneurial intention and new venture creation (Arenius & Minniti, 2005; Barosa et al, 2007; Chen et al, 2001; Drnovsek and Erikson, 2005; Krueger & Brazeal, 1994 Krueger et al, 2000; McGee et al, 2009; Peterman & Kennedy, 2003; Wilson et al, 2007; Zhao et al, 2005). There has been some disagreement about the validity of some these studies; indeed McGee et al (2009) carried out a meta-analysis of some forty-plus papers and identified studies lacking research rigour or finding a negative link between enterprise education and intention. However more recent studies do suggest a positive effect (McGee et al, 2009; Barakat et al, 2011; Martin et al, 2013). Most studies have set out to measure 'self-efficacy' or 'entrepreneurial self- efficacy' as a means of establishing the validity of enterprise education.

The term self-efficacy describes an individual's belief that he/she is able to perform a task or a set of tasks. Bandura (1986) developed the concept and referred to it as:

'Peoples judgements of their capabilities to organise and execute courses of action required to attain designated types of performances' (Bandura, 1986, p. 391; 1997, p.2)

Bandura (1986) suggested self efficacy is linked to intention such that the higher a person's level of self-efficacy, the more likely they are to perform the tasks. It is not necessarily an objective measure of a person's abilities, but because it affects their perception of whether they can achieve a specific goal, it influences both their motivation and their behaviour.

Judgements about levels of self-efficacy come about as a result of a combination of mastery experiences, modeling, social persuasion, and judgments of our own physiological states (Bandura 1996).

Self efficacy has often been linked to career choice. For example, an individual might feel competent at skills, such as mathematics, that are required for accountancy and therefore elect to embark on accountancy training. In contrast an individual who feels incompetent at arithmetic is unlikely to choose to study accounting; instead opting for a careers that does not involve using this skill (Betz, 2000; 2004; Cooper & Lucas, 2006).

Entrepreneurial self-efficacy (ESE) is derived from Bandura's work but pertains to the process of creating a new venture. Previous research has suggested that certain factors predispose an individual to start a business; these can include previous work experience, having family role models, and having access to resources (Arenius & Minniti, 2005; Baron, 2004; Hirisch & Peter, 2002; McGrath, 2000; Shane et al 2003; Watson, 2006). Having a high level of ESE is another such factor and it is a particularly important precursor to entrepreneurial intention (Barbosa, Gerhardt & Kickul, 2007; Boyd & Vozikis, 1994; Zhao, et al, 2005).

Entrepreneurship education that is able to raise an individual's level of ESE, therefore stands to make an impact on entrepreneurial activity; the more confident a person feels in the skills associated with being an entrepreneur the more likely they are to start a new venture (Klyver and Thornton 2010). Research suggests that for enterprise education to be successful it should include a combination of teaching pedagogies which facilitate the four key activities outlined by Bandura (1996): mastery experiences (for example; learning by doing) (Cox et al., 2002), modeling (for example: case studies and simulations) (Svincki & McKeachie, 2011), social persuasion (for example: receiving positive feedback from teachers) (Cooper & Lucas, 2006), and judgments of our own physiological states (for example: comparing performance with that of role models) (Oettingen 1995; Cooper, Gordon and Lucas, 2007).

Extant literature provides some examples of how the various pedagogies used within entrepreneurship education may affect the development of ESE. Cooper and Lucas (2006) describe the Enterprisers Programme: a five day extra curricula programme involving role play, group work, discussion and some experiential learning, providing opportunities for some mastery experiences, modeling, social persuasion and judgments of personal states. Peterman et al (2003) discuss the benefits of a programme designed for school age students which offers all four experiences. McGowan & Cooper (2007) point to the value of business

plan competitions for providing an authentic mastery experience. Hanke et al (2010) compared two university courses; one using a problem based the other using a more traditional teaching approach and Smith and Woodward (2012) discuss the benefits of a social enterprise project. What is missing in the literature is an assessment of the benefits of the differing individual pedagogies, and there is little guidance for lecturers in how to balance the use of the four pedagogies.

Furthermore Hannon (2005) suggests many lecturers designing entrepreneurship programmes do not understand the underpinning theoretical foundations. There is also concern about the variable content and delivery methods of entrepreneurship courses (Gibb, 1996; Pittaway and Cope, 2007) and the quality (Matlay, 2005; Matlay and Carey, 2007). If this is the case then it may be these courses are not providing students with the best opportunity to increase their ESE.

Martin et al (2013) discuss the need for more research about the pedagogical approaches used. McGee et al (2009) provided some guidance on the use of the various pedagogies by measuring individual tasks within ESE and found that as a result of the entrepreneurial intervention students were more inspired to start a business but their ESE did not increase on the tasks that were required to run the business such as making decisions about the running of the business, selling and marketing. They termed this 'inspiration not perspiration', and suggested that this could possibly be remedied by providing mastery experiences which offer the chance to practice these skills.

The research reported in this paper is a response to the lack of knowledge about the benefits of inculcating the four activities identified by Bandura (1986) identified into entrepreneurship course design. This study also builds upon the work of McGee et al (2009) by exploring whether providing an opportunity within the course for students to 'master' particular skills required for starting and running a business can increase student ESE in these areas.

Methodology

Three groups of post-graduate students in distinct entrepreneurship-related elective courses were included in this study. One group was comprised of MBA students and two groups included Masters of Science (MSc) students; MSc in Management and MSc in Engineering. Student perceptions about their ESE were collected through a survey at the beginning and end of the course for each of the groups.

The design for each course included similar concepts but with a different combination of the techniques believed to be essential for students to develop a high level of ESE. This study has been designed to explore whether and how the different teaching pedagogies affect the development of entrepreneurial self efficacy. The educational environments included opportunities to experience mastery and modeling experiences, social persuasion and the chance to make judgments on their own physiological states by comparison with role models. During their course, every student completed a pre-course and post-course survey evaluating their level of ESE.

The design of some survey instruments used in past research has been criticised as the surveys often measured total ESE rather than the individual constructs (McGee et al, 2009). To address this weakness, McGee et al (2009) designed a study that measured individual

tasks that are required to create and run a new venture. Similarly the survey instrument designed and used for this study measures the individual components of ESE and as such builds upon the work of McGee et al, (2009). It is based on the survey designed by the EGHl group/Cambridge-MIT Institute which has been tested and employed in various studies including one by Cooper & Lucas (2006).

The profiles of the three groups of students and an outline of the distinctive aspects of their course are provided below.

Group One (MBA students) comprised students enrolled on the MBA and Executive MBA. They took the Entrepreneurship and Innovation course as an elective. It ran for forty hours over a five day period in the summer semester. The content included innovation and business start up topics including idea generation, screening ideas and financial analysis. Most importantly these students were only accepted onto the course if they had produced a concept document for a real business idea on which they wanted to work during the course. The concept documents were assessed prior to the course commencement by a team of serial entrepreneurs (who act as mentors on the programme) to ensure that students admitted to the course had a solid idea to work on during the course.

Students were taught by faculty using case studies (modelling), and guest entrepreneurs who provided real life examples (role models). The teaching was interactive with opportunity for small group discussion. The students prepared a concept plan prior to the start of the course and received feedback on this (social persuasion). The sessions were designed so that students could develop and modify their plans during the five day course, giving a very small experience of personal mastery. Students also received regular feedback on their developing plans from an entrepreneurial mentor (social persuasion). Students completed the questionnaire prior to starting the course and again at the end of the course after they had completed the concept plan.

Group Two (MSc Engineering) consisted of students enrolled in a Masters of Engineering by coursework at the University of Technology, Sydney. The students elected to take the subject "Technology and Innovation Management" as part of their coursework. The subject was conducted through thirteen three-hour classes conducted once a week over a fifteen week period (including a two week semester break). The students completed the pre-course survey at the beginning of class on the first week of class and the follow-up survey during the final week of class.

During the semester the students experienced all four techniques but with extensive opportunities to practice mastery in particular areas including decision making. Students analysed and discussed case studies throughout the semester to illustrate concepts during the class and the first assignment was based on a case study. The class was conducted in an interactive format, with a combination of lectures and small group discussions and group presentations and feedback sessions. The lecturers were innovators from industry who brought their experiences to their teaching. Students experienced mastery through a concept development group assignment and multiple experiential group learning sessions throughout the semester. Decision making was a central theme: the group assignment required decisions to be made through the selection and application of tools for evaluation of alternatives, and three of the experiential sessions presented scenarios for decision making. Students experienced financial evaluation and recommendations, product development decisions, and portfolio management decisions.

Group three (MSc Management) were students who had decided to follow the entrepreneurship stream within their overall degree. Their module was conducted in three hours sessions, timetabled weekly for thirteen weeks with a one week break, during the spring semester. Students completed the questionnaire at the outset of their course and again at the end of their course.

Students experienced entrepreneurs as guest speakers; worked upon on case studies and developed a concept document and pitch for their own venture. The business ideas were judged by entrepreneurs who gave valuable feedback. Furthermore and most importantly students also worked in teams of four to create and run a real social enterprise. Throughout the module students received regular feedback on their performance and had the opportunity to reflect upon their progress in their personal journal. In summary, in this module, students experienced all four techniques with extensive opportunities to practice mastery in the tasks associated with entrepreneurship including: team working, selling and networking.

Table 1: Teaching pedagogies and content emphasised across courses

	MBA	MSc Engineering	MSc Management
Mastery (learning by doing)	One opportunity to practice mastery skills, the concept development assignment. Focus on feasibility of idea.	Multiple opportunities in group concept development assignment and experiential group sessions in class. Strong focus on decision making for innovation and entrepreneurship	Extensive opportunities to practice personal mastery in concept development, marketing, financial management and those skills associated with running a new venture including selling and networking.
Modelling (case studies and simulations)	Cases studies for discussion. Cases focus on the business start up process	Case studies for discussion and one assignment. Cases focus on technology management.	Cases studies for discussion. Cases focus on the business start up process.
Social Persuasion (feedback from teachers and peers)	Interactive class format allowed regular informal feedback from the lecturer, guest speakers and from peers.	Interactive class format allowed regular informal feedback from the lecturer guest speakers and from peers.	Interactive class format allowed regular informal feedback from the lecturer, guest speakers and from peers.
Judgements of physiological states (comparing with role models)	Guest entrepreneurs, describing their experience, acting as role models	Industry-based lecturers bringing their experience, acting as role models.	Guest entrepreneurs, describing their experience, acting as role models. Use of personal journal.

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Table 1 summarises the experiences in the different classes.

Findings

The survey tool asked about abilities and attitudes. It had already been tested and validated by researchers including Cooper & Lucas (2006). The analysis in this paper is based on 138 valid response pairs (274 surveys in total; half pre-course and half post-course). The numbers of valid response pairs across the classes are: Group One (MBA) – 66 pairs; Group Two (MSc Engineering – 44 pairs; and Group Three (MSc Management) – 28 pairs.

The analysis focused on the change in responses from individual students over the duration of their course. Differences in measures of ESE between the pre-course and post-course responses were evaluated for each item within each group and across the full sample. Significant differences between each of the three groups of students were determined using analysis of variance between groups.

As shown in tables A-1, A-2 and A-3 in the appendix, the students from the three groups started their courses with different perceptions of their ESE. The three tables in the appendix summarise the pre-course responses for each section of the survey and reveal that the MBA students rated themselves higher than the other classes on most items in the pre-course survey. These differences are not surprising given the different backgrounds and educational programs of the three groups of students. However, as this study aims to evaluate the effect of different teaching pedagogies on the development of ESE, it is the differences between the pre- and post-course responses that are the focus of the analysis. The significant differences between the changes in responses from each of the student groups are presented here; these differences are analysed with respect to the different teaching methods applied in each course in the following section to evaluate the effectiveness of the methodologies.

The survey items are clustered into three sections. Section A asks the respondents to rank their skill or ability on a range of entrepreneurial capabilities on a 6 point rating scale. The scale ranges from 1 for 'poor' to 6 for 'excellent'. Table 2 presents the significant differences (at the 95 per cent confidence level and above) between the level of change between the pre-course and post-course survey.

Section B of the survey asks respondents to rate their level of confidence on a range of more specific tasks. The responses are on an 11 point scale to indicate their level of confidence in performing the skill or their current ability. Ratings ranged from 0 (not confident at all) to 10 (extremely confident – 100%). Table 3 presents the significant differences (at the 95 per cent confidence level and above) between the level of change between the pre-course and post-course survey.

Section C of the survey asked for agreement or disagreement with a range of statements of attitudes to future work environments and entrepreneurship opportunities. The students responded on a seven-point Likert scale (1=Strongly disagree to 7=Strongly agree). Some of

the statements are 'positive' in that according to established entrepreneurial thinking, and increase in the level of agreement indicates and increase in entrepreneurial tendency. Conversely, some of the statements are 'negative' where a decrease in the level of agreement would indicate an increase in entrepreneurial tendency. The 'negative' statements and the corresponding data are shown in 'grey' cells in

Table 4. Section C contains a few items where the responses in the post-course survey indicated a decline in entrepreneurial tendency. The items where there are significant changes that reduce entrepreneurial tendency are indicated by a box around the relevant cell in

Table 4.

Table 2: Pre-course to post-course changes in perceptions of entrepreneurial skills and abilities for the three courses.

(Data presented at the 95 per cent confidence level. Significance better than 0.001 indicated by ***, better than 0.01 by ** and better than 0.05 by *. Bold figures indicate differences greater than 0.5 points on the 6 point scale).

	Section A: Rank your skill or ability to:	MBA	MSc Engineering	MSc Management
A-1	Apply an abstract concept or idea to a real problem or situation.	-	0.51***	0.88***
A-2	Be able to persuade company managers they should take new ideas seriously	0.49***	0.42***	0.64**
A-3	Start a successful business if you want to.	0.70***	0.49**	0.96***
A-4	Start a successful social enterprise if you want to	0.43**	0.44**	0.88***
A-5	Work on collaborative projects as a member of a team.	-	-	0.80***
A-6	Recognise a good opportunity when you see it.	0.34**	0.33*	0.64**
A-7	Motivate others to work together.	-	-	0.80**
A-8	Lead a group with members who strongly disagree with one another.	-	-	0.84**
A-9	Understand the language of new venture creation	0.66***	0.79***	0.92***
A-10	Create novel solutions to problems.	0.26*	0.44**	0.56**
A-11	Understand what it takes to start your own social enterprise	0.83***	0.60**	1.21***
A-12	achieve objectives for a project you have agreed to	-	0.30*	0.58***
A-13	Negotiate successfully with others who do not share your views.	-	0.42*	0.40**
A-14	identify the pros and cons when making difficult decisions	-	0.54**	-
A-15	develop ways to resolve conflict and reach agreement in a group	0.34**	0.35*	-
A-16	manage project to meet fixed deadlines	-	0.51**	0.40*
A-17	network with people outside your group for help and advice	0.49*	0.35*	0.92**
A-18	Plan in detail the steps and resources necessary to accomplish a major project	0.43*	0.44*	0.52**
A-19	delegate authority to make important decisions	0.51**	-	0.76***
A-20	Listen to the ideas of others with an	0.51**	-	-

	open mind			
A-21	modify plans for a project to take account of the input of others	0.36**	-	0.56**
A-22	Control feelings of anxiety when dealing with other people.	0.36*	0.49*	-

Table 3: Pre-course to post-course changes in confidence in entrepreneurial skills and abilities for the three courses.

(Data presented at the 95 per cent confidence level. Significance better than 0.001 indicated by ***, better than 0.01 by ** and better than 0.05 by *. Bold figures indicate differences greater than 1.0 points on the 11 point scale).

	Section B: How confident are you about your current skills and ability to ...	MBA	MSc Engineering	MSc Management
B-1	Pick the right marketing approach for introducing a new kind of product or service.	1.27***	1.26***	1.46***
B-2	Recognise and recruit good employees for a new venture.	0.67**	-	0.95*
B-3	Sell a brand new product or service to a first time customer.	0.68***	1.26***	1.00*
B-4	Persuade others to stay with a new company when it is having problems.	0.62*	1.02**	1.36***
B-5	Estimate accurately the costs of running a new venture.	0.96***	-	1.43***
B-6	Raise money to support a project addressing a social need.	0.94**	-	1.86***
B-7	Recognise when an idea is good enough to support a major new venture	-	-	1.5**
B-8	Have the skill to design a service to meet a new market opportunity.	0.70**	0.95**	1.61***
B-9	Persuade an investor to put funds into a new venture.	1.3***	1.1**	1.5***
B-10	Write a clear and complete business plan.	1.62***	1.76***	2.96***
B-11	Estimate accurately the number of people who are likely to buy a new product or service.	1.45***	1.10**	2.07***
B-12	Know how to place the proper financial value on a start-up company.	1.77***	1.38***	2.93***
B-13	Get suppliers to support a venture with favourable prices and contract terms.	0.83***	1.14**	1.81***
B-14	Inspire confidence in a radically new business concept.	0.49*	1.36***	1.57***
B-15	Analyse the strengths and weaknesses of a business plan.	0.94**	-	2.36***
B-16	Present a persuasive case for funding a new venture at a business meeting or forum	0.85*	1.40***	2.48***
B-17	Deliver a short statement about a new venture to win over an intended audience.	1.32***	1.50***	2.04***

Table 4: Pre-course to post-course changes in the level of agreement with statements on future opportunities for the three courses.

(Data presented at the 90 per cent confidence level. Significance better than 0.001 indicated by ***, better than 0.01 by ** and better than 0.05 by *. Bold figures indicate differences greater than 0.5 points on the 7 point Likert scale. Shaded rows indicate 'negative' questions – where negative change improves entrepreneurial tendency. Boxed cells indicate aspect of entrepreneurial tendency that have decreased according to the survey responses).

	Section C: Please indicate how you disagree or agree with each of the following.	MBA	MSc Engineering	MSc Management
C-1	The idea of high risk/high pay-off ventures appeals to me	0.34*	-	-
C-2	The idea of starting a company does not appeal to me	-	-	-0.68
C-3	I often think about ideas and ways to start a business	-	-	0.39
C-4	It would kill my career if I helped form a new business that failed	-	0.79**	-
C-5	I want to earn a reputation for having new and innovative ideas	0.33	-	0.61*
C-6	At least once I will have to take a chance and start my own company	-	-0.51*	-
C-7	I would only try starting a company if I were very sure of success	-	-	-0.57*
C-8	With my luck any new business I would join would fail	-	0.66*	-0.46*
C-9	The idea of leading a big company into new markets excites me	-	-	0.56*
C-10	Starting a new company is too much like betting against the odds.	-	-	-0.48
C-11	If I see an opportunity to start a company, I'll take it	-	-	0.54*
C-12	I would like to work on break through products or services that change markets	-	0.53**	0.48
C-13	I am not willing to compromise my ethical beliefs for a chance to get wealthy	-1.00	-	0.75*

Discussion

As shown in tables 2, 3 and 4, the study revealed a range of findings on the changes in student ESE during their participation in a course on entrepreneurship. The three groups exhibited significant differences in several of the areas of ESE that improved and in the degree of that improvement. Overall, the ESE of Group One (the MBA cohort) started out the highest and improved through the course on all but one measure – however they did not experience the same degree of significance of improvement as the other classes. Group Two (MSc Management) exhibited the highest overall improvement in ESE; the improvement in Group Three (MSc Engineering) was between the other two groups.

The effect of teaching methodologies may explain why group three (MSc Management) had the highest improvement consistently on all of the abilities necessary to complete the innovation processes including generating ideas, and entrepreneurial processes – teamwork, negotiation, networking and business planning: They were the only group to have the opportunity to practice the entrepreneurial skills necessary to start and run a business, including some that can be difficult to acquire such as networking and selling; they ran a social enterprise for the duration of their course providing ample opportunity for personal mastery.

Similarly, group two (MSc Engineering) improved significantly in their perceived ability to make decisions (A-14); Their course was designed to provide many opportunities to 'master' the team decision making process, whereas these opportunities for decision-making mastery were not provided to the other two groups and they did not improve significantly.

Although for the large majority of the items students' ESE improved during the course, the responses to three of the items showed a significant decrease in ESE after their course for one of the groups of students. These situations deserve careful scrutiny and are analysed here.

Two items showed a decrease in ESE among the MSc Engineering students. After the course, these students felt more strongly that it would be detrimental to their career if they helped form a new business that failed (C-4) and that with their luck, any new business they would join would fail (C-8). This may be due to the fact that the content of the course highlights many of the difficulties and pitfalls in starting a new business, and therefore the students' increased fear of failure may be based on their increased understanding of the real risks of failure. However, as the intention of the course is to equip students to understand and manage the challenges associated with entrepreneurship, this finding suggests that the content may not be balanced appropriately. Upon reflection, it is felt that the messages about 'learning from failure' and that venture capitalists are more likely to invest in people who have learned through experience (even if their first venture or two failed), than people with no entrepreneurial experience, have created this effect.

Also of concern is the fact that the MBA students reported a decrease in their support for the statement "I am not willing to compromise my ethical beliefs for a chance to get wealthy" (C-13). This worrying finding is counter-intuitive, especially as the MBA students were the only cohort to participate in a module specifically on ethics. However, analysis of the module may explain the decrease in the resistance to compromise of ethical beliefs. The module included scenarios that exposed the very difficult decisions that must be made and highlighted some 'grey' areas of ethical decision-making. One of the scenarios asked students to imagine that they had arrived in a developing country to help with the distribution of aid to villages. In the scenario, the student has access to a car and has equipment that must urgently be delivered, but is told that there will be a two month delay to obtain a driving license. The student then finds out that a license can be obtained in a day if a bribe is paid. Through this scenario, some students, who previously thought they would never pay a bribe, decided that in this instance paying the bribe would be the best solution. It could be that this discussion shifted the student's definition of ethical compromise and that this contributed to the change in the survey responses post-course. While the module was designed to create debate and discussion, and expose students to situations where decisions are not 'black and white', bribery was not sanctioned, and the scenario clearly balanced ethical issues (bribery versus

the lack of ability to provide urgent aid). Therefore it is still concerning that the MBA students seemed more willing to compromise ethics to become wealthy, and this area should be monitored.

Overall, the findings demonstrate that the entrepreneurial education increased ESE and that the type of method used influenced the effectiveness of the teaching. Of particular value is the finding that teaching can be designed to help students gain confidence in the areas required to start and run a small business prior by including mastery experiences which focus on some of these more difficult skills.

Limitations

The results should be evaluated keeping in mind the limitations of the study. One criticism of many ESE studies is that they have been carried out with student populations or entrepreneurs rather than nascent entrepreneurs who are actually considering starting a business (McGee et al, 2009). This study addressed this criticism by including an MBA group who had demonstrated attributes of nascent entrepreneurs by submitting a concept document for a real business idea in order to gain entry to the programme; however it must be kept in mind that the other two groups were comprised of students that had not been required to demonstrate nascent entrepreneurial qualities.

In addition, the different profiles of the three students groups, and their differing starting points on the ESE measures, may affect the validity of the results. A study with identical groups but with different teaching pedagogies for the same content would produce more rigorous results. Future studies should consider ways to achieve such a study, while keeping in mind the ethical implications of providing different experiences to subsets of a course group; assessment must be planned and monitored to ensure that no groups of students are disadvantaged by the study.

Conclusions and implications

By studying and comparing the development of ESE during three courses that employ different combinations of teaching pedagogies, this study has shed light on the effectiveness of the different pedagogies. The results suggest that the design of the course will have an effect on the development of ESE in students. The findings support the creation of a learning environment which offers the student opportunities to meet role models; for modeling, and social experiences in order to promote ESE. However the findings suggest that opportunities for students to develop personal mastery are likely to result in the greatest increase in ESE in students.

In addition the study suggests curriculum can be modified to assist students to practice mastery in specific entrepreneurial skills that they may find difficult to acquire, such as decision making and selling. This was seen both in the MSc engineering course and the MSc management course where extensive opportunities to practice and develop mastery were matched with high levels of increase in ESE.

Unanticipated student reactions to entrepreneurship education are also revealed by the study. The increase in one group of students' fear of failure and the decrease in another group's ethical standards represent unintended effects of the courses. Measuring student ESE is

shown to be useful as in both cases, it is the tracking and analysis of changes in student ESE that has brought the situation into the spotlight for analysis and consideration of adjustment to the educational approaches.

These findings can help inform course and program design so that entrepreneurship education best influences the development of students' ESE. By inculcating personal mastery experiences that focus on targeted capabilities, this study suggests that educators may be able to design courses to raise specific aspects of ESE. This study contributes to the continued improvement in educational approaches to entrepreneurship education. It has shown how personal mastery approaches can be particularly effective in increasing ESE, and can be tailored to meet specific needs.

In the end, it is aim for increased entrepreneurial activity that has generated interest and investment in entrepreneurship education. The findings suggest that attention to teaching pedagogies can improve ESE and to contribute to stronger entrepreneurial activity.

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APPENDIX

Tables A-1, A-2 and A-3 provide the initial (pre-course) responses for the items on the surveys.

Table A-1: Mean values of pre-course perceptions of entrepreneurial skills and abilities for the three courses.

Responses rated on a 6 points scale from 1 for 'poor' to 6 for 'excellent'.

	Section A: Rank your skill or ability to:	MBA	MSc Engineering	MSc Management
A-1	Apply an abstract concept or idea to a real problem or situation.	4.49	3.65	3.64
A-2	Be able to persuade company managers they should take new ideas seriously	4.00	3.53	3.76
A-3	Start a successful business if you want to.	3.74	3.37	3.40
A-4	Start a successful social enterprise if you want to	3.49	3.23	3.28
A-5	Work on collaborative projects as a member of a team.	4.89	4.60	4.36
A-6	Recognise a good opportunity when you see it.	4.47	4.02	4.12
A-7	Motivate others to work together.	4.50	4.31	4.08
A-8	Lead a group with members who strongly disagree with one another.	3.92	3.64	3.40
A-9	Understand the language of new venture creation	4.04	3.21	3.40
A-10	Create novel solutions to problems.	4.47	3.53	3.72
A-11	Understand what it takes to start your own social enterprise	3.40	3.14	3.13
A-12	achieve objectives for a project you have agreed to	4.78	4.14	4.38
A-13	Negotiate successfully with others who do not share your views.	4.13	3.70	4.25
A-14	identify the pros and cons when making difficult decisions	4.76	4.00	4.52
A-15	develop ways to resolve conflict and reach agreement in a group	4.21	4.07	4.12
A-16	manage project to meet fixed deadlines	4.72	4.12	4.76
A-17	network with people outside your group for help and advice	4.13	4.05	3.64
A-18	Plan in detail the steps and resources necessary to accomplish a major project	4.17	4.07	4.16
A-19	delegate authority to make important decisions	3.70	4.05	3.80
A-20	Listen to the ideas of others with an open mind	4.68	4.30	4.64
A-21	modify plans for a project to take account of the input of others	4.49	4.14	4.24
A-22	Control feelings of anxiety when dealing with other people.	4.06	3.79	4.08

Table A-2: Mean values of pre-course level of confidence in entrepreneurial skills and abilities for the three courses.

Confidence rated on an 11 point scale from 0 (not confident at all) to 10 (extremely confident – 100%).

	Section B: How confident are you about your current skills and ability to ...	MBA	MSc Engineering	MSc Management
B-1	Pick the right marketing approach for introducing a new kind of product or service.	5.53	5.10	5.25
B-2	Recognise and recruit good employees for a new venture.	6.17	5.78	5.93
B-3	Sell a brand new product or service to a first time customer.	6.34	4.86	5.86
B-4	Persuade others to stay with a new company when it is having problems.	6.11	5.20	5.25
B-5	Estimate accurately the costs of running a new venture.	5.70	5.55	5.25
B-6	Raise money to support a project addressing a social need.	5.15	5.19	5.04
B-7	Recognise when an idea is good enough to support a major new venture	7.45	5.95	5.68
B-8	Have the skill to design a service to meet a new market opportunity.	6.28	5.55	5.54
B-9	Persuade an investor to put funds into a new venture.	5.43	5.31	5.64
B-10	Write a clear and complete business plan.	5.91	5.48	4.04
B-11	Estimate accurately the number of people who are likely to buy a new product or service.	5.09	5.05	4.50
B-12	Know how to place the proper financial value on a start-up company.	4.43	4.79	3.75
B-13	Get suppliers to support a venture with favourable prices and contract terms.	5.67	5.29	4.85
B-14	Inspire confidence in a radically new business concept.	6.62	4.98	5.86
B-15	Analyse the strengths and weaknesses of a business plan.	6.45	6.44	5.50
B-16	Present a persuasive case for funding a new venture at a business meeting or forum	6.06	5.21	4.74
B-17	Deliver a short statement about a new venture to win over an intended audience.	6.00	5.36	5.46

Table A-3: Mean values of pre-course level of agreement with statements on future opportunities for the three courses.

Agreement on a 7 point Likert scale from 1 'strongly disagree' to 7 'strongly agree'. Shaded rows indicate 'negative' questions where lower scores indicate better entrepreneurial tendency.

	Section C: Please indicate how you disagree or agree with each of the following.	MBA	MSc Engineering	MSc Management
C-1	The idea of high risk/high pay-off ventures appeals to me	5.36	4.44	4.86
C-2	The idea of starting a company does not appeal to me	1.60	3.49	2.29
C-3	I often think about ideas and ways to start a business	6.13	5.26	5.61
C-4	It would kill my career if I helped form a new business that failed	2.17	2.97	2.81
C-5	I want to earn a reputation for having new and innovative ideas	5.38	5.24	4.96
C-6	At least once I will have to take a chance and start my own company	6.26	5.54	5.79
C-7	I would only try starting a company if I were very sure of success	3.81	4.63	4.75
C-8	With my luck any new business I would join would fail	1.33	2.54	1.86
C-9	The idea of leading a big company into new markets excites me	5.81	5.12	5.41
C-10	Starting a new company is too much like betting against the odds.	2.46	4.29	3.44
C-11	If I see an opportunity to start a company, I'll take it	5.54	5.46	5.43
C-12	I would like to work on break through products or services that change markets	5.50	4.84	5.20
C-13	I am not willing to compromise my ethical beliefs for a chance to get wealthy	6.25	4.90	5.14

THE AMBIVALENT ROLE OF RISK-TAKING ORIENTATION

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THE AMBIVALENT ROLE OF RISK-TAKING ORIENTATION

Abstract: Literature predominantly states that SMEs that embrace entrepreneurial risk-taking are likely to exhibit better export performance than those who don't. However, such a view may be overly simplistic because—particularly in uncertain environments—risk-taking may also be associated with higher probability of failure. Because of this lack of clarity, we need to gain a better understanding of the effect that internal and environmental conditions have on the risk-taking–performance–relationship. For further clarifying the role of SMEs' risk-taking orientation, resource availability, and competitive postures on their export performance in dynamic and hostile environments we apply a configurational approach. We survey a sample of internationally operating SMEs in Switzerland in a longitudinal design (N=44) and apply a qualitative comparative analysis (fsQCA). Our results provide a more fine-grained explanation about the relationship between risk-taking and export performance than linear methods can provide. We strongly suggest a combination of configurational and contingency methods for future research to gain additional insights in these complex patterns that will improve theory building and help SMEs to prevent from failing.

INTRODUCTION

Entrepreneurial risk-taking orientation, which is an organization's propensity to engage in risky projects, and to prefer bold decisions for goal achievements, has traditionally been considered as a central facet within entrepreneurial research (e.g., Covin & Lumpkin, 2011; Lumpkin & Dess, 1996). Following Miller (1983), entrepreneurial scholars have conceptualized risk-taking, innovativeness, proactiveness, and competitive aggressiveness as major dimensions of an entrepreneurial orientation construct (e.g., Rauch, Wiklund, Lumpkin, & Frese, 2009). For entrepreneurs, risk-taking is a critical element in a variety of decision contexts such as entering into new ventures or markets (Dickson, 1992) or introducing new products (Devinney, 1992). Rapidly changing environments with uncertainties stemming from consumer and competitor responses force firms to assess and understand risk-related contexts when making decisions (Forlani & Mullins, 2000). Hence, acting in an entrepreneurial spirit and engaging in risky activities seems to be attractive because of the potential for achieving above-average profit and growth (e.g., Lumpkin & Dess, 1996; Norton & Moore, 2006; Palich & Bagby, 1995). Therefore it is not surprising that the majority of research implicitly assumes that risk provides an advantage to firms. Although theoretical arguments vary, most scholars agree on the essential idea that risk-taking is positively related to firm performance (cf. Wiklund & Shepherd, 2011).

However more recently, scholars also acknowledged that the variance in the range of outcomes of risky activities is high, i.e. some endeavors might succeed while others fail (Wiklund & Shepherd, 2011). Taken this performance variance into account, risk-taking might be a 'double-edged sword', meaning that high levels of risk not only positively affect performance but also cause a higher likelihood of failure for small and medium-sized enterprises (SMEs)—particularly in dynamic and hostile environments (Bradley, Wiklund & Shepherd, 2011).

Internationalization represents a risky proposition for SMEs (e.g., George, Wiklund & Zahra, 2005). Changing environments (e.g., globalization, technological developments) are

affecting many entrepreneurial firms and challenging them to expand their foreign market activities (Lu & Beamish, 2001; McDougall & Oviatt, 2000). Therefore, crossing borders is increasingly not just a promising activity on the strategic agenda but a necessity for SMEs. By seizing their opportunities in the marketplace, internationally operating SMEs are supposed to perform better than those who only operate domestically (e.g., MacCrimmon & Wehrung, 1986). However, compared to multinationals, SME usually have less experience and know-how when operating in foreign markets. A lack of slack resources that might outbalance unexpected negative outcomes and limited financial endowments that constrain strategic options make internationally operating SME's vulnerable (Marino, Lohrke, Hill, Weaver, & Tambunan, 2008). Therefore, we expect more complex effects between risk-taking and export performance. In line with recent considerations (e.g., Wiklund & Shepherd, 2005), we assume that deeper insights into this relationship can be gained by additionally investigating intertwined mechanisms that ensure complementarity among internal and external characteristics of SME's. We believe that the payoffs of risk-taking are dependent upon environmental uncertainty. Particularly in dynamic and hostile environments risk-taking may not only offer returns but can also be associated with higher probability of failure (e.g., Wiklund & Shepherd, 2005).

Hence, in order to get a deeper understanding on the environment-strategy-performance relationship, we conduct a study in which we use a configurational approach (cf. Wiklund & Shepherd, 2005) and simultaneous considerate environmental uncertainty, resource availability, strategic posture and entrepreneurial risk-taking orientation in their effect on export performance by employing a qualitative comparative analysis (Ragin, 2008). Building on work from Meyer and colleagues (1993), we suppose that certain elements of structure, process, and environment might form particular configurations. We further assume that different configurations may lead to high performance (equifinal paths) while other configurations may lead to low performance (asymmetry). We use a longitudinal design to avoid potential time lag effects on performance (Lumpkin & Dess, 1996) and to capture the hostile and dynamic environment between 2007 and 2012.

We will proceed by describing our research methodology. We then present and discuss our results for both studies. By contrasting differences between both methods we will discuss consequent managerial and research implications. We will conclude by pointing to limitations of our approaches, and provide some future research directions.

RESEARCH METHODOLOGY

A configurational approach suggests that phenomena are best understood as emerging from a combination of causes—i.e., a configuration of attributes of a complex phenomenon (Ragin, 2000). As a consequence, configurational approaches allow for the assessment of equifinality¹ (George, 1979; George and Bennet, 2005) and complex causality² (Ragin, 2008). In particular, we employ fuzzy set Qualitative Comparative Analysis (fsQCA). FsQCA is an exploratory technique that supports meaningful interpretations of patterns displayed by the data (Ragin, 2008). FsQCA allows comparative analysis across cases but should not be

¹ Equifinality refers to the idea that different configurations of causes can lead to the same effect.

² Causal complexity refers to the idea that complex phenomena in complex systems (e.g. organizations and their performances) are often the result of a configuration of causes. Hence, rather than thinking in two-way-interactions only, an outcome can be explained by the co-presence of independent variables as well as their particular configuration (i.e. the degree to which these variables are present and relate to each other).

understood as an inferential technique, even if probabilistic criteria can be incorporated (e.g., Ragin, 2000; 2008). The method rather considers configurations of values of the independent variables as cases (Kitchener, Beynon, & Harrington, 2002) but does not ask about the net effect of a single variable on the likelihood of an outcome. FsQCA analyzes cases and outcomes as specific configuration of elements that combined produce the observed outcome(s) (Fiss, 2007). It is best suited for the analysis of small to medium N samples (i.e., from 3 to 250 cases).

Measurement

We operationalized the constructs of our conceptual framework through both, single indicators (e.g., firm size) and multi-item scales with all the latent constructs being measured with at least three indicators that have mostly been used in prior research. Considering recommendations to reduce potential biases obtained through response styles, we reversely stated some indicators of constructs in which we measured attitude.

Dependent Variable

Export Performance. As no consensus exists with respect to an appropriate export performance measure of small firms, we applied a multi-item self-reporting performance measurement approach. We incorporated four indicators such as market share, export growth, or profits from foreign activities to capture export performance. The respondents assessed their degree of satisfaction with their international performance within the last three years on a seven-point Likert-scale. The internal consistency of our performance measure is satisfactory with a Cronbach's Alpha value of .87 (Cronbach, 1951). Previous research has confirmed that subjective performance measures are typically correlated with secondary objective measures (Dess, 1987; Hart & Banbury, 1994). Using international propensity, measured as the share of a company's international sales relative to its total sales, as a second outcome measure we cross-validated our self-reported performance construct. Export performance and international propensity are significantly related ($r = .39$; $p < .001$), which we take as indication for the validity of our self-reported performance construct. Besides collecting performance data through directly asking respondents (i.e., self-report assessments) we also searched for available secondary information. Secondary performance was only available from a few firms ($n = 56$). The correlation between self-reported turnover and turnover information obtained from secondary sources was $r = .76$ ($p < 0.01$).

FsQCA conceives cases as combinations of variables. The basic units of analysis are then specific sets and sub-sets. Hence, in order to analyze set theoretic relationships, we first calibrate cases into their relative sets (Ragin, 2008). As the primary outcome of interest in our study is export performance, we examine not only which combinations of our independent variables led to high export performances, but also which led to the absence of high export performances. Since set relationships aren't necessarily symmetric (Ragin, 2008), we created two measures for export performances, one for high export performances (HEP) and one for low export performances (LEP). To calibrate these measures the set of SMEs with high export performances (HEP) was coded zero if a firm showed average or below average performance (scored ≤ 4) and was coded 1 if a firm showed high performance (≤ 6). As the crossover point we chose the median between the value for full membership and full non-membership ($= 5$). The set of low performance (LEP) was likewise calibrated by relying on three anchors (score ≥ 4 = full non membership, score ≤ 2 or failure for full membership and crossover point at 3).

Independent Variables

Entrepreneurial Risk-taking Orientation. To measure entrepreneurial risk-taking we utilize the risk-taking sub-scale from the well-established entrepreneurial orientation scale (Covin & Slevin, 1989). The scale consists of three items referring to the firm's proclivity to engage in risky projects as well as managers' perceptions of taking bold versus cautious approaches to achieve objectives. Scale items were measured on a seven-point Likert-scale anchored by 1 (completely disagree) and 7 (completely agree). Cronbach's Alpha is .71.

As we are particularly interested in the role of risk-taking orientation for generating export performance we created two fuzzy set measures of above average risk-taking: The first is the set of firm with risk-taking (RT) and the second set is the set of firms having high risk-taking (HRT). In the HRT-set we coded firms that scored ≥ 6 as full in the set, and firms below 4 as fully out. In the RT-set we coded firms that scored ≥ 5 as full in the set, and firms below 3 as fully out. For the others in dependent variables we used their respective scores.

Competitive Posture. We used multi-item scales to measure marketing differentiation and cost leadership strategies (e.g., Dess & Davis, 1984) Three items comprised the scale for marketing differentiation (e.g., brand and corporate identification) and four items were used for gauging cost leadership (e.g., operating efficiency). Following Dess and Davis (1984) we focused on intended strategic behavior and asked the respondents to indicate their perception about the importance of each activity in international operations. We used a seven-point Likert-scale varying from 1 (not at all important) to 7 (highly important) to measure the items. Cronbach's Alpha for market differentiation is .86 and .87 for cost leadership.

Resource Availability for Foreign Market Activities. The resource availability for foreign market activities was measured with four items. We used the scale from Preece, Miles, and Baetz (1999) who specifically developed this scale for the study of firms in their early internationalizing stages. The respondents assessed the items (e.g., We have the necessary financial resources to pursue foreign markets) on a seven point Likert-scale ranging from from 1 (completely disagree) to 7 (completely agree). Cronbach's Alpha is .91.

Environmental Uncertainty. Referring to prior research studies (e.g., Barringer & Bluedorn, 1999; Covin & Slevin, 1989; Miller & Dröge, 1986) we measured environmental uncertainty with five items (e.g., predictability of customer demands or competitors activities) assessed on a seven-point Likert-scale anchored by 1 (completely disagree) and 7 (completely agree). Cronbach's Alpha of this scale is .80.

Control Variables. To consider the potential problem of confounding effects, we controlled for four different variables in our analyses when testing the hypothesized relationships between the constructs of our framework: firm size and age, type of industry, and international intensity.

Data Collection and Sample Selection

Due to the fact that Switzerland is a small open economy and based on scale and scope considerations, it is imperative for many firms to extend their market scope beyond national boundaries. Therefore, Swiss firms are especially prone to challenges and threats caused by recent developments. We therefore surveyed a sample of internationally operating SMEs in Switzerland in 2007. We restricted our sampling procedure to firms with 250 and less employees. Based on the Swiss Export Directory and after considering industry specific aspects we drew a sample of 225 SMEs distinguishing between firms in the industrial and consumer goods industries.

We developed a standardized questionnaire that was pre-tested prior to distribution. We collect information from key respondents of SMEs, i.e., CEOs or the highest ranking firm officers because of their central role in decision making and setting an organization's strategic orientation (Lumpkin & Dess, 1996). Executives were contacted by telephone and asked for study participation before receiving the survey. We followed the procedure suggested by Dillman (1978) to increase response rates. Specifically, we sent out a series of well-timed mailings including an initial mailing along with a cover letter that mentioned the study objectives. Using this approach, we received responses from 115 executives. Because of data incompleteness and inconsistencies some questionnaires had to be eliminated from further analyses, resulting in a final sample size of 108 respondents. Thus, the overall firm-level response rate was 48%. The median age of the firm is 46 years and the median firm employs about 50 people, with a minimum of 3 and maximum of 240 employees. Roughly half of the firms in our sample (58%) produce industrial goods (e.g., chemicals) whereas the remaining 42 percent are in the field of consumer goods industries (e.g., food and beverages). Most of the companies (98%) are active in the European Union but a considerable percentage of them also do business in North America (56%) or Asia (52%).

Non-response bias does not appear to be a major concern as the analysis of early versus late respondents (Armstrong & Overton, 1977) of the main constructs examined in this study does not indicate any significant differences. Moreover, we compared respondents and non-respondents on industry affiliation and firm characteristics (e.g., sales, age). The chi-square test and the t-tests reveal no significant differences (at $p < .05$) between the two groups.

Yet, researchers suggest that it may take time for the effect of entrepreneurial risk-taking to pay off (Lumpkin & Dess, 1996). Considering these recent macro-environmental developments and to overcome this potential time lag effect on performance, we contacted the 108 firms from which we obtained the data in 2007 again in 2012—resulting in a final sample size of 44 respondents (response rate 40.1%). For showing to what extent high levels of entrepreneurial risk-taking orientation, resource availability and different competitive postures affect SME's performance in a dynamic and hostile environment; we use the firm's strategic orientation in 2007 and link it with the performance data in 2012.

COMPARATIVE ANALYSIS

In order to analyze our data we followed a three-step procedure, which we apply for both sets, the set of high and low export performing companies. In a first step, we create a truth table that shows all logical possible combination of variables together with their relative scores—i.e., the number of firms in the sample displaying that causal condition and their empirical importance within the sample. We then use Boolean logic to reduce the table to a few statements indicating necessary and sufficient conditions. Thereby, we follow two criteria: (1) the minimum number of cases for a solution to be considered relevant for the analysis, and (2) the minimum consistency level of a solution. The first criterion ensures that the cases analyzed are empirically important. We follow Ragin (2008) and set the minimum number of cases for a solution to be considered relevant >2 , thus, dropping all solutions for which there was either one or no case. The second criterion ensures that each set relationship analyzed is consistent with the idea that the causal recipe is a subset of the outcome. Hence, the consistency level informs the researcher on the degree to which the SMEs correspond to the configurations expressed in a solution. We set the minimum consistency threshold to 0.80, above the minimum recommended, i.e., 0.75 (e.g. see Ragin, 2006, 2008).

After the truth table has been reduced to include only empirically relevant cases, we proceed the analysis by logically reducing the truth table row to simplified combinations of configurations (Ragin, 2008). This third step we perform by employing an algorithm based on Boolean algebra using the software fsQCA 2.0. In doing so, we obtain three types of solutions—a parsimonious, a complex and an intermediate solution. However, given that the complex solution is generally unnecessary complex, providing only little insights (cf., Fiss, 2011; Ragin, 2008), we focus on the intermediate and parsimonious solutions.

High Export Performance

Table 1 shows the results of a fuzzy-set analysis of the subset of high performing SMEs. It displays the parsimonious and intermediate solutions. The intermediate solution we obtain as the result of counterfactual analysis (see Ragin, 2008) by stating explicit assumptions on the presumed presence/absence of causal conditions for the outcome. The analysis results in two complementary solutions (configurations) leading to high export performance (solution 1a and 1b). The first configuration (solution 1a) is characterized by the combination of a strong resource availability (RA) coupled with a strong marketing differentiation (MD), the absence of very high risk-taking orientation (\sim HRT) and absence of a cost leadership posture (\sim CL). The second configuration (solution 1b) confirms that the conjoint presence of a strong marketing differentiation (MD) and resource availability (RA) is a necessary element for obtaining high export performance. However in this second solution, the presence of MD and RA is coupled with the presence of risk-taking (RT) and the absence of high risk-taking (\sim HRT).

Insert Table 1 about here

The fact that two configurations may lead to high export performance is revealing equifinality. In other words, the two solutions represent two alternative causal routes to high export performances. The fact that the combination of marketing differentiation, resource availability, and the absence of high risk-taking, is shared by both configurations is suggestive for the fact that these variables are necessary conditions for high export performances.

Inspecting the output of the parsimonious solution (solution 1c), the result suggests indeed the presence of a so-called causal core. The causal core is the set of causal factors in the intermediate solution to an fsQCA analysis, that is also present in the parsimonious solution and it identifies the core conditions (cf. Fiss, 2011). While core conditions are present in both the parsimonious and intermediate solution, peripheral conditions appear only in the intermediate solution. As Table 1 shows, the parsimonious solution (solution 1c) results in the combination of marketing differentiation (MD) with resource availability (RA), which is also present in both results of the intermediate solution (solution 1a and 1b), suggesting that both marketing differentiation (MD) and resource availability (RA) can be considered as core conditions. The conjoint analysis of the parsimonious and intermediate solution reveals that, the absence of high risk-taking (\sim HRT), the absence of cost leadership (\sim CL) and the presence of risk-taking (RT) represent peripheral conditions.

By means of the coverage scores (Table 1) we can evaluate the empirical importance of the different causal paths (Fiss, 2011). The result indicates that the core condition (MD*RA) combined with the peripheral conditions produces two causal paths in the intermediate solutions that are characterized by a similar degree of empirical importance (e.g., coverage .35

and .34). Both configurations individually account for roughly one third of the SMEs with high export performance. Overall the combination of these solutions covers less than half the SMEs with high export performances (solution coverage .49). The parsimonious solution (MD*RA), on the other hand, accounts for roughly 56 percent of membership in the outcome, indicating that more than half of cases with membership in the set of high export performances are SMEs that are characterized by the conjoint presence of strong resource (RA) availability with a strong marketing differentiation (MD). This is a result that is substantive (cf. Fiss, 2011, Ragin, 2000).

Low Export Performance

As we assume that the configurations leading to high export performance factors are not necessarily symmetric, we extended the analysis to the set of SME's with low export performance (LEP) to improve our understanding about the role of internal and external conditions on export performances. Results of this analysis are shown in Table 2. There are two identified causal paths for the intermediate solution (solution 2a and 2b) and two for the parsimonious solution (solution 2c and 2d).

Insert Table 2 about here

The solutions reveal that both, high levels of risk and the absence of resources are core causal factors (even if both of them are insufficient but necessary conditions and even if the empirical strength of the relative solutions is limited). Remaining factors should be considered peripheral. Overall, the results we obtain reveal that one factor among others is more relevant for instances of low sustainability performances, i.e., absence of resources Analyzed in light of the results from the analysis of causal paths leading to high performances, these results confirm the importance of an asymmetric understanding of causality.

DISCUSSION AND IMPLICATIONS

We have argued that a key challenge for research at the frontier between risk-taking and performance is to gain a better understanding of the conditions leading to better performance. To start addressing this challenge and relying on current literature, we have analyzed the relationship between internal and external conditions in configurational terms.

Our results suggest that risk-taking has not always positive effects on performance but is more complex than previously assumed. We show that purely focusing on risk-taking does not lead to high performance. On the contrary taking high risks might even have detrimental effects on performance—particularly when slack resources are absent. Rather than risk-taking, our results stress the importance of resources and a clear competitive focus on market differentiation. Without having enough resources, a cost leadership focus should be avoided.

Furthermore, results for the subset of high performing SMEs show that indeed, different configurations lead to high performance, i.e. the absence of a high risk-taking orientation combined with a competitive posture focusing on market differentiation, and/or the absence of a high risk-taking orientation combined with the presence of a moderate risk-taking orientation. For the subset of low export performance on the contrary, the results indicate that one factor among others is more relevant for low export performance, i.e., the absence of resources. The different configurations leading to the subsets of high versus low export

performance and different configurations within a subset suggest that there is in fact equifinality and a lack of symmetry in the risk-taking-performance relationship.

None of the variables, in isolation, is sufficient for high export performances. The analysis reveals that there are two core conditions—MD and RA—three peripheral conditions—the absence of ~HRT, ~CL, RT—and that there can be many combinations of variables that lead to high export performances, but one—MD and RA—is more consistent across cases, covering more than half the observed instances of high performances. On the contrary, the presence of one dominant posture of either marketing differentiation or cost leadership was found to be recurrent in configurations associated with low export performances (solutions 2a and 2b). Hence, findings suggests that the conjoint presence of marketing differentiation and resource availability, is neither leading to high nor to low export performance. On the contrary, internationally acting SME that combine MD and opportunity seeking behavior, tend to achieve high performances.

Particularly for the relationship between risk-taking orientation and export performance we get a more fine-grained view by applying a qualitative analysis that further divides the level of risk-taking in particular situation. Whereas prior literature dominantly suggests that taking risk is beneficial, our results show that taking high risks without having slack resources will lead to low performance. Contrary, a moderate risk-taking orientation with available resources and a marketing differentiation strategy seems to be promising as it leads to high performance. The results further highlight that one factor among others is more relevant for low export performance—the absence of available resources.

Combined, these results highlight the importance of considering causal asymmetry. As the results reveal the conditions leading to high export performances are conceptually different from those found to be solutions for the sets of low export performance. Hence, failing to consider causal asymmetry is likely to lead to incomplete or incorrect recommendations such as recommending taking high risks, or to focus on both market differentiation and cost leadership. Thereby the results confirm the importance of asymmetry in order to understand causality in the risk-taking–performance–relationship. Hence, the resulting findings carry important implications entrepreneurship theory but also for practicing entrepreneur and policy-makers.

Additionally, we contribute from a methodologically perspective and overcome limitations of methods that assume linearity and additive effects (e.g., see Fiss, 2007) by explicitly considering configurations of different environmental and internal factors within asymmetric set-theoretic relationships. By identifying different configurations associated with high versus low performance, we highlight the importance of considering causal asymmetry. As the small but decisive differences we've seen in the results of both studies might lead in opposite implications, we strongly suggest a combination of these methods for future research to gain deeper insights as to how the different condition work out together.

Limitations, and Future Research Directions

A limitation of our studies is the reliance on perceptual information gathered from a single informant that implies the potential of common method bias in our findings. However, we applied some procedural remedies to reduce this potential prior to collecting data and post-hoc analysis reveal that our data is very likely not biased by common method variance. Moreover, Lumpkin and Dess (2001) compared responses of single respondent and multiple respondent firms and found no significant differences between responses that makes us

believe that common method variance does not seriously distort our results or the interpretations of our results.

However, our results might be somewhat biased due to the specific characteristics of Swiss SMEs. Particularly in an international context, customer expectations may have developed in a way leading to an image of high-quality Swiss products as far as product composition and quality are concerned. We believe that such developments lead to constantly improving product related features as well as adopting modern marketing instruments forcing firms to employ primarily a marketing differentiation strategy.

Despite the fact that we developed a rather comprehensive framework with entrepreneurial risk-taking as a focal construct, our model could be expanded. Future research could focus on other or additional contingency variables (e.g., organizational structure) as the method we provided is particularly suited for complex patterns. Finally, future research in this area should consider broader samples of companies with different national backgrounds, ideally in a cross-cultural way. It would be interesting to compare small and medium-sized enterprises with larger firms to derive more insights into the relationship between entrepreneurial risk-taking orientation and competitive posture.

Conclusion

Our studies provide a more fine-grained explanation about the relationship between risk-taking and export performance by highlighting equifinal paths for achieving high performance. By explicitly considering configurations of causal conditions and asymmetry of set-theoretic relationships in addition to traditional linear methods, we have identified a set of causal patterns associated with the presence/absence of high export performances. We hope that this study encourages others to continue addressing this and other complex phenomena by means of fsQCA. Understanding complex patterns better will not only improve theory building but also help SMEs to prevent from failing

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TABLES AND FIGURES

TABLE 1: Results for the Subset of High Export Performance

Solution (Intermediate)	Raw Coverage	Unique Coverage	Consistency
1a ~HRT*RA*MD*~CL	0.347836	0.119765	0.900122
1b ~HRT*RA*MD*RT	0.338039	0.073178	0.851956
Solution coverage: 0.486401 Solution consistency: 0.885832			
Solution (Parsimonious)			
1c RA*MD	0.557607	0.568701	0.855587
Solution coverage: 0.557607 Solution consistency: 0.855587			

~ absence of a condition

HRT = high risk-taking orientation RA = resource availability MD = market orientation CL = cost leadership RT = moderate risk-taking

TABLE 2: Results for the Subset of Low Export Performance

Solution (Intermediate)	Raw Coverage	Unique Coverage	Consistency
2a ~RA*~CL*MD	0.276269	0.227576	0.797337
2b HRT*~RA*CL*~MD	0.126089	0.077396	0.836735
<hr/>			
Solution coverage: 0.353665			
Solution consistency: 0.827338			
<hr/>			
Solution (Parsimonious)			
2c HRT	0.252178	0.172732	0.6703
2d ~CL*~RA	0.300871	0.221425	0.810773
<hr/>			
Solution coverage: 0.473603			
Solution consistency: 0.747573			
<hr/>			
~ absence of a condition			
HRT = high risk-taking orientation RA = resource availability MD = market orientation CL = cost leadership RT = moderate risk-taking			

**ENTREPRENEURIAL ORIENTATION: THE DIMENSIONS' UNIQUE,
BILATERALLY SHARED, AND COMMONLY SHARED CONTRIBUTIONS TO
EXPLAINING FIRM PERFORMANCE**

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ENTREPRENEURIAL ORIENTATION: THE DIMENSIONS' UNIQUE, BILATERALLY SHARED, AND COMMONLY SHARED CONTRIBUTIONS TO EXPLAINING FIRM PERFORMANCE

Abstract. Recent conceptual contributions to the discussion of modeling and operationalizing EO have demonstrated the benefits of distinguishing variance that is unique to single dimensions of EO and variance that is shared among all (or just two) dimensions of EO (George & Marino, 2011). In this paper we take this conceptualization to its next level and do not focus on studying if and to what extent the constituent EO dimensions are conjointly varying, but focus on if and to what extent the constituent EO dimensions are conjointly explaining firm performance. We employ commonality analysis to re-evaluate the EO construct by quantifying the extent of explanatory power that cannot be attributed to single dimensions but only to pairs or all of them. In so doing, we provide a statistical tool that allows researchers to proactively cope with methodological issues resulting from substantial correlations among the EO dimensions. We suggest using this method additionally to traditional methods to fully exploit empirical data and avoid misinterpretations potentially limiting or misguiding further research and advice for practitioners.

INTRODUCTION

If entrepreneurship researchers want their findings to have an impact on enterprising individuals, practitioners, policymakers, and other researchers, they must use unbiased methodologies and employ models based on the most current empirical and theoretical knowledge (Frese, Bausch, Schmidt, Rauch, & Kabst, 2012). Hence, for entrepreneurship research to continue to enhance its relevance, we need tools that will provide the field with sound interpretation of the available information. Inconsistencies between theory development and the interpretation of empirical data hinder both theory development and the derivation of reliable practical implications from the research. We therefore believe that more sophisticated data interpretation can enrich and constructively advance entrepreneurship theory development.

To demonstrate the importance and potential of entrepreneurship theory development we will focus on entrepreneurial orientation (EO) and its relationship to firm performance. EO is a subfield of entrepreneurship research that has attracted a large number of researchers, but which, nevertheless, still lacks consensus on the underlying theories (Covin & Lumpkin, 2011; Miller, 2011). EO can be considered as the strategy-making processes that grounds entrepreneurial decisions and actions (Covin & Slevin, 1991; Lumpkin & Dess, 1996). The dimensions constituting EO—innovativeness, proactiveness, and risk-taking—are usually moderately or highly correlated among one another (Covin, Green, & Slevin, 2006; Rauch, Wiklund, Lumpkin, & Frese, 2009). However, these substantial correlations and their implications for the interpretation of data on the EO-firm performance relationship have rarely been addressed in the extant literature. Consequently, the interpretation of data in these studies might be biased, which can perpetuate mismatches between theorizing and evidence collection and testing in EO research.

To overcome the threats resulting from the presence of substantially correlated EO dimensions in EO research, we suggest a process that relies on more explicit theorizing about the effects of the EO dimensions on firm performance to account for influences that cannot be clearly attributed to any individual dimension of EO. To accomplish this we recommend

analyzing variance in firm performance that can be jointly explained by two dimensions of EO or that can be by a combination of all the dimensions of EO.

A method that has been developed to address questions in the presence of correlated predictors and that allows exploring such data without forcing researchers into speculating about underlying causal processes is commonality analysis (Seibold & MacPhee, 1979). Introducing commonality analysis into research on EO serves the goal of harmonizing theory development, data analysis and data interpretation (of panel and, especially, of cross-sectional data). Commonality analysis (CA) expands the focus from testing unique effects to analyzing commonly explained effects. Thereby it contributes to inductive reasoning. CA is not considered to be an all-encompassing method that replaces previously employed methods. It rather serves a specific purpose in enhancing research in settings where multiple correlated variables are assumed to be important factors, and where theories about their inter-relationships as well as their relationship to the dependent variable are far from being established. This is the case for EO. We therefore believe that CA can elaborate and revise dominant theoretical assumptions by being open to alternative explanations and, in combination with confirmatory tests, contribute to a better entrepreneurship theory development. Hence, we contribute to the literature on entrepreneurship research by highlighting and exemplifying that a careful interpretation of available data contributes to entrepreneurship theory development and subsequent practical implications.

In the remainder of this study we will illustrate the benefits of commonality analysis to entrepreneurship research by using it to re-evaluate the relationship of the prominent construct of EO with firm performance. We contribute to literature on entrepreneurship in the following ways. We present and employ a method to re-evaluate the still controversially debated link between EO and firm performance. By quantifying the extent to which the explanatory power of the EO dimensions can be attributed to the shared variance between two or more dimensions of EO (rather than individual dimensions only), our findings help EO researchers to recognize not only the unique contributions of individual EO dimensions, but also the joint contribution of all and, particularly by pairs of them. We thereby help to theoretically ground the EO construct. Moreover, we alert researchers to possible pitfalls resulting from the (often subtle) differences in theorizing about unique, shared, or total effects of the EO dimensions. We also show that variance shared across EO dimensions, i.e. the difference between unique and total effects of a dimension, explains a substantial part of firm performance. Hence, if individual dimensions are studied in isolation (not only in entrepreneurship but also in innovation or strategy research), the shared effects might falsely be attributed to one or another dimension, i.e. an omitted variable bias is likely to distort the conclusions. Finally, we illustrate how the commonality analysis can be used to inductively develop more traditional hypotheses on underlying effects. In sum, we advance the research of the current understanding of the EO construct by providing a more fine-grained view on the specific and joint ways the dimensions contribute to explaining firm performance. By translating our finding into practical implications our findings enable practitioners to calibrate the EO of their firm in a more accurate way.

ENTREPRENEURIAL ORIENTATION AND SHARED VARIANCE ACROSS DIMENSIONS

EO captures a company's institutional embodiment of the entrepreneurial perspective (Ma & Tan, 2006), and represents the "driving force behind the organizational pursuit of entrepreneurial activities." (Covin & Wales, 2012, p. 671). Within EO, innovativeness refers

to the willingness and capability of the firm to embrace and to engage in creative processes, new ideas, and novelty and, thereby departing from established practices (Lumpkin & Dess, 1996; Wiklund & Shepherd, 2003). Proactiveness refers to a forward-looking perspective that incorporates anticipating and acting on future needs and trends, thereby creating first-mover advantages (Lumpkin & Dess, 1996; Rauch et al., 2009). Risk-taking refers to the willingness to act boldly even without knowing all potential consequences (Covin & Slevin, 1989; Wiklund & Shepherd, 2003).

EO is one of the most frequently applied constructs in entrepreneurship research (see, for an overview, the recent special issue on EO in *Entrepreneurship Theory and Practice*, Covin & Lumpkin, 2011). Despite continuous interest in EO (cf. Covin & Lumpkin, 2011), no overarching theory has yet emerged for research on EO (Miller, 2011). Hence, a stronger theoretical grounding of EO is still needed (cf. Wiklund & Shepherd, 2011). Researchers examining this construct have been particularly interested in how EO relates to firm performance based on initial evidence that indicates a positive link between EO and firm performance (Rauch et al., 2009). Previous research has also established a moderate to high level of correlation, i.e. a large part of shared variance, between the dimensions of the construct (Rauch et al., 2009). This has led to a discussion about whether to consider EO a formative or reflective construct and, if reflective, if it is uni-, three-, or five-dimensional (cf. George & Marino, 2011). For this study we adopt a perspective consistent with the vast majority of research and employ a three-dimensional conceptualization of EO (see the recent literature review by Wales et al., 2011). This is also in line with George and Marino (2011), who state that a three-dimensional conceptualization of EO represents the conceptual view of an entrepreneurial orientation best, and other conceptualizations such as adding dimensions (Lumpkin & Dess, 1996) or leaving out dimension (Merz & Sauber, 1995) result in constructs that clearly belong to the family of EO but should be considered differently.

Moreover, George and Marino (2011) demonstrate how conceptualizing EO benefits from decomposing the variance of the dimensions of EO into common variances that are shared by all elements, group variances that are shared by some dimensions (we refer to these as joint variances), and specific variances that are unique to a dimension including dimension-specific error variances (we refer to the latter parts as unique variances). While this decomposition is the implicit conceptual core of factor-analytic methods used to empirically identify the internal structure of the EO construct (e.g., Kreiser et al., 2002; Tang, Tang, Marino, Zhang, & Li, 2008), it has rarely been used to guide the definition of constructs and comparison of different conceptualizations and operationalizations of EO. The work by George and Marino (2011) clearly illustrates that the explicit use of this decomposition approach is highly beneficial for further conceptual development. The fact that the three EO dimensions are usually considered as distinct but highly correlated constructs implies that there is substantial variance shared between the pairs of dimensions and among all three dimensions. It also implies that there is substantial variation that is unique to each dimension and, therefore, not shared with any of the other dimensions. We do not focus on validating this internal structure, but, rather, shed light on the empirical implications of it in order to understand the EO-performance relationship and to highlight how ignoring these implications can lead to a mismatch of theory development and interpretation of available data inhibiting scholarship on this topic.

Decomposing variance explained by EO

We adopt George and Marino's (2011) decomposition approach as a stepping-stone and extend the application of it from analyzing the associations between EO dimensions to analyzing associations of EO with external variables and, specifically, firm performance (cf. Figure 1). The corresponding method is the commonality analysis (Seibold & McPhee, 1979).

Insert Figure 1 about here

Commonality analysis (CA) focuses on the full relationship of correlated independent variables with a dependent variable by splitting the variance explained in a dependent variable into unique, common and total contributions of the independent variables. More specifically, CA decomposes the variance in firm performance that can be explained by all dimensions of EO (labeled 'A' in Figure 1) into parts that are uniquely explained by a dimension of EO (labeled 'B', 'C' and 'D' in Figure 1 and also referred to as unique effects), parts that are explained by the joint/shared variance between two dimensions of EO (labeled 'E', 'F' and 'G' in Figure 1, also referred to as joint effects), and parts that are explained by the variance commonly shared among all EO dimensions (labeled 'H' in Figure 1, also referred to as common effects). Unique effects reflect those parts of explained variance that can be clearly attributed to one and not to another dimension of EO. Such an effect is possible if corresponding changes in the focal dimension are not accompanied with corresponding changes in another dimension. Thus, a negative unique effect of risk-taking on firm performance (while also controlling for innovativeness and proactiveness), for instance, implies that risk-taking negatively affects firm performance when it is not linked with innovative respectively proactive behavior.

We can further define a dimension's totally explained variance (also referred to as total effect) as the sum of uniquely, jointly, and commonly explained variance that is related to a dimension (for example, the total effect for risk-taking is 'D'+ 'F'+ 'G'+ 'H'). A positive total effect of risk-taking on firm performance (that is, not controlling for innovativeness and proactiveness), for instance, implies that on average risk-taking positively affects firm performance either independently or when being aligned with corresponding changes in innovative respectively proactive behavior. The effect, however, would not show up in a regression analysis, which focuses on unique effect and does not make explicit the joint and common effects.

We believe that a clear distinction between these different types of effects/variance is vital for an understanding of mechanisms that lead to these effects and create these variance structures. By ignoring the differences we might build our analysis upon theory and hypotheses that do not match with the tests we employ on our data. This mismatch distorts data interpretation and consequently practical implications and the development of explanatory theories.

RESEARCH METHOD

In order to illustrate the benefits of commonality analysis within the context of research on EO, we report results on three empirical studies. To increase reliability of our conclusions and to illustrate the possible applications of commonality analysis, we re-analyze data of a

previously published study (Study 1) and analyze primary data (Study 2 and 3). Within each study, we execute a commonality analysis to identify unique, joint, and common effects of the dimensions of EO on firm performance. In doing so we report results for five commonality analyses as we have two alternative operationalizations of performance available in the first and third study. We calculate jointly and commonly explained variances using a methodology consistent with Seibold and McPhee (1979) and Schoen and colleagues (2011).

Samples

Study 1 is based on a dataset published by Hughes and Morgan (2007). The data derives from a mail-based survey examining the business performance of 211 emerging young high-technology firms sampled from United Kingdom business incubators. A detailed description of the dataset is available in Hughes and Morgan (2007). For our analysis, we utilize the correlation table reported by these authors. While the authors report data on the five-dimensional conceptualization of EO, for reasons previously discussed we focus on innovativeness, proactiveness and risk-taking—i.e. the three-dimensional conceptualization of EO.

Study 2 is based on survey data from a sample drawn from the heterogeneous population of all German, Austrian, and Swiss firms with more than 200 employees (N=2397). We obtained 253 complete responses, corresponding to a response rate of 10.6 percent.

Study 3 is based on a sample of German companies corresponding to Nomenclature Générale des Activités Économiques (NACE) code 30 (computer and electronic product manufacturing). Company information and contact data was obtained from the well-known Hoppenstedt database that comprises comprehensive profiles of firms in Germany. The database also includes archival data on revenues, allowing the calculation of an objective measure of performance. We were able to collect 126 useable responses which could be matched which revenue data from the database (corresponding with a response rate of 15.4 percent).

Dependent variables

The study by Hughes and Morgan (2007), which is re-analyzed in our Study 1, operationalizes business performance by two distinct measures based on seven-point Likert scales which ranged from “Strongly disagree” to “Strongly agree”: customer performance (3 items, $\alpha=0.83$), which is characterized by customer acquisition and customer retention, and product performance (2 items, $\alpha=0.96$), which is based on the relative success of the firm's products in terms of sales and at achieving market share.

Participants in Study 2 were asked to evaluate the performance of the firm for the last two years with respect to the following four criteria: profitability, market share, revenues growth, and customer satisfaction. Participants responded on a 7-point scale, which ranged from 1–target missed to 7–target exceeded. The responses are summed to form a subjective performance measure for Study 1 ($\alpha=0.80$).

Given the unique strengths and weaknesses of subjective and objective performance measures discussed in the EO literature (e.g., Stam & Elfring, 2008), in Study 3 we employ a subjective and an objective performance measure. For the subjective measure used in this study, performance is measured with a modified version of an instrument suggested by Gupta

and Govindarajan (1984) that has been frequently employed in entrepreneurship research (e.g., Kollmann & Stöckmann, 2012). Participants were asked to evaluate their satisfaction with the firm's performance along four financial criteria: net profit, profit growth, cash flow, and return on investment. They also indicated the importance of each measure. The weighted sum-satisfaction scores forms a weighted subjective financial performance measure (4 items, $\alpha=0.81$). For the objective measure we applied revenue data available in the Hoppenstedt database and we used the revenue increase from the year in which the survey was distributed to the following year.

Independent variables

In Study 1 Hughes and Morgan (2007) report that seven-point Likert-type scales are used to measure risk-taking (3 items, $\alpha=0.77$), innovativeness (3 items, $\alpha=0.81$), and proactiveness (3 items, $\alpha=0.75$). In both our newly collected samples, i.e. Study 2 and 3, EO is measured based on the deconstruction of the popular Miller/Covin and Slevin nine-item EO scale (Covin & Slevin, 1989) into its three salient dimensions proactiveness, risk-taking, and innovativeness. Study 2 uses responses to the three times three items traditionally employed to measure the dimensions of EO. The sums of responses to the corresponding items form the variables of innovativeness ($\alpha=0.77$), proactiveness ($\alpha=0.69$), and risk-taking ($\alpha=0.85$). Study 3 uses a revised 3x3-item version that is consistent with recent applications of EO measurement (Stam & Elfring, 2008; Kollmann & Stöckmann, 2012) in which one proactiveness item has been replaced to a recommendation of Lumpkin and Dess (2001). Again, the sums of responses to the corresponding items form the variables of innovativeness ($\alpha=0.73$), proactiveness ($\alpha=0.76$), and risk-taking ($\alpha=0.82$).

RESULTS

Study 1: Re-analyzing previously published data

To re-analyze the data reported by Hughes and Morgan (2007), we extracted sample size, means and standard deviations as well as the binary correlations of the three dimensions of EO (innovativeness, proactiveness, and risk-taking) and the performance measurements from the article. Since we do not have the raw data, we cannot directly use bootstrapping or simulation methods to calculate significance levels of joint and common effects. Nevertheless to approximate these estimates, we randomly created a dataset with means, variances, and correlations as indicated by Hughes and Morgan (2007) and run the bootstrapping and simulation method. Admittedly, these methods cannot utilize the empirical distribution but are fed with the assumption of normally distributed variables. Table 1 reports the results including the ordinary least square regression analyses and the related decomposition of explained variance for the two analyses and the available dependent variables.

Insert Table 1 about here

Consistent with conclusions by Hughes and Morgan (2007) we observe for both operationalizations of performance that proactiveness has the largest effect among all EO dimensions. This holds true for the unique effects as well as total effects. Proactiveness

explains approximately 80 percent of the variance for product performance (respectively 100 percent for customer performance) of all the variance explained by EO. However, 38 (respectively 20) percent of the total effects of proactiveness are shared either with innovativeness or with innovativeness and risk-taking. Thus, for both operationalizations of performance, we observe substantial shares of explained variance that cannot be uniquely attributed to one of the dimensions of EO but which are shared between two of the dimensions or between a combination of all of the dimensions.

The full structure of the unique, joint, and common effects shows an interesting pattern. Neither risk-taking nor innovativeness has a statistically significant unique effect; that is, any variation in these variables that is not aligned with corresponding changes in proactiveness does not affect firm performance. Proactiveness, however, has a statistically significant unique effect, such that changes in this variable that are not accompanied with corresponding changes in the other variable do affect firm performance. Furthermore, we observe that if risk-taking has an effect, this effect is not only aligned with proactiveness, but also with innovativeness (hence it is a common effect). Contrarily, however, the effect of innovativeness is not fully aligned with the effect of risk-taking. Thus, innovativeness has an effect even it is not accompanied with a change in risk-taking.

Studies 2 and 3: Analyzing primary data

Tables 2 and 3 provide summary statistics and correlations for the samples used in Studies 2 and 3.

Insert Table 2, 3 and 4 about here

Table 4 summarizes the results of our commonality analyses of Studies 2 and 3. Consistent with our findings in Study 1 we observe that in each of the analyses proactiveness explains most of the variance amongst the EO dimensions in both total and unique variance. There is, however, a substantial part of this effect that is shared with innovativeness (joint effect) or with innovativeness and risk-taking (common effect). This finding is especially pronounced in Study 3, which includes the objective measure of performance. In this study approximately half of the variance explained by EO is either shared between two dimensions or among all of the dimensions of EO. Specifically, a considerable share (11–15%) of the explained variance is shared among all dimensions of EO. The structure of unique, joint, and common effects is very similar to what we have observed in Study 1. There are multiple processes that can create the observed structure and this is the reason why we suggest using commonality analysis to report these dependencies neutrally and to clearly separate causal interpretations from reporting evidence.

DISCUSSION

Our statistical analyses of two newly collected datasets and the re-analysis of data published by Hughes and Morgan (2007) lead to strikingly consistent results. Across all estimations for the previously published and newly collected data, we observe a substantial unique effect of proactiveness but no such effects for innovativeness or risk-taking. We also find consistently in all cases that there is a substantial effect that is shared between

proactiveness and innovativeness. Additionally, we observe effects on performance that is shared across all dimensions of EO.

Our results reveal that the relationship between EO and firm performance is more complex than often portrayed. Based on EO theory and prior findings, we would assume a positive effect of the shared variance between all three dimensions or a positive unique effect of all three dimensions on firm performance. However, and consistently over all samples, this unique effect we only find for proactiveness. Hence, interpreting the unique effects only would suggest that neither innovativeness nor risk-taking is a significant predictor of performance. Consequently, the recommendations for entrepreneurs would suggest abandoning risky and innovative activities. In fact, Hughes and Morgan (2007, p. 656) finally conclude that their hypothesis on risk-taking “is refuted on the product performance dimension ($\beta = -0.14$, $p < 0.1$) which demonstrates that each dimensions might not necessarily be desirable in pursuing improved performance.” Yet, the authors test the unique effect, which does not imply that risk-taking could nevertheless have a positive effect if it increases a firm’s innovativeness and proactiveness.

Exploring the full structure of the EO-performance relationship by employing commonality analysis, we discover the importance of innovativeness for firm performance when aligned with proactiveness. Hence, our results of both, the newly collected data and the re-evaluation of the study by Hughes and Morgan (2007), rather indicate that not only higher levels of proactiveness but also higher levels of proactiveness and innovativeness are associated with higher levels of firm performance. As a consequence for giving recommendations to entrepreneurs as to how their performance can be increased by pursuing EO, we cannot abandon innovativeness as an important factor. In fact, by neglecting innovativeness based on marginal unique effect, we might hide that increasing innovativeness is likely to be an important factor for more proactive behavior.

Proactive behavior allows entrepreneurs to anticipate and act in advance of environmental changes, which allows them to shape the direction of these changes. Our results suggest this behavior that should be encouraged as it leads to increased firm performance. Innovativeness in the absence of proactive behavior won’t have this positive effect. However, if entrepreneurs direct their innovative offerings to meet market or customer needs identified through proactive scanning or creation of these needs ahead of competitors, the effect of innovativeness turns from being small or even absent to being significantly positive.

To a smaller extent this also holds true for the risk-taking dimension. We did not find unique effects for the risk-taking dimension and no joint effect with any other dimension but a common effect for all three EO dimensions. If risk-taking in the context of innovativeness creates a proactive behavior, then taking risks can improve firm performance. In the absence of proactiveness and innovativeness, we do not find such a positive effect for risk-taking. In fact, the sign becomes negative and after controlling for other variables; Hughes and Morgan (2007) even report a significant ($p < 0.1$) negative unique effect of risk-taking. Hughes and Morgan (p.658) conclude that risk-taking “would appear to hinder performance.” Having our framework in mind, these results should better be interpreted as risk-taking that is not aligned with innovative behavior, could hinder performance. The findings do not reject the hypothesis that overall and especially through being associated with innovative behavior, risk-taking can leverage performance. Thus, once proactively striving for innovations, in contrast to the conclusion by Hughes and Morgan (2007), firms do not need to avoid risk-taking. Hence, interpreting the unique effects of risk-taking on firm performance without regarding the joint

effect with innovativeness and proactiveness only displays one side of a coin and hinders practical understanding, possibly resulting in misleading practical implications for entrepreneurs and policy-makers.

Unlike other researchers, Hughes and Morgan (2007) do not ignore the high correlations between proactiveness and innovativeness. However, they (only) conclude that firms need to be cautious about implementing EO as not all dimensions guarantee a better performance. Our findings likewise suggest that EO should not be misunderstood as a panacea as we show that not each dimension is of equal value and ad hoc approaches in implementing EO might be costly due to a potential waste of resources. Conversely, we additionally argue that the EO dimensions should not be pulled apart by disregarding dimensions that seemingly have no direct effect (as in our case innovativeness or risk-taking) as their true effect might be in alignment with another dimension (such as proactiveness). Moreover, the large amount of shared variance with innovativeness and to some degree also with risk-taking indicates that the full positive effect of proactiveness can only be gained in alignment with the other dimensions. Hence, a premature abandonment of behaviors (such as being innovative or taking risks) due to no direct observable effect, would lead to an omitted chance for improving firm performance.

For giving valuable practical recommendations, the effects of each EO dimension need to be carefully interpreted in relation to the other dimensions by their unique, joint and common effect on firm performance. Entrepreneurs should not blindly implement EO based on the assumptions that EO is a universally beneficial. Instead, the degree of each dimension to be implemented must then be based on their interrelationships and to the overall strategy pursued and further characteristic of the firm.

Form a theoretical perspective, this example illustrates that theory development ignoring common effects and effect shared between two of the EO dimensions, creates a significant gap in entrepreneurship research theory. However, the problem is not rooted in the applied method but starts with generating the hypothesis. For instance, both, Hughes and Morgan (2007) who employ regression analysis to test unique effects, as well as Rauch and colleagues (2009) who test for total effects, refer to Miller and Friesen (1982) to argue that “[r]isk aversion renders firms passive to developing new market opportunities which is likely to deteriorate performance in an age of rapid change” (Hughes & Morgan, 2007, p.653) and “firms innovate frequently while taking risks in their product-market strategies” (Rauch et al., 2009). Thereby both studies link the effect of risk-taking to innovative behavior. However, such an argument for a positive effect of risk-taking can only be used to justify a positive total effect (because it includes the possible joint effect with innovativeness). It cannot be used to justify and theorize a unique effect. With the understanding that a joint effect with innovativeness is hypothesized but a unique effect of risk-taking is tested, it does not seem to be surprising that Hughes and Morgan (2007) conclude that not all EO dimensions might necessarily be desirable in order to improve performance. Hence, theorizing on total effects but testing unique (direct) effects or theorizing on unique effects but testing total effects is clearly threatening the validity of resulting theory development causing theory development be based on invalid conclusions. Making researchers sensitive to such issues of mismatches of theory and analysis is—from our point of view—essential for theory development.

In this regard, our analysis is inductive. For making assumptions about structural relationships of the observed structures that are consistent with our data we need to base our models on theory and return to theory when interpreting the data to establish causal mechanism. While our method can reveal the full structure of the EO-performance

relationship, it cannot explain the reason for the joint variances between the EO dimensions. To this end, we need to turn back to theory to interpret our results and to generate new hypotheses. Thereby our method cannot solve the causality problem but it grounds future research for analyzing the development of this large joint variance component. This is of utmost importance as without understanding the joint variances one could run the risk of mistakenly suggesting that neither risk-taking nor innovativeness affect firm performance. With regard to theory development, we therefore claim that the knowledge we got out of commonality analysis provides the most comprehensive report of the empirically observed dependencies between the three-dimensional conceptualization of EO and firm performance observed in the three samples. We further believe that the suggested method reveals and documents more of available evidence than any analysis that focuses on one either the uniquely or the totally explained variance of EO dimensions and helps to overcome potential biases favoring the publication of studies with significant unique effects of variables in general and EO in particular.

Limitations

As with most studies, our conclusions do not necessarily generalize to other settings. To overcome this limitation, entrepreneurship research can use meta-analyses to aggregate information related to many different context and, thereby, test the generalizability of our findings. While the findings regarding EO might be limited in generalizability, our arguments on theorizing and empirical tests in the context of moderately to highly correlated predictors clearly generalizes to comparable setting related to variable different from EO.

Implications and Conclusion

In this study we employ a method to provide a comprehensive analysis of the direct dependencies between the three-dimensional conceptualization of EO and firm performance. When combined with deductive methods more comprehensive analyses can help in refining the construct EO and re-interpreting prior results in order to establish insights that may serve as a basis for theory development and translate findings into principles of action. Our method not only allows a systematic re-evaluation of previous findings but also suggests that this method may be used for pretests or as a first study in a series of studies that are intended to generate theories and hypotheses. Therefore, we encourage EO researchers to use the method presented, in addition to confirmatory methods, to fully exploit the possibilities encased in the data.

Theoretically, this may deepen our understanding of the relative contributions of the dimension of EO with regard to firm performance. As the method can be used for any construct where theory development is further needed and predictors are correlated, it may ground future research possibilities with constructs other than EO. Building theories and hypotheses using this method therefore improves theory development in entrepreneurship research. Additionally, the method provides examples of models that might result in significant relationships that have previously been disregarded and thereby provides aid in interpretation and understanding.

Practically, we contribute to a clarification of whether firms should combine dimensions of EO in order to achieve success rather than just highlighting the likelihood of success striving for one or all of them—an issue hotly debated in EO research.

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FIGURE 1: Decomposition of explained variance in performance explained by the three dimensions of Entrepreneurial orientation

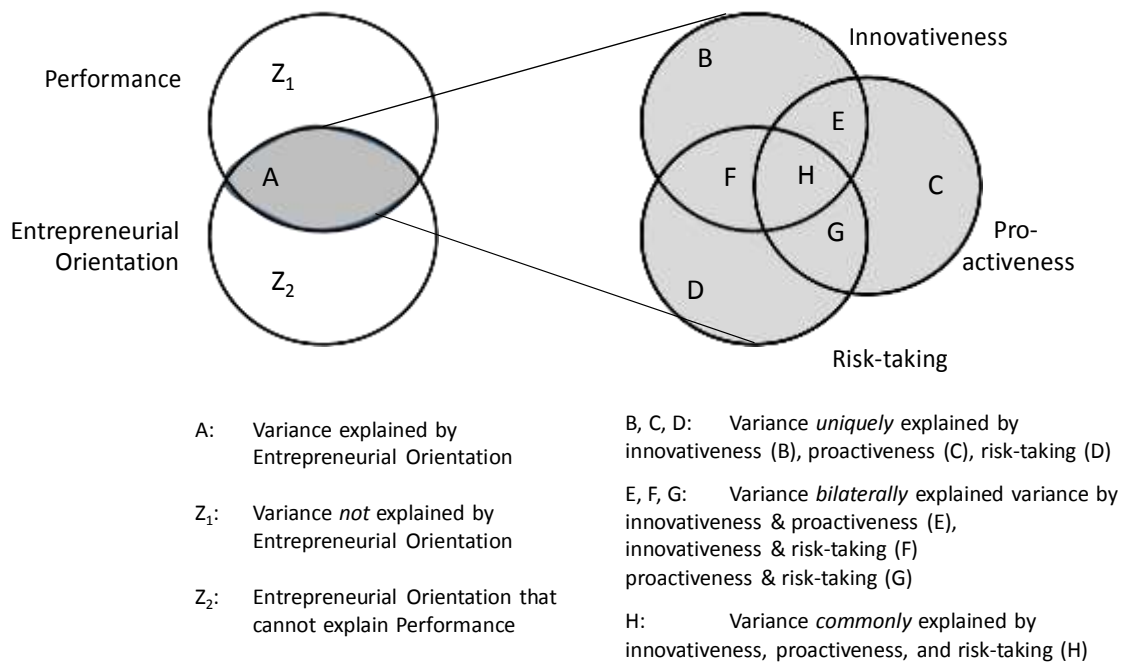


TABLE 1: Variance decomposition for the data reported by Hughes & Morgan (2007)

	Product performance (z)	Customer performance (z)
<u>OLS regression analysis</u>		
Constant	0.000 (0.066)	0.000 (0.065)
Innovativeness (z)	0.162 (0.082)*	0.024 (0.080)
Proactiveness (z)	0.246 (0.073)***	0.355 (0.071)***
Risk-taking (z)	-0.121 (0.078)	-0.018 (0.076)
Total R-squared (F)	0.098 (7.47)***	0.130 (10.31)***
N	211	211
<u>Variance decomposition</u>		
<i>Unique effects¹:</i>		
Innovativeness	0.017* (17%)	0.000 (0%)
Proactiveness	0.050*** (51%)	0.104*** (80%)
Risk-taking	0.011 (11%)	0.000 (0%)
<i>Joint and common effects²:</i>		
Inno. & Proa.	0.030*** (30%)	0.017*** (13%)
Inno. & Risk.	-0.008//+ (-9%)	-0.000// (-0%)
Proa. & Risk.	-0.003//** (-3%)	-0.000// (-0%)
Inno. & Proa. & Risk.	0.002// (2%)	0.008//** (6%)
<i>Total effects¹:</i>		
Innovativeness	0.040** (41%)	0.026* (20%)
Proactiveness	0.078*** (80%)	0.130*** (100%)
Risk-taking	0.001 (1%)	0.008 (6%)

Source: Data taken from correlation table reported in Hughes & Morgan (2007)

Notes: Cells report explained variance, explained variance relative to variance explained by all three variable reported in parentheses.

¹ significance levels calculated based on F test

² significance levels calculated based on method proposed by Schoen et al. (2011), based on bootstrapping, and based on the simulation method

+ p<0.10 * p<0.05 ** p<0.01

TABLE 2: Summary statistics and correlation table for Study 2

	Mean	S.D.	Min	Max	1	2	3	4
1 Performance	19.31	3.94	6.00	28.00	(0.80)			
2 Innovativeness	13.69	3.23	3.00	21.00	0.23***	(0.77)		
3 Proactiveness	14.20	2.93	4.00	21.00	0.46***	0.48***	(0.69)	
4 Risk-taking	11.93	3.22	3.00	19.00	0.19**	0.55***	0.51***	(0.85)

Notes: For sum scores, Cronbach's alphas are reported in parentheses on the diagonal

¹) 9 missing values for age, N=244, for analyses set to the mean value.

N=253

* p<0.05 ** p<0.01 *** p<0.001

TABLE 3: Summary statistics and correlation table for Study 3

	Mean	S.D.	Min	Max	1	2	3	4	5
1 Performance A ¹⁾	2.61	0.90	0.93	5.33	1				
2 Performance B ^{2,3)}	1.35	10.13	-8.83	104.91	0.28**	1			
3 Innovativeness	11.30	2.62	3.00	15.00	0.23**	0.20*	(0.73)		
4 Proactiveness	10.86	2.33	4.00	15.00	0.26**	0.23*	0.53***	(0.76)	
5 Risk-taking	8.28	2.52	3.00	14.00	0.09	0.12	0.47***	0.30***	(0.82)

Notes: For sum scores, Cronbach's alphas are reported in parentheses on the diagonal

¹⁾ subjectively weighted financial performance

²⁾ Revenues increase from year 2009 to 2010

³⁾ 18 missing values, N=126

N=144

* p<0.05 ** p <0.01 *** p <0.001

TABLE 4: Variance decomposition for Studies 2 and 3

	Study 2: Subjective performance (z)	Study 3: Subjectively weighted perf. (z)	Study 3: Growth (z)
<u>OLS regression analysis</u>			
Constant	0.000 (0.056)	0.000 (0.081)	0.000 (0.087)
Innovativeness (z)	0.043 (0.070)	0.137 (0.103)	0.098 (0.109)
Proactiveness (z)	0.483 (0.068)***	0.197 (0.096)*	0.171 (0.100) ⁺
Risk-taking (z)	-0.080 (0.071)	-0.031 (0.092)	0.038 (0.099)
Total R-squared (F)	0.219 (23.23)***	0.079 (4.02)**	0.063 (2.72)*
N	253	144	126
<u>Variance decomposition</u>			
Unique effects ¹			
Innovativeness	0.001 (1%)	0.012 (15%)	0.006 (10%)
Proactiveness	0.159 *** (73%)	0.028 * (35%)	0.022 + (36%)
Risk-taking	0.004 (2%)	0.001 (1%)	0.001 (2%)
Joint and common effects ²			
Inno. & Proa.	0.022 /+/*** (10%)	0.031 /*/** (40%)	0.019 /*/** (30%)
Inno. & Risk.	-0.001 // (-1%)	-0.001 // (-1%)	0.004 // (6%)
Proa. & Risk.	0.002 // (1%)	0.000 // (1%)	0.000 // (0%)
Inno. & Proa. & Risk.	0.032 +/*/** (15%)	0.009 ///* (11%)	0.010 ///* (15%)
Total effects ¹			
Innovativeness	0.054 *** (25%)	0.051 ** (65%)	0.039 * (62%)
Proactiveness	0.215 *** (98%)	0.067 ** (85%)	0.051 * (82%)
Risk-taking	0.037 *** (17%)	0.009 (11%)	0.015 (24%)

Notes: N=211, cells report explained variance, explained variance relative to variance explained by all three variable reported in parentheses.

¹ significance levels calculated based on F test

² significance levels calculated based on method proposed by Schoen et al. (2011), based on bootstrapping, and based on the simulation method

+ p<0.10 * p<0.05 ** p <0.01

BREAKING OUT OF IMPLICIT CONCEPTUALISATIONS OF ENTREPRENEURIAL AGENCY

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BREAKING OUT OF IMPLICIT CONCEPTUALISATIONS OF ENTREPRENEURIAL AGENCY

Recent research has critiqued the depiction of agency of entrepreneurs in the literature. This paper uses metaphors to expose implicit assumptions about entrepreneurial agency in order to enable reframing and informed adoption of perspectives. The starting point is the notion that entrepreneurs often play central roles in the founding of organisations and therefore the ways organisations are conceptualised in the literature reflect implicit images of the agency of the entrepreneurs who created them. Through disciplined imagination, this paper demonstrates how different well established metaphors for organisation afford and constrain the space for entrepreneurial agency. The revealed images of entrepreneurs and entrepreneurship are useful tools for critically reflecting on the process of entrepreneurship for both researchers and practitioners.

INTRODUCTION

Agency, in the sense of the capacity of individuals to act and interact in order to affect themselves and the world they live in, is a contested concept in the social sciences (Wrong, 1961; Giddens, 1984; Latour, 1996; Meyer, 2008). The notion of agency is particularly central to conceptualisations of entrepreneurs as they often are seen as potent actors and instigators of change in social systems such as the creation of new organisations (Aldrich and Ruef, 2006) or new economic activity (Davidsson and Wiklund, 2001). The potent agency of entrepreneurs in the literature is highlighted by such claims as that they act rather than analyse (Sarasvathy, 2001), “create something from nothing” (Baker & Nelson, 2005) and even that they skilfully shape our institutions (DiMaggio, 1988). Recently such views have attracted critique for endowing entrepreneurs with too much agency (e.g. Dodd and Anderson, 2007; Aldrich, 2011; Korsgaard, 2011). Although, potent individual actors driving venture creation may be a reasonable account of how some new economic activity emerges, it is unlikely to capture all or even most entrepreneurial endeavours (Dodd and Anderson, 2007; Nicholson & Anderson, 2005). The common view of entrepreneurs with over-inflated agency is not only often inaccurate, but also difficult to break with (Dodd and Anderson, 2007).

The problem is not primarily, if at all, one of definitions of entrepreneurship as they readily allow for interdependencies between actors, bounded rationality and strong institutional pressures. Admittedly, definitions of entrepreneurs as organisational founders (Aldrich and Ruef, 2006) and instigators of innovation and renewal (Sharma & Chrisman, 1999) imply some degree of agency. However, viewing entrepreneurship as “the emergence of new economic activity” (Davidsson and Wiklund, 2001) does not preclude notions of actors with bounded rationality, heavily influenced by the institutional setting in which they find themselves (Davidsson, Hunter, and Klofsten, 2006). Furthermore, interactions with entrepreneurship scholars indicate that most of them do not agree with strict definitions of entrepreneurs as fully rational and autonomous actors, nor do they agree with definitions claiming that entrepreneurs are fully determined conformists (cf. Wrong, 1961; Meyer, 2008); rather, in principle they agree that entrepreneurs depend on others, but have the ability to influence them; and they agree that material artefacts afford and constrain entrepreneurial agency. The identified over-inflation of entrepreneurial agency in the literature (Aldrich, 2011; Korsgaard, 2011; Dodd and Anderson, 2007) is hence likely to be based more on the dramaturgical attractiveness of potent individual actors (Dodd and Anderson, 2007) and purposeful agents (Aldrich, 2011) than explicit extremist views or definitional shortcomings.

Therefore merely stating the problem or suggesting new definitions is unlikely to solve the problem; nor is rebuttal of explicit extremist views of agency likely to do so. A more potent antidote is to expose and challenge implicit assumptions in the existing literature (Morgan, 1980; Sandberg & Alvesson, 2011). In order to do so this paper provides tools for making implicit and often subconscious assumptions about entrepreneurial agency explicit, which enables reframing and informed adoption of perspectives (Morgan, 1980).

Based on the notion that entrepreneurs often are involved in the creation of organisations (Aldrich & Ruef, 2006), this paper uses eight established conceptualisations of organisations to illustrate how entrepreneurial agency is constrained and afforded in the academic literature. Through disciplined imagination (Weick, 1989; Cornelissen, 2006), we demonstrate that each of the conceptualisations constrain and afford a different space for entrepreneurial agency. These demonstrations are effective tools for breaking out of one's own underlying assumptions about entrepreneurial agency, as they facilitate making them explicit and contrasting them with alternative assumptions. Furthermore, our application of these conceptualisations can be used to consciously experiment with alternative images of entrepreneurial agency. These eight illustrations are thus effective tools in furthering our understanding of entrepreneurs and entrepreneurship as contextual phenomena that varies by organisational form, time and place.

This paper is structured as follows: In the next section we review the literature on use of metaphors as research tools and motivate our choice of conceptualisations used in this study. Then we analyse each of the conceptualisations in turn with regard to how they afford and constrain entrepreneurial agency. Finally we discuss our findings and conclude with suggestions for further research.

USING METAPHORS AS A RESEARCH TOOLS

A metaphor compares two conceptual domains and transfers aspects of the source to the target domain (Morgan, 1980). Similarly to theoretical models, metaphors highlight certain aspects of the phenomena to which they are applied and downplay others (Lakoff & Johnson, 1980). In fact, theoretical models and conceptual labels can be seen as metaphors (Morgan, 1980; Morgan, 2011). Metaphors can be used to efficiently convey structural similarities between two domains, but also to spark a creative process of emergent meaning (Cornelissen, Kafouros and Lock, 2005; Cornelissen, 2006). The application of metaphor requires a mapping that connects and separates the involved concepts. Therefore the application of metaphors requires pre-existing understandings of the compared domains and an understanding of the context in which the metaphor is expressed. For example, when Romeo says that Juliette is like the sun, people normally transfer aspects such as warm, radiant and elevated but not a burning ball of gas or an inducer of skin cancer (cf. Ramachandran, 2007). This transfer of meaning is built on the pre-existing notions about the nature of Juliette, the sun and Romeos impression of Juliette. The transfer of relevant properties is a matter of interpretation and judgement.

Language is rife with metaphors, which influence how people make sense of the world (Lakoff & Johnson, 1980; Morgan & Smircich, 1980). Metaphors can be powerful tools for pedagogically conveying insights about the nature of a phenomenon (Weick, 1989; Cornelissen, 2006). Studying metaphors can help capture cultural repertoires of complex sets of experiences, feelings, thoughts and responses, which could only be described in long prose in the absence of metaphors. This tool is used by entrepreneurship scholars. For example, Cardon et al (2005) use the metaphor of entrepreneurship as parenthood to highlight

similarities between the two phenomena such as that entrepreneurs often have strong emotional ties to their ventures, that the ventures are fragile and in need of protection until they have reached a certain level of maturity and that letting go of a venture can be emotionally difficult. The metaphor elucidates certain aspects of entrepreneurship; however, it can also mislead the interpreter by overemphasising certain aspects or lead towards nonsensical analogies, such as that it takes a man and a woman to start a firm. Metaphors are therefore a way of seeing, but also a way of not seeing or even misleading (Mogan, 2006; 2011).

In addition, the use of metaphors signal how theorists view and make sense of the world around them and it reflects “implicit, core assumptions about ontology and human nature” (Morgan & Smircich, 1980, p. 493). A growing body of research show how metaphors can be and are used as research tools (Morgan, 1980; Weick, 1989; Cornelissen, 2006). Metaphors are widely used in academic research, but their use often remains unacknowledged (Boxenbaum & Rouleau, 2011). The use of metaphors as research tools is established also within the entrepreneurship field. However, the explicit use of metaphor as a research tool within the entrepreneurship field has mostly focused on metaphors applied outside of academia, for example among entrepreneurs and in media (Hill & Levenhagen, 1995; Koironen, 1995; Hyrsky, 1999; Dodd, 2002; Nicholson & Anderson, 2005). While the field of organisation studies has made its metaphorical assemblage explicit (Morgan, 2006; Cornelissen, Kafouras, & Lock, 2005), scholars have, with a few exceptions (e.g. Coşgel, 1996, Arleo, 2000; Cardon, Zietsma, Saporito, Matherne, & Davis, 2005; Lundmark & Westelius, 2013), not explored the use of metaphors related to entrepreneurship within academic writing. One of the implications of uncovering the implicit metaphors in discourses is the possibility to decipher the way entrepreneurial agency and process are defined, shaped and crafted, in order to fit with the world views that underpin them. Thus, exploring metaphors can provide powerful analytical tools that show the linkages between entrepreneurial agency, process and the context of economic, social, political relations through place and time (Coşgel, 1996). We use metaphors for organisations and the way they afford and constrain entrepreneurial agency to demonstrate the variety of conceptualisations possible. For each metaphor of organisation, there is a different framing of entrepreneurs as agents and entrepreneurship as a process. Uncovering these framings facilitates reframing and informed adoption of assumptions. In the next section, we present the applied methodology.

EXTRACTING IMAGES OF ENTREPRENEURS AND ENTREPRENEURSHIP IN METAPHORS FOR ORGANISATIONS

Over the past 40 years scholars have suggested and explored a variety of metaphors in organisational studies, for example, garbage cans (Cohen, March & Olsen, 1972), machines and organisms (Morgan 1980; Morgan, 2006), brains and psychic prisons (Morgan 2006), soap bubbles (Tsoukas, 1993), and jazz bands and missionaries (Akin & Schultheiss, 1990). Whereas any metaphor can be proposed, even those that make little sense such as organisations as chocolate bars (Cornelissen, 2002), some metaphors have proven more useful than others (Cornelissen, Kafouros, & Lock, 2005).

Weick (1989), and Cornelissen (2006) have developed criteria for what makes a metaphor useful and valuable in research. Weick (1989) propose that the identification of useful metaphors often is sparked by the generation of surprise, such as contradictions between interpretations of metaphors and preconceived notions about a phenomenon. Metaphors that generate interest can subsequently be explored through *disciplined*

imagination, which is a trial-and-error based process involving problem statements, thought trials, and selection criteria (Weick, 1989). Disciplined imagination is thus a quick, inexpensive and potentially fruitful method for theory development.

Cornelissen (2006), building on Weick (1989), provides further insight into the process of disciplined imagination. Cornelissen (2006) use the term *metaphorical blend* for the complex set of concepts and relations that emerge as researchers apply metaphors. The metaphorical blend is derived not only from comparing similarities between the source and the target, but also from collapsing source- and target-domain concepts into a composition that can be transformed and completed in a process of emergent meaning.

In our analysis of how metaphors for organisation reflect images of entrepreneurs and entrepreneurship, we have analysed eight metaphors for organisation. For each of the metaphors, we have explored its space for entrepreneurship through disciplined imagination. Specifically we have analysed how the metaphor constrains and affords entrepreneurial agency and entrepreneurial processes (i.e. the problem statement). We have analysed entrepreneurial agency by asking what actors create or modify these entities; and entrepreneurial process by asking through what processes and by which means these entities are created or modified. We have then experimented by imagining actors and processes spurred by these questions in the framing of each metaphor (i.e. thought trials). We have selected actors and processes that produce consistent narratives regardless of if they break with or conform to the notions found in the entrepreneurship literature.

The next step has been to assess the extent to which the identified actors and processes are reflected in entrepreneurship research and in the conceptualisations of entrepreneurship and entrepreneurs proposed by entrepreneurship scholars. The analysis is presented in a subsection for each metaphor and compiled in Table 1.

In order to delimit the number of metaphors to explore in this paper while aiming to increase the chances of finding meaningful images, we have limited the sample to the eight, by now well-established metaphors elaborated on by Morgan (2006): Machines, Organisms, Brains, Cultures, Political systems, Psychic prisons, Flux and transformations, and Instruments of domination. The reason we focus on these metaphors for organisation is that they have proven useful, have stood the test of time and are widely known – the book is cited more than 12 000 times (Google Scholar 2013-12-31), the first edition of *Images of Organisation* was in 1986, and the book has been used extensively in university teaching.

ORGANISATIONS AS MACHINES

The machine metaphor is one of the most frequently applied metaphors for organisation (Morgan, 1980; Morgan, 2006, Cornelissen, Kafouras, & Lock, 2005). The metaphor is associated with the era of scientific management and portrays the firm as, “a machine, either mechanical or computational, that could be analyzed into its component parts, modified, and reassembled into a more effective whole” (Barley & Kunda, 1992, 384). Such views of organisations imply that they are constructed by engineers and conceived by inventors in a process involving planning and calculation. The reflection of entrepreneurs by the machine metaphor is a person who is well familiar with the domains of business, technology and organisations in order to be able to forecast, plan and execute with precision. Entrepreneurs are portrayed as rational human beings that take calculated risks. Entrepreneurship is crafted as a rational process allowing autonomous and informed agency, which is underpinned by assumptions of contextual stability and predictability. As a consequence, entrepreneurs are potent actors who design and assemble; the organisation responds mechanistically.

Although few entrepreneurship scholars would ascribe to a view of entrepreneurship as a process similar to machine building, the tension between machine metaphors and other metaphors such as organism and flux and transformation has parallels in entrepreneurship research. For example, there is a tension between causation and effectuation (Sarasvathy, 2001; Chandler, DeTienne, McKelvie, & Mumford, 2011); there is debate about whether entrepreneurs should “plan or just storm the castle” (Brinckmann, Grichnik, & Kapsa, 2010, p. 24); and there is a tension between entrepreneurs as the creators of equilibrium and disequilibrium (Schumpeter, 1934/2008; Eckhardt & Shane, 2003).

Such tensions are linked to the machine metaphor and many entrepreneurship scholars have explicitly contrasted the entrepreneurial with the mechanistic. For example Knight (1921/2002) associated entrepreneurship with uncertainty, which he separated from the mechanical and predictable. Knight (1921/2002, p. 268) claimed "With uncertainty absent [...] all organic readjustments would become mechanical, all organisms automata". Baumol (1968, p. 64) complained that entrepreneurs were expunged from economic theory and that only Schumpeter and Knight “succeeded in infusing [the entrepreneur] with life.” Entrepreneurship is thus the ghost in the machine – Baumol (1968, p. 68) distinguished entrepreneurship from management, where a manager is “a calculating robot, a programmed mechanical component in the automatic system that constitutes the firm.” Similarly Eckhardt & Shane, (2003, p. 336) associate non-entrepreneurial decision making with “mechanical calculation”. In summary, many entrepreneurship scholars have tended to reject and polarise against mechanistic analogies in favour, as is outlined in the following sections, other metaphors.

ORGANISATIONS AS ORGANISMS

Although using the metaphor of an organism for a collective of people goes back at least to the 19th century and scholars such as Émile Durkheim, Herbert Spencer and neo-Hegelians, its use within management is commonly associated with the rise of the human relations movement in the 1920s (cf. Morgan 1980; 2006 & Barley & Kunda, 1992). The metaphor highlights that both organisations and their members have needs, organisations depend on and influence their environments and organisations have lifecycles. The reflections of this metaphor are clearly visible in the entrepreneurship field (Arleo, 2000). Terminology, such as seed funding, conception, birth, incubator and maturity alluding to this metaphor are frequently found in the literature.

Viewing organisations as organisms opens several possible roles for entrepreneurs. We have identified two established views of entrepreneurs fitting this metaphor: a parent who first conceives and subsequently raises the organism (Cardon et al. 2005); and mutagens changing the basic scripts of organisations (Lundmark & Westelius, 2013).

The view of entrepreneurs as parents to ventures is well documented in entrepreneurship literature (Cardon et al. 2005). Conception and birth are also frequently alluded to in entrepreneurship literature. Even the parallel between finding a partner (dating) and entrepreneurship has been alluded to (Gartner, 1993; Cardon et al., 2005). The entrepreneurs conceive a vulnerable organism that must be protected and nurtured until it has reached a certain level of maturity (Davidsson & Klofsten, 2003). Eventually the entrepreneur must let the child leave his or her care and live a life of its own. Viewing entrepreneurs as parents allows for limited agency as the child has its own personality. Furthermore, the entrepreneur’s choices are not always strictly rational as emotions and attachment can lead to persistence in face of evidence of futility and refusal to let the “adult” live its own life (Cardon et al. 2005).

Evolutionary thinking, in contrast, has frequently been applied to entrepreneurship studies (Aldrich & Ruef, 2006). In particular Lundmark and Westelius (2013), suggest entrepreneurship play the role of mutagen changing organisational genes in the form of routines. This metaphor allows limited space for rational agency. In the spectrum between conformist non-decision making and fully autonomous rational actors (Meyer, 2008), Lundmark & Westelius (2013) portray entrepreneurs as blind or myopic non-conformists – they have some freedom to act but are mostly oblivious to the long term effects of their actions due to bounded rationality.

ORGANISATIONS AS BRAINS

The primary aspect of organisations highlighted by this metaphor is learning and information processing, which had a surge of popularity from the late 1980s (Ellström, 2011). The brain metaphor of organisations is not immediately transferable to conceptions of entrepreneurship, as the originator of brains is somewhat obscure. Arguably, the brain metaphor is related to the organism metaphor as brains are normally situated inside and are part of organisms. What separates the brain metaphor from the organism metaphor in Morgan's (2006) conceptualisation is the former's association with computational networks and holograms. The metaphor also alludes to cybernetics and a sense of merging machines and organisms. Individuals (and artefacts for that matter, Latour, 1996), are seen as interconnected nodes in a network.

Reflections of the network metaphor are clearly visible in the entrepreneurship literature. This metaphor portrays entrepreneurs as creators of learning and information processing networks, which poses a big, and to some welcome, challenge for the common individualistic conceptualisation of entrepreneurs (Dodd & Anderson, 2007). Entrepreneurial networking has received much attention within the entrepreneurship literature (See O'Donnell, Gilmore, Cummins, & Carson, 2001; Hoang & Antoncic, 2003 and Slotte-Kock & Coviello, 2010 for reviews). The network literature tends to emphasise that networks can be managed but the importance of other actors embed the entrepreneur and his or her venture in a web of dependencies (Dodd & Anderson, 2007). However, it often situates the entrepreneur centrally or as bridges between groups, endowing the entrepreneur with more resources, information and thus freedom of action than people in less beneficial network positions (i.e. the non-entrepreneurs). Thus although the network literature embeds the entrepreneur in social settings, it tends to depict entrepreneurs with greater agency than their non-entrepreneurial counterparts because of their beneficial network positions (cf. Coşgel, 1996).

ORGANISATIONS AS CULTURES

The culture metaphor of organisations gained popularity during the 1980s (Barley & Kunda 1992, Morgan, 2006). The metaphor highlights that organisations constitute collectives that may develop "a pattern of basic assumptions [...] that has worked well enough to be considered valid and, therefore [...] is to be taught to new members as the [...] correct way to perceive, think, and feel" (Schein, 1990, p. 111). In this sense, culture is an important aspect of organisation beyond structure and individuals. As with organisations as brains, organisations as cultures have no obvious originator. But whereas the brain metaphor is an apparent metaphor, the culture metaphor has turned into a dead metaphor (i.e. people have forgotten that it is a metaphor). Organisational culture as a concept is now used and understood without passing through the process of metaphorical unpacking and interpretation.

Through a process of reification, culture is treated as a (manageable) attribute of organisations. As an organisational attribute, the question of origin and originator becomes legitimate.

If organisations are cultures, then entrepreneurs would be the crafters or authors thereof. Therefore, the culture metaphor of organisations presents a view of the entrepreneur as someone who sets norms, manages organisational artefacts, and establishes basic assumptions and habits of work. The entrepreneur in this metaphor takes on a norm-setting role for the organisation. Entrepreneurship in this context becomes a process of development, often associated with normative foundations as in the fostering of beneficial, often entrepreneurial cultural practices.

Scholars of culture have emphasised that an organisational culture develops over time, and that it is thus questionable whether emerging organisations have a culture (Schein, 1990). At first glance, therefore, culture may seem like an unlikely topic for scholars of emerging organisations, but the entrepreneurs' role in the creation of culture was highlighted already in the early days of the surge of organisational-culture studies (Schein, 1983). In this view entrepreneurs and founding teams make a lasting and significant imprint on organisational culture. The question of how entrepreneurs create, maintain and change culture remains attractive within the entrepreneurship research community (See Bryant, 2012; Shepherd, Patzelt, & Haynie, 2010 for recent contributions). However, entrepreneurs themselves are influenced by culture and therefore the shaping of culture has been described as a spiral where the mindset of entrepreneurs and culture of the organisation influence each other creating escalating spirals (Bryant, 2012, cf. Shepherd, Patzelt, & Haynie, 2010).

As others than founders can influence culture, the metaphor can potentially reconceptualise who counts an entrepreneur. The originators or authors of culture can be seen as institutional entrepreneurs creating or shaping culture. The concept of institutional entrepreneurs refers to a "a person who, alone or with others, is credited with helping to transform an institution: introducing new social or cultural forms/logics into the world (typically embodied in organizations)" (Aldrich, 2011 p. 1). This concept has attracted increasing interest, but also critique. For example, Aldrich (2011) argued that institutional entrepreneurship should be conceptualised as a collective process as the shaping of culture is beyond the capabilities of individuals (including entrepreneurs).

The metaphor highlights a dyadic relationship between the entrepreneur and the culture where both influence each other. Thus it is clear there are limits to entrepreneurial agency, but critics argue that the shaping of culture is beyond individuals even entrepreneurial ones (Aldrich, 2011).

ORGANISATIONS AS POLITICAL SYSTEMS

The metaphor of organisations as political systems highlights that people, groups and organisations have varying and sometimes conflicting interests. In this view organisations are both political systems and political actors. The roots of this metaphor goes back to Aristotle, but the study of political action within organisations became popular from the 1960s (Morgan, 2006). The metaphor brings terminology such as interests, power and conflict to the foreground (Morgan, 1980).

Subjected to the metaphor of organisations as political systems, entrepreneurs play the role of negotiators, politicians and, in their role as founders, the writers of the organisational constitution. Entrepreneurship would be a process of negotiation, bargaining and the creation of coalitions. The political system may look very different depending on the venture. It could,

for example, be a democratic system among equal founders, a technocratic system where the most knowledgeable actor rules within their area of expertise, or an autocratic system where the employees follow orders. However, in all these radically different systems, the metaphor emphasises that power, conflict and negotiation are central aspects of venture development. Entrepreneurs are equipped with agency, as are other actors. Thus entrepreneurs are autonomous, but constrained by their power vis-à-vis others.

Entrepreneurship scholars acknowledge inherent differences in interests among actors with a stake in the venture-creation process. Schumpeter (1934/2008) claimed that among the entrepreneur's motives were power and independence. Such motives, Schumpeter (1934/2008, p. 93) claimed "stand nearest to consumers' satisfaction, but do not coincide with it." In this view entrepreneurs introduce new goods or provide old ones more efficiently, which would often benefit the consumer. Conflicts arising from differences in interests have also been identified and a range of conflicts have received attention, for example, conflict between family members in family firms or between overworked entrepreneurs and their families (e.g. Shelton, 2006; Kellermanns, & Eddleston, 2004; Davis, & Harveston, 2001; Foley, & Powell, 1997; Werbel, & Danes, 2010), investor-entrepreneur conflict (e.g. Collewaert, 2011; Cable, & Shane, 1997), board conflict (e.g. Forbes, Korsgaard, & Sapienza, 2010), entrepreneur-incubator conflict (e.g. Mcadam, & Marlow, 2007), and competitor conflict (e.g. Tidstrom, 2009). However, the inherent and long recognised conflict between entrepreneurs and their employees seem to have received scant attention in the entrepreneurship literature. In general it seems that conflicts where entrepreneurs are equal or weaker parties seem to have received more attention than the cases where the entrepreneurs have the most power. In general the entrepreneurship literature tends to advocate reforms to increase entrepreneurial freedom to act, for example, Audretsch and Thurnik (2001, p. 269) suggested that policy makers should stimulate entrepreneurship through "deregulation, privatization and labour market flexibility".

ORGANISATIONS AS PSYCHIC PRISONS

The metaphor of organisations as psychic prisons highlights that organisational members can get "imprisoned in or confined by the images, ideas, thoughts and actions" created and upheld by organisational practices (Morgan, 2006, p. 207). People are constrained by the social realities they have constructed for themselves, or which are created for them in organisations and society at large. Among the mechanisms supporting these prisons are collective basic assumptions and vested interests, but also the inability to relate to that which one has no tools to process. Due to vested interests in the status quo, established organisations may be less likely to introduce revolutionary innovations that render existing knowledge and practices obsolete. The metaphor is an extension of the metaphor of Plato's cave where people could only experience the world through its reflections on the wall of the cave in which they were trapped.

The psychic prison metaphor presents an image of an entrepreneur who possess high levels of awareness and imagination by which they can break out of psychic prisons and see what others cannot. The entrepreneur is thus a rebel who breaks with orthodoxy and creates new realities. The idea that entrepreneurs break out of mental prisons and see new opportunities (Shane & Venkataraman, 2000) or find new uses for what others consider useless resources (Baker & Nelson, 2005) is well established in the entrepreneurship literature. This metaphor is also central to the idea that entrepreneurs are needed to break through the "filter" that prevents new knowledge from being applied (Audretsch, 2009). In

addition, the metaphor is well aligned with the view of entrepreneurs as “anarchists and organisers” suggested by Johannisson (1987). Entrepreneurs break with orthodoxy but soon get trapped in their own routines. With the entrepreneurial process, vested interests emerge and the entrepreneur turns into a defender of the status quo.

This metaphor depicts entrepreneurs as free, or at least freer, than others with regards to mental constraints. Entrepreneurs are the ones who see what others cannot. That is, entrepreneurs have abilities that are different in degree compared to non-entrepreneurs (cf. Coşgel, 1996).

ORGANISATIONS AS FLUX AND TRANSFORMATION

This metaphor is based on the notion of *panta rhei* (everything flows), commonly associated with Heraclitus (500BC). Organisations, viewed through the metaphor of flux and transformation, are in a constant process of change (Morgan, 2006). The organisation today is different to what it was yesterday. The metaphor alludes to complexity, catastrophe and chaos theory as organisations are characterised by the interaction of multiple systems that are both structured and chaotic and may jump from one stable state to another. Small random changes can create disproportionate effects through influencing bifurcation of unfolding events. However, order always arises out of the chaotic interactions. This metaphor urges organisations to move away from control and command style of coordination in favour of making organisation receptive to unplanned opportunities, which flux and transformation may present.

The entrepreneur in this metaphor is a person who can operate in a system of flux. This may imply changing shape and form in order to realise opportunities. However it can also mean showing great stability, like the rock that changes the direction of the flow of the river the entrepreneur may act as a watershed. Furthermore, entrepreneurs may instigate small changes that are amplified, as in the butterfly effect, creating enormous effects. Entrepreneurs can also be seen as catalysts of change rather than the creators of it. This metaphor opens up to radical transformation of existing organisations and therefore creates a space for intrapreneurs who instigate corporate entrepreneurship (cf. Sharma & Chrisman, 1999). The process of entrepreneurship in this metaphor is one of unpredictability, shooting at moving targets, seizing the moment, going with or changing the flow. Entrepreneurs are autonomous agents that are constrained by the complexity around them. They are forced to accept limited abilities to predict and control events.

The increasing use of this metaphor makes the study of entrepreneurship a central phenomenon in organisational studies as it indicates that entrepreneurship is not only associated with the origin of the organisation, but may in fact be a constant and ongoing process. It is associated with the notion that organisations never become, or should become, static (Hitt, 2000). However, in a constant flow and turbulence, planning and centralised decision-making are impossible. Instead new directions often emerge from the bottom up (Burgelman, 1983a;b). The process is one of letting chaos reign then reigning in chaos in order to manage the constant flux (Burgelman, 2007).

This metaphor is firmly rooted in the entrepreneurship field, it is also one that entrepreneurship studies have helped establish. Morgan (2006) mentions Schumpeter's (1934/2008; 1942/2008) work as central contributions. In particular the rejection of equilibrium and the focus on creative destruction are central to the view of organisations as constant flux. In addition, although neither catastrophe theory nor chaos theory have supplied

applicable mathematical descriptions of entrepreneurial processes they have been suggested as fruitful metaphors for understating entrepreneurship (Bygrave, 1989a;b).

This metaphor depicts entrepreneurial agency as constrained by a chaotic environment which cannot be predicted. What separates entrepreneurs from others is their propensity to act with the resources at hand rather than to plan (e.g. Sarasvathy, 2001, cf. Baker & Nelson, 2005). In this view agency itself is part of what separates entrepreneurs from others.

ORGANISATIONS AS INSTRUMENTS OF DOMINATION

The metaphor of organisations as instruments of domination is based on the observation that organisations create many undesirable, even oppressive practices. For example, they knowingly provide us with unhealthy food, pollute our environment, exploit employees and put their lives at risk, and discriminate against women and minority groups (Morgan, 2006). This metaphor has roots back to the 19th century and the writing of Karl Marx and Max Weber. The metaphor emphasises that organisation is founded on stratification, which requires some form of domination.

In this metaphor, entrepreneurs can either be freedom fighters, who take up social causes, or oppressors, whose enterprises benefit from or propagate ongoing inequalities and oppression. This metaphor depicts the entrepreneurial process as a process of domination or resistance. Entrepreneurs are allowed different levels of agency depending on how the metaphor is framed. The freedom fighters and the oppressors are tossed against each other. However, the oppressor can be depersonalised as bureaucracy or institutional forces represented by a faceless system (DiMaggio & Powell, 1983). As such the freedom fighter is constrained by the oppressing agent, be it the system or the entrepreneur. The oppressor may likewise be constrained by the system he or she is trying to uphold.

Both roles, freedom fighter and oppressor, are found in images of entrepreneurs held by European high school teachers and students. They frequently portrayed entrepreneurs as exploiters and victims (Anderson, Dodd & Jack, 2009). Among entrepreneurship scholars, however, entrepreneurs are often portrayed as winners, sometimes as victims but rarely as oppressors, but there is little focus on how oppressive practices emerge and are enacted in new ventures in entrepreneurship studies. In fact, it is curious that the entrepreneurs, who are generally portrayed as people who act forcefully and purposefully, are accredited with the value creating outcomes of their ventures, but seldom held to account for the reproduction of injustice and the exploitation of labour that frequently take place in organisations. Rather than scrutinising entrepreneurial processes to reveal how oppressive practices emerge, research focuses on how social entrepreneurs help disadvantaged communities (Mair, & Martí, 2006) – the entrepreneur is part of the solution.

This skewed attribution may be related to entrepreneurs often having good intentions, but the outcomes of their ventures frequently falling short of those intentions (Lundmark & Westelius, 2012). The assumption is that failed ventures are learning opportunities and that “time will weed out the failures” (Sarasvathy, 2001, p. 259). However, the “weeding out” is based on what is viable not on what is just, ethical or desirable (Lundmark & Westeliue, 2013). The result is that value creation and beauty are attributed entrepreneurial creations; oppression and injustice are attributed to societal structures for which the entrepreneur cannot be held accountable. The metaphor thus allows for some agency of entrepreneurs in fighting strong, sometimes overwhelming, systems of injustice and oppression. However, entrepreneurial agency in regards to upholding or propagating oppressive practices is downplayed or even neglected within the field.

Table 1 Metaphors for organisation and their reflexions of entrepreneurs and entrepreneurship

Metaphor for organisation	Reflections of entrepreneur	Reflections of entrepreneurship
Machine	Inventors or engineers	Machine building
Organism	Parents, gods and mutagens	Raising/protecting until maturity, creating mutations
Brain	Connectors, Networker	Connecting, creating a network
Culture	Authors, icons, symbols	Imprinting
Political systems	Politicians	Writing a constitution, negotiation and the creation of coalitions
Psychic prisons	Rebels	Opportunity recognition, breaking out of mental prisons
Flux and transformation	Intrapreneurs, butterflies and catalysts	Opportunity realisation or seizing, shooting at a moving target, unpredictable outcomes, constant disequilibrium
Instruments of domination	Freedom fighters (or oppressors)	Resisting (or domineering)

DISCUSSION AND CONCLUSION

Drawing on eight established metaphors of organisation (Morgan, 2006), we examined how entrepreneurial agency is depicted in the literature. In doing so, we illustrate that conceptualisations of organisations are imbued with significant implications that limit, extend and delineate the role and agency of the entrepreneur as well as the form and process of entrepreneurship. Although the conceptualisation of organisations appears at first glance to be innocuous and unrelated to the conceptualisation of entrepreneurs and entrepreneurship, this paper demonstrates that organisational metaphors present wide possibilities and limitations to the exercise, imagination and practice of entrepreneurship. The paper thus offers a way to build bridges between the literatures of organisation studies and entrepreneurship, highlighting how theorisation in the former affects the available choices and possibilities in the latter.

Our paper renders visible what often remains implicit: the assumptions underpinning established views of organisations and their implications for entrepreneurs and entrepreneurship. Table 1 presents the eight metaphors presented by Morgan (2006) and a summary of their implications for entrepreneurs and entrepreneurship. As researchers are not always aware of the assumptions that underlie their models (Morgan, 1980), purposefully applying metaphors can be a way of challenging and making underlying assumptions explicit. Reflecting on the interplay between organisational metaphors and the domain of entrepreneurship, we call for more thoughtful and purposeful use of metaphors in order to make sense of and contextualise entrepreneurship. The metaphors elaborated on by Morgan (2006) are by no means exhaustive. Researchers may apply other metaphors or combine metaphors in their conceptualisation of entrepreneurs, entrepreneurship and organisations. Nevertheless, these metaphors of organisation are by now well established and have stood the test of time. This indicates that they highlight aspects of organisations that are not salient without the purposeful application of the metaphors. These metaphors have been proven useful for organisational managers and we believe that the images of entrepreneurs and entrepreneurship the metaphors reveal are useful tools for critically reflecting on the process of entrepreneurship for both researchers and practitioners.

Certain metaphors may be more useful than others and this may in turn depend on the actual context. In the different metaphors, different aspects are highlighted and downplayed or even hidden. All of these metaphors help us understand parts of the entrepreneurship phenomenon. For example, a parenting metaphor is useful for making sense of some of the feelings entrepreneurs experience in venture creation (Cardon et al. 2005). A mutagen metaphor may be useful when analysing the effects of entrepreneurship in society (Lundmark & Westelius, 2013). The network metaphor highlights that entrepreneurship is a collective phenomenon which is socially embedded and that relationships both afford and constrain entrepreneurial agency. The imprinting culture metaphor and the psychic prison metaphor highlight that entrepreneurs actively create realities and that they set norms and routines that ultimately constrain their own and others' worldviews. The political metaphor emphasises that entrepreneurship always involves negotiation between different interests and although the entrepreneurs have some interests in common with both customers and employees these interests are not perfectly aligned. The political metaphor also highlights the importance of a "constitution" that outlines how conflicts can and should be resolved. The view of organisations as predictable machines is in stark contrast to the view of organisations as constant unpredictable flux. Nevertheless, despite consensus on increasing turbulence, some contexts may allow for calculation and planning. The metaphor of organisations as instruments of domination creates awareness of the consequences of stratification inherent in entrepreneurial processes.

Comparing how agency is portrayed in each metaphor further highlights the fundamentally different assumptions. Whereas, for example, the psychic prison metaphor emphasises that entrepreneurs see opportunities or new uses for resources that other cannot see, the flux metaphor highlights the propensity to act and adjust rather than an ability to see what others cannot as an important difference between the entrepreneur and others. There is also a tension between the focus on breaking out of realities imposed by others associated with the psychic prison metaphor and the ability to create realities for others as highlighted by the culture metaphor. The central argument is that consciously applying different metaphors facilitate the discovery of what assumptions are actually made as well as what assumptions that may be warranted. For us as researchers, engaging in disciplined imagination helped us discover a range of roles for entrepreneurs and entrepreneurship. It also identified spaces conceivable, but insufficiently explored in the entrepreneurship literature. In particular the entrepreneurship literature has focused more on the conflicts where entrepreneurs are equal or weaker parties than where they are the dominant part; and the mechanisms by which entrepreneurs propagate discriminatory or oppressive practices have received scant attention.

We hope that this paper will facilitate reflection on the space for entrepreneurs and entrepreneurship that we as researchers and practitioners construct by our implicit metaphors and explicit models. Research, like entrepreneurship, can be described as a process of breaking out of psychic prisons (but also of inevitably creating new ones).

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**THEORY DEVELOPMENT OF HOW STUDENT ENTREPRENEURS THINK,
LEARN AND WORK: UNCOVERING DEEP INSIGHTS INTO THE COGNITIVE
PROCESSES OF STUDENT ENTREPRENEUR LIVED EXPERIENCES TO
DEVELOP A CUE INVENTORY OF STUDENT ENTREPRENEURSHIP**

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Theory Development of How Student Entrepreneurs Think, Learn and Work: Uncovering Deep Insights into the Cognitive Processes of Student Entrepreneur Lived Experiences to Develop a Cue Inventory of Student Entrepreneurship

ABSTRACT

Principal Topic: The concept of the true student entrepreneur is relatively new and attracting societal and academic attention. A paucity of research exists on the cognitive processes student entrepreneurs use to think, learn and work. Student entrepreneurs operate within a challenging environment balancing entrepreneurial work activities and study life. Normally, the archetypal entrepreneur of last century drops out of university. This research explores the student entrepreneur not just as a student attending entrepreneurial classes but conducting business on/near campus or leading a campus enterprise (voluntary association) while simultaneously attending formal university award courses.

Methodology: This preliminary study centres on the lived experiences of student entrepreneurs not as most previous studies the intentionality of students to become entrepreneurs. As such, in-depth interviews take place with student entrepreneurs based on the Critical Incident Technique (Flanagan 1954) focusing on storytelling by student entrepreneurs in natural campus settings.

Results and Implications: A cue inventory of student entrepreneurship is sourced from the lived experiences of student entrepreneurs and informs the generation of a cognitive framework. Findings point to the university environment providing leverage to help innovatively solve entrepreneurial problems in real time. Student entrepreneurs are “luck ready” always open for potential opportunities. As a consequence universities interested in fostering true entrepreneurship beyond classroom teaching are able to facilitate and manage various sources of opportunities.

INTRODUCTION:

Today, “the study of entrepreneurship is still in its “infancy” (Brazeal & Herbert 1999) with the same said of the student entrepreneur nearly fifteen years later. While a plethora of academic and popular literature exists on entrepreneurs and their success/failure, a paucity of research exists on the cognitive processes student entrepreneurs use to think, learn and work in a challenging environment requiring balancing work and study life. This is particularly important as in writing about own entrepreneurial experiences, several famous entrepreneurs have included the period of time as students. This includes the archetypal successful entrepreneur Richard Branson (Branson 2009).

In the 21st century uncertainty about economic stability is rising. As a result, students are “now faced with a wider variety of employment options, the probability of ending up with a portfolio of jobs, more responsibility at work and more stress” (Henry, Hill & Leitch 2005) making entrepreneurship a more appealing options for future graduates. Governments recognise the importance of Student Entrepreneurs in the economy with the French government making official the status of Student Entrepreneur. This includes providing financial support for students with ideas as well as students considering setting up a business (Lomas 2013) with an ultimate goal of creating 20,000 jobs in 2014 (*Un nouveau statut pour les etudiants-entrepreneurs*, 2013)

Entrepreneurs are defined in a multitude of ways in the literature. However, the same is not true for student entrepreneurs. For Entrepreneurs they see themselves as “dream merchants” (Purewal 2001) or they “build emerging businesses rather than extending and defending existing businesses” (Baghai and Coley 2000). A broader definition contends: “He isn’t only interested in building businesses. He’s also the political science major who starts a political organization, using it as a platform to connect thinkers from other disciplines” (Torenberg 2012). However, this study departs from much of the previous work by exploring the student entrepreneur not just as a student attending entrepreneurial classes but conducting business on/near campus or leading a campus enterprise (voluntary association) while simultaneously attending formal university award courses.

The key focus of this study is researching the lived experience of the student entrepreneur. Furthermore, the nature of the lived experience allows an exploration of the cognitive processes student entrepreneurs undertaking study at university use to learn new skills, generate innovative solutions and balance study work life.

COMMON TRAITS AND COGNITIVE PROCESSES OF ENTREPRENEURS

In order to identify student entrepreneurs and to inform the investigation regarding the cognitive processes of student entrepreneurs, a short review of the common traits or characteristics of the entrepreneur follows:

- According to Kets de Vries (1985) “entrepreneurs somehow know how to lead an organization and give it momentum”. They infuse a great enthusiasm in start-up organisations. Their leadership capability derives from their “seductiveness, gamesmanship, or charisma” (Kets de Vries 1985; Pink 2009). They use their passion to transform their purpose into reality that others follow (Tjan, Harrington & Hsieh 2012; Stewart 1996) Busenitz focuses on over (self-)confidence and autonomy (Schmitt-Rodermund 2004) while Kets de Vries adds that entrepreneurs have a difficult time to work for someone else (1985), for which a later psychological approach by Stuart seems to corroborate (Stewart 1996).
- Locus of control and high Need for Achievement, or NAch, (Essers & Benschop 2007; Begley & Boyd 1988; Schmitt-Rodermund 2004; McClelland 1965; Hornaday & Aboud 1971) are now widely recognised as traits of entrepreneurs and have been commonly used in entrepreneurship studies as noted by Davidsson in the latest ACE research vignette (2013). Caveats needs to be taken into account as other researchers demonstrated no significant results for the need for achievement (Hansemark 2003) for instance.
- Moreover, risk taking-propensity is one of the mainly recognised traits of entrepreneur (Kets de Vries 1985; Nicolaou et al. 2008; Schmitt-Rodermund 2004; Stewart Jr et al. 1999; Stewart Jr & Roth 2001), but there is no agreement on the level of risk: moderate, calculated or simply a gut feeling. In addition to the uncertainty of level of risk Tjan, Harrington and Hsieh (2012) note that the line between risk takers and risks tolerators is blurry.
- More rarely cited is the fact that a significant amount of entrepreneurs go through ups and downs (Kets de Vries 1985).

- Creative entrepreneurs demonstrate great degrees of energy (Kets de Vries 1985; Schmitt-Rodermund 2004), a high level of perseverance (Brockhaus & Horwitz 1986) and imagination (Essers & Benschop 2007), coupled with an aversion for “repetitive, routine” activities.
- Common as well is the notion of following a dream for which some archetypical entrepreneurs such as Bill Gates and Mark Zuckerberg are ready to sacrifice their Harvard degree (Tjan, Harrington & Hsieh 2012)
- Luck or serendipity is studied by a few academics. However, in more common terms it is about “making your own luck happen” (Tjan, Harrington & Hsieh 2012) when entrepreneurs build themselves a network of people and opportunities that they are ready to act on when they come to fruition.

PREDICTING ENTREPRENEURSHIP AND PSYCHOLOGICAL TESTING

Even though these traits are still contested, they constitute a starting point in the identification of entrepreneurs. The next logical step to predict entrepreneurship is the use of psychological tests. Attempts for testing for entrepreneurship go back as far as 1965 (McClelland), leveraging or not the previous traits and characteristics identified. There are several issues in applying psychological tests to entrepreneurs as Caird (1993) encapsulates it. The first issue is that the population of entrepreneurs is heterogeneous, they vastly differ by the type of business they are running, their motivation, their use of technology and the list goes on. It naturally links to the second issue that it exists multitudes of definitions of entrepreneurs along with the various characteristics that they are labelled with. The latter, according to Caird, justifies why some tests look at the traits and characteristics while others focus on “the nature of the entrepreneurs.”

One of the earliest tests on the nature of the entrepreneur is Edwards' Personal Preference Schedule (Edwards 1954). This personality test requires the respondent to rank needs. Edwards demonstrates that entrepreneurs have "high Need for Achievement, autonomy, change and a low need for affiliation". However, as demonstrated by Watkins, results can be manipulated by changing the content and the range of the needs (1976).

Another personality test is McClelland's use of the Thematic Apperception Test (TAT). It uses projective measures where the subject responds to pictures with stories. McClelland's research also focuses on measuring NACH and additionally power and affiliation. He designed a specific setting (or set of pictures) of the TAT to assess them (1965). He found that entrepreneurs have "high NACH, high needs for power and low affiliations needs". However other studies such as Roberts' (1989) showed that the results varied according to the type of entrepreneur.

Other tests emphasis on learning preferences such as the Honey and Mumford Measure of Learning Style where entrepreneurs score higher at learning by doing instead of learning through theory and reflection (Thorpe & Dyson 1988) The Jackson's Personality Inventory (JPI), an objective test, entrepreneurs have a high level of energy, risk taking propensity, and autonomy (Sexton & Bowman 1986) There is not lack of types of tests being developed and used by practitioners. As an example, recently the Commonwealth Bank of Australia developed their own psychometric test called “What kind of entrepreneur are you? (Bucknell

2013). This test sets apart seven types of entrepreneurs: achiever, individualist, learner, competitor, innovator, risk-taker, and self-starter.

Comparative studies have been demonstrated different results with different types of entrepreneurs, but there seems to be a commonality on thinking and intuition (Roberts 1989). If existing tests relate to generic types of people, only a paucity of tests (Abraham 2011) for types of entrepreneurs appears to exist in spite of “the fact that entrepreneurship is affected by numerous factors” (Kalkan & Kaygusuz 2012)

METHODOLOGY

Using depth interviews and long interviews (McCracken 1988) with student entrepreneurs based on the Critical Incident Technique (Flanagan 1954), this study centres on the student entrepreneur and lived experiences. An exploration of how student entrepreneurs undertaking study at university learn new skills, generate innovative solutions and balance study work life. Eight informants are selected using a snowball sampling technique from the faculties of Business, Law and Information Technology at the University of Technology, Sydney (UTS). The in-depth interviews involve storytelling in natural settings and are based on campus. A cue inventory (list of signals) of student entrepreneurship (CISE) develops from the lived experiences of student entrepreneurs and informs the generation of a cognitive framework.

The long qualitative interview (McCracken 1988) with student entrepreneurs derives indicators and signals from the case studies (Woodside 2010; *The Alchemy of Student Entrepreneurship* 2014) of archetypical entrepreneurs (including but not limited to) the founder of the Virgin group Richard Branson (2009; 2011; 2010), the American business magnate Donald Trump (2009; 2011; 2006), his English counterpart Alan Sugar (Sugar 2011), the founder of TIBCO and Indian businessman Vivek Ranadive (1999; 2011), the iconic new technology American entrepreneur Steve Jobs (Isaacson 2011) and the social media magnate Mark Zuckerberg (Mezrich 2009).

In order to make sure that the interviews are centred on the elicitation of tacit knowledge and the unintentional and unconscious stimulus driving the entrepreneur, the Critical Incident Technique (Flanagan 1954) is used to drive the interview. The objective is for the interviewees to use their own words when they are discussing the key moments, or incidents in their lives that lead them to their current entrepreneurial activities. Examples of such critical incidents are found on or off campus including attendance at an inspirational lecture or speech. Even, when the speech is not part of the curriculum. Also, the incidents take the form of internship experience, a discussion with a peer, or even the need to generate another source of revenue. By gathering the narrative around these decision-making moments, information is obtained on not only how learning takes place but also how student entrepreneurs adopt to new mental models (Klein 2006).

Extensive preliminary unpublished work includes a depth review and testing of the instrument and interview guidelines (*The Alchemy of Student Entrepreneurship* 2014). The data set comprises various sources from archetypical entrepreneur biographies, blog entries in own words of entrepreneur interviews, documentaries, biographic motion pictures such as *The Social Network* (Fincher 2010) or *Jobs* (Stern 2013), magazines such as *Entrepreneur* (Wang 2012) and storytelling by entrepreneurs on podcasts from Stanford University's Entrepreneurship Corner (O'Reilly 2013; Systrom 2011; Hoffman 2012). A cognitive map is derived from the previously cited sources and a mixture of interview transcripts for the

archetypical entrepreneurs (Fig. 1) with the focus on key activities performed when they were student themselves. Finally, an interview via Skype with a French student entrepreneur assists with overcoming ambiguities arising from the long interview and furthers the validation process in advance of the interviews.

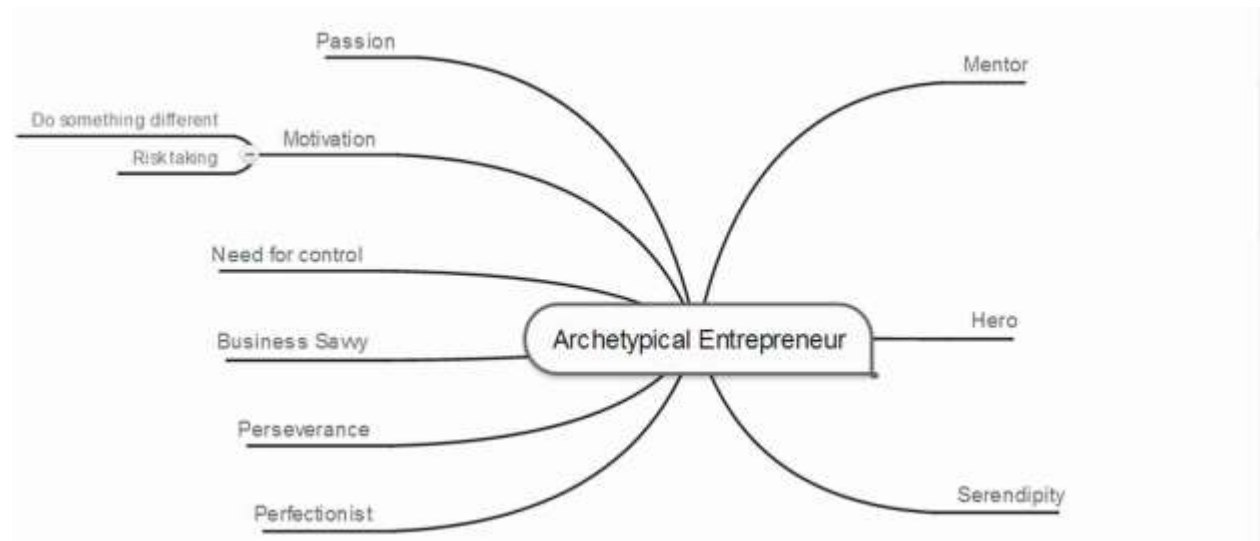


Fig. 1: Cognitive Map of Archetypical Entrepreneurs

The data set contains 20 interviews from 8 students with academic majors spread across Business (50%), Information Technology or Computer Science (30%) and Business and Law double major (20%). Face-to-face meet-ups (Pleshakova 2012) occur in natural settings for the interviewees, away from the office of their voluntary associations, cafes on campus, or “hackathons” (Hunsinger 2011) or entrepreneurship weekends where they compete. For optimum comfort during face-to-face with the students, interviews are recorded with a smartphone application Smart Voice Recorder and archived in secure local academic cloud storage Oxygen Cloud for later archival research.

The interviews range from 30 minutes to 90 minutes in one sitting to get as complete as possible information on how the perspective of the student entrepreneur on her/his critical incidents, thoughts and actual behaviour. The interviewer, a former student entrepreneur and serial entrepreneur is familiar with the interviewees and displays empathy and interest in the content of the interview.

A member-check is completed within 7 days recalling the critical incidents as understood by the interviewer as well as questions about the learning preferences of the student entrepreneurs interviewed. The member check provides an opportunity for the informant to provide any additional thoughts triggered by subsequent introspection. The post treatment of the interview data requires the interviewer to listen to the responses and seek patterns or themes of particular interest and relevance to the theory of student entrepreneurship.

RESULTS AND IMPLICATIONS:

For this conference, the analysis is based on two student entrepreneurs running a business (SE 104 and SE 105) as a preliminary analysis shows their cognitive map closest to the archetypical entrepreneurs versus students running a student association. However, some of the narrative from other informants help inform the thinking and theory building.

1) How do student entrepreneurs work, think and learn

a. WORK

When looking how the student entrepreneurs describe the way they work, at first there seems to be multitudes of behaviours, or ways to tackle work. For instance, some mention the fact that they are working for or toward a dream: “So my dream was to have my own agency’ (Student Entrepreneur or SE 105). Others are clearly afraid of boredom, or the lack of use of creativity at work: “I went to XYZ Pty, I didn’t want to [but it was part of the scholarship]. I was doing dead range security admissions and was like ‘People get paid for this?!’ And there were like 30 year olds getting paid to click this button. I was freaking out, hating life; it was really hard for me. I wasn’t doing anything creative” (SE104). Another way is to leverage studies and work and vice versa: “I had another one [business] called AAA Photo which was like editing photos [...] for people. But it was like I did it for a project at Uni and then got some business out of that (SE105).

However, after further analysis, two key behaviours emerge; the way student entrepreneurs work hard for their venture and the need for control when they work on it.

The notion of working hard, giving a lot of effort and energy is palpable amongst the student entrepreneurs interviewed. Sometimes it is displayed as a very high intensity within a short time, even overlapping their studies: “It took me like six sleepless nights, and I would go to Uni late” (SE 104). For some young entrepreneurs, this high amount of effort can go for a longer time: “I built 3 new websites [one of them] was really complex, on the train to work, after work, at lunch, at work, took days off, for 3 months. [I] got really sick”. The last remark shows that some student entrepreneurs are even pushing the limits of their body to work on their venture.

Another common behaviour across the young entrepreneurs interviewed was the clear need of total control in the way they work. Student Entrepreneur 105 recalls: “I got my first client at thirteen; [...] it was my family friend. So I built this entire site, html, coded it myself, designed it myself, did an e-commerce integrated with PayPal flash kind of thing, all by myself.” Another one describes how he manages his business: “By myself. Well, I am the only one running it. I have people doing stuff [contractors], but I am the one running it!”

b. THINK

Even when removing the analysis lenses of WORK from the ones of THINK, the need for control among the subjects is still present. For one of them, it even seems to trigger some sort of anxiety if control is missing: “[At Uni] I have less control with exams, assignments you have so much control I could put everything into it, put 100%. Exams, you never know until the day” (SE 104) or another one is very clear about it: “I have to control my environment, , my equity...” (SE105).

A different behaviour surfaces when analysing the way student entrepreneurs think. They have a need for recognition from the people around them. “Wowing people was awesome to be different I guess. And then I just kept doing it” (104 SE). Another one admits that, after a while, he tries hard to do it on purpose: “I would use those techniques on people and on girls and sort of like party situations to see how different people would react and I kind of like [it] (SE105). For some, it even seems to be their source of energy for keeping up or justifying the

hard work: “I kind of got addicted to that feeling [of people being impressed], I guess of showing off” (104).

A third aspect is not as clear as the previous ones as it is worded differently by the student entrepreneurs in our study. Some call it simply *God giving opportunities*: “I am a Christian, so I really believe that I need to claim every moment of my life. I believe God has presented me with these opportunities and I’ve just taken full advantage of it” (SE 104). He states later in his ways that he is looking and asking for opportunities: “it might be like psychological values that Jesus presents and stuff that helps. But I believe it’s my natural relationship with God. [...] I was like ‘Lord, if you are there, Do this this this and this.’” Another one calls it *luck* and stresses how he opens himself to it: “I know kids say everything happens for a reason, but I’ve definitely said yes to just about every opportunity I can get at [Uni], that’s just my attitude to life in general, so call it luck, but I guess I just stepped it up a little bit” (SE102). The other term used was *serendipity*: “I think at the start there was a lot of luck, but I think by the end, it became serendipity. It became a culmination of my own making, but at the start it was definitely all luck” (SE 107).

c. LEARN

In analysing how the student entrepreneurs in our study LEARN, four behaviours are shared by a few of them.

Our student entrepreneurs reveal that they learn greatly by trying new things from the earlier age: “[when I was 8] my dad gave me a computer. I started playing around with the wallpaper and the sounds and showing everyone [then when I was 10] my dad installed Photoshop onto my computer and I saw the back cover, and it was this beautiful image, and I was like ‘Well if they can do it, I can do it’”. This behaviour includes adding other subjects of interest into the curriculum: “At uni [on top of my Computer Science course] I started studying psychology and started studying how to interact with people” (SE 104).

Some also enjoy learning by challenging themselves with activities that are not expected from them: “[at 12] I tried to recreate all of these webpages. I looked at the templates and I tried to recreate them” and [at 14] instead of doing a PowerPoint assignment, I would create a fully interactive website, which for each section of the assignment was an animated movie” (SE 105). They do not seem to see a limit to these challenges, asking even for them while doing internships: “At XYZ Pty.Pty I was so bored that I asked for my own project [...] which I really enjoyed, [...] I just got asked ‘Create this system’ I learned how to do it, and I did it” (SE 104).

This attitude of challenging oneself is also accompanied with the capability to learn by doing. It starts by making more and more decisions as points out one of our student entrepreneur (SE 101): “You just have to make decisions, try to make educated decisions, try to test something new sometimes, to get it there, and you learn a lot. I just learned a lot”. Even if the outcomes seem negative, they learn from their mistakes: “I did some bad stuff, because I just wanted a lot of control over everything, but that’s what I learned” (SE 101). Even when doing their internship they were learning skills to implement in their own ventures: “[with ZZZ Pty.] I learned so much. I learned process, I learned customer service, I learned structure, I...actually focusing the nitty gritty details. I could go on endlessly about how much I learned” (SE 104). Some of the serial student entrepreneurs also appreciate the benefits of experience: “after the catering business, I can see the difference between a great team and a terrible team” (SE 104). There is a focus on the importance of learning from the real life as opposed to in class: “I knew I wanted to be part of them, because it’s something different, it’s

something more business-like than the class” (SE 101). They have a capacity to analyse what they learn, even from the least exciting activities from their student association: “we learned that you can actually go into a grocery store and have a negotiation with them, and so really, really learned a lot in terms of negotiation, in terms of organisation, and in terms of, also, motivating people” (SE 101). In times where others see difficulties, they see the opportunity to learn: “He is the toughest client I have ever had. It is because of him I realized I need to learn so much. My customer service was terrible” (SE 104).

Finally, we find that the student entrepreneurs from our study learn because they are willing to learn.

They are open to the world, to new experiences: “we went travelling around America, Europe. And we saw, I saw the whole world. My bubble just burst. I had people challenging me, I was challenged by the food I was eating, everything I was seeing” (SE 105). They want to learn from everything, by doing as much as possible: “why do just one thing when you can do ten? There comes a time when you need to do two and focus, but when you are this [young] age it’s important to meet as many people as you can, have as many experiences as you can, absorb as much wisdom as you can” (SE 104).

They also look to learn from networking endlessly from experts in their fields: “it was a great experience meeting them [advertising gurus] and having that awesome time, and learning from them” (SE 104) or from family members “My cousin over there was one of the founding team of a number of businesses. So I was learning from him as well” (SE 105). The more they are passionate about learning a topic, the more they want to contact people: “learning from them, absorbing everything because it’s what I was passionate about, just absorbing. [That’s why] contacted a lot of different people trying to learn from them” (SE 104).

This concludes the first step of the analysis. Table 1 below summarises the findings on how Student Entrepreneurs in our preliminary study Work, Think and Learn.

Table 1: How do Student Entrepreneurs Work, Think and Learn?

Area	Behaviour	Sub themes
WORK	Hard Work/Effort	
	Need for Control	
THINK	Need for Control	
	Need for Recognition	
	Believe/Ask for Opportunities/Luck	
LEARN	By Trying New Things	
	By Doing Things	Business /Real life activities
		Work Experience / Internship
	By Willing to Learn	Open Minded attitude
		Networking
	By Challenging Oneself Continuously	

2) How do Student Entrepreneurs compare to Archetypical Entrepreneurs?

A previous unpublished work (*The Alchemy of Student Entrepreneurship* 2014) determines the common set of cognitive behaviour of Archetypical Entrepreneurs as follow: Passion, Motivation, Need for Control, Business Savvy, Perseverance, Perfectionist, Have a Mentor, Have a Hero, Believe in Serendipity. The work (ibid) is based on the same set of student entrepreneurs as this current research find the student entrepreneurs share several of these cognitive behaviours with the archetypical entrepreneur.

By understanding in the current study how student entrepreneurs work, think, and learn we develop an overall cognitive map /table (Table 2) of the student entrepreneur closely resembling the archetypical Entrepreneur (figure 1).

Table 2: Summary of Cognitive Behaviours shared by Student Entrepreneurs and Archetypical Entrepreneurs

Archetypical Entrepreneurs		Student Entrepreneurs
Passion		✓
Motivation	Do something Different	✓
	Risk Taking Propensity	
Need For Control		✓
Business Savvy		✓
Perseverance		✓
Perfectionist		
Have a Mentor		
Have a Hero		
Believe in Serendipity		✓

We come to the conclusion that Student Entrepreneurs already share with the Archetypical Entrepreneurs their Passion, Motivation (Doing something different), Need for Control, Business savvy, Perseverance and believing in Serendipity.

3) Cues and Tests relevant for these cognitive behaviours

The last step of our research is to analyse the life stories told by our student entrepreneurs for a list of signals or cues. The signals are considered to be the outputs of the cognitive behaviours described by the young entrepreneurs themselves. The analysis of the narrative of student lived experiences with some preliminary findings is listed in the table 3, below.

Table 3: Preliminary findings: list of cues for student entrepreneurship

Cognitive Behaviours	Cues
Passion	High level of energy, high number of working hours, convince others to join the venture
Motivation / Wants to do something different	Verbalise it repetitively online and offline
Need for Control	Micro manage, do not give equity, set the framework for the interview
Business Savvy	Use of business lexical, understanding of cash flow, ROI, business plan, customer service, customer validation...
Perseverance	History of failures but does not give up.
Believe in Serendipity	Narrative of "by luck, by chance, it happens to be..."

These cues are an indication of similar cognitive behaviours to student entrepreneurs. A choice of relevant tests helps the process of predicting student entrepreneurs. At this stage, we recall from the psychological tests covered at the beginning of this paper, the tests focusing on one or more of the 6 cognitive behaviours identified are:

- The Honey and Mumford Measure of Learning Style
- The Jackson's Personality Inventory (JPI)

Further research is required to identify additional existing psychometric tests highlighting the cognitive behaviours from our findings.

Several limitations needs to be highlighted

- 1) The Need for achievement might provide insight into "Wanting to do something different" or in the Need for Recognition. If that is the case then more tests such as TAT could be included
- 2) The cues come from the long interviews and in depth analysis of student entrepreneurs. Further research is needed to establish if the cues hold for a to a larger population of student entrepreneurs with lived experiences as opposed to desires to become entrepreneurs.

CONCLUSION

Student entrepreneurs follow the cognitive scripts of archetypal entrepreneurs "learning by doing", "following one's own instincts", and enact "you don't have it to get it right, you have to get it going" (Corcoran 2012). The university environment provides leverage to solve entrepreneurial problems in an innovative fashion and in real time. Guest lecturers, student association events, university networking, access to scholarship and internship programs are sought out. Student entrepreneurs avail themselves of luck being open and ready for as many opportunities as possible. Students Entrepreneurs proactively leverage opportunities available on campus scanning their environment for opportunities. As a consequence universities interested in fostering entrepreneurship should facilitate and manage these various sources of opportunities. In the 21st century the next Bill Gates, Steve Jobs or Mark Zuckerberg might just not have to drop out of a university course to think, work and learn. To quote student entrepreneur 105: "why do just one thing when you can do ten?"

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STRATEGIC INNOVATION DRIVERS DO MAKE A DIFFERENCE

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STRATEGIC INNOVATION DRIVERS DO MAKE A DIFFERENCE

ABSTRACT

Large organisations tend to fall into a repetitive routine in which they compete with other organisations exclusively on the basis of quality and cost. Strategic innovation can result in substantial value creation across many functions and provides large organisations with an opportunity to tailor their initial business model to fit an environment that represents growth opportunities thus positioning them ahead of their competition. The drivers of strategic innovation - People, Strategy Processes, Culture and Resources - have been identified as fostering strategic innovation capacity within a company. They shape the way in which organisations behave, function, and communicate which over time directly influences how strategic innovation capacity is fostered within the organisation. Strategic innovation is applicable to the South African (SA) business context since large SA organisations are becoming increasingly significant in the international context and are becoming an important source of growth and capital investments. This paper argues knowledge of the relationship between the drivers of strategic innovation will facilitate organisations to focus their strength and areas to focus on for development.

INTRODUCTION

The drivers of strategic innovation play a determining role in an organisation's innovation agenda. The drivers of strategic innovation have been identified as people, culture, strategy and resources. People have a dual role as a driver, referring to both people inside the organisation and people outside the organisation (Schlegelmilch, Diamantopoulos and Kreuz 2003). Culture refers to the individual views, interpersonal dynamics and social rules that characterize a group of people in a particular time and place (Ball, Geringer, Minor & McNett, 2010). Strategy as a driver of strategic innovation refers to the way in which strategy development proceeds in an organisation (Schlegelmilch *et al.*, 2003). The final driver is that of resources and refers to the deployment, as well as the composition of, the resource base of an organisation (Schlegelmilch *et al.*, 2003). The drivers of strategic innovation provides large organisations with the opportunity to successfully act upon a meaningful gap in the market, thereby creating enhanced value for all stakeholders in a manner which makes the competition irrelevant (Kim and Mauborgne, 1999b).

Over the years, different trends in business processes have evolved that have proved pivotal to the success of large organisations. Janszen (2000) explains that, between the 1950s and 1960s, the focus was on efficiency. This focus then shifted to quality during the 1970s and 1980s and to flexibility during the 1980s and the 1990s. Currently the key focus is innovation (McGrath, Tsai, Venkataraman and MacMillan, 1996; Charitou, and Markides, 2012). Hence, large organisations need to shift their attention towards a view of strategic innovation (Hamel, 1998b).

Large organisations tend to fall into a repetitive routine in which they compete with other organisations exclusively on the basis of quality and cost (Kim and Mauborgne, 1999a). Kim and Mauborgne (1999a; 1999b), demonstrated that strategic innovation results in substantial value creation across many functions, for all stakeholders. It provides large organisations with an opportunity to tailor their initial business model to fit an environment that represents growth opportunities and to position them ahead of their competition.

The concept of strategic innovation is applicable to the South African business context since large South African organisations are becoming increasingly significant in the international context and are becoming an important source of growth and capital investments (Ball *et al.*, 2010). As strategic innovation deals with the fundamental reconceptualization and transformation of a business model and reshaping of a market (Markides, 1998), it could possibly represent value creating solutions for large businesses already in, and yearning to enter the South African market. These value creation solutions are lucrative for developing nations, such as South Africa, given the nature of their respective economies model (Ball, Geringer, Minor and Mcnett, 2010).

It is crucial to understand the effect of the relationship between the drivers of strategic innovation, on large organisations' innovation capability (Schlegelmilch *et al.*, 2003). This article aims to determine the relationships between the drivers of strategic innovation in large organisations in the South African.

This article argues that by determining the relationship between the drivers of strategic innovation in large organisations in the South African business environment and identifying the most important driver the relevance of strategic innovation will be illuminated. Through gaining an understanding of the significance of the relations between the drivers of strategic innovation, a value creation outcome may be more readily achieved.

This article proceeds with four sections. The first section reviews and critiques the concept of strategic innovation and the four drivers of strategic innovation. The subsequent two sections outline the method that has been used to determine the relationship between the drivers of strategic innovation and summarise the findings in terms of the significance of the relationships. In the final section the findings are discussed and the argument that a positive relationship between the drivers of strategic innovation is needed for a positive outcome of strategic innovation in large South African organisations.

LITERATURE REVIEW

Strategic innovation refers to the fundamental reconceptualization and transformation of an existing business model, as well as to the reshaping of existing markets. Strategic innovation is achieved through changing the way in which 'the game' is played by innovating various facets of the business model in order to achieve dramatic value improvements and high growth for an organisation (Schlegelmilch, Diamantopoulus, and Kreuz 2003; Markides, 1998; Kim and Mauborgne, 1997; Hamel, 1996; Markides, 1997; Kim and Mauborgne, 1999; Hamel, 1998a; Hamel, 1998b; Gebauer, Worch and Truffer, 2011; Pitt and Clarke, 1999).

As a fairly new concept, strategic innovation it has been explored under many differing labels. Hamel (1998a, 1998b) refers to the concept as both strategy innovation and non-linear innovation, while Kim and Mauborgne (1999, 1997) refer to it as value innovation or as the concept of blue ocean strategy and Gebauer, Worch and Truffer (2011) calls it competitive innovation. A review of the descriptions of all these labels led to the formulation of the following definition for strategic innovation: "*The process of innovating upon an organisation's business model in an attempt to reshape existing markets, so as to alter the competitive formula,*" (Schlegelmilch, Diamantopoulus, and Kreuz 2003).

Three central themes that run through all the label descriptions proposed by the various authors have been identified. Firstly, strategic innovation has, at its core, the idea of strategically innovating and transforming the business model of an organisation (Markides, 1997). Secondly, strategic innovation always brings about a change in the existing market

and the way organisations operate in these changed markets (Kim and Mauborgne, 1999a). Thirdly, strategic innovation, results in organisational growth and value creation for any given organisation and its customers (Kim and Mauborgne, 1997).

Drivers of strategic innovation

The drivers of strategic innovation could be condensed to four main concepts, namely culture, strategy, people and resources, each of which plays a determining role in an organisation's strategic innovation (Schlegelmilch *et al.*, 2003; Tushman and Anderson, 1997).

People

Innovation in an organisation is determined by the sum of the people in the organisation; it is the way in which they act and think that allows an organisation to realize innovation (Dobni, 2008). Hence, the selection of the correct people to play a role in the strategic innovation process is key to the success of the process (Schlegelmilch *et al.*, 2003). People have a dual role as a driver, referring to both people inside the organisation and people outside the organisation (Schlegelmilch *et al.*, 2003). Organisations are challenged to identify the right people inside and at the same time develop relationships with people outside the organisation beneficial to strategic innovation (Schlegelmilch *et al.*, 2003).

Successfully driving strategic innovation through the people inside the organisation depends on two factors. Firstly the right kind of people needs to be present inside the organisation. Having the right recruitment processes in place are critical. However Hamel (1996) argues that anyone can be a strategy activist, therefore organisations should not only recruit externally but also look at the possibilities finding the right people already in the organisation. Secondly, management techniques that stimulate knowledge transfer and collaboration between employees and all management levels should be in place. Specifically how these factors entwine to facilitate leadership and strategy development (Schlegelmilch *et al.*, 2003; Tushman and Anderson, 1997) will drive strategic innovation.

People outside the organisation refer to stakeholder with whom the organisation forms relationships to create strategic dialogue across organisational and industry boundaries (Schlegelmilch *et al.*, 2003). The nature and number of partners, as well as the strength of the relationships play a defining role (Christen, Johnson and Rigby, 2002). People outside the organisation drive strategic innovation firstly through the relationships that are formed within the same organisational cluster or industry. These relationships may prove to be beneficial through increased work related efficiencies and the advantages of shared resources. Secondly people outside the organisation can be seen as a source of potential ideas, which drives strategic innovation (Kim and Maugborne, 1999a:84).

People inside and outside the organisation are crucial to strategic innovation, not only because they are ultimately the source of ideas which can transform into strategic innovation, but because they also help determine what the two other drivers are, namely, culture and strategy (Dobni, 2008).

Culture

Culture is an important driver of strategic innovation. It forms the context within which employees interact and as such can be directly responsible for the ideas or direction that a

strategic innovation initiative may take. Culture refers to the individual views, interpersonal dynamics and social rules that characterize a group of people in a particular time and place (Ball *et al.*, 2010). It exhibits characteristics such as trust and openness, challenge and involvement, support and space for ideas, debate, risk taking, and freedom (Tidd and Bessant, 2009). An organisational culture goes further to infuse the symbols, values, myths, vocabulary, methodology and rules of conduct of an organisation (Morris, Kuratko, and Covin, 2011). Creating an innovative culture is a tactic to foster strategic innovation (Markides, 1998). As such culture will influence innovation in an organisation through the socialisation process, the basic assumptions, values and beliefs that affect individual behaviour (Martins and Terblanche, 2003). All these elements need to be aligned in a manner that is conducive to create the ideal environment for strategic innovation.

Culture affects strategic innovation in various ways. Firstly, the culture that is present in an organisation will determine the underlying values and beliefs of the organisation, which will undoubtedly be imprinted upon the employees of an organisation. These values and beliefs determine the way in which the world is viewed, and can be crucial to the strategic innovation capability of a firm. As reaffirmed by various authors, the manner in which an organisation views the market in which they operate will influence their capacity to create change (Hamel, 1996: 70-82; Kim and Maugborne, 1999a:90-91)

Secondly, culture affects strategic innovation through its effect on the socialization process and nature of relationships in an organisation (Martins and Terblanche, 2003:65). The effect of culture on the socialization process and nature of relationships will in return directly affects how information disseminates throughout an organisation, as well as how collaboration is achieved in an organisation.

Strategy

Strategy as a driver of strategic innovation refers to the way in which strategy development proceeds in an organisation (Schlegelmilch *et al.*, 2003). Two main elements define this driver. The first element is the degree to which the strategy processes are knowledge and future orientated (Christensen, 1997). The second element is the ambidexterity present in the strategy processes, as defined by the degree of experimentation in strategy development and the supporting environment created by the culture, and the appropriate use of employees (Hamel, 1998; Schlegelmilch *et al.*, 2003).

Strategy mainly relates to the inner workings of an organisation in relation to their respective strategy-creation and innovation practices. These practises have a large impact on the capacity of an organisation to innovate strategically. Many organisations approach strategy and innovation as a formal, rigid and diary-driven process. In these organisations there are many assumptions and a lot is taken as a given, whilst very little is challenged and questioned (Hamel (1996).

For strategic innovation to be fostered a company needs to take a more proactive and inquisitive stance towards the processes they use in their day-to-day operations. Hamel and Prahalad (1993) note that competitive outcomes are being won by focusing on a “mind-set versus mind-set” approach as a means of competing, rather than focusing on “company versus company”.

This reconceptualization needs to be driven by and from the top of the organisation (Hamel and Prahalad, 1994), as their buy-in is crucial for the success of strategic innovation. But the impact of change in re-engineering the business must not stop here; rather it needs to be

disseminated throughout the organisation. As Hamel (1996) points out, one of the key issues in using strategy to revolutionize business is that change is not the issue - engagement is.

Resources

Resources refer to the deployment and composition of the resource base of an organisation (Schlegelmilch *et al.*, 2003). Resources need to be deployed in line with an organisation's strategy and used in a gap filling manner (Christensen *et al.*, 2002; Christensen, 1997). During the composition of the resource base attention needs to be paid to both intangible and tangible resources (Tidd and Bessant, 2009). The resource base needs to be built and managed in such a manner that resources are valuable, un-imitable, rare, and sustainable (Barney, 1995). Key to managing resources as a driver of strategic innovation is to build and sustain sturdy relationships and networks with stakeholders of complimentary capabilities, assets, products and services (Schlegelmilch *et al.*, 2003). These stakeholders can prove to be invaluable to the organisation in its strategic innovation attempts (Kim and Mauborgne, 1999a:86).

To mobilize resources as a driver of strategic innovation it is necessary to ensure that resources are available to those who need them most for strategic innovative purposes. Furthermore, resources should be deployed at the right time and in a way that seeks to limit the inherent risks associated with strategic innovation.

Resources are an incredibly important driver of strategic innovation, since it is impossible to enact any strategic innovation initiative without resources. Resources have a great influence on the three preceding drivers, namely culture, strategy and people, because the resources allocated will determine the people available, the type of strategy that is used in the company, and possibly what the encompassing culture of an organisation is. Hence, although resources may not be viewed as the most pivotal driver of strategic innovation, it is indeed entirely necessary to the success of any strategic innovation endeavour.

RESEARCH METHODOLOGY

Hypothesis

Against the backdrop of the literature review provided it is expected that there will be a relationship between the four drivers of strategic innovation and that the significance of the relationship between the drivers will also be important. Based upon the above the following testable hypotheses were formulated:

H₁: There is a significant relationship between the people present in an organisation and the culture.

H₂: There is a significant relationship between the people present in an organisation and the strategy.

H₃: There is a significant relationship between the people present in an organisation and the resources.

The purpose of this quantitative study was to determine the relationship between the drivers of strategic innovation.

Research Design

Survey and sample

A cross-sectional survey design consisting of two phases was used. Firstly a pilot study was done to test the measuring instrument developed based on the literature review. The results of the pilot study determined the refinement of the questionnaire. Secondly a survey in the form of a questionnaire was administered through electronic means. The sample selected for this study was constructed by consulting with the JSE's online list of member companies. The population of this study is large organisations in South Africa, classified as entities with more than two hundred employees or a turnover exceeding R5 to R64 million (The National Small Businesses Act, 1996). Firstly, to identify approximately 1100 large organisations a convenience sample of was used by consulting the JSE 100 list. Secondly, a judgement sample was used to select the individuals within the identified companies who best possess the information that would yield the best results from the questionnaire. The information regarding which individuals in an organisation possess the information needed for the questionnaire was refined through the pilot test. The questionnaire solicited 110 responses, yielding a response rate of roughly 10%.

Measurement instrument

Based on the literature a questionnaire was developed specifically to measure the relationships between the drivers of strategic innovation. Strategic innovation was treated as the dependant variable (DV) and the drivers were treated as the independent variables (IV). The questionnaire consists of six sections, and participants were expected to answer all questions. After a short introduction, explaining the purpose of the study and the concept of strategic innovation, the first section of the questionnaire captured the demographics of respondents. The next four sections each related to a specific driver of strategic innovation. Each driver was briefly introduced before the opinions of employees were tested in relation to each driver's presence in their respective organisations. Lastly in the final section the respondents were asked to indicate which driver they view as the being the most important to determine strategic innovation. Respondents were to use a 5 point Likert scale and a choice scale to express their views and opinions, and hence the questionnaire only made use of closed-ended and fixed-alternative questions.

Data Analysis

To test the reliability of the drivers of strategic innovation a Cronbach's alpha test was used to calculate the coefficient of each driver of strategic innovation. Table 1 indicates the results of the Cronbach's alpha analysis.

Table 1. **Cronbach's Alpha Results**

DRIVERS OF STRATEGIC INNOVATION		CRONBACH ALPHA
A	PEOPLE	0.825
B	CULTURE	0.831
C	STRATEGY	0.816
D	RESOURCES	0.786

The scales of the test of all the drivers of strategic innovation had coefficients above 0.7, indicating that all the measures proved to be reliable.

Excel and STATISTICA software applications were used to analyse the collected data. Descriptive statistics were used to describe the frequency and distributions of the gathered data. This was complemented by the calculation of the mean, median and mode to test the central tendency of the gathered data. Inferential statistics was used to test the proposed hypotheses and draw certain conclusions based on the sample. This test helps to affirm if there is indeed a relationship between the drivers of strategic innovation.

RESULTS

Descriptive analysis was done to determine which driver of strategic innovation is considered most important by the respondents. The results of the analysis concluded that the majority of respondents, 50,1% believe that people are the most significant driver of strategic innovation. The second most important driver is culture (28.2%) followed by strategy (18.2%) while only 2.7% of the respondents believe resources to be a significant driver of strategic innovation. On an internal level the people driver equates to who organisations employ, how they retain their employees, as well as the leadership provided for employees, whilst on the external level it relates to which contacts organisations make and use for strategic information. This finding is highly appropriate, as it is possible that people as a driver can greatly affect the culture and strategy of an organisation, since they directly interact with these drivers.

Relationships between the drivers

Theoretically there should be a relationship between the drivers of innovation and a correlation analysis has revealed that this is indeed the case. The results can be seen in Table 2.

Table 2. A summary of the correlation analysis(r) and p-values as well as the Spearman correlation coefficient comparing the relationship between the drivers of strategic innovation (N=110)

Relationship	Correlation Analysis (r)	Correlation Analysis (p-value)	Spearman Correlation (r)	Spearman Correlation (p-value)
People and Culture	0,7513	0.00000	0,73	0.00
People and Strategy	0.6568	0.00000	0.66	0.00
People and Resources	0.6911	0.00000	0,69	0.00

The inferential test involved calculating if there was a correlation between the drivers of people, culture, resources, and strategy, in order to test if there was indeed a relationship between these variables. The results of the correlation test show that there is a significant relationship between the driver of people and the other three drivers of strategic innovation. The correlation coefficients for all tests were above +0.5, and the p-value was calculated so that $p < 0.01$, which is significant at the 95% confidence level. Therefore the Hypotheses 1 to 3 stating that there is a significant relationship between the people and culture, resources and strategy were not rejected.

However the significance of the relationships between these different drivers differs. The correlation coefficient test indicated a relationship of 0.75 ($p < 0.01$) between people and

culture. This is the strongest correlative relationship between two drivers. A relationship of 0.69 ($p < 0.01$) was found between people and resources, which also represents a strong correlative relationship however the final relationship regarding people exhibited a correlation coefficient of 0.65 ($p < 0.01$) with regards to strategy. This too is representative of a strong correlative relationship, but of the three tested relationships this relationship, between people and strategy, is the weakest.

Equipped with these results organisations will now be able to take a much more strategic approach to fostering strategic innovation within their respective organisations, given its stated perceived relevance, if that relevance is augmented by knowledge of the identity and composition of each driver of strategic innovation. Organisations will be able to determine the pitfalls of each driver of strategic innovation, and hence can specifically target these areas and foster a greater potential for strategic innovation. Furthermore, these results focus attention on maintaining a competent and able body of human resources from which an organisation may draw, as well as the importance of being an active member of the industry one participates in.

Recommendations

Based on the results this study recommends that organisations should manage their human resource policies stringently in order to ensure the appointment of the highest calibre of employees. Additionally they should similarly ensure that the right mechanisms are put in place to retain and further develop these individuals. A further recommendation is for organisations to ensure that they are active members within their respective industries and create relationships with key individuals, and leverage information yielded through these activities for strategic purposes.

As organisations attempt to innovate strategically it is important that they maximise their odds of success through ensuring that the drivers of strategic innovation are at the strongest possible level within the organisation. Since all the drivers of strategic innovation exhibit a significant relationship, an organisation does not have to express apprehension over which driver to try and strengthen, as an attempt to strengthen one will have beneficial consequences for the others. Nevertheless, it is recommended that organisations follow a policy that attempts to strengthen all the drivers of strategic innovation.

CONCLUSION

The importance of innovation in the current business environment, in addition to the significant role that large organisations play in South Africa, led the researcher to the concept of strategic innovation and how it can be used as a tool to create immense value for both organisations and consumers. Given the results, it is possible to conclude that people are perceived as the most essential driver to strategic innovation, a conclusion that is further propagated through the finding that people is the driver that has the highest observable level in the South African business environment. This may be representative of the fact that people are an indirect component of two of the other drivers of strategic innovation, namely culture and strategy, since people interact to determine the present culture as well as the strategy.

Secondary research led to the confirmation of the four drivers of strategic innovation, namely culture, people, strategy and resources, but proved to provide insufficient for the South African context. Therefore primary research was scoped and implemented to explore the drivers of strategic innovation in South Africa. Further objectives were also planned for and

implemented within the research design. Key members of large organisations were questioned on their opinions and perceptions of the drivers of strategic innovation. This provided the raw data that was then transformed into useable information and findings via statistical means.

The results show that the drivers of strategic innovation are indeed present in the South African business environment, and at what can be perceived as a high level. There is a positive perception of the strategic innovation concept, with individuals further identifying it as a concept that is relevant to their organisations. Additionally, individuals noted that people is the most significant driver of strategic innovation, and that all the drivers of strategic innovation exhibit a significant relationship to one another. As such, all stated objectives were fulfilled.

The research and results obtained in this study have the potential to assist organisations in the implementation of a strategic innovation endeavour, through the information gleaned about the composition and types of drivers of strategic innovation, and the relationships between these drivers. The research and results also opened up pathways for further study that can contribute to the understanding of strategic innovation, and that may ultimately lead to companies being able to strategically innovate with ease, leading to an unparalleled value creation for both consumers and organisations.

Contributions

In regards to the business environment this research helps to create a more in-depth understanding of the concept of strategic innovation. By detailing each driver of strategic innovation, as well as each driver's components, and detailing ways in which to facilitate each driver, it is considerably more likely that an organisation will be able to leverage such knowledge in their attempts to innovate strategically. This research also helps create an insight into which of the drivers is the most significant, and hence helps to identify where organisations should focus their attention to try and maximise the potential output.

Within academic circles this research has valuable merits. Firstly, this research helps to create a basic understanding of and reference point for strategic innovation within the South African business environment. Secondly, it creates the possible means to assess the strategic innovation potential of companies, which could be further utilised in comparative studies. Finally, the research sets a precedent and creates a springboard for future studies in the concept of strategic innovation within South Africa.

Limitations

Upon reflection of the research project, some limitations are apparent. Firstly, given that the study pertains to the South African business environment in its entirety, the given sample size does seem to be small; however, given the resources and scope of the project, it is appropriate. In consequence the size of the sample also proves to be a limitation.

Secondly, a limitation presents itself in the composition of the sample. Since the majority of respondents were of the executive level, there is the possibility that the results obtained may be viewed as having a "top-down" bias. In retrospect a greater attempt should have been made to obtain data from the lower echelons of organisations to create a more holistic data set.

The final limitation to the study pertains to the ascertained level of the drivers of strategic innovation. These are presumed to be quite high, yet the problem arises that no basis for comparison exists, and hence declaring the drivers of strategic innovation to be at a high level

is problematic in some ways. However, until studies of a similar nature are conducted, this limitation cannot be superseded.

Further Studies

For possible future studies it can be recommended that a larger and more stratified sample be used to increase the quantity and quality of the data, as a greater quantity and quality of data would help to provide a greater quality of findings and results.

Additionally it is recommended that future studies should be conducted on the possible barriers of strategic innovation. As apparent from the findings, there is an overall positive attitude towards strategic innovation, and people view it as a relevant concept and are willing to innovate strategically; yet the accounts of successful strategic innovation cases are limited and research exploring the reasons for this is highly appropriate.

Studies could also be undertaken to explore the strategic innovation drivers in separate industries, and cross-comparative studies of the industries could also be done. This research could also be reproduced in other countries, which would help to create a contextualisation of the drivers of strategic innovation.

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ENTREPRENEURSHIP IN PUBLIC SECTOR: NEW POSSIBILITIES?

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Entrepreneurship in Public Sector: New Possibilities?

Key words

Entrepreneurship, public sector, champion, commercialisation

Abstract

Previous research has described potential roles for entrepreneurs in public sector organisations as either closely related to corporate entrepreneurship, or as normative prescriptions regarding the importance of entrepreneurship in the public sector (Ireland, Covin & Kuratko, 2009; Morris & Jones, 1999). While some might argue that entrepreneurship in the public sector context is an oxymoron, recent studies have demonstrated that entrepreneurship in the public sector is alive and well (Currie, Humphreys, Ucbasaran & McManus 2008; Kim, 2010). Entrepreneurship in the public sector can take many forms and generate a range of benefits but to date less attention has been given to the potential to generate new public value (Moore, 1995).

The purpose of this paper is to increase our knowledge and understanding of the types of strategies and activities the public sector is using to capture initiative, create new public value, and generate new economic activity for the benefit of multiple stakeholders. This paper explores entrepreneurship in one public sector context. Findings indicate that entrepreneurship and commercialisation is more likely to be encouraged in contexts where contestability in develop and exploit capabilities.

INTRODUCTION

Research regarding entrepreneurship in public sector contexts has included state owned enterprises (Luke & Verreynne, 2006), local and regional government (Bartlett & Dibben, 2002), state public services (Kim, 2010) and at the national government level (Mazzucato, 2011). Rather than defining entrepreneurship as creating a new enterprise we use a broad definition of entrepreneurship, *the creation of economic activity that is new to the market* (Wiklund, Davidsson, Audretsch & Karlsson, 2010; Davidsson & Wiklund, 2001; Davidsson, 2008).

Comparisons of entrepreneurs as independent entrepreneurs, corporate entrepreneurs and public sector entrepreneurs identified differences and similarities across the dimensions of primary motive, time orientation, skills, attitudes, focus, approaches to risks and failures and courage in the face of ambiguity (Morris & Jones 1999). More recently Kearney, Hisrich & Roche (2009) compared entrepreneurship in public and private organisations, defining public sector entrepreneurship as the process within the public sector organization “that results in innovative activities such as the development of new and existing services, technologies, administrative techniques, and new improved strategies, risk taking and proactivity” (Kearney et al. 2009). These authors also propose that entrepreneurship within the public sector produces superior organizational performance. Other authors who argue that all managers are expected to engage in entrepreneurial management regardless of context (Drucker, 1985; Stevenson & Jarillo, 1990), would expect to find managers in the public sector engaging in entrepreneurial behaviour as both deliberate and emergent strategies (Mintzberg & Waters, 1985).

The importance of entrepreneurship and entrepreneurial management in the public sector is an area of growing interest as public sector organisations at all levels face continual tightened resource constraints. In dynamic complex contexts, organisations often need to generate new economic activity for survival. Under conditions of resource constraint, entrepreneurial

strategies are potential responses to environments that are open to or tolerant of responsiveness to both opportunistic creation and discovery of opportunities (Alvarez & Barney, 2007).

Much of the extant literature discusses the need for entrepreneurial management and the importance of senior managers to be champions of entrepreneurial activities. With little exception (Radnor & Noke, 2012), the activities and processes of middle managers in public sector organisations acting as entrepreneurs, has received little attention. This paper attempts to extend our understanding regarding entrepreneurship in varied public sector contexts, and investigates this phenomenon in a specific public sector context. This paper reports entrepreneurial activities in a large public sector organisation in a dynamic political and economic environment, where senior management are open to new ways of working that they hope may deliver improved performance in efficiency and effectiveness.

A case study approach and framework were used to capture the entrepreneurial initiatives and activities originally initiated to meet a pressing problem in one division of a large public sector organisation and the consequences from this initiative and its potential value creation for the broader public service. This study follows the activities of an entrepreneurial middle manager, to generate new economic activity and more efficient and effective services for his organisation. Using self-report, interviews and discussion and archival documents we examine the roles and relationships in this changing environment as the goals and objectives of the organisation are refined and redirected.

The findings of this study will contribute to a deeper and broader understanding of entrepreneurship in public sector, and will contribute to other relevant literature on the possibilities of entrepreneurship in environments undergoing turbulence and change. The findings will also have implications for further investigation regarding possibilities for entrepreneurship in public sector contexts, regarding initiating conditions, championing and sponsorship from senior management. Implications for policy and practice are also considered.

BACKGROUND

Context: Public Sector Policy and Support Environment

The method of developing and taking a new product or service to the marketplace is referred to as commercialisation. In a public sector context, commercialisation is usually associated with the commercialisation of intellectual property, and more broadly knowledge, to deliver enhanced efficiency and effectiveness gains to government. Every jurisdiction in Australia at both the Commonwealth and state levels has a policy support environment governing the management, exploitation and reporting requirements related to Intellectual Property (IP).

At a basic level there is a growing focus by governments globally to more freely release public sector information (subject to privacy requirements under law) through what has become known as the Open Data agenda¹. The core rationale for this is recognition of the public right to certain information but also the growing recognition that such information is a

¹ see for example each Queensland Government Agencies Open Data Strategy at <https://data.qld.gov.au/departments-strategies>

significant source of entrepreneurial activity in the market place such as for example in the creation of new software products. The framework for these activities is set at a national level through the Australian Governments Open Access Licensing Framework².

At a higher level, the policy context to support commercialisation activity by Queensland public sector employees comes within the policy setting established by the Queensland Public Sector Intellectual Property Principles³. In essence this policy articulates the requirements by which public sector employees can activity pursue entrepreneurial activity pertaining the commercialisation (in whatever form) of State-owned IP Rights. As IP is an intangible asset it is very broad in form and includes such as software, business methodologies, algorithms, and data. Apart from broad guidance on how public sector employees should undertake commercialisation activity, government also provides an incentive environment when employees create valuable IP that may then be exploited commercially through the Queensland government's Rewards for Creating Commercially Valuable Intellectual Property' Directive⁴.

However, while these broad enabling policy settings exist they are often significantly limited in practical guidance for both public sector employees as well as Agencies. For this reason the Queensland Government created its ICT Commercialisation Program to help facilitate the exploitation of software, information and data by industry. This enabling program comprised a governance framework to guide individuals through to a successful conclusion. However, unlike traditional entrepreneurial activity where the focus is primarily on the individuals themselves would be the beneficiaries of the outcome, this initiative was primarily aimed at existing firms in industry as the basis for commercially valuable product and service knowledge and IP.

As outlined in Figure 1 below, it can be seen that this framework provides a step by step guide to facilitate commercialisation activity. However, even with this generic approach, the successful conclusion of such arrangements may be largely contingent on the ability of the project champion to act entrepreneurially. Specific behaviours required include identifying a clear commercial opportunity, identifying internal barriers to conclusion and overcoming them, and operating within the operational and governance constraints imposed by the respective public sector agency itself.

This program, while only funded as a pilot initiative to test the waters to help future innovation capacity building in the local industry as well the public sector, nevertheless can be considered to have delivered a range of substantial benefits back to the government. These benefits included (for the period July 2005 to March 2008) a 640% Return on Investment on program costs through royalties received, capital raising of \$22.8M and the establishment of four new entrepreneurial ventures⁵. By the conclusion of the pilot phase of the program in December 2008, over 60 individual projects had been completed⁶.

² <http://www.ausgoal.gov.au/the-ausgoal-licence-suite>

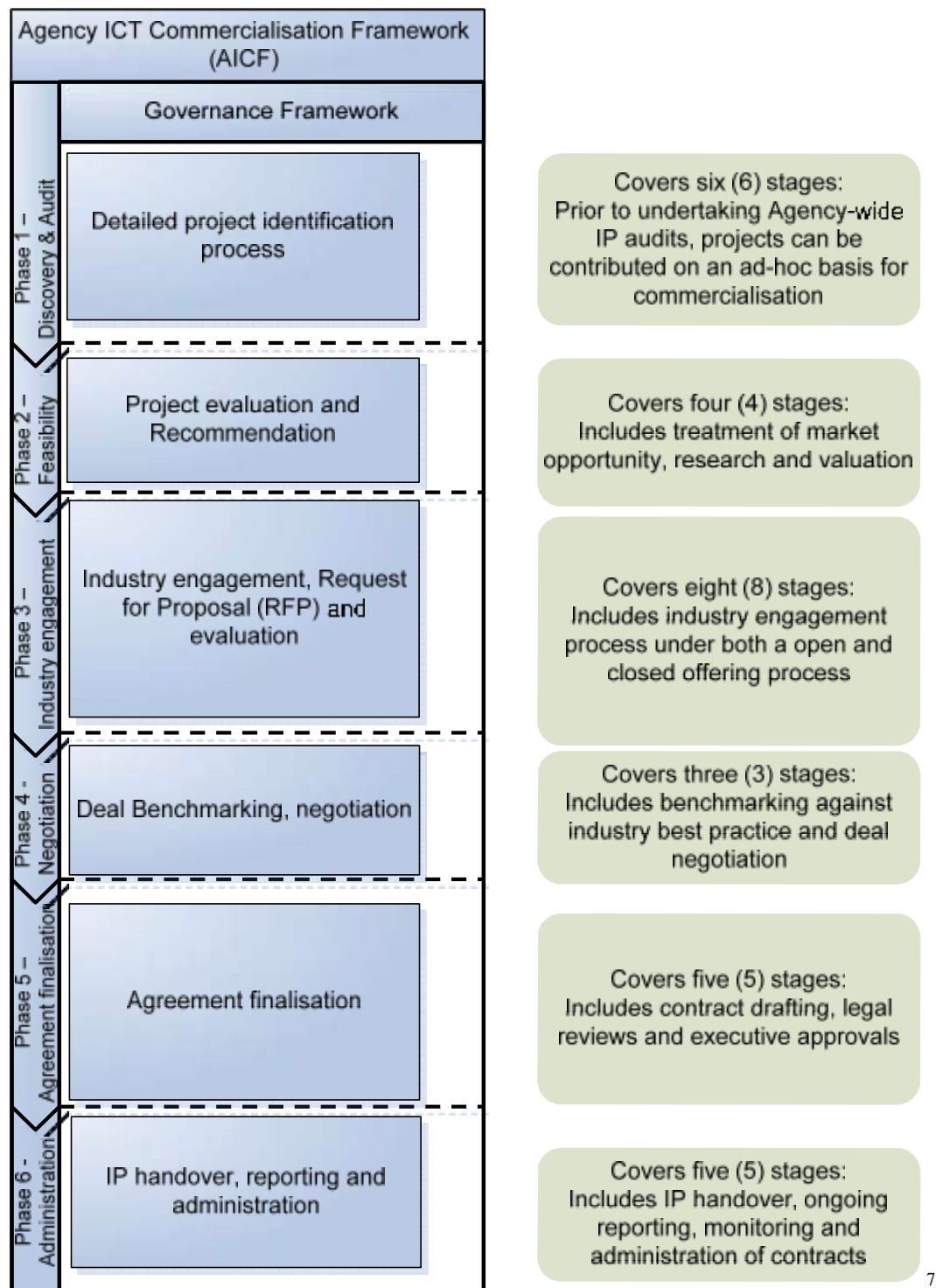
³ <http://www.qld.gov.au/dsitia/assets/documents/ip-principles.pdf>

⁴ Ibid p. 4

⁵ Report to Treasury June 2008 from Australian Institute for Commercialisation.

⁶ Ibid.

Figure 1. Queensland Government ICT Commercialisation Program: Framework Guide for Agencies, 2005



⁷ Queensland Governments ICT Commercialisation Program, summary presentation to agencies, 2006

RESEARCH DESIGN AND METHODS

Data were collected from multiple sources, including interviews and discussion with the architect of the Queensland government program under which the project was undertaken, interviews with the Chairman and Managing Director of Concept Safety Systems Pty Ltd (the start-up company through which the resulting entrepreneurial public sector opportunity was commercialised), and reports submitted to Queensland Treasury on the benefits, outcomes and program management documentation.

To a large extent, Queensland's Department of Emergency Services is unique in Australia. The agency provides services covering all phases of emergency and disaster management including prevention, preparedness, response and recovery that are delivered by fire, ambulance and Emergency Management Queensland across a single portfolio. The single agency structure provides significant advantages and benefits to the community. These benefits occur at many levels, from having single point ministerial accountability for emergency services, through to the invaluable cooperation and coordination of operational staff in communities during emergencies and disasters.

Case Study: Queensland Fire and Rescue Service

The Queensland Fire and Rescue Service (QFRS) is a division of the former Queensland Government Department of Emergency Services and is the primary provider of fire and rescue services throughout Queensland. On 23 June 2000, 15 backpackers lost their lives in what became known as the 'Childers backpackers fire'. As a consequence of the realisation that the Childers timber backpackers hostel did not have working smoke detectors or fire alarms, the government made the decision to dramatically increase the safety requirements for commercial building operators across the state.

This decision resulted in the establishment of new world-leading standards and regulations for building fire safety, with stiff penalties for non-compliance. While the enactment of new regulations met a new required standard of care expected by the public, it also created new problems for both government and industry in helping the many thousands of building operators meet this new heightened compliance burden.

The Fire Evacuation Program, (FEP) a novel piece of interactive technology was developed by QFRS personnel to help with compliance training, tracking and reporting. At the same time the public service environment was facing increasing resourcing, operational and political pressures adding new degrees of complexity and constraints on service delivery which would only likely increase over time. To facilitate access to this new technology platform broadly to industry, together with its associated services, the government needed to approach the problem in new innovative and highly entrepreneurial ways in order to optimise its diffusion.

The QFRS Business Environment

Apart from more traditional fire fighting functions to provide better services for the target market (commercial building operators) QFRS provided a number of essential services to industry, such as face to face training - with a particular focus on high risk environments requiring 'live fire' simulation training and compliance training, online interactive compliance training and compliance auditing and enforcement.

Many public sector service providers interacting with the commercial sector on a fee for service basis (irrespective of the nature of the service they provide), have been criticised by the commercial sector as lacking ‘commerciality’. Other complaints include a lack of timeliness in product and service delivery (not surprising given high levels of bureaucracy commonly encountered and the high cost basis (again not surprising given traditional levels of inefficiency and resulting overhead on service delivery). It is often difficult for the public sector to deliver critical services in an efficient and effective manner compared to similar services in the private sector. In addition the new regulation environment was expected to place a significant demand burden on the government that it would not be able to adequately resource due to funding constraints as well as representing significant operational and political risk for the department.

The FEP platform afforded QFRS an opportunity to enter into an arrangement that would meet the needs of multiple stakeholders, and one that could also be seen as an excellent model for public sector entrepreneurship.

The New Product and Service

The Fire Evacuation Program (FEP) is a sophisticated interactive online compliance software solution that allows users to undertake evacuation, safety and induction training in a personalised online environment, without the need for physical evaluation training. The benefits for commercial clients include lower costs, convenience and reporting for compliance audit. In the absence of other similar products or services in Asia-Pacific countries or anywhere else in the world, an opportunity was identified in the marketplace for the commercialisation of this product to meet the need such a product service system for not only the marketplace in Queensland but also nationally and potentially internationally. The legislative requirement for compliance for which the product was designed (that is the Queensland legislation) meant that it would automatically conform to most standards around the world, as this new legislation was at the forefront in standard setting globally.

From Opportunity Identification to Commercialisation

The process by which the opportunity was captured was essentially one of commercialisation of the product service system, which while allowable for under government policy, had very rarely been attempted except in research-intensive agencies such as Health and Agriculture. Commercialisation is rarely supported in non-research focused public sector agencies due to misperceptions of risk and lack of understanding of commercial drivers impacting industry. However, in this instance, the risks of not being able to meet expected increases in demand from industry outweighed more traditional tendencies of bureaucratic conservatism.

The internal processes enabling entrepreneurial activity resulting in the successful conclusion of any such commercial deal making can be categorized according to:

- Governance processes;
- Deal structuring, contracting approvals; and
- Ongoing management.

Governance processes comprised a range of procedural and oversight considerations akin to traditional project management activity defining public sector services. To facilitate this process the governance process was pre-established as part of the cross-government *ICT Commercialisation Program*, which outlined a project management methodology design specially to address traditional governance process. This program was established as a pilot

activity by the Department of Premier and Cabinet to help facilitate entrepreneurial activity to support commercialisation outcomes. While these processes and principles were identified, significant barriers existed to contextualise the procedures for the way of doing business specifically relating to QFRS business practices at the time. These barriers required significant perseverance by the project sponsor driving the process internal to the Agency. As each barrier was identified the sponsor needed to identify strategies to overcome and ensure the principles of good governance were endorsed.

A two-stage commercialisation process was embarked upon. Firstly an Expression of Interest process was undertaken to invite invitations from existing market incumbents to bid to enter into an intellectual property licensing arrangement. Despite this invitation, no existing market players submitted a bid as potential revenue size could not be adequately projected. Further exploration of possibilities found interested firms outside of the existing supply chain interested in collaborating to form an entrepreneurial new venture to focus on commercialisation activity of the software (FEP). As a result Concept Safety Systems Pty Ltd (CSS) was born, formed specifically out of this opportunity.

Deal structuring and contracting approvals: Two discrete contract instruments were developed; i) a ten-year license agreement with exclusivity worldwide and ii) an associated service agreement for referrals from QFRS to service the expected future demand as a result of the new legislation. The structure of the commercial arrangement directly allowed QFRS to mitigate demand risk from new legislation and just as importantly diverted scarce resources within the department from this activity due to commitments from CSS to resource all commercial development and ongoing product development.

Ongoing relationship and contract management was an essential component to help ensure commercial and application success. To this end, QFRS nominated a relationship manager to ensure seamless service delivery between QFRS enquiries and product and service delivery to the end customer by CSS.

While this summary description of the commercialisation process seems straightforward it was not a simple process. At a number of points the relationship became strained due to divergent goals (bureaucratic process governance typical of public sector organisations, versus commercial pragmatism needed for marketplace success for CSS). These obstacles were addressed. Concept Safety Systems today is a vibrant SME delivering significant commercial benefits nationally for its shareholders as well as the desired ongoing benefits for government and ultimately taxpayers of Queensland.

Quote from Mr John Hummelstad MD and Chairman of CSS:

“The benefits back to government are undeniable. Importantly these included cost savings, realising revenue through royalty payments and operational efficiencies in freeing up critical staff for redeployment to core business activities. While the challenges in the relationship were at times significant - mainly due to the gulf between public sector administration and the required commercial pragmatism needed to deliver value for CSS clients - by working together we overcame these and it has been an enormously fruitful relationship”.

OUTCOMES FOR GOVERNMENT

Specific benefits arising from the QFRS's FEP project include significant value created in both the short and long term perspectives. For example the establishment costs of the venture were largely borne by the industry. Revenue from royalties of sales and licensing (approximately 20 times original development cost) was returned to government.

In times of increasing resource constraint, public sector agencies are very conscious of ensuring, as much as possible, that key professional staff, in particular fire fighting, policing and medical practitioners, are being employed in direct front line tasks best able to utilise their specific skills and abilities. This direct service relevance was applied to this project team with the redeployment of the professional fire fighting staff back to front line duties.

As explored earlier, the new legislative environment was likely to see a significant increase in demand from industry for services related to the FEP. Government was able to meet all such increased service demands through its partnership arrangement with CSS for service delivery. In effect this arrangement transferred service risk to its industry partner.

Cost avoidance for government. CSS employs over 30 full time staff specifically engaged on meeting the flow-on demand from the Queensland market place that would have been required by QFRS (even if approval to do so was possible).

As with any commercial new product/service development process, continual investment in enhancements to product performance through adding and amending new features to products were required to meet changing market demands over time. The FEP was not an exception. In this case, QFRS was able to avoid the costs for such development activity (of around \$750,000) by the investment by CSS and at the same time obtain the product benefits from such improvements itself.

Initiatives undertaken within this program, as well as initiatives undertaken outside of the formal commercialisation support program, cover a range of diverse application and industry domains. Examples include transport (with the creation of Transmax – an intelligent transport technology company by staff), policing (a forensics management system), health (Workplace health and safety and incident management systems), public housing (with the commercialisation of the Property Standard Index – an integrated housing valuation system), community services (for online community consultation).

DISCUSSION AND CONCLUSION

This case study illustrated a resource-constrained environment, where a new ICT policy enabled the commercialisation of new ICT product development and service delivery through a newly created company. The case also demonstrated Currie et al. (2008)'s description of a public sector entrepreneur who “identifies market opportunities within the political landscape, optimizes the performance-enhancing potential of innovation for the public sector organization, and carries stakeholders in a way that both permits risk and recognizes the stewardship of public sector resources” (Currie et al. 2008: 987).

The developments reported in this case example reflect our broad definition of entrepreneurship in a public sector context as *the creation of economic activity that is new to the market* (Wiklund, et al., 2010; Davidsson & Wiklund, 2001; Davidsson, 2008). In addition issues discussed are largely supported by previous entrepreneurship literature around issues of governance (Benz & Frey, 2007) and management.

This paper identified an environment that encouraged entrepreneurial behaviour as well as new entrepreneurial activity that originated in relation to a problem situation with known serious consequences for individuals and organisations. The solution developed was new to the world with potential benefits for larger populations than one government jurisdiction.

The findings of this study contribute to a deeper and broader understanding of entrepreneurship in public sector, and to other relevant literature on the possibilities of entrepreneurship in environments undergoing turbulence and change. The findings also have implications for further investigation regarding possibilities for entrepreneurship in public sector contexts, regarding initiating conditions, championing and sponsorship from senior management

As governments in Australia at all levels are having a greater focus on new approaches and business models for identifying and harvesting gains from efficiency improvements and effectiveness improvements in service delivery, an emerging policy agenda is that of 'contestability'. In essence this agenda actively encourages public sector personnel to pursue entrepreneurial approaches for realising such benefits. Such new model are 'market making' models to aid in building new market capability in supply chains (particularly where competing in the market is lacking), and employee ownership models where staff may become direct owner in outsourced models of service delivery. In effective its embraces higher degrees of risk associated with entrepreneurship so long at public sector employees can manage risk and demonstrate enhanced value to the public from such new models. Increased ability to recognise these opportunities and responsiveness may require training and resourcing for optimal effectiveness.

Future Research

As Australian governments focus more and more on efficiency and effectiveness gains to be made in the delivery of public sector services, opportunities abound in testing the 'contestability' of government services with that of the private sector. In particular, the need to identify and put in place new models of service delivery through the adoption of novel business models to deliver public value will drive research in this area.

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MANAAKITANGA: IS GENEROSITY KILLING MĀORI ENTERPRISES?

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ABSTRACT

This paper is about *manaakitanga*, a cultural ethic of generosity in the Māori language, and the ways in which this manifests within Māori enterprises of Aotearoa New Zealand. *Manaakitanga* is defined in terms of its traditional and contemporary usage and discussed as part of an emerging ethical code for entrepreneurship derived from indigenous wisdom—traditional knowledge, values and customs—that may have relevance for indigenous and non-indigenous entrepreneurs. This paper draws on emerging evidence from my doctoral research, which examines the role of enterprise assistance in Māori entrepreneurship. During interviews with Māori entrepreneurs and others, *manaakitanga* was raised as both a strength and a weakness within Māori entrepreneurial endeavour. In some Māori enterprises, *manaakitanga* has been implicated in bringing about their premature demise, while for others that manage to successfully modulate the impulse to be over-generous, *manaakitanga* remains a vital feature of Māori entrepreneurship. But what separates those Māori entrepreneurs for whom *manaakitanga* is a strength from those for whom it is a weakness? The paper suggests several factors, based on a review of the literature and evidence of *manaakitanga* in Māori enterprises, that may serve to regulate *manaakitanga* in favour of its more favourable consequences.

INTRODUCTION

Indigenous peoples have a propensity and a capacity for entrepreneurship, but on their terms and subject to indigenous values, not as constraints to doing business, but as enablers. It is this indigenous approach to entrepreneurship which has the facility to provide an important contribution to managing our way through humanity's various challenges and collective needs. The central challenge facing humanity has been described as being: "how to feed, transport, educate, communicate, cure eight billion people in a sustainable way?" (Sirolli, 2011 [Oral presentation]). The contribution of indigenous peoples to accomplishing such a monumental undertaking is unlikely to be found in a superior technology, but in a different way of thinking. That is to say, a thinking that may help recalibrate economic orthodoxy, which pledges supreme faith in the market, with one that views entrepreneurship as a socially responsible pursuit, conducted in a way which is consistent with an ethical code built from indigenous values.

Indigenous values, beliefs and customs constitute an ethical code for entrepreneurship, with relevance to indigenous and non-indigenous entrepreneurs. Within this code, there is a vibrant sustainability ethic, a hallmark of indigenous approaches to human development, including entrepreneurship (M. Durie, 2002; L. T. Smith, 1999). While not infallible, such a code is intrinsically inspiring, bringing principled action to institutions which seek to impose a sense of sustainability on indigenous enterprises from the outside (Crengle, 1993; Iremonger & Scrimgeour, 2001; Kingi, 2007). In the Māori worldview and traditional knowledge system of Aotearoa New Zealand, this sustainability ethic is embodied within two fundamental concepts, *kaitiakitanga* (guardianship) and *manaakitanga* (generosity). This paper concerns the latter of these concepts. A proper treatment of *kaitiakitanga* would easily constitute a separate paper, but is adequately addressed elsewhere, albeit in slightly different ways (see for example, M. Durie, 2002; Harmsworth, 2005; Spiller, Pio, Erakovic, & Henare, 2011).

The paper draws on emerging evidence from my doctoral research, which examines the role of publicly funded enterprise assistance in Māori entrepreneurship (Mika, 2013). While enterprise assistance is the focus of my doctoral research, this paper concerns interview participants' views on the ways in which Māori 'do' business and how their cultural identity as Māori influences this. It is within this context that participants raised manaakitanga as being a contributing factor in the demise of some Māori enterprises. This paper contends however that manaakitanga can be both a strength and a weakness. But what separates those Māori entrepreneurs for whom manaakitanga is a strength from those for whom it is a weakness? This paper discusses the concept and practice of manaakitanga in its traditional and contemporary settings, including its application in Māori and non-Māori enterprises. The paper suggests factors which might help better regulate manaakitanga in favour of its more favourable consequences identifies areas for future research.

METHODOLOGY

Enterprise assistance in my doctoral research refers to publicly funded business information, advice, mentoring, training and grant funding. Māori enterprise in the research is one which is fifty percent or more owned by a Māori person or Māori people, the indigenous people of Aotearoa New Zealand. The purpose of the study is to contribute to knowledge and methods of Māori entrepreneurship research. This is an emerging field within indigenous entrepreneurship, which itself is a subset of entrepreneurship with cross-overs to indigenous and Māori development, among other fields (Foley, 2004; Henry, 2007; Hindle & Lansdowne, 2007; Peredo, Anderson, Galbraith, Honig, & Dana, 2004). The contribution of this study is expected to be in three areas: (i) the role of enterprise assistance in Māori entrepreneurship; (ii) the rationale for public provision of enterprise assistance for Māori entrepreneurs; and (iii) whether an 'ideal' model of enterprise assistance for Māori is discernible. The research may influence how publicly funded enterprise assistance for Māori is designed, implemented and evaluated.

The research is underpinned by kaupapa Māori research (Māori research philosophy). Kaupapa Māori research is research by Māori, with Māori, for Māori and others, in which Māori knowledge, language, values, beliefs and customs inform research methodology, methods, analysis and impacts (Bishop, 2008; Henry & Pene, 2001; Hohepa, Cram, & Tocker, 2000; G. H. Smith, 1997). Integrated within this is a Western research philosophy (a pragmatist paradigm) (Creswell & Plano Clark, 2011), which opens the door to research methods which seem appropriate under the circumstances. Thus, mixed methods is applied to data collection, combining interviews and a survey in a sequential design (Creswell, 2009). Sixteen interviews were conducted with Māori entrepreneurs, policy makers and providers of enterprise assistance to Māori. The interviews were approved by a university human ethics committee. The interviews were transcribed by the researcher and coded using Nvivo software. The survey, phase two, has yet to be administered.

While the literature on Māori entrepreneurship is evolving, few academic studies focus on Māori participation in publicly funded enterprise assistance. Most existing literature originates from public policy as commissioned evaluations of enterprise assistance. The study addresses this perceived gap in the academic literature by drawing on economic and indigenous perspectives to examine enterprise assistance and Māori entrepreneurship. A theoretical framework for Māori entrepreneurial development showing the linkages between enterprise assistance, the building of Māori entrepreneurial capability, performance and impacts, is formulated.

THEORETICAL POSITIONING

The role of traditional knowledge and values in Māori entrepreneurship

While indigeneity has much to offer Western constructions of entrepreneurship, an earlier contribution has been negated for two main reasons. First, indigenous peoples tend to occupy the margins of societies which have enveloped them as a lingering consequence of colonisation (Jack & Westwood, 2009; L. T. Smith, 1999). Second, indigenous peoples themselves may doubt the capacity for indigenous values, beliefs, and customs to be conducive to entrepreneurship; fostering an emic view that success in business is somehow predicated upon abandonment or indifference to one's indigeneity (Fox, 1998; Frederick & Henry, 2004).

However, a resurgence in the use of traditional knowledge and values in Māori entrepreneurship is helping re-shape modern entrepreneurial practice in Aotearoa New Zealand. In the Māori economy, the challenge of integrating cultural and commercial imperatives has been characterised as dialectical. That is to say, how are Māori enterprises to maximise wealth subject to *kaupapa tuku iho* (Māori philosophy), or conversely, how are they to maximise expression of kaupapa tuku iho subject to acceptable financial returns (Tūria, 2004)? Tūria (2004, p. 3) asserts that “our people are our wealth” and traditional principles of *mana* (power, authority and control) *tino rangatiratanga* (self-determination) and *whānaungatanga* (family relationships) ought to drive thinking and approaches to entrepreneurship.

The Māori Economic Taskforce (2010) investigated the notion Tūria raises—maximising wealth subject to kaupapa—in relation to Māori participation in public private partnerships. A leading taskforce member, Sir Mark Solomon (2010), drew attention to the merits of *iwi* (tribes) as attractive business partners in infrastructure investments because of the permanency of iwi as social and economic institutions (M. Durie, 1995; Jones, 1990), their inter-generational investment outlook (Sapere Research Group, 2011), increased access to cash, properties and capacities as a result of settlements (Office of Treaty Settlements, 2013), and a fundamental commitment to sustainability expressed as *kaitiakitanga* (stewardship over resources) (Crengle, 1993; Spiller et al., 2011).

Māori values and principles shape managerial behaviour and decision-making as an evolving organisational culture (P. Davies, 2011; Knox, 2005; Puketapu, 2000; Tinirau & Gillies, 2010; Warren, 2009; Yates, 2009). Manaakitanga is an integral part of this value-set, which is driving change in Māori entrepreneurialism (Barnett, 2001; Knox, 2005, 2012; Martin, 2008; Mika & O'Sullivan, 2012). Manaakitanga is a commonly expressed value of Māori enterprises (Mika, 2005, 2007, 2011b; Mika & Hawkins, 2012; Yates, 2009) which is characterised as “support for social and commercial objectives, treating others fairly and with respect and generosity” (Knox, 2005, cited in Mika & O'Sullivan, 2012, p. 26).

Manaakitanga in traditional Māori society

Manaakitanga is a long-held value within Māoridom, traditionally associated with the custom of hosting *manuhiri* (visitors) on *marae* (village meeting place and associated buildings) (Barlow, 1993). Mananakitanga derives from *mana* (pride, prestige, power and authority), *aki* meaning to encourage, and *tanga*, a suffix which converts the verb into a noun (Moorfield, 2011;

Ngata, 1993; Williams, 2004). Being generous, or more precisely over-generous, toward one's guests is the hallmark of an honourable host. This has the effect of increasing the *mana* (prestige) of the host whilst giving rise to reciprocal obligations with the guests to return such generosity with an equivalent display (Patterson, 1992). Some of the principles of *manaakitanga* in traditional settings include: (i) inviting visitors to eat with you if you are eating when they arrive; (ii) avoiding arriving after dark; (iii) avoiding refusing hospitality when it is offered; (iv) hospitality should not appear as "afterthought;" and (v) promising a level of hospitality and not providing it (Patterson, 1992, pp. 64-65).

Manaakitanga bears a close relationship with *kai* (food) as an expression of generosity in the care of others (Papakura, [1938] 1991); with "*koha*" (gifts), which may include food and other artefacts of value (Barlow, 1993, p. 49); and with "*ohu*" (co-operative labour) in which tribes volunteered their best efforts to help other tribes whilst being fed and entertained by their hosts (Buck, 1987, p. 378). Importantly, in traditional settings of *whānau* (families), *hapū* (subtribes) and *iwi* (tribes), the responsibility to provide for visitors at gatherings was borne by the many rather than the few. When for instance, a *rangatira* (tribal chief) called a *hui* (meeting) to discuss "affairs of state" all associated *hapū* of that tribe would begin to collect, store and contribute food of their particular locale in readiness so that the host *hapū* was not left improverished by the occasion (Papakura, 1991, p. 158). Thus, the expression of *manaakitanga* was a reciprocal obligation alternating between hosts and visitors and mediated by being "so evenly distributed among a great many people, [that it] would scarcely be felt by any of them [the hosts or the visitors]" (Papakura, 1991, p. 159).

Aside from these more pragmatic manifestations, *manaakitanga* also has spiritual connotations (Buck, 1987). *Manaakitanga* features in incantations which seek the favour of *atua* Māori (Māori gods) and *Īhōwa* (the Hebrew God) and expresses an ethic of care over the natural environment (Patterson, 1992), particularly that part of it which Māori call home, their "*tūrangawaewae*" (place to stand) (Walker, 2004, p. 70).

Manaakitanga in contemporary Māori society

Te ao Māori (or Māori society) has changed dramatically since pre-European contact (pre-1769), over the period of colonisation (from 1840 to about 1940) and indeed during the post-World War II era (from 1946 to the present) (see for example, M. Durie, 2001, 2005; King, 2003, 1975; McLeod, 2005; Moon, 1993; Petrie, 2002; Walker, 2004). In spite of the promises of a pact reached between Māori and representatives of the British Crown in 1840 at Waitangi that Māori would retain their chiefly authority and the "full exclusive and undisturbed possession" of their lands and estates, forests, fisheries and other properties, Māori suffered significant loss of life, lands, marine resources, language, culture and institutions through colonisation (Anaru, 2011; Kawharu, 1989; Mikaere, 2000; Petrie, 2002; L. T. Smith, 1999; Waitangi Tribunal, 1996, 2009, 2013; Walker, 2004).

In consequence, Māori have actively pursued a policy of self-determination, otherwise characterised as the 'Māori renaissance' since the 1960s (M. Durie, 1995; Mikaere, 2000; Walker, 2004). However, the revitalisation and retention of the Māori language, culture and land remains precarious (Anaru, 2011; Hook, 2006; Matāmua, 2006; PricewaterhouseCoopers, 2013; Waa & Love, 1997a; Walker, 2004). This implies that the cultural institutions which help sustain the spirit and practice of prized Māori values such as *manaakitanga* are simultaneously under-going a transformative and restorative effort. But as Mead (2003) has espoused, *tikanga* Māori or Māori

culture is dynamic rather than time-locked, suggesting new definitions and interpretations of manaakitanga are likely to emerge as traditional and contemporary practices find meaning in modern circumstances.

In 2012, there were an estimated 682,200 Māori people living in Aotearoa New Zealand, comprising 15.4 percent of the population (Statistics New Zealand, 2012). In 2006, the median age of the Māori population was 23 years compared with 38 years for non-Māori (Te Puni Kōkiri, 2011). Māori are highly urbanised, with 84 percent living in cities and towns, often away from their traditional homelands (Meredith, 2012). Around 24 percent of Māori are able to converse in Māori about everyday things (Statistics New Zealand, 2011). The Māori economy of today is defined as the assets owned and income earned by Māori—including collectively-owned trusts and incorporations, Māori-owned businesses, service providers, and the housing owned by Māori (New Zealand Institute of Economic Research, 2003). While the Māori economy is estimated to worth NZD36.9 billion and growing (Nana, Stokes, & Molano, 2011), most Māori continue to derive their income through salary and wages earned in the wider New Zealand economy (New Zealand Institute of Economic Research, 2003).

Today, manaakitanga retains its potency as a galvanising influence within tribal relations and between Māori and people of other cultures (E. T. Durie, 1998; Harmsworth, 2005, 2009; Knox, 2005; Tinirau & Gillies, 2010). In practical terms this may mean sharing what one has with whānau such as a place to stay, food, clothing, money, and other possessions. When carried to its extreme the obligation of manaakitanga may leave one bereft of material wealth (Martin, 2008). In such cases, one may hear the phrase *tātou tātou* uttered in derision, which colloquially translates as ‘what’s mine is yours,’ rather than its more noble meaning. This circumstance is indicative of an absence of the self-regulating equilibrium inherent in Māori values and customs; where the natural tendency is the restoration of balance through a process called *utu* (recompense, reciprocity, revenge) (Buck, 1987; Moorfield, 2011).

Utu served as a principle of “social control,” which “at its simplest level... meant equivalence or payment” associated with the practice of “[g]ift-giving which “cemented social ties” (Walker, 2004, p. 69). Walker (2004, p. 69) alludes to its more “serious” property as “compensation for some injury” (e.g., adultery, land disputes) which could lead to war. Utu, in the form of “gifts and services” were sometimes insisted upon to curb self-interested behaviours (e.g., theft of valuables, gluttony, idleness) that were deemed detrimental to the collective interests of the tribe (Firth, 1973, p. 138).

MANAAKITANGA AND MĀORI ENTREPRENEURSHIP

Manaakitanga as a weakness in Māori entrepreneurship

Entrepreneurship and small and medium enterprise (SME) literature often list reasons for small business failure (Audretsch, Grilo, & Thurik, 2007; Storey, 1994; Watson & Everett, 1996). Among frequent offenders on such lists are: (i) poor management; (ii) inattention to cash flows; (iii) a lack of business knowledge; (iv) insufficient capital; and (v) non-compliance with tax and other obligations. However, another that may yet find its way into the business literature is generosity, which is uniquely defined within Māori culture as manaakitanga. To illustrate, an informant, a business mentor of Māori descent, observed that:

So many... Māori businesses [were] failing... we were seeing that generosity was killing them. The desire to give expression to manaakitanga with their staff, with their whānau, with

the local marae [village common] when there was a tangi [funeral] with their time was just putting such a strain on the businesses.

In another case the manaakitanga ethic was so powerful that it seemed resistant to the efforts of outside intervention. When this informant, an enterprise facilitator also of Māori descent, was asked to assist a *kuia* (female elder) who had bought a slurry ice machine for use with local vegetable growers, this is what he found:

when I looked at the books... she was going downhill pretty fast, in fact she did in the end. ...her mentality was that she had to help the whānau... And I said look you gotta help yourself first. She was in the wrong mind-set... you can't help the whānau if you go... belly up.

In a study of manaakitanga among Māori tourism providers, one participant recalled early childhood experiences on the marae in that “[e]verything was shared ‘even if it means that you haven’t got anything left at the end’” (Martin, 2008, p. 45). The participant asserted that manaakitanga was “both a good and bad concept for Māori business,” “good” in the sense of honouring guests and “bad” in the sense of being over-generous to extent where it causes harm to one’s business (Martin, 2008, p. 45).

Manaakitanga as a strength in Māori entrepreneurship

In modern commerce, manaakitanga is most visibly associated with Māori participation in cultural tourism (Barnett, 2001) affirming a “Maori way of hosting” visitors (Zygadlo, McIntosh, Matunga, Fairweather, & Simmons, 2003, p. 32). However, manaakitanga has moved beyond being a concept of the Māori alone, to one that has been readily embraced by ‘mainstream’ public policy; entering New Zealand’s commercial lexicon. For instance, tourism agencies adopted manaakitanga as a “central” value underpinning strategic development of their industry and service expectations among providers (Ministry of Tourism, 2007). Manaakitanga thus appears as a mantra for New Zealand style hospitality, “summing up the act of giving and how people are made to feel welcome” (Tourism New Zealand, 2013a, p. 1). Although the practical expression of manaakitanga among mainstream tourism agencies seems presently limited to an internal focus on building cultural competency among officials (Tourism New Zealand, 2013b) rather the outward orientation implied by its use in statements of strategic intent (Ministry of Tourism, 2007).

Notwithstanding this, Māori do business in ways that are unique to them, ways which are instructive for indigenous and non-indigenous entrepreneurs. Two examples illustrate how manaakitanga, in concert with other Māori values and customs, is influencing Māori commercial relationships with non-Māori business partners, locally and internationally.

Te Arawa Group Holdings Limited (TAGH) is a Māori investment company charged by its tribal shareholders with growing its original treaty settlement asset of NZD34 million (Mika, 2011a). To do this, TAGH is engaging with Japanese, Chinese and Pākehā (New Zealanders of European descent) multinational corporations many times larger than themselves. However, as a precursor to doing business TAGH cultivates a business relationship founded upon kauapapa Māori (Māori principles) which they view as enduring—outliving people and legal instruments—because these agreements are “signed in blood” (Pikia, 2013). The name they ascribe to this ethical code is *kawenata*, which means covenant in Māori. TAGH’s business partners have embraced the acculturation process implied in *kawenata* (Neville, 2013). This has included reciprocal exchanges in which executives of TAGH and their Japanese counterparts for example, have hosted each other in their respective countries and corporate environments.

Not far from Rotorua where TAGH resides, various Māori enterprises within the Mataatua district are formulating plans with Chinese partners to co-invest in agribusiness. The *tangata whenua* (people of the land) have constructed a cultural portal which they call the Whitau Sovereign Agreement (Radford & Cairns, 2013). *Whitau* means flax fibre, a valued commodity among Māori and Pākehā settlers (Moorfield, 2011). The whitau is a metaphorical corridor through which overseas partners must pass before any business is transacted. The whitau agreement signifies to business partners of the Māori that they stand ready as self-determining indigenous peoples to do business on their terms (L. T. Smith, 1999), imbued with ancestral legacies that remain potent in international cross-cultural business (Jack & Westwood, 2009). The guardians of the whitau are esteemed *kaumātua* (tribal elders) appointed for their knowledge and commitment to the kaupapa (philosophy). *Kaumātua* have guided expressions of *manaakitanga* as hosts of their overseas business partners on local marae and through tribal enterprises in the Mataatua district. A reciprocal exchange is implied.

In practical terms, the whitau sovereign agreement and similarly the *kawenata* are cultural instruments which position Māori cultural values and customs as effective mediums for establishing inter-cultural commercial relations, in which *manaakitanga* is one of the first customs to be experienced. However, *manaakitanga* is not simply the preserve of larger Māori enterprises, but is something that can be deeply intimate and interpersonal in nature, conveyed by simple and modest gestures of kindness, respect and compassion for the one or the many in need.

DISCUSSION

The central contention of this paper is that indigenous wisdom—traditional indigenous knowledge, values, beliefs, and customs—has the potential to contribute to the capacity of entrepreneurs, both indigenous and non-indigenous, to meet global challenges facing humanity in the twenty-first century. In the context of Māori entrepreneurship, one value in particular, *manaakitanga*, has been discussed as part of an emerging ethical code for entrepreneurship based on indigenous values. While it is relatively straightforward to describe behaviours associated with *manaakitanga*, it is more difficult to isolate factors which may determine success in the expression of *manaakitanga* for Māori enterprises; nonetheless an attempt is made.

On the basis of the literature on *manaakitanga* and evidence of the experience of it among Māori entrepreneurs, some factors which may serve to regulate *manaakitanga* in favour of its more positive consequences are suggested. These factors may include: (i) the prevalence and practice of *utu* (recompense, reciprocity, revenge) as a means by which to retain balance; (ii) the strength of kinship ties and the implicit obligations of *manaakitanga* within *whānau*, *hapū* and *iwi* relations; (iii) the influence and availability of appropriate external cultural supervision (e.g., the support of esteemed tribal elders); (iv) the degree to which *manaakitanga* has been socialised during childhood and early adulthood through participation in cultural activities; (v) the degree to which an enterprise remains close to and located within tribal territories; and (vi) the degree to which universal principles of business have been adopted as a countervalance to the extremes of *manaakitanga*. Some of the factors are briefly discussed.

Utu features as an important value in Māori organisational contexts, which Knox (2005) describes as “maintaining balance in economic and social interests through reciprocal obligations, honesty and punishment of wrongdoing” (cited in Mika & O'Sullivan, 2012, p. 40). *Utu* was traditionally fundamental to Māori processes of social and economic exchange, helping to maintain balance in relationships through mutual understandings of obligations to show generosity to oneself and others (Waa & Love, 1997a, 1997b). There is evidence in the *kawenata* and *whitau* examples to

suggest that *utu* played a part in materialising constructive business relations with overseas partners. However, further research is required to assess the extent to which *utu* is practised in contemporary Māori enterprises as a mechanism for tempering *manaakitanga*.

The degree to which Māori entrepreneurs are impelled to display *manaakitanga* may be influenced by the strength of social ties with *whānau*, *hapū*, *iwi* and the Māori community generally, which is closely linked to the socialisation of *manaakitanga* during one's upbringing. Where social connections remain strong, through for example daily contact with *whānau* in the community, the obligation upon Māori entrepreneurs to show *manaakitanga* is likely to be equally robust. However, *utu* re-appears as a potential mediating factor guarding against excessive demands upon Māori entrepreneurs to give generously in aid of tribal needs and priorities. Individual Māori entrepreneurs, rather than collectively owned and managed Māori enterprises, seem more susceptible to pressure to give beyond what they are capable of giving. This is especially so when *tikanga* (Māori customs) are conducted without appropriate cultural supervision and knowledge. Hence, the advice and support of *pakeke* (elders) is often sought by Māori to ensure safe cultural practice (S. Davies, 2006, 2008; M. Durie, 1999; Tinirau & Gillies, 2010).

CONCLUSION

Manaakitanga, the Māori ethic of generosity toward others, remains a source of inspiration in Māori entrepreneurialism within both individually and collectively owned and operated Māori enterprises. *Manaakitanga* is shaped by early childhood experiences, reinforced within *whānau*, *hapū* and *iwi* inter-relations and modified in deference to commercial expediency and legislative requirements (Tinirau & Gillies, 2010). *Manaakitanga* stands as an intrinsic value, naturally socialised in Māori cultural settings, where its mores and nuances are conveyed from one generation to another. *Manaakitanga* is thus reflected in *whānau* relationships in the home and worklife practices where hosting is perceived as a positive activity rather than a burden (Martin, 2008).

Manaakitanga, like other values, can however have perverse outcomes when applied in the extreme or are deliberately misused (Knox, 2013). The improper and imbalanced application of *tikanga* Māori is an inherently risky endeavour and has been associated with the demise of some Māori enterprises. The chief social regulator of *manaakitanga* was the principle of *utu*, but evidence on the extent to which this cultural device remains prevalent among contemporary Māori enterprises is mixed. Further research of the practice of *utu* in relation to *manaakitanga* is suggested.

The question posed by this paper's title, "is generosity killing Māori enterprises?" seems unfounded at an aggregate level given the growth in Māori commercial wealth over recent years (Nana et al., 2011). Most Māori enterprises appear to be managing their cultural obligations in ways that are not necessarily detrimental to their 'commercial' health. However, the impact of *manaakitanga* when taken to extremes or is devoid of the re-balancing ethic of *utu* resonates with some at the level of the enterprise. This is evident in the testimony of Māori entrepreneurs in the present study (Mika, 2013) and others (e.g., Martin, 2008).

The implication is that doing business in a Māori way (i.e., Māori entrepreneurialism) is predicated upon a capacity to manage trade-offs between universal principles of business (i.e., consistently achieving profitability and positive net cash flows) and cultural principles of business (i.e., meeting one's obligations to contribute to family, tribal and environmental wellbeing). Enterprise assistance may assist Māori entrepreneurs better manage the plurality implicit in running

a Māori enterprise, where manaakitanga and commerciality must be administered with commensurate attention.

The contribution of indigenous peoples to entrepreneurship in the twenty-first century is not simply as resource holders or resource suppliers (natural, physical and human), but in the way in which entrepreneurs approach their craft, indigenous and non-indigenous alike. Indigenous values, beliefs and customs such as manaakitanga and kaitiakitanga constitute an emerging ethical code for doing business (Henare, 2011). Such principles may help entrepreneurs regain the trust and confidence of a weary public, weighed down by a seemingly unending trail of unethical and unsustainable business practice (Institute of Business Ethics, 2012). However, more research is needed on indigenous entrepreneurship theory and practice, particularly research where indigenous researchers stand side-by-side their non-indigenous counterparts in leading such research (ad)ventures.

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HOW SPATIAL CONTEXT INFLUENCES ENTREPRENEURIAL VALUE CREATION: A MULTIPLE CASE STUDY

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How spatial context influences entrepreneurial value creation: A multiple case study

Abstract: This paper investigates how rural communities are enriched by entrepreneurial value-creating activities that go beyond job creation and growth. In addition, this study explores how spatial context influences these value-creating activities. This qualitative case-based study shows that rural entrepreneurs create 14 types of value for their communities, ranging from purely economic to socioeconomic and to social value. The reasons why rural entrepreneurs create value, not only for themselves, but value that benefits the community is partly explained by their desire to contribute positively to the place where they have chosen to live and work. Another explanatory factor is a concern for the survival of the community. These motives are found to be influenced by the degree of rurality; that is the more isolated and remote, the more pronounced the attitudes towards and concerns for the well-being of the community. Thus, this study contributes to an in-depth understanding of how and why entrepreneurship can create multiple forms of value in rural areas as well as how value creation behaviours are motivated by the spatial context. In addition, it provides explanations why not all rural entrepreneurs contribute or at least intend to contribute equally and in a similar way to local development. Thus, by adding contextualized explanations of rural entrepreneurial behaviour to the literature, this study places itself in the recent debate and call for contextualizing entrepreneurship research.

Keywords: Entrepreneurial value creation · Regional development · Rurality · Spatial context

1 Introduction

Unequal regional development is prominent in most countries (Naudé, Gries, Wood, & Meintjes, 2008), and economic and demographic decline in rural regions has been an increasing challenge in many parts of the industrialized world (Florida, 2004). Rural regions today are forced to find new ways of stimulating and sustaining development and growth. Entrepreneurs who establish new firms are at the core of this process, as the creation of new firms has long been recognized as a driving force contributing to regional economic development (Birch, 1987).

From a firm's perspective, value creation begins by providing some kind of value to customers (Sirmon, Hitt, & Ireland, 2007); however, firms may also want to create value that goes beyond the single interests of the firm and contribute to furthering the social good (McWilliams & Siegel, 2001). Value creation through entrepreneurship can thus target the customer or the community/society or both (Sirmon et al., 2007). Previously, research on regional development has predominantly focused on the economic side of value creation (Pike, Rodríguez-Pose, & Tomaney, 2007). Entrepreneurial value creation as it is defined here is the value created by the actions and activities of entrepreneurs that benefit the local community concerning regional development. Economic value creation may be the *raison d'être* of most for-profit organizations and the economic impact of entrepreneurial activity in rural areas is certainly important (Birch, 1987). However, it is argued that understanding the potentially manifold types of entrepreneurial value created is both necessary and useful to gain a fuller understanding of how entrepreneurship supports regional development beyond job creation and growth (Korsgaard & Anderson, 2011).

The purpose of this study is to investigate how rural communities are enriched by entrepreneurial value-creating activities that go beyond the economic measures of job creation and growth as

well as to examine the potential underlying motives that influence entrepreneurs to create value beyond the interests of the firm but creating value for the community. The research questions put forward are (i) which types of community-level value do rural entrepreneurs create, and (ii) how does the socio-spatial context influence these value-creating efforts?

This study contributes to knowledge in that it provides explanations as to how why rural entrepreneurs create value that is targeted at benefitting the community as well as why entrepreneurs how value creation behaviours are motivated by the immediate spatial context. By this means, the study answers the recent calls for contextualizing entrepreneurship research and theories (Welter, 2011) as it captures some of the diversity of the outcomes of entrepreneurial activity. This is important to gain a thorough understanding of the phenomenon of entrepreneurship (Zahra, 2007).

2 Entrepreneurship and value creation

Regional growth is considered a major outcome of entrepreneurial activity, however it is rarely explored in other than economic terms (Korsgaard & Anderson, 2011). Without a doubt economic growth is an important indicator that provides insight into the vitality and competitiveness of regions. But it is not the sole indicator of regional well-being, progress and development. For example, in a study of a community building project in rural Denmark, Korsgaard and Anderson (2011) found that value was being created on several dimensions including society, community and individual. Some studies suggest that regional and community value creation may include regional learning (Florida, 1995), the development of cooperation, participation and trust within a region (Seidl, Schelske, Joshi, & Jenny, 2003), or the creation of pride in the region and its heritage (Anderson, 2000). As such, entrepreneurship also may create a number of positive outcomes that are socioeconomic or social in nature. What is missing from previous research is an analysis of these outcomes that are not merely economic in nature and if and how these are influenced by the spatial context.

In the functionalist view of entrepreneurship, entrepreneurs are seen as the essential function of new value creation. This happens through the recombination of resources (Schumpeter, 1934) or the creation of new means-ends relationships (Kirzner, 1973). The entrepreneurial function is often expressed through the creation of new firms or new economic activities within existing firms (Shane, 2003). Implicitly, entrepreneurial activities are assumed to be motivated fully or in part through monetary gain (Baumol, 1990; Kirzner, 1973), and accordingly, the main output of such activities is the creation of economic value (cf. Acs & Armington, 2004; Birch, 1987). Recent studies has broadened the scope of the entrepreneurial function to include the creation of multiple types of value (Korsgaard & Anderson, 2011; Steyaert & Katz, 2004), including social value, environmental value, cultural value, often in conjunction with economic value (see e.g. Di Domenico, Haugh, & Tracey, 2010), and perhaps even intertwined.

Although the profit motive is a central feature of entrepreneurship (Baumol, 1993; Schumpeter, 1934), it does not preclude other personal, community-related or social motivations. For example, Bosworth and Willett (2011, p. 209) find evidence that rural in-migrant entrepreneurs recognise “the need for local development in order to improve both their quality of life and their business opportunities”. The authors suggest that engaging with local communities and supporting development at the local level creates positive outcomes beyond personal and firm-

level value creation. The present study explores this argument by probing the “mysteries of motivation” behind entrepreneurial value creation intended to benefit the community (Peredo & McLean, 2006, p. 63). The rural context provides a particular setting where collective thinking and action can be observed (Peredo & McLean, 2006). Rural entrepreneurs create ventures in places where they also pursue their social and family lives, thus they may have an incentive to pursue value-creating activities not only for themselves and their firms, but also for their community.

2.1 The spatial context of rurality

Entrepreneurs tend to locate their ventures in regions where their roots are and where they have family and friends, or places that they have chosen as their ‘homes’ (Dahl & Sorenson, 2009). This may affect how rural entrepreneurs engage with location as ‘place’, that is a location of meaningfulness and social life (Hudson, 2001). Previous research suggests that when entrepreneurs are rooted in a particular place, it allows them to identify opportunities and to assemble the resources necessary to exploit these opportunities (Dahl & Sorenson, 2012; Gaddefors & Cronsell, 2009; Jack & Anderson, 2002). Hence, the socio-spatial influence of context on entrepreneurship may become more transparent in places where entrepreneurs engage intimately with a location or place. In line with this thought, the present study argues that the intimate relationship between entrepreneurship and place (context) may influence entrepreneurs’ value-creating efforts – efforts that go beyond a mere profit maximization rationale of increasing personal wealth (cf. Stathopoulou, Psaltopoulos, & Skuras, 2004).

To explore the role of socio-spatial context in the entrepreneurial value creation process, this study draws on the rural setting. This setting is particularly well suited to study the role of the spatial context since “the best way of observing the true value of entrepreneurship is when resources and opportunities are at their most meagre” (Kodithuwakku & Rosa, 2002, p. 433). Moreover, rural areas are a distinctly spatial category with specific economic, social and natural environments that are easily identifiable as spatial and are different from their urban counterparts (Stathopoulou et al., 2004), which may be important factors as to why entrepreneurial value creation unfolds differently across regions. The degree of rurality/remoteness of a rural location may influence different aspects of entrepreneurship and consequently growth and the creation of employment (North & Smallbone, 2000).

Previously, scholars argued that research should shift its focus “onto territories (that happen to be in rural locations) and/or marginalised social groups (that happen to live in rural areas)” (Ray, 1999, p. 257). Murdoch and Pratt (1993) stress that there is a spatial element to the rural, but that the characteristics of the ‘rural’ may also be found and practiced in the ‘urban’, or in any other place. In this regard, “a rural entrepreneur is someone living in a rural location and the difference between them and an urban entrepreneur may be found in the effects of rurality on the entrepreneurial process” (Stathopoulou et al., 2004, p. 412). The present study seeks to add to this reasoning by examining the potential influence of rurality (as the spatial context) on entrepreneurial value creation.

3 Research design and methods

The study employed a multiple embedded case study design (Yin, 1994) including 28 entrepreneurial cases across three rural regions in Denmark.

3.1 Sampling approach

The regions were purposefully selected according to a heterogeneity criterion in order to achieve variation among the case regions (Flick, 1998). The sample is used to identify and compare common patterns across cases and regions as they may face diverse conditions (Miles & Huberman, 1994)(Patton, 2002). The regions vary with regard to elements of rurality likely to affect the entrepreneurial process as suggested by Stathopoulou et al. (2004), namely (i) factors of the physical environment, that is location and degree of rurality, as well as (ii) and socioeconomic factors including industrial sector, population density, or average start-up rate. The sampled regions consist of entities that are geographically coherent, that is where the boundaries are either political (municipality of Northdjursland), determined by a specific biological/natural occurring phenomenon (the marshlands of the Wadden Sea region), or physical (island of Samsø). See sample frame in Table 1.

Table 1: Sample Frame

Regional Sampling Criteria	Case Study Regions		
Name of region	Northdjursland	Wadden Sea*	Island of Samsø
Location, Degree of rurality	Outskirt	Remote	Island
Distance to major city (approx.)	45 km	210 km	60 km (30 by ferry)
Area in km ² (approx.)	720	1.950	115
Main sectors	Agriculture and Industry	Trade, Transport and Agriculture	Agriculture and Service
Population (in 2012, approx.)	37,880	154,200	3,890
Population density	53/km ²	79/km ²	34/km ²
No. of cases within region	7	7	14

The selection of the individual 28 cases followed a sequential sampling strategy (Flick, 1998), letting the sample evolve of its own accord as data are being collected (Teddlie & Yu, 2007). What constitutes ‘development’ can vary geographically across countries, regions, communities, and places and may change over time (Pike et al., 2007). Thus, for case to be included, a triad of local entrepreneurs, local inhabitants and the local business council were asked to recommend entrepreneurs that had contributed to the community or region in some way or another, according to their own definition of what ‘contribute’ may entail. Moreover, the researcher’s talks with local residents during lengthy (up to 7 days) visits in the regions added additional cases. These recommendations resulted in a diverse sample of entrepreneurial ventures within different economic and industry sectors, legal structures and founding years, which enables theoretical diversity (Eisenhardt, 1989). See Appendix A1 for an overview of the cases.

3.2 Data sources

The study is based on observation (experiencing), interviewing (enquiring) and secondary materials (examining) to collect rich data (Wolcott, 1994). Wherever possible, the different types of data available were compared to ensure the credibility of statements obtained and to compare the different positions within the material (Denzin & Lincoln, 2000).

At the regional level, data sources were triangulated using statistical data, archival and other secondary documents, such as reports or policy documents as well as photographs and observations from the researcher’s prolonged visits in the regions. In addition, expert interviews with local business councils and informal interviews with local residents were conducted. At the

venture level, 90 to 120-minute semi-structured interviews with the principal founders were conducted throughout 2011-2012. The questions aimed at understanding how the entrepreneurs experience and perceive the local context for their activities and ventures, and how they navigate in it. Besides the interviews, site visits, observations, and documentary evidence were used to triangulate the data and add depth to the case studies. Documentary material included publicly available media (e.g. radio and TV interviews) and organizational material, such as marketing materials, annual reports, websites, and newspaper clippings.

While the data are not representative of all entrepreneurs in all rural regions, the research design and data provide detailed, personal accounts about the entrepreneurial activities in context. Thus, his study strives for analytic generalization (Yin, 1994) and not statistical generalization.

3.3 Coding and analysis

A rigorous and systematic coding process was undertaken using QSR NVivo 10 software. In line with established coding procedures (Miles & Huberman, 1994; Saldaña, 2009), first the individual cases were coded and analysed, followed by a cross-case and cross-region comparison.

The coding process followed a first and a second cycle. In the first cycle, attribute and open coding techniques were used. The former catalogues factual information about the entrepreneur(s) and ventures such as age, gender, founding year, type of business, legal form, locational relationship (Lofland & Lofland, 1995). The latter is an initial systematic analysis and categorization of textual raw data. Some of the initial open codes, which tend to describe dimensions of a major category, were then merged under thematic categories (using the parent-child node function of NVivo 10 software) in the second cycle. The second-cycle involved mostly thematic (Boyatzis, 1998) and comparative coding (Miles & Huberman, 1994). Thematic coding makes use of a set of a priori codes that are strongly presumed to be relevant for the analysis but allows for an inductive evolution of themes from the data (Lapadat, 2009); while comparative coding develops inferential and explanatory links or patterns.

Four overall coding themes were developed: (i) the nature and impact of the context and its rurality on entrepreneurial activity, (ii) the type and form of entrepreneurial value created, (iii) the nature of the interaction between the two, and (iv) the potential underlying value creation mechanisms. Potential patterns in the coding and relationships across themes, data and cases were explored by making extensive use of NVivo's coding query and matrix query functions. These functions produced coding connections between categories and themes (Denzin & Lincoln, 2005), and allowed for cross-case and cross-region comparisons. The coding stage was concluded and theoretical saturation assumed when information, constructs and relationships were exhausted (Eisenhardt, 1989).

The data were analysed according to Miles and Huberman's (1994) three-step process: data reduction, data display, and conclusion drawing. As the aim was to explore the types of value creation and the influence of rural context on value creation, the data were analysed by identifying the consequences or outcomes of entrepreneurial activity that affected the local community or wider region. Situations where such consequences of value creation were addressed, talked about or observed were coded and categorized in the data material.

4 Findings

The data offer ample evidence that rural entrepreneurs pursue multiple types of value that benefit the community in relation to regional development. The findings reveal 14 strongly reoccurring types of community-level value created as illustrated in Table 2.

Table 2: Types of value created including examples

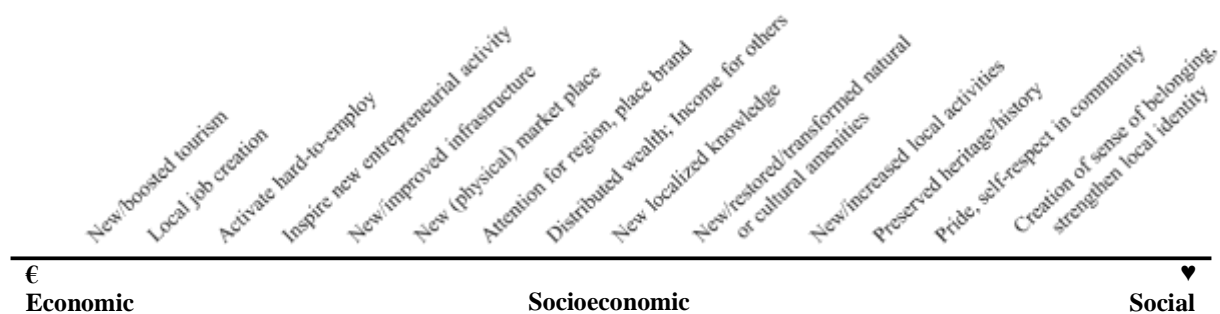
Notes: The number in brackets (*) refers to the number of cases where the respective outcome is observed. It is noted that income and tax revenue are important economic outcomes, but were not measured and thus do not appear in the list.

Type of value	Examples
New or boosted tourism (13*)	<ul style="list-style-type: none"> - New types of tourism, such as energy tourism (S01) or tourism visiting food festivals (V01, V02). - For example S01 has about 8,000 visitors at its premises per year, of which 6,000 account for a new type of global tourism on the island, namely energy tourism.
Local job creation (19)	<ul style="list-style-type: none"> - Nineteen ventures created a total of 210 jobs, out of which 50 account for the self-employed founders, and 165 account for local jobs created (in 2012). - Entrepreneurs tend to hire almost exclusively hire local employees, workers and volunteers.
Activate hard-to-employ persons or “problem youths” (9)	<ul style="list-style-type: none"> - Entrepreneurs employ persons with physical or mental disabilities (V01, S10), pensioners (N03, N04, S06) or “problem” youths and children (S12, S13, S14, V02). - For example, the falconer centre (S12) invites children with special needs to become apprentices and participate in the daily activities of the venture.
Inspire new entrepreneurial activity (10)	<ul style="list-style-type: none"> - Entrepreneurs inspire new local start-up activities through spin-offs, inspiration or imitation. - For example V01 or S10 have inspired other organic food producers in the region to start their own production, or N06 inspired N01 and others, to create personal care and cosmetics.
New or improved infrastructure (3)	<ul style="list-style-type: none"> - Three ventures created new or improved (hard or soft) infrastructures: - S01 influenced a renewable energy infrastructure, S07 restored an abandoned airfield and created an air travel infrastructure for the island, and N04 created high-speed wireless Internet for the entire Northdjursland region.
New (physical) market place (3)	<ul style="list-style-type: none"> - Three entrepreneurs create new physical outlets for other local producers to showcase and sell their products (cases V01, V02, V07). - For example, V01 created a permanent exhibition centre as well as biannual trade fairs for local producers.
Attention for region, Place branding (14)	<ul style="list-style-type: none"> - Numerous entrepreneurs contribute – to varying degrees – to branding their regions. - Rural entrepreneurs, in particular those that have a global market, contribute to attracting interest and attention to the community as a result of being able to commoditise local, place-specific resources and make those attractive and valuable to non-local markets.
Distributed wealth/ Income or business for others (13)	<ul style="list-style-type: none"> - Rural entrepreneurs create income or business for other local actors, through local (re-)sourcing, sharing and referring customers, offering complimentary products/services from other local entrepreneurs, and involving local associations or the community, for example, in the form of volunteers.
New localized knowledge and expertise, Regional learning (11)	<ul style="list-style-type: none"> - Entrepreneurs generate new localized knowledge, competences and expertise, which can result in regional learning. - For example, S01 initiated a project of energy self-sufficiency in the area. They employed local builders to construct low energy buildings. In this way they helped create a learning experience for local craftsmen equipping them to build similar houses or energy projects in the area.
New/ restored/ transformed natural or cultural	<ul style="list-style-type: none"> - Rural entrepreneurs restored or reused abandoned buildings. - For example an abandoned farmhouses into cosmetics manufacturing (N06) or terracotta design studio (N07), an old furniture factory into DNA laboratory (V06), a deserted dairy into welcome

Type of value	Examples
amenities (16)	hall of ecomuseum (S06), an abandoned Christmas tree plantation into the world's largest tree-labyrinth (S11), or old castle stables into exhibition centre and holiday apartments (V01).
New/increased local activities (7)	- Entrepreneurs keep rural area lively by organizing local activities. For example, entrepreneurs organize food festivals, events, fairs and markets, children's activities locally that sometimes are in line with – and sometimes beyond – their core business activity (e.g. cases S05, S07, S12, S13, S14, V01, V02).
Preserved heritage/history (6)	- Several cases (S05, S07, V1, V02, V04, V07) preserve a region's history and/or heritage by including particular aspects of heritage in their ventures. - Some entrepreneurs include traditions of a place, such as traditional methods of production or craftsmanship (S06, V01, V02) or traditional natural resources (V07)
Pride, self-respect in community (6)	- Entrepreneurs build awareness of their community and its heritage, thus acting as a source of community pride (N04, N05, S01, V01, V06). - For example, the project “renewable energy island” initiated by S01 creates pride and local identity in the community, as locals refer to “their green island” and individually try to be as “green” as they can.
Creation of sense of belonging, strengthen local identity (7)	- For example, entrepreneurs who feel that they belong to their local community seemingly get involved in local initiatives and are likely to help out their neighbours and other entrepreneurs (e.g. cases N03, S02, S03, S05, S10, S12, V03, V05).

The types of value created can be roughly grouped into three dimensions: (i) economic, (ii) socioeconomic, and (iii) social value. These types are perhaps more constructively placed on a spectrum as illustrated in Figure 1; with the more economic value at one end, through to socioeconomic, and social value at the other end. Indeed, these categories can overlap and do not necessarily present themselves at opposite ends.

Figure 1: Spectrum of community value creation



The more economic outcomes correspond to the traditional outcomes of entrepreneurial value creation, such as profits, income, growth or job creation. Social value is created when entrepreneurial efforts result in generating improvements in the lives of individuals or the community as a whole. Socioeconomic value is ‘somewhere in-between’ as it includes both social and economic outcomes. Table A2 (appendix) shows the types of value created by case.

Value-creating outcomes are often interconnected (Korsgaard & Anderson, 2011), and the analysis supports that the value creation process and outcomes are dynamically interlinked. Most of the community value created can, however, be categorized as socioeconomic incorporating elements of both economic and social impact. For example, new tourism dynamics create

attention to the region, which in turn generates distributed wealth to the surrounding artisans, hospitality and experience economy sectors. In other cases entrepreneurs utilized immobile resources (e.g. neglected landscape, run-down buildings) to create activities that resulted in restoration of the natural amenities and scenery, which in turn contributed to place-branding and an increased number of tourists. In the literature, the relationship between entrepreneurship and regional development tends to be portrayed as entrepreneurship having a direct impact on economic growth, which subsequently indirectly can lead to socioeconomic and social changes, for instance creation of image, place brand, or regional learning. However, the analysis strongly suggests that entrepreneurial activity directly impacts the socioeconomic and social value creation on a community level.

4.1 Contextual influence

The data suggest that not all rural entrepreneurs in all regions contribute equally and similarly to local development. The variation can be partly attributed to (i) the specific social norms of a specific context, and (ii) the entrepreneurs' attitudes towards community well-being. Table 3 provides an overview.

Table 3: Contextual norms and attitudes towards community well-being

Notes: The value-creating outcomes "Preserved history or heritage" and "Pride, self-respect in community" seem not to be motivated by the contextual norms or attitudes towards community well-being. An initial probe into the data indicates that these two types of value creation are partly motivated by the entrepreneurs' personal pride in a locality and its heritage and their desire to educate others. This would need further analysis that goes beyond the scope of the present study.

<i>Spectrum:</i>	€ Economic		Socioeconomic					Social ♥						
	New/boosted tourism	Local job creation	Activate hard-to-employ	Inspire new entrepreneurial activity	New/improved infrastructure	New (physical) market place f/ others in area	Create attention f/ region, place brand	Distributed wealth/ Income f/ others	New localized knowledge	New/restored/ natural, physical, or cultural amenities	New/increased local activities	Preserved history or heritage*	Pride, self-respect in community*	Creation of sense of belonging, Local identity
Contextual norms														
Rural code of conduct					x			x	x					
Attitudes														
Local development	x	x	x		x	x	x	x	x	x	x			x
Mutual dependency				x		x	x	x						
Shared concern for survival of community							x	x						

4.1.1 Contextual norms: Rural code of conduct

The findings indicate that certain social norms, which are anchored in the local context, have an impact on the entrepreneurs' attitudes as well as on their behaviour to create value that benefits the community. In the entrepreneurs' own words, such perceived social norms are termed "rural code of conduct" (S03) or "social ground rules" (S01). The informants affirmed that their entrepreneurial value-creating actions are influenced by the rural code of conduct present in their communities and that they generally try to adhere to the local code of conduct. Across the cases, the entrepreneurs expressed that their local community is characterized by being supportive and

caring. Also they repeatedly expressed that residents and entrepreneurs in the community have a strong willingness to help out. Adhering to an ethos of reciprocity appears to be evoked by the informal code of conduct on how to behave in a rural community. Being mutually supportive is to be expected when living and doing business in a close-knit rural community. Abiding by such a code of conduct influences entrepreneurs' attitudes towards contributing to the local development and well-being. The founder of S03 expresses that "what goes around, comes around" in such a small community, thus one is willing to help others whenever one can:

We [local entrepreneurs] must ensure that we all get the most out of what we're doing and try to help each other. When someone is under pressure for some reason or other [you help out]... You just have to do it, right? Because it [helping out] is a necessary condition for our businesses to function in a place like this.[] Definitely. And that's another thing that I think is so great about living here [in a rural community], you have genuine values that relate to helping each other and being friendly with each other...[] And that is perhaps a particular form of respect and type of conduct [compared to big cities], otherwise you wouldn't want to live in a place like this. (S03)

4.1.2 Attitudes towards community well-being

Besides the rural code of conduct, also the entrepreneurs' attitudes towards community well-being seem to influence their value-creating behaviours. Across the cases, three strongly pronounced and reoccurring attitudes appear to guide entrepreneurs' choices to create value for the community and not solely for their own businesses. These are: (i) an overall desire to contribute to local progress and development, (ii) mutual dependency or "together-we-are-better" attitude, and (iii) a shared concern for the survival of the community.

(i) Desire to contribute to local development

Related to the space-place literature (Hudson, 2001), when entrepreneurs engage with location as 'place', they attribute experiences, emotions and affection to the place where they work and live. All but six cases (i.e. N01, S08, S11, S13, S14, V04) indicate that they create community value because of a strong desire to contribute to the overall well-being and development of the place where they have chosen to live and work. These findings are in line with Bosworth and Willett (2011, p. 204) who in their study of in-migrant entrepreneurs found "an appetite to contribute to rural development, as rural in-migrants' businesses do help and support the local community", for example, by sponsoring local activities (e.g. V01, V07). The informants of the present study frequently mention that they want to "give something back" to the community, because the community in turn often supports or helps them along the way. Contrary to Bosworth and Willett's (2011) in-migrant entrepreneurs, the present study finds that this desire appears to be present regardless of whether the choice of location was intentional (in-migrants, returning) or unintentional (native). This attitude influences the entrepreneurs' value-creating efforts, for instance by distributing wealth to other actors in the community as S03 expresses:

It's definitely the philosophy of my business that it must also create growth around me [in the community], for example, for local suppliers. In fact, we all ought to benefit from what my business does, in some way or other. (S03)

This attitude strongly guides the entrepreneurs' choices towards creating community-level value, since in order to improve both the quality of life as well as business opportunities, rural entrepreneurs acknowledge the need to contribute to local development; as the founder of V1 stresses: "It is all about joining in to create development and progress together, in order to making it a better place [], or else you cannot reach your goals" (V01).

(ii) Mutual dependency

Two thirds of the informants (in particular N02, S01, S03, S12, V01, V02, V03) stress that in order to promote development and progress, rural enterprises and community actors must "pull together". The informants recognize that in rural areas, entrepreneurs are mutually dependent on each other, recurrently mentioning that "together we are better...together we can make this [rural area] a better place" (S03). This common "together better"-attitude appears to be a strong motive as to why they create value that benefits the community. Rural entrepreneurs are part of and sometimes deeply embedded in their local context and thus share a sense of mutual responsibility for each other, the place and the well-being of the community. One founder elaborates:

We depend on each other, and it also makes a place like ours stronger,... what shall I say, ...if we are a 5,6,7 producers who share some things, and where you can have your products on display in each other's' shops, then the customer coming to one of the places might say 'Ah, that also looks interesting, I will try it.' That also means something. (V05)

This quote a pattern found across the majority of cases, namely that entrepreneurs recognize that by working together they are able to contribute to local development. For example, collaboration between the tourist businesses means that the entrepreneurs count on each other and offer complementary local products and services as well as share customers and engage in joint marketing. This way they distribute business and wealth between them locally.

(iii) Shared concern for survival of the community

The case entrepreneurs repeatedly express a shared concern for the survival of the community as a strong motivation to support local development in term of creating some sort of value for the community. If all businesses thrive and survive, then the rural area will be thrive and survive. Those entrepreneurs, who express a shared concern for the survival of the region, say that they would rather partner up and share their customers with other rural businesses than merely looking out for themselves or being competitive. The founder of S03 elaborates:

Well, it's important that my neighbour's business is doing well, it's important that my business is doing well, it's important that the potato farmer survives... The more of us [entrepreneurs] who make money, the better for the entire community, the better the roads, the better the ferry services, the better the schools,... and the more likely it is that we get to keep our hospital. So therefore we cannot afford to treat each other as competitors or throw a spanner into the works. That would be silly, that is just no good! We must ensure that we all get the most out of what we're doing here and try to help each other. (S03)

According to the data, rural entrepreneurs understand and appreciate the challenges of being located in the rural although rural areas present a constant danger of depopulation and closing of important and necessary services in rural areas. The director of S01 explains that "the challenge

our island faces [] is about saving ourselves... from the potential collapse that is obviously associated with a rural area such as ours, for example depopulation, and so forth”. Thus, a shared concern for the survival of the community appears to be a strong driving force towards creating community-level value.

4.2 Regional variations

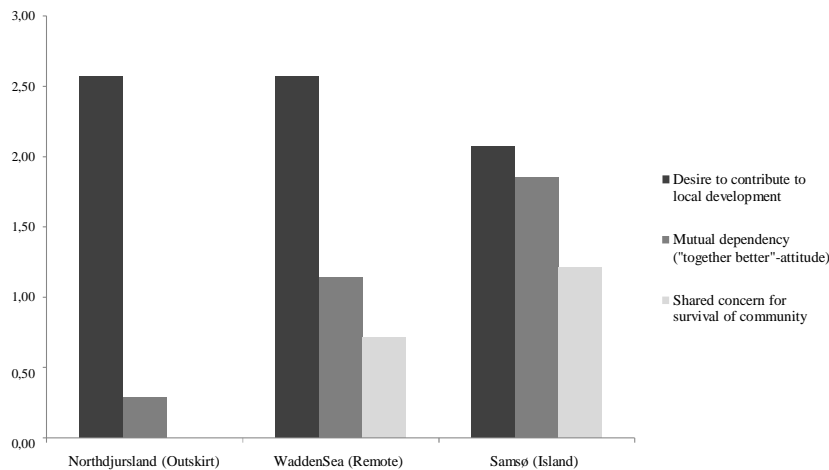
Some of the entrepreneurs’ attitudes guiding their community value-creating behaviour appear to be influenced by the degree of rurality or remoteness. The cross-region comparison is supported by a matrix query (NVivo 10) that examines the coding intersections. The matrix in Table 4 shows the number of coding references for each attitude by region. These are not absolute numbers but point to the relative importance of certain attitudes that were observed among entrepreneurs across the three regions. Figure 3 presents results of the matrix query graphically.

Table 4: Matrix query - regional variations

Notes: This table shows the total coding instances and relative averages of coding intersections of the entrepreneurs’ attitudes towards community value creation across three rural contexts. The first number shows the instances of coding, the second number is the relative average coding occurrence corrected for regional sample size.

Attitudes	Northdjursland (Outskirt)	Wadden Sea (Remote)	Island of Samsø (Island)
Desire to contribute to local development	18 2.57	18 2.57	29 2.07
Mutual dependency (“together better”-attitude)	2 0.29	8 1.14	26 1.86
Shared concern for survival of community	0 0	5 0.71	17 1.21

Figure 2: Data display - regional variations

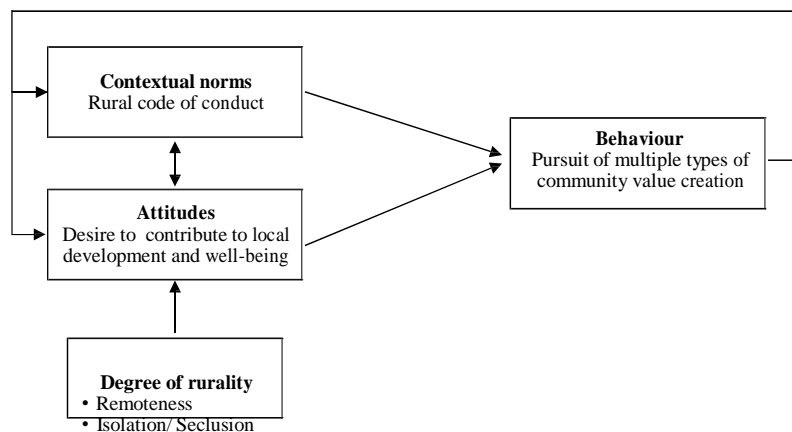


Comparing the cases across the three rural contexts, the findings suggest that no regional differences regarding the desire to contribute to community well-being exist. This means that, overall, rural entrepreneurs appear to recognize the need to further progress and development of their local communities and their choice of place – a meaningful social life (Hudson, 2001). However, there are differences regarding the remaining two attitudes. Entrepreneurs located in the more isolated (island of Samsø) and remote (Wadden Sea region) contexts are found to express the importance of mutual dependency and a concern for community survival much more strongly than entrepreneurs in the Northdjursland region (a region relatively close to a large city).

The analysis suggests the existence of regional variation mostly with regard to the shared concern for survival of the region. This concern is highly pronounced for the secluded island community, and also to some extent in the remote Wadden Sea region. Northdjursland's entrepreneurs did not express a shared concern for the survival of the community/region at all. This may be explained by the geographical degree of rurality as the island of Samsø and the remote Wadden Sea region face a much larger threat of depopulation since the next big metropolitan areas – which offer the typical amenities of urban centres (i.e. jobs, education, infrastructure) – are much further away than they are from the Northdjursland region, which is close to the second largest city of Denmark. In addition, the sense of community, affinity with a place and the level of emotional attachment may be stronger in communities that are relatively secluded, such as remote areas or those that have a natural boundary like an island. Although sense of community or tight-knittedness (cf. Johannisson & Dahlstrand, 2009) may be typical characteristics of – and thus prevail in – rural areas (Tönnies, 1957), these features could perhaps also be found in urban districts or ethnic enclaves in cities. Further investigation of the role of sense of community would be needed and could prove valuable to further contextualize research.

The evidence presented above, suggests a reciprocal influence of entrepreneurial attitudes on the value-creating behaviour targeted to benefit the community, its progress and well-being as shown in Figure 3.

Figure 3: Summative illustration of findings



Social norms, such as the rural code of conduct influence entrepreneurs' attitudes to create value beyond the mere interests of the individual or firm. The analysis suggested that entrepreneurs, who have strong attitudes towards community well-being and local development, are likely to create some form of value to the benefit of their local community. The value created may be directly connected to the venture activities (e.g. V01), or may be a side business (e.g. S12). The analysis suggests recursive relationships between rurality and the level of engagement in the rural communities. The more remote or isolated a rural community, the higher the shared concern for survival of the community, which impacts value-creating behaviours.

5 Concluding discussion

An appreciation of contextual differences is important to understand how entrepreneurial behaviours manifest themselves in – and are influenced by – concrete contexts (Danermark, Ekström, Jakobsen, & Karlsson, 2002). The present study did not examine the rural entrepreneur

in isolation but included an investigation of the context which the entrepreneurial process takes place in. Some of the spatially-related social norms and contextually influenced entrepreneurial attitudes were exposed, which furthers our understanding of contextualized entrepreneurial behaviour. Including an investigation of the socio-spatial context revealed the dynamic interaction between (rural) place, localized entrepreneurial activities and value-creating outcomes.

The findings showed that rural entrepreneurship involves interaction with the locality as a meaningful place (Cresswell, 2006), and that the degree of rurality impacts on entrepreneurial attitudes and consequently on value creation behaviour. Contrary to the common understanding in the literature, entrepreneurs do not solely pursue personal and economic value purely in the interest of the firm but are driven to aid local development as the rural place where the entrepreneur's social life and venture is situated. Entrepreneurs that seek only economic profit have little reason to subject themselves to the limitations of rural places. And even if a rural location offers some particular economic incitement, for instance, low land prices, most entrepreneurs seem to attach some meaning, experiences and emotions to such places (Hudson, 2001) and thus seem to have an almost innate desire to contribute to the well-being and development of *their* place. Thus, in line with Sarason, Dean, and Dillard (2006, p. 294) the findings of this study supported the proposition that "entrepreneurial ventures are created by purposeful actions through a unique co-evolutionary interaction between the entrepreneur and the socioeconomic context". Rural context and rural code of conduct influence the type and perhaps extent of entrepreneurial value created for communities.

This study showed that socioeconomic and social value creation indeed is integral to rural entrepreneurship. In contrast to previous academic focus, this study shows that the entrepreneurs do not merely follow their own profit maximization rationale and create economic value (e.g. income, job creation, growth) but that they are highly motivated to create multiple socioeconomic and social benefits for *their* local communities. What is important is that community involvement and empowerment are vital mechanisms for entrepreneurial activities to become locally anchored. Rural entrepreneurs engage in a "give and take" relationship with the local community as they exhibit strong attitudes regarding "what goes around, comes around". The majority of the entrepreneurs in this study deliberately tried to become spatially embedded or anchored in some way, for example they choose to draw on local resources or engage in localized practices such as involving the community in their activities. These activities enable value to flow back into – hence enriching – the local context.

Some of the reasons for pursuing multiple forms of community value can be attributed to the rural ethos and rural entrepreneurs' personal attitudes towards taking responsibility for their own local development and community well-being. Rural entrepreneurs' desire to further local development is fuelled by concerns that are linked to the challenges that rural regions face in this day and age. In addition, entrepreneurs' desire to contribute to local development is motivated by the local code of conduct and sense of responsibility towards contributing to the well-being of the place which they are an integrated part of. Hence, the socio-spatial context can partly explain why rural entrepreneurs create multiple types of community value. Entrepreneurial activities support the communal effort to save the area, their place of work and social life. They do so by considering how their entrepreneurial activities can benefit the entire community that go beyond

the single interest of the entrepreneur and his/her venture. If the community is thriving then everybody is thriving.

5.1 Implications, and future research

Today, policies are often based on a “best-practice” approach inspired by what other regions or countries do rather than the region developing their own context-specific program. Other regions’ policies often lack understanding of the individuality of a local place, its resources, and its community needs (North & Smallbone, 2006). Therefore, regional policy makers need to acknowledge that rural regions and their communities are diverse, and consequently different and more localized measures need to be developed to promote and support local entrepreneurship. Understanding this contextualized value creation process may allow a more “effective design, delivery and implementation of competent entrepreneurial policies in rural and lagging areas” (Stathopoulou et al., 2004, p. 414). With the establishment of “Local action groups” – short LAG programme – of the European Union is taking an important step towards creating such a tailor-made support system that is based on bottom-up, participative and community approach of socioeconomic development in Europe’s rural regions (Ray, 2000).

To ensure the well-being of rural communities, regional policy may want to support a broad range of local entrepreneurial activities as these contribute to a multitude of value in relation to rural development. It is not always the typical formal businesses that grow a certain percentage or have a certain profit per year that policy makers should focus on to further regional development. Instead, unconventional entrepreneurial activities, whose outcomes do not always fit strictly with traditional ideas of growth, can have a positive and socioeconomic and social impact for rural communities.

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Appendix

Table A1: Venture characteristics

Notes: * The case ID's consist of a letter and a number; the letter indicates the case study region. 'N' stands for cases in the region Northdjursland, 'V' for cases in the Wadden Sea region, and 'S' for cases on the island of Samsø.

Case ID	Region	Founding year	Legal Structure	Employ (in 2012)	Main sector	Core Activity	Locational relationship
N*01	Outskirt	2007	LLC	3	Manufacturing	Produces cosmetics and personal care products (consumer goods)	Native
N02	Outskirt	2008	Association	0	Education	Provider of entrepreneurial education and boarding facilities for game developers	Native
N03	Outskirt	2000	Sole Proprietorship	2	Manufacturing	Development, design and manufacturing of wooden outdoor music instruments	In-migrant
N04	Outskirt	2003	Association	5	Service Provider	Creator and provider of state-of-the-art wireless Internet infrastructure for rural areas	In-migrant
N05	Outskirt	2010	Ltd.	12	Construction / Consultancy	Builder and provider of consultancy service for construction, also creator and organizer of an industrial cluster	Native
N06	Outskirt	1979	LLC	18	Pluriactive: Manufacturing/ Sale	Produces "do-it-yourself" kits for cosmetics and personal care products. Also workshops and seminar on how to make your own cosmetics.	Native
N07	Outskirt	-	Sole Proprietorship	0	Pluriactive: Design/ Manufacturing/ Wholesale	Design and manufacturing (outsourced) of terracotta products, e.g. garden pots and decorations	Native
V01	Remote	2007	Sole Proprietorship	45	Pluriactive: Agriculture/ Manufacturing/ Hospitality/ Dissemination	Former castle now operating hotel, restaurant, events, conference centre, largest Danish organic agriculture, production of foods and beverages with own or locally grown ingredients, nature centre (dissemination), camp sites for boy and girl scouts	In-migrant
V02	Remote	1992	Public limited company	29	Pluriactive: Arts, entertainment and recreation activities	Living Viking museum, amusement park, historical reconstructions and communication, and production school (~30 students/year) for working with wood/metal (carpentry), textiles, agriculture and food	In-migrant
V03	Remote	2008	Commercial foundation	0	Pluriactive: Agriculture/ Winery/ Hospitality	Winery, growing and producing wine, bed & breakfast, speciality food shop	In-migrant
V04	Remote	2004	Partnership	4	Pluriactive: Tourism/ Hospitality / Dissemination	Nature centre, organizing nature tours, dissemination of knowledge about local wildlife and landscape (Wadden sea, marshland), famously known for tours to the "black sun", a natural phenomenon where black starlings "dance" over the marshland	Returning
V05	Remote	2003	LLC	0	Agriculture/ Manufacturing	Farming and production of foods and beverages with own locally grown fruit, in particular berries	Native
V06	Remote	2011	Partnership	4	Knowledge-based services	DNA laboratory offering private persons a DNA profile, for example, for predisposition of illnesses	Returning

Case ID	Region	Founding year	Legal Structure	Employ (in 2012)	Main sector	Core Activity	Locational relationship
V07	Remote	2010	Ltd.	0	Pluriactive: Agriculture/ Tourism / Dissemination	Joint vegetable garden, outdoor kitchen, cooking workshops and seminars using local vegetables, farming heirloom, traditional crops	Returning
S01	Island	2005	LLC	12	Knowledge-based services	A physical gathering place for knowledge-exchange and consultancy about energy saving and renewable energy solutions and installations	Native
S02	Island	2009	Association	0	Service/ Education	Yoga Centre, Yoga education and retreat	In-migrant
S03	Island	2011	Sole Proprietorship	0	Service	Event and travel management specialized in the products and services on the island of Samsø. Focusing on tailor-made solutions, e.g. “energy tours”, “food tours”	In-migrant
S04	Island	2001	Sole Proprietorship	12	Manufacturing	Design and manufacturing of magnifying glasses and optical medical equipment	In-migrant
S05	Island	1997	LLC	0	Tourism/ Hospitality	Sport and recreation business that rents out traditional horse wagons. Also offers experience to roll down a hill inside a giant “zorb” ball	In-migrant
S06	Island	1998	Sole Proprietorship	14	Arts, entertainment and recreation activities	Reinvented traditional museum into a living “eco museum”, managing nine living historical visiting sites around the island, historical reconstructions and communication	Returning
S07	Island	2004	Association	2	Pluriactive: Transportation Service, Tourism	Managing airport, Offers passenger and scenic flights	In-migrant
S08	Island	2001	Sole Proprietorship	0	Pluriactive: Agriculture/ Manufacturing	Farming and production of speciality foods and liquors with own locally grown ingredients, in particular berries	Native
S09	Island	2006	Partnership	0	Agriculture /Manufacturing	Organic brewery, own agriculture and production of beer ingredients	In-migrant
S10	Island	2003	Sole Proprietorship	1	Manufacturing	Production of speciality food and beverages with locally sourced ingredients	In-migrant
S11	Island	2000	Co-partnership	1	Tourism/ Hospitality	World’s largest tree labyrinth made from an abandoned Christmas tree plantation	In-migrant
S12	Island	2009	N/A	1	Pluriactive: Tourism/ Hospitality / Dissemination	Falcon centre, flying of falcons for tourism, bird of prey and falcon breeding and dissemination program	In-migrant
S13	Island	1996	Sole Proprietorship	0	Pluriactive: Tourism/ Hospitality / Dissemination	Human health therapy and leadership training with horses, horse riding for tourists, boarding house for troubled children	In-migrant
S14	Island	2004	Sole Proprietorship	0	Pluriactive: Tourism/ Dissemination	Nature centre and cafe, dissemination of local wildlife, nature playground for children	In-migrant

Table A2: Types of community value created by case and region

Spectrum:			€ Economic	Socioeconomic							Social ♥					
Case ID	Region/Rurality	Total count (max 14)	New/boosted tourism	Local job creation	Activate hard-to-employ	Inspire new entrepreneurial activity	New/improved infrastructure	New (physical) market place f/ others in area	Create attention f/ region, place brand	Distributed wealth/Income f/ others	New localized knowledge	New/restored/ natural, physical, or cultural amenities	New/increased local activities	Preserved history or heritage	Pride, self-respect in community	Creation of sense of belonging, Strengthen local identity
N01	Outskirt	1		x												
N02	Outskirt	4		x		x						x				x
N03	Outskirt	3		x	x						x					
N04	Outskirt	6		x	x		x			x	x				x	
N05	Outskirt	5		x		x			x	x					x	
N06	Outskirt	6	x	x		x					x	x			x	
N07	Outskirt	2		x								x				
V01	Remote	13	x	x	x	x		x	x	x	x	x	x	x	x	x
V02	Remote	12	x	x	x	x		x	x	x	x	x	x	x		x
V03	Remote	4	x						x		x	x				
V04	Remote	5	x	x		x				x				x		
V05	Remote	1		x												
V06	Remote	4		x					x			x			x	
V07	Remote	5						x	x		x	x		x		
S01	Island	10	x	x		x	x		x	x	x	x			x	x
S02	Island	5	x						x	x		x				x
S03	Island	2	x							x						
S04	Island	5	x	x					x	x	x					
S05	Island	2										x	x			
S06	Island	6		x	x						x	x		x		x
S07	Island	8	x	x			x		x	x		x	x	x		
S08	Island	2				x			x							
S09	Island	5	x						x	x		x				x
S10	Island	5		x	x	x			x	x						
S11	Island	5	x	x		x			x			x				
S12	Island	4	x	x	x								x			
S13	Island	4			x					x		x	x			
S14	Island	3			x						x		x			

**EMBEDDEDNESS, RESOURCE DEPENDENCE AND SOCIAL IMPACT
MEASUREMENT: AN EXPLORATORY STUDY OF SOCIAL ENTERPRISES IN
VIETNAM**

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Embeddedness, resource dependence and social impact measurement: An exploratory study of social enterprises in Vietnam

ABSTRACT

Social impact evaluation has attracted increasing debates in social entrepreneurship context, but there has been little scholarly exploration into the association between stakeholders' engagement and impact measurement practice. A better understanding of this interrelation may provide useful implications for both academics and practitioners. Based on three case studies of social enterprises in Vietnam, our paper explores how the relationships between the enterprises and stakeholders influence the social impact assessment practices with particular focus on theoretical lenses of *relational embeddedness* and *resource dependence*. Our data indicate that the social impact evaluation process of social enterprises is a sophisticated and vague manifestation of formal and informal, rational and subjective judgements. It also shows that impact evaluation practices imbedded in social enterprises exist in multiple manners because of the nature of the relationship between the enterprises and their stakeholders during the assessment process.

Key words: embeddedness, resource dependence theory, stakeholders, social impact measurement, social enterprise, Vietnam

INTRODUCTION

The profile of social enterprises has been growing rapidly across the globe. Billions of dollars have been invested by social investors or mobilized by the social enterprises themselves to start, develop or strengthen social businesses for generating both financial and social returns. While the measurement of financial performance of social enterprises shares common practice with the commercial business tradition (Paton 2003; Nicholls 2010), social impact assessment continues to be a contested activity, with questions relating to perceptions and empirics. The evaluation process involves multiple engagements of stakeholders who appear not to share any common understandings of the concept or the measurement approach. Additionally, there is no common answer to the crucial pragmatic issues such as how social impact can best be measured, why multiple practices of impact evaluation approach exist, and how the measurement relates to the activities of social enterprises, particularly the capacity to attract investment from stakeholders. In this paper, we refer 'investment' as 'something that is beneficial to firm's operations, which can include labour, financial capital, and a location to operate, among others' (Van Buren and Greenwood 2010, p. 426).

There are a number of examples of social enterprises and investors adopting sophisticated social impact measurement tools which are considered as international evaluation standards, including social return on investment (SROI), cost-benefits analysis (CBA), social audit model, Impact Reporting and Investment Standards (IRIS), and Social Accounting and Auditing (SAA) (Zappala and Lyons 2009; Clark et al. 2004; Ebrahim and Rangan 2010; Kramer, Parkhurst and Vaidyanathan 2009; Nicholls 2009; Tuan 2008). However, there far many more examples of social enterprises and stakeholders simply developing their own evaluation approaches or merely conducting informal and subjective impact assessment of the social entrepreneurial activities. It is clear that there is no common approach to understanding the crucial pragmatic issues such as how social impact can best be measured,

why multiple options of impact evaluation approach exist, and how the measurement relates to the resource mobilization of social enterprises. Furthermore, extant academic literature into the complexities of impact measurement are typically descriptive or prescriptive rather, focussing on the practice and intricate engagement of stakeholders associated with the activity. Our paper, therefore, attempts to provide empirically grounded insights into the sophisticated interconnection between social enterprises and stakeholders in the social impact evaluation process. It highlights the importance of the nature and role of relations among stakeholders in the social enterprise sector towards social impact assessment practice, thus contributing to the growing literature of social entrepreneurship and social network theory. Additionally, our research seeks to better understand social impact evaluation in the social enterprise sector by exploring how the social relations among stakeholders influence social impact evaluation practice and what are the implications of these associations. While multiple perspectives of social networks exist, our research focus on *embeddedness* and *resource dependence theory*. Our arguments stem from the view of Granovetter (1985) that ‘most behaviour is closely embedded in networks of interpersonal relations’. We expect this approach is useful to develop our understanding of social impact measurement because the phenomenon could hardly be understood separately from actors that engage with or concern about the social enterprises (Paton 2003). We investigate selected social enterprises in Vietnam, a setting that has not been explored in the literature. While there are several studies on social impact assessment in various regions of the globe, Vietnam is a young setting for social entrepreneurship and investment domain. Indeed the concept of ‘social enterprise’ was only officially introduced in Vietnam in 2008 (Nguyen et al. 2012). It is not surprising then that the concept of ‘social enterprise’ itself is still poorly understood, and even doubted in Vietnam (Nguyen et al. 2012). According to a report by the Center for Social Initiatives Promotion (2011), there are currently around 200 organizations operating as social enterprises and around 400,000 organization potentially become social enterprises in Vietnam. Despite the considerable contribution to the sustainable development of the economy and society, social enterprise has not yet legally recognized as a mainstream area like the public or private sector. One of the hurdles preventing the development social enterprises in Vietnam is assumed to be the lack of robust impact measurement approaches that help social enterprises build its identity, transparency and reputation and obtain legal, institutional and other social policy supports for tackling social issues (Peredo and McLean 2006).

In this paper, we first review literature exploring impact assessment, and then provide an overview of theoretical background to understand the associations between stakeholder’s embeddedness, resource dependence and social impact assessment practice. We then present our study’s methodology and the process of data collection and analysis. Our findings are then presented. We discuss the relationships between *embeddedness* and *resource dependence* theory and social impact evaluation in the social entrepreneurship context. Finally, we conclude with key implications and contribution of the research.

SOCIAL IMPACT EVALUATION

The concept of “social impact measurement” is attaining greater recognition and considerable interest from both academics and practitioners in the social business sector recently. The measurement of social return is postulated to assist social entrepreneurial organizations not only in constituting their identity, legitimacy and accountability (Nicholls 2009; Ebrahim and Rangan 2010; Grimes 2010; Di Domenico, Tracey and Haugh 2009; Geoff 2010) but also in learning and improving their efficiency and impact (Paton 2003; Dees 2007). Social impact assessment, at the same time, plays a critical role in supporting funders evaluate their

investments and allocate resources (Kingston and Bolton 2004; Frumkin 2003; Ebrahim and Rangan 2010).

Researchers debate appropriate measurement approaches for various stakeholders. A desire for commonly accepted metrics to evaluate social impact has not been met. There remain hundreds of competing evaluation frameworks, and a great number of impact measurement tools are continually devised (Austin, Stevenson and Wei-Skillern 2006; Mulgan 2012). Some popular frameworks and tools include social return on investment (SROI), Impact Reporting and Investment Standards (IRIS), Social Accounting and Auditing (SAA), cost-benefits analysis (CBA), and balanced scorecard (see discussions of Paton 2003; Kaplan 2001; Somers 2005; Nicholls 2009; Emerson, J., Wachowicz and Chun 2000; Ebrahim and Rangan 2010; Pärenson 2011; Zappala and Lyons 2009). These common social assessment tools are not universally accepted by academics or practitioners (Bull and Crompton 2006; Pärenson 2011). For example, Johnston (2005, p. 595) contends social performance is also “situational and opportunistic and mediated by more subjective and basic concerns... performance management systems are largely socially rather than technically constructed and operated”. Other scholars suggest that the meaning of the information being reported does matter than any enforced metrics (Aras and Crowther 2008). Nicholls (2009) argues it is significant that social performance reporting activities pursue ‘self reflexively’, aiming to align and reinforce the social objectives rather than to simply comply with the demand of institutional regulations and enquiries of standardization.

Impact assessment remains one of the obstacles confronting both practitioners and researchers in social entrepreneurship domain (Mair and Martí 2006). This confusion is compounded by the way stakeholders engage with social enterprises and their social impact measurement process, particularly when social enterprises are embedded in a complex relationship with multiple actors. Although perspectives of stakeholders towards social impact evaluation have been partially explored (see for example, Nicholls 2009, 2010; Hynes 2009; Ebrahim and Rangan 2010; Grimes 2010); very little research has focused on how social entrepreneurial organizations and stakeholders participate in social impact evaluation process and how the ties among them form the social impact assessment pattern. To fill in this gap, this study concentrates on relationships of social enterprises with stakeholders and the influence of these ties on social impact assessment practices. Our overall research questions are: ‘How do ties between social enterprises and stakeholders influence social impact evaluation practice?’ and ‘What are the implications of these associations?’

THEORETICAL LENSES: EMBEDDEDNESS & RESOURCE DEPENDENCE

To investigate how social enterprises and stakeholders assess social impact process and how their interconnectedness influence the measurement practice, we build on the logic of stakeholder theory and social network perspective. In particular, we adopt the theoretical lens of *relational embeddedness* and *resource dependence* to answer our research questions and expect these approaches will assist develop our understanding of social impact measurement. Recognizing the associations between stakeholders’ ties and their behaviours in impact measurement practice will be important since “economic action (like all action) is socially situated and cannot be explained by reference to individual motives alone. It is embedded in ongoing networks of personal relationships rather than carried out by atomized actors” (Granovetter 1992, p.25). The following sections will briefly present the theoretical background that our study utilize.

Stakeholder theory has become one of the most influential and dominant theories in the business, management, entrepreneurship and society studies since the seminal works of Freeman (1984), 'Strategic management: A stakeholder approach'. This work posits that organizations have stakeholders, who may influence or be affected by the organizations. To understand an organization, attention should be paid to these associations. Many subsequent studies have explored these ideas, including the fields of entrepreneurship, management, marketing, finance and sociology. Friedman and Miles (2006) introduce a summary of fifty five definitions of stakeholders in four decades from 1960s to 2000s. A number of stakeholder theory studies highlight the various nature of relationship between the organization and stakeholders, such as, 'affect, impact, influence, interact, dependent,' (for example Freeman 1984; Berman et al. 1999; Calton and Kurland 1996; Jones and Wicks 1999; Rowley, TJ and Moldoveanu 2003). Alternatively, many other scholars concentrate on describing the identities of stakeholder interactions with the firm. Such interactions and relationship could be 'beneficial, harmful, satisfying, responsible, supporting' (Phillips 1997; Freeman 1994) depends on the expectations and momentum of each stakeholder from their engagement with the organization.

In order to understand these complex relationships, it is important to take into account the diverse and interdependent interactions that embed in stakeholders' contexts (Rowley, TJ 1997). The core meaning of embeddedness is that organizational decisions are impacted by interdependent relations and social system (Baker 1990). Therefore, it is critical that we are aware of the organization' interconnectedness with stakeholders to understand organization's actions (Rowley, TJ 1997). While there are various types of embeddedness (Zukin and DiMaggio 1990), in this paper, we focus on *relational embeddedness*. A *relational embeddedness* perspective incorporates both social network and organizational theory which advise that the quality of the network impact organization's performance and behaviour (Rowley, Tim, Behrens and Krackhardt 2000). We refer *relational embeddedness* as profound relationships between actors that usually have a frequent communications over a period of time (Granovetter 1992; Nahapiet and Ghoshal 1998; Uzzi 1999). The two important features that characterize *relational embeddedness* are: closeness and trust (Moran 2005). A close, strong and trustworthy tie is found to be beneficial for the actor to obtain resources, support and cooperation from the other party in the relationship (more discussions in Nohria 1992; Podolny 2001; Uzzi 1996).

Resource dependence theory (RDT) has become one of the most dominant theories in management, organization and strategy literatures (Hillman, Withers and Collins 2009) since the influential work "*The External Control of Organizations: A Resource Dependence Perspective*" of Pfeffer and Salancik (1978). RDT, at its heart, is about the behaviour of organisations and individuals involving a tie of resource exchange (Salancik and Pfeffer 2003). The resource exchange in the social entrepreneurship setting, is manifested by the swap of stakeholders' capital (both financial and non financial) with social impact generated by social enterprises (Smith and Stevens 2010). While there are different views towards RDT, in this paper, we draw upon perspectives of Salancik and Pfeffer (2003), who contend that major resource providers have the power to impact an organisation's decisions and activities. As a result, organizations may have to apply particular strategies, for example, complying with demands and expectations of key stakeholders that provide substantial resources for the development and growth of the organizations (Oliver 1991; Salancik and Pfeffer 2003). This is especially appropriate in the social entrepreneurship setting where many social enterprise seeking for multiple support from stakeholders to survive, grow and prosper.

Although *embeddedness* and *resource dependence theory* have been well researched in many domains such as economic sociology, organizational studies, management and entrepreneurship, very few studies have focused on how and why such approaches could be employed to understand better the complex relationship among actors in the social entrepreneurship context. As a result, the need to explore the role of *embeddedness* (Mair and Martí 2006; Kistruck and Beamish 2010; Smith and Stevens 2010) and *resource dependence theory* (Vestrum and Rasmussen 2013) in social entrepreneurship has been highlighted

METHODOLOGY AND DATA COLLECTION

Social impact measurement in social entrepreneurship context is at a nascent stage because the literature on the field is not yet clearly defined, and largely under theorized (Ebrahim and Rangan 2010; Paton 2003; Nicholls 2010). Therefore, an exploratory qualitative study was considered to be an appropriate approach to gain intensive understanding of the subject (Edmondson and McManus 2007). Exploratory research is also considered as an attractive and preferred approach to represent social research because of its open, flexible, and realistic features (Stebbins 2001). Moreover, the lack of previous research on relationship between *embeddedness*, *resource dependence* and social impact assessment calls for an in-depth qualitative research design. In order to understand the multifaceted nature of social impact evaluation, the research utilizes one of the strengths of the case study to provide thick description and in-depth understanding of the phenomenon in its naturalistic context (Stake 1995). Cases studies have also been employed in several studies exploring the role of *embeddedness* within institutional entrepreneurship (DiMaggio 1992; Dacin, M. Tina, Goodstein and Scott 2002) or social entrepreneurship context (Kistruck and Beamish 2010). Aiming to investigate social impact measurement through perspectives of social enterprises and stakeholders positions my philosophical assumption in the interpretive stance which allows penetration into ‘the complex world of lived experience from the point of view of those who live it’ (Schwandt 1994, p. 118)

The research applies an inductive case study approach for data collection and analysis based on open coding (Strauss and Corbin 1994). To provide rich data for multiple cases, semi-structured interviews with multiple stakeholders involving (directly and indirectly) in the social enterprise are conducted. Semi-structured interviews with open ended questions are adopted as they integrate the benefits of structure with flexibility. This approach assists the interviewers to start with a set of interview questions but it is possible to adjust the order of the questions or to ask new questions to gain further information based on the progress and situation of the interview (Legard, Keegan and Ward 2004). This option is considered to match well with an exploratory study (Saunders, Lewis and Thornhill 2007) as it allows researchers get more insight when they interact with interviewees. Other data and materials including academic journals, books, reports newspaper articles, websites, and internal documents of involved entities are utilized appropriately. The multiple data sources do not only help to contribute to the thick description of the case, enrich the comparisons, but also to clarify the meanings given from informants as well as to validate the findings and avoid misinterpretations of the phenomenon (Stake 2006).

The data for this paper is part of a larger study, which consists of several phases of data collection. This paper includes the exploratory phase of data collection, which consists of fifteen interviews with social entrepreneurs and stakeholders directly and indirectly engage with three social enterprises.

The social enterprises and informants were selected based on a mix of purposeful and snowball sampling techniques. The selection of cases were informed by four primary

considerations. First, the organizations receive various types of support from different stakeholders to assist their activities. Second, the organizations have been conducting impact measurement at some extent. Third, the enterprises are suggested by practitioners and experts in the field. And finally, one of the authors gained privileged access the social enterprises and other stakeholders. The interviews were conducted face to face, which took from 30 to 90 minutes. All interviews were recorded, transcribed and coded in Nvivo 10. The key characteristics of the three cases are portrayed in Table 1.

Table 1: Summary characteristics of social enterprise cases

Case	Year of establishment	Employees	Business	Beneficiaries	Investors	Social impact measurement
Case 1 Five interviews were conducted with the founder of the enterprise, funders, former Vice Director, managers and executives of five departments involving in M&E activity, trainees, and partner	1999	30 permanent and hundreds of volunteers	Restaurants, hospitality	Disadvantaged youths	Private companies; Vocational and higher education training institutions; Individual donors	internal M& E system investor's academic evaluation and informal assessment of impact
Case 2 Four interviews were conducted with the founder, the impact investing representatives (regional manager and business consultant); the volunteer	2006	10 permanent, 10 volunteers currently (have trained and worked with 100 volunteers from 2006-2013	Lifestyle Souvenirs, gifts	Disadvantaged children	Impact investors Intermediaries NGOs	Internal evaluation approach Investor's impact evaluation; intermediary's process reporting mechanism
Case 3 Four interviews were conducted with the founder of the enterprise, donors, government official, and employee	2011	3 permanent 10 volunteers	handicrafts	Disadvantaged women in the protected marine areas	Intermediary, NGOs	SROI, M&E requested by the donors
Other interviews: Government official, international organization official who do not have direct engagement with enterprises						

FINDINGS & ANALYSIS

The data show the three cases to be very different in several aspects such as their entrepreneurial activities, levels of engagement with key stakeholders, as well as their approaches, considerations and decision-making processes regarding impact measurement. The cases indicate that social impact appraisal, as expected, is in its nascent stage. In the three case studies, we find that there is a low utilisation of global standardized impact

measurement frameworks (such as SROI¹, IRIS², and SAA³) even though impact measurement is perceived as very important and essential to social entrepreneurs and other stakeholders. Instead, social impact evaluation is conducted in various ways, both formally and informally, rationally and emotionally, objectively and subjectively.

In case 1, the social enterprise has been established for twelve years. It develops a monitoring and evaluation that measures both outputs and outcomes of the impacts it generates. Some of the output indicators are results of the trainees participated in the training, the graduation in each cohort; the employment rate after these trainees finish the course; the income of the trainees after a period of time in comparison to other vocational training schools in Vietnam; the financial independence capacity and sustainability of the organization (self financed rather than dependence on the funders); number of jobs they provide to their trainees each year. In addition to the output numeric, the enterprise also evaluate the outcome and impact such as evaluating how the organization's activities transform the 'unskilled, insecure and low self esteemed individuals' to 'skilled, happy, confident, responsible and self sustainable' individuals. Data indicate that many people are involved in the evaluation of the organization's activities on trainees' performance and outcome. There is a close, frequent interaction among different departments: the management team of the organization as well as their partners where the trainees do internship or work for and/or the donors during the process of evaluation from the start to the end of the trainees' engagement with the organization. The monitoring and evaluation appear to be completed both formally and informally. The organization has different outcome reporting formats for internal and external demands and requirements. There is a close engagement between the enterprise and its key stakeholders despite the geographical distance. The key funders of the enterprise provide long-term support to the enterprise since its inception more than ten years ago. There appears to be no tension exist between the enterprise and its key funders regarding social impact evaluation process.

Case 2 describes an enterprise that was set up seven years ago. Interviews indicate the enterprise did not have a consistent system to track record the social impact or performance of their arts education program for disadvantaged children. Management worked with stakeholders (impact investor, intermediary, and volunteers) to develop database in order to apply the investor's approach to measure impact. Before working with these stakeholders, the enterprise recorded what they did, for example, they periodically filed relating stories of the children they supported, the changes that the program could bring to them, the progress that children make after a period of time with their subjective lens. There were some tensions occur between the enterprise and its key stakeholders during the impact measurement process.

In case 3, the enterprise was born more than two years ago and was at its nascent stage of development. The enterprise received several short term funding schemes (each funding project last from one to two years) from various funders. There were only three permanent staffs and 10 volunteers working at the enterprise. The enterprise founder and one staff engaged directly in social impact assessment process. SROI framework and several M&E approaches were conducted at different period of times upon requests of different stakeholders. Consensus and tensions exist between the enterprise and different stakeholders regarding perceptions and approaches of social value manifestation.

¹Social return on investment. <http://www.thesroinetwork.org/>

²Impact Reporting and Investing Standards; <http://iris.thegiin.org/>

³ Social Accounting and Auditing ; <http://www.socialauditnetwork.org.uk/>

The interviews highlight rather similar motivations of social enterprises to measure the social impact. All three cases show that there is a high demand of impact evaluation for internal learning and improvement purpose as well as for attracting external funding and resources and sustaining the support of funders and other stakeholders. However, different perceptions and practices of measuring impact exist among cases. In some circumstances, the various tensions occur within social enterprises and across stakeholders. They also show participants in each case have very different perspectives of social impact measurement activities.

The data additionally reveal that although all funders and other stakeholders basically expect social enterprises demonstrate that the activities of the enterprises are measureable and successful with their funding and support, stakeholders do not have common requirements and preferences of a certain impact measurement option. Some prefer narratives, qualitative indicators while others are keen on numbers and quantitative approach. Therefore, the enterprises sometimes have different types of assessment and reporting formats to meet their internal objectives as well as to satisfy different expectations of investors and various stakeholders.

We assume that the existence of multiple impact measurement options, consensus or tensions exist in the social impact measurement process relate to how stakeholders engage with social enterprises. We present below some of our findings regarding the role of *relational embeddedness and resource dependence theory* in social impact measurement in selected social enterprises in Vietnam.

Relational embeddedness & social impact measurement

The data suggest that the requirement of social impact evaluation and resource mobilization opportunities are interdependent with the level of closeness and trust between social enterprises and stakeholders. If the investors and the enterprises have developed a close relationship and trust over many years and the investors have a profound understanding of the enterprise and its impact, they tend to require simple impact report or informal evaluation and even does not need formal evidence of impact. However, if the investors deal with a new organization, of which they have not built trust or closeness, they prefer to receive evidence of social impact and perhaps, more resources invested into social impact measurement and report in order to consider their investment into social enterprises. Formal social impact assessment and reports, therefore, are critical to stakeholders' investment decision.

"In terms of impact measurement... I guess, it's quite naive to go into it. We spoke to a couple of people, it sounds it's good ... We do not follow any metrics, ... we see the work, we know what's going on.. We got people on the ground there. We got people in Hanoi through other partners. We have people in the industry, we have the ambassador as well. We have relationship with these people. I guess in terms of speaking to them about the enterprise that forms part of our impact evaluation. But it's kind of informal. We support [the enterprise] since their inception 12 years ago and they have 600-700 graduates currently. That's the key metric we use. When we report them, I don't know what other metrics we could use. We are confident of [the enterprise], the quality of the people. We have trust in them. That's all we have to say...We have complete trust between the two... We take the lasting relationship ... There has been a lot of trust. Trust has been established and because of that, my support to the enterprise is very easy" (investor 1, case 1)

"I became involved with [the enterprise] eight years ago. [The social enterprise] does good work and actually it brings benefits to people and very tangible... Of course, it's ups and downs but over 12 years, it remains a sustainable business. That's benefits for the participants rather than just a traditional charity or philanthropy For the reporting, yes, I do as it's part of the system. It's nice to receive the report but it's not the major. I still do it no matter I got the report or not ... So I'm not particularly seeking the evidence. If I plan to go to Brazil or somewhere, to support something similar, I'll ask to see the evidence or positive the social impact" (investor 2, case 1)

Our findings are somewhat similar to the what Smith and Stevens (2010) found when they investigated the association between *structural embeddedness* and social value assessment as “the degree of *structural embeddedness* of social entrepreneurship will be inversely related to the time and money spent measuring social value” Smith and Stevens (2010, p. 577). The data reveal that the extent of *relational embeddedness* of social enterprises and stakeholders will formulate the impact evaluation approach of the enterprise (formal vs. informal, sophisticated vs. simple) as well as resources spent for the assessment. Such relationship also reflects how standardized social impact evaluation is important to the decision of resource allocation into social enterprise. Therefore, we come up with the following conclusion:

Conclusion 1: *Social enterprise’s relational embeddedness will reduce stakeholders’ required standardization of impact measurement as well as resources spent for evaluation activity. Relational embeddedness, at the same time, will enhance the consensus between social enterprise and stakeholders regarding impact measurement approach.*

Resource dependence theory & social impact measurement

Although *relational embeddedness* provides favourable opportunities for social enterprises to measure impact in a simple manner and mobilize resources at low cost, it is not always easy for these organizations to build up and retain such relationship with stakeholders (Granovetter 1973), especially in the context of Vietnam where social enterprise is still a new concept. Social enterprises, therefore, do not always treasure close, strong, and trustworthy ties with investors and other stakeholders. In such cases, social enterprises are positioned in a *resource dependence* relation with stakeholders, manifested by an unequal power between the enterprises and resource providers (Pfeffer & Salancik, 1978). The data demonstrate that the strategy of social impact measurement in many cases is decided by the funders. It is not uncommon to see social enterprises follow the investors’ measurement choice because investors have the power over investees.

“Because you have the funding so you have to please the donors ... A lot of donors have a lot of options. We’re competing for a very small pocket of money. Everyone competes. Donors have choices. So if you’re not professional, not organized enough and not credible enough, they probably will say ... here is what we do and how we measure it and this is the impact and this is how the outcomes and it might affect the funding... A lot of people ask you for monitoring and evaluating in different narrative format, and some require metric formats, ... it all depends on the funders... For the request of the donors, each is different. Our three donors ask us completely different questions. One donor goes on to more emotional level, rather than more on technical level. Where we have a donor in Hong Kong where they are incredibly on technical level. They all have the technical questions, they don’t have any emotional questions to this. So this all depends on the funders” (social entrepreneur 1, case 1)

“We have a rather intensive reporting system, I would say, for the early stage organization ... However, if you want to get additional funding from the impact investors or donors, you need have a quite good accounting system as well as a quite good social impact measurement system. If the organization has these in place, and then more funding will come. If you are a very early stage organization, and you do not have anything in place, then you know, it is really difficult to get additional fund. ... so if you want to get more, you got to do more. ... so it’s like ... chicken and egg” (regional manager -investor 1, case 2)

“Different funders have different approaches of social impact measurement. For example, [funder A] applies SROI framework to measure impact... However, [funder B], looks at financial indicator, balance cash flow, feasibility of our business plan alongside with impact measures; [Funder C] concerns with cost effectiveness of the enterprise and environmental impact... Some are keen on measuring impact via SROI framework, others apply different measurement approaches. So for each potential funder, we need to understand what they expect. We need to think how we demonstrate these impact to meet their requirement” (social enterprise’s employee, case 3)

Utilizing resource dependence theory (Pfeffer and Salancik 1978; Salancik and Pfeffer 2003), we find that social enterprise’s decision regarding social impact measurement is affected by

expectations and requirements of investors and other stakeholders who provide significant investments into social enterprises. The findings support argument of Emerson, R. M. (1962) that enterprise's dependence on resources of stakeholders will result in an unequal power between parties. By providing substantial resources that social enterprises need, key stakeholders have the power to influence social enterprise's decisions and activities. As a result, it is not surprising that the social enterprise adopts impact assessment approaches in order to satisfy demands and expectations of resource providers (Oliver 1991; Salancik and Pfeffer 2003) rather than their own needs and preferences. Given that, we come up with:

Conclusion 2: *Social enterprise's resource dependence will enhance stakeholders' multiple expectations and requirements as well as resources spent for impact measurement. On the other hand, social enterprise's resource dependence will reduce the consensus and power equality between social enterprise and stakeholders in determining impact measurement approach.*

The interconnections between *relational embeddedness* and *resource dependence* with social impact measurement are illustrated in Table 2

Table 2: Rational embeddedness, resource dependence and social impact measurement

Nature of relationship	Characteristics of relationship	Social impact measurement	Investment decision
Relational embeddedness	Closeness and trust	<ul style="list-style-type: none"> - Simple, informal, emotional, subjective approach - Modest resources spent for impact assessment - Tension does not exist between social enterprise and stakeholders - High consensus and common agreement between social enterprise and stakeholders in impact evaluation 	<ul style="list-style-type: none"> - The standardization of impact measurement is not very critical to investors regarding investment decision - Investment consideration: usually long term
Resource dependence	Unequal power	<ul style="list-style-type: none"> - Complex, detailed, rational, formal approach - Requires substantial resources to measure impact - Tensions between social enterprise and stakeholders may exist, 	<ul style="list-style-type: none"> - The standardization of impact measurement and formal report are critical to stakeholders regarding investment decision - Investment consideration: Flexible

CONCLUSIONS & CONTRIBUTIONS

The motivations of social entrepreneurs, understanding and involvement in social impact measurement process to different extent, all demonstrate that social impact and impact measurement has become part of concerns and activities of social enterprises and their stakeholders. The translation of social impact perception into social enterprises and their stakeholders illuminate that its significance and meaning have become recognized by various actors in the field.

The social impact evaluation process of social enterprises and their stakeholders was found to be a sophisticated and vague manifestation of formal, and informal; rational and subjective

judgements (Tassie et al. 1996). These controversial approaches occur are assumed to be interconnected with the nature of relationship among stakeholders engaging with the social enterprises.

The analysis indicates the *relational embeddedness and resource dependence* tie among stakeholders are dynamic rather than static or frozen being and therefore, affect the social impact measurement practice and resource acquisition opportunities of social enterprises overtime accordingly.

The paper brings both theoretical and practical implications for a phenomenon that is emerging globally and in Vietnam particularly. The research contributes to social entrepreneurship and social network literature by analyzing the roles of *relational embeddedness* and *resource dependence tie* in social impact measurement in the social enterprise context. By adopting these theoretical lenses, we initially discover that nature of relationship between social enterprises and stakeholders can influence social impact evaluation practice in various manners. The findings reveal that social impact measurement practice will not only be affected by *structural embeddedness* (Smith and Stevens 2010) but also *relational embeddedness and resource dependence* between social enterprises and stakeholders. Both the *relational embeddedness* and *resource dependence* will not only relate significantly to the measurement practice but also to the stakeholders' investment decision into social enterprises. Our results support argument of Dacin, M Tina, Ventresca and Beal (1999, p. 335) that "the relationship between an organization and its embedded context is reciprocal in nature".

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UNLOCKING THE ENTREPRENEURIAL POTENTIAL THROUGH UNIVERSITY CONTEXT

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Unlocking the Entrepreneurial Potential through University Context

Abstract

Research on the emergence and development of the entrepreneurial university has primarily focused on commercialization of ideas developed by university faculty. A missing In comparison with faculty, students are not as closely embedded within the university setting, leaving them free to develop ideas with a more limited research base and perhaps a higher commercial potential. They also have full ownership to their ideas and can therefore develop these with their own choice of partners.

Students' initiatives may affect the university structure thus creating a duality of structures. However, students who start their own businesses within the university may drop out, indicating that there is little room within the university to actually perform these activities. A conceptual framework that specifically discusses the relationship between agent and structure is that of Giddens (1984) structuration theory. The basic human acts and capabilities is incorporated in Giddens' terms of 'Agency'. Giddens identifies the individual as knowledgeable and capable. However, action or the ability to act is always interacting with power. Our aim with this paper is to theoretically explain how context may be of importance for student entrepreneurship. We use the concept of legitimacy in the discussion to develop and present a university context scale that might be used in quantitative studies. Thus this paper is conceptual in nature and contains a thorough literature review, followed by a model,

Introduction

New technology commercialized by entrepreneurs continues to shape our world and recently universities are expected to participate in the entrepreneurial new reality. Through academic entrepreneurship, research based ideas are translated to fit new and growing markets. Academic entrepreneurship deals with commercializing research based ideas. The challenges associated with academic entrepreneurship are connected with creating incentives for faculty to engage in academic entrepreneurship and with bridging the worlds of industry and academia. Students may form a natural bridge between the two realms, still, the study of academic entrepreneurship rarely deal with the role of students. It is thought provoking that the founders of several companies, dominating the international agenda came from either students, or young people who dropped out from university (i.e. Facebook, Dell, Apple, Google, Microsoft, Whole Foods etc). These entrepreneurs did not follow courses in entrepreneurship however still managed to create dominant designs transforming modern societies.

A critique of the academic entrepreneurship research is its focus of the institutional experience of academic entrepreneurship rather than the academic entrepreneurs and their individual experience (Rothaermel et al 2007). However, as new university ranking shows that successful student entrepreneurs come mainly from US and UK universities (Times Higher Education World University Rankings), we are lead to believe that university context might be important in creating an entrepreneurial dynamic. Therefore, this paper focuses on university context as a structure of academic entrepreneurship and the student entrepreneur as an agent. Lately some ideas from Giddens' (1984) structuration theory have been utilized in the context of entrepreneurship research – even if these studies represent a clear minority in the study area. For instance Sarason et al. (2006) applied this theory when analyzing the relationship between agent (entrepreneur) and structure (opportunity) as a duality in the context of business opportunity creation. The duality of structure refer to the way in which the same structures enable and constrain action. The theory specifically argues that actions performed by agent takes place within an institutional framework, however also providing for change and assumes that agents, while acting on the bases of structure may influence and change their structures with their actions. This aim with this paper is to understand what university structure is beneficial for entrepreneurial initiatives among students. Thus, the research question is: *What kind of relationship between university context and student is conducive to student entrepreneurship?*

Student Entrepreneurship as Academic entrepreneurship

The literature of entrepreneurship reflects on the «emerging economic environment created by changes, new technology, and emerging world markets" (Fiet, 2000a, p.102). Academic entrepreneurship is an emerging and developing phenomenon, and there is a growing body of literature about new ventures based on university research. Research on the emergence and development of the entrepreneurial university has primarily focused on commercialization of ideas developed by university faculty. A missing point in his debate has been the role of the students as potential idea providers for startups or as commercializing agent for university spin offs. Students are often discussed in terms of intention to start a business (Iakovleva, 2011, Kolvereid, 1995). Further, these studies have often been linked to educational programs (Fayolle, 2006, Mueller, 2011) In comparison with faculty, students are not as closely embedded within the university setting, leaving them free to develop ideas with a more limited research base and perhaps a higher commercial potential. A recent study by Lubynsky

(2012) shows that students often operate as academic entrepreneurs. The significant finding of Lubunsky's (2012) study research is that the majority of early academic entrepreneur were PhD students at the time they formed the initial idea and began exploring the possibility of a venture based on their research activities. A conclusion drawn was that students as academic entrepreneurs are an important pathway for transferring technologies from universities to the marketplace. Lubunsky's framework is within the classical view of academic entrepreneurship where it is mainly research ideas that are being commercialized. While the type of ideas the PhD students have often are research based and the intellectually property thus partly belongs to the university, the main university students have ideas that are simpler and more needs based. Further, their ideas often have no relevance to the competence base of the university. This is illustrated in the below table:

Consequently, it may be useful to distinguish between students at the PhD level and pre – PhD students. The reason is that pre PhD students have different circumstances when it comes to commercializing their ideas than PhD students. While the ideas of PhD students falls under the intellectual property laws for university employees, the pre PhD students may have full ownership of their ideas, and thus full freedom in pursuing them as they choose. Further, while PhD students have access to research based ideas, the pre-PhD students usually base their idea on their own experience and identified market need.

Table 1: Student entrepreneurship

Student level	Research level	University ownership
Pre PhD	Mostly low	Mostly no ownership
PhD	Mostly high	Mostly high ownership

Although, the academic entrepreneurship literature has been focused on research based ideas commercialized by academic staff, there are many reasons why university should also should promote spin out business from students on graduate and post graduate level. Bailetti (2011) suggest the following reasons: 1) Student spinoff companies offer concrete proof that the university from which they emanate is relevant, up to- date, and competitive. These proof points attract talented students, faculty, partners, and donors; generate private and public sector investment; and strengthen links to important regional and international networks.2) They contribute to the economic development of the region where the university is located. 3) They commercialize knowledge that may otherwise go undeveloped within the university.4). They help universities accomplish their core missions of research, teaching, and community development. Student spinoffs provide faculty with knowledge that is useful for educating students, and they increase awareness of the practical value of undertaking universityresearch.5) They increase the return on government investment in university R&D. Policy makers and taxpayers are increasingly concerned about the low returns from government investment in university R&D. then increases the university's return on its R&D.

Duality of structures

One of the issues that has received most attention in recent decades in sociological literature is the duality of agency of structure. Structuration theory is an attempt to articulate a process oriented theory that treats structure as both a product and a constraint upon human action (Sarason, 2006). and thus, trying to bridge the gap between deterministic, objective and static notion of structure and voluntaristic, subjective and dynamic view of the agent on the other. Giddens theory may help us better understand of the way student behave with the university settings. On the other hand, Mole and Mole (2010) comment on how Giddens is critiqued by

Archer (1995,1996,2003) who believes that structure is objective and created by earlier agents. While Giddens has an interpretivist view of structure, Archer (1995) adopt a critical realist view. Although Archer held that industry structures are objectively true and something entrepreneurs must related to, the university structure is not 'set in stone, but flexible to change and stimuli coming from students. We believe that students react to the university structure as they perceive it. For the case of the student entrepreneur, we therefore adopt Giddens interpretative view of structures. The students are an interesting group to study in a structuration theory setting. Students are in a position with little power. They come to the university structures as young people used to adapting to their previous frameworks, like schools, families, and the military. They are within the university system for a limited amount of time and during that time their main goal is to perform well. They also often have jobs in addition to their studies and a high focus on social life. They therefore have few incentives to influence the university system towards becoming more supportive to entrepreneurship. Extending this view, one might that students "lose their agency" in the university structure. As entrepreneurship demands strong agency, there might be a paradox in creating strong student based ideas from the university unless there is a supportive structure in place. Thus, we assume that without a sense of feeling supported, the student entrepreneur rather conform to the university institutional framework or they drop out.

Giddens operated with institutions as examples of structures. Various definitions of institutions exists in the existing literature. Scott (1995:33) defines institutions as "cognitive, normative, and regulative structures and activities that provide stability and meaning to social activities" and North (1996:344) definition is close in meaning, as he defines institutions as "formal constraints (rules, laws, constitutions), informal constraints (norms of behaviour, conventions, and self-imposed codes of conduct, and their enforcement characteristics. As argued earlier, we assume that students act according to the way that they perceive their institutional framework. In fact, according to an emerging literature, there is relationship between university context, and intended entrepreneurial action by students (Kraaijenbrink et al.,2009; Turker and Selcuk, 2009; Saaed and Muffato, 2012). In a more general perspective, Todorovic et al. (2011) shows that universities with support for entrepreneurship have a higher number of spinouts and patents. Thus, we aim for exploring how the the university context influence the action of students. Students' initiatives may affect the university structure thus creating a duality of structures. However, students who start their own businesses within the university may drop out, indicating that there is little room within the university to actually perform these activities.

The agent perspective on entrepreneurial actions draws upon three dimensions of agency: iterative, projective and practical-evaluative (Emirbayer and Mische, 1998). The iterative dimensions underpins the reproduction of established practices and institutions, which institutionalists have traditionally considered taken for granted and subconscious (DiMaggio and Powell, 1991). However, practice theorists (Giddens, 1984; Jarzabkowski, 2005), consider iterative agency far from mindless, as it requires actors to recognize specific situations and choose appropriate behaviours. The next dimension is called projective, it supports planning, and future change, dominates concepts of institutional entrepreneurship or creation. This position supports a stronger agency (Battilana et al., 2009; Lawrence et al., 2009). Finally, the practical-evaluative dimension enables agents to exercise judgment of their structural framework and influence it (Tsoukas and Cummings, 1997). These three dimensions ranges from reproductive to transformative (Seo and Creed, 2002: 222). One may argue that students powerlessness in the university context leads to them taking an iterative position. They look at their time at the university as restricted and thus we believe will do the

best to fit in to the existing structures. Thus, creating a structure conducive to entrepreneurship is important to promote more student spinouts and thus encourage a stronger sense of agency among students so that it can move from iterative to practical evaluative. At the same time as we assume an iterative position of the student agent, structuration theory proposes that even the smallest social actions contribute to the alteration or reproduction of social systems. Social stability and order is not permanent; agents interacting with their structures always possess an individuality, which allows them to break away from rigid normative actions. Depending on the social factors present, agents may cause shifts in social structure. The process of structuration consists of the separate and related processes: interaction, routinisation and explanation (Goffman, 1976) This is in line with current thoughts such as Smets and Jarzabkowski (2013) operate with three similar phases in trying to understand the way institutions influence agents. We understand the interaction phase as the agent trying to understand the new framework, further we interpret routinization as agents trying to fit the new framework into their reality. Finally, the explanation phase, agent may come up with an alternative explanation for the framework. In the following we look at legitimization processes as a way of structuration as the agent seeks approval or accept within the existint institutional framework.

Institutional Legitimacy as a structuration process.

Related to institutional support is the concept of legitimacy. Legitimacy is a long-term cognitive process of “institutionalization” through which an organization becomes embedded in taken-for-granted assumptions (Zucker 1977,1989,1991; Suddaby and Greenwood, 2005). As Suchman (1995:575) has pointed out “legitimacy affects not only how people act toward organizations, but also how they understand them”, therefore organizations that are not awarded legitimacy are “more vulnerable to claims that they are negligent, irrational or unnecessary” (Meyer and Rowan, 1991:50), Shortly said, institutions strive to obtain stability through legitimacy (Oliver, 1991; DeMaggio and Powel, 1983). Legitimacy is often described in terms of acceptability or acceptance (Suchman, 1995). When an activity is legitimate it receives ample support from the agent constituents. the phenomenon how the novel structures come into being in the interaction between heterogeneous agents and structures. The complete entrepreneurship literature, the related scientific studies and the public speaking about entrepreneurship can be interpreted as the legitimization of entrepreneurship (Luoto, 2010). The field of “entrepreneurship” are specific areas of investigation separating it from the other areas of business studies, such as management or wage earning related to economics or society as a whole. It is about legitimating behaviours (Dowling Pfeffer, 1975).

We will use Scott (, 1995, 2001) institutional framework consisting of a regulative, cognitive and normative dimension. We believe that entrepreneurial behavior must be legitimized in each of the dimension. In line with the structurationist view the legitimization of the entrepreneurs involves ambiguous processes for instance the discussion of the dynamics of legitimization, the structuration of different entrepreneurial identities, the evolvment of different positions, the learning of the different practices or the growing awareness of entrepreneurship.

We therefore discuss the structuration process in each of the dimensions.

Regulative structuration

The regulative structuration process is perhaps closer to a critical realist view where the students deals with formal structures that have been established before the agent interacts with it. Here the rules and regulation will exist separately and objectively from the student. Interaction is the agent's activity within the social system. Rules can affect interaction,

through constituting and regulating e activities, defining them as activities of a certain sort and as subject to a given range of sanctions. This regulative framework is e necessary for agents to feel the trust that everyday actions have some degree of predictability.

Interaction – what are the rules? When it comes to university regulation conducive of supporting entrepreneurship, one might argue that its rather “what is not there ” rather than whats there” that may impact students entrepreneurial behavior. The university regulations system regarding the students exists to ensure them an education with certain standards and that their efforts are judged in a fair manner. *Routinization: why these rules?*. As the process of structuration continues he routinized character of most social activity is something that has to be 'worked at' continually by those who sustain it in their day-to-day conduct. Agents who understand their regulative framework, may react differently to it in both adapting and influencing it. An iterative student agent in a university structure that do not emphasis entrepreneurship, will most likely not perform entrepreneurship activities.

Explanation – lets try these rules instead: When agents see that their activities are restricted within the current network, they may try to change it. If the regulative framework is rigid and not flexible to change, the agent will either have to conform or to leave the system. If the regulative system do not actively promote student entrepreneurship (e.e. incentives, network-arenas, incubators), students that do have ideas must find the time and resources to do so outside of the university sphere. It takes a determined student to jeopardize a safe education in favour of a risky new venture project. While we often hear of successful entrepreneur dropouts, we do not hear of the drop out who didn't succeed with their venture. A stronger agency among students may influence and develop the regulative dimension.

What emerges from this discussion is that the regulative framework is important to promote entrepreneurship. Since we assume the agent has an iterative position, the framework must be structured in a way that student may strengthen their agency

Cognitive Structuration

The cognitive institutional framework deals with the type of knowledge that lies within a certain context. The knowledge about entrepreneurship may vary from context to context. In a university system such knowledge may be beneficial to students who have ideas Lubynsky (2013) suggest that university should supply the following: (1) giving them confidence in their abilities as entrepreneurs and business leaders; (2) providing them with sufficient evidence that their technology could be the basis of a viable business in the future; (3) helping them gain an understanding of the full requirements, capabilities, and maturity level needed by their technology to address those opportunities; and (4) benabling them to assess the current state of their technology relative to the requirements. The mentioned points assumes a context where both faculty and peer student have knowledge about idea – development, markets, investing and setting up a business. The cognitive structuration process may be beneficial to understand how such a framework may be achieved. *Interaction- what do we know?* The cognitive structuration may be a informal learning process coming from interactions with peers and faculty Learning by individuals in an organizational context is the traditional domain of human resources, including activities such as: training, increasing skills, work experience, and formal education. *Routinization - how can we use what we know* of the cognitive structure may be wherenknowledge of entrepreneurship is spread through peers, faculty and knowledge network. Therefore, routinized social practices do not stem from coincidence, "but the skilled accomplishments of knowledgeable agents (Goffman, 1976)Transferring knowledge requires that it be accessible to as needed. A way to retrieve content is also needed, which requires a communication and network infrastructure. Tacit knowledge may be shared through communities of practice being developed at the university.

Knowledge needs to be presented in a way that users can understand it, and it must suit the needs of the user to be accepted and internalized. *Explanation – perhaps we need more knowledge?* These processes rests on the idea that the knowledge needs to be evaluated and renewed so that it is relevant within the given context. Using knowledge may be through simple reuse of existing solutions that have worked previously. It may also come through adapting old solutions to new problems. Mobilizing knowledge involves integrating and using relevant knowledge from many, often diverse, sources to solve a problem or address an issue. Conversely, explanation processes includes learning from mistakes or recognizing when old solutions no longer apply. Further, the university as organization must learn so that it can adapt to a changing environment.. The cognitive structuration process, involves interactions among many individuals leading to well-informed decision making. Adapting an idea must be rewarded along with its initial creation.. Once someone learns something, it is available for his or her immediate use. In contrast, Universities need to create, capture, transfer, and mobilize knowledge so it can be used by several people. Although technology supports the latter, these are primarily social processes within a cultural environment, and cultural change, however necessary, is a particularly challenging undertaking.

Normative structuration

The role of informal rules and norms may be quite strong. Even if formal procedure are conducive to entrepreneurship and the knowledge might be there, the attitude towards entrepreneurship may influence students a great deal. Hofstede (xxx) argued that a society's values could be recognized in whom they chose as heroes. Thus, if entrepreneurial behavior is respected and looked up to, and students who pursue this route becomes leaders within student groups, instead of drop outs, one might

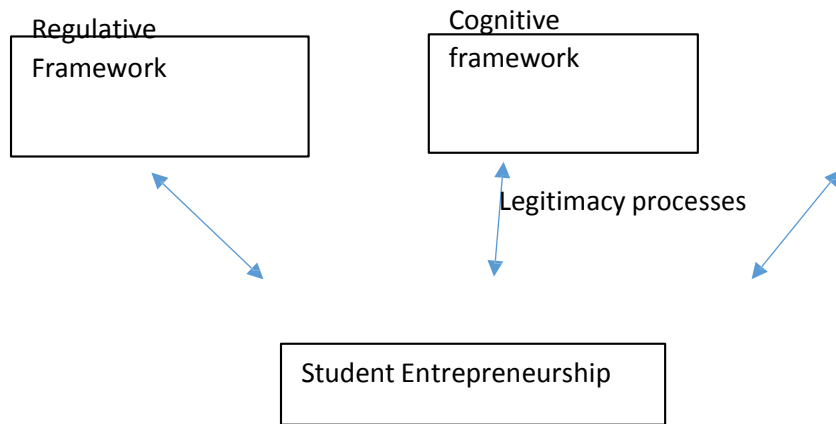
A supportive normative institutional university framework will encourage student entrepreneurs. Interaction – what are our values? New students learn new values, jargon, culture, and procedures when they enter the university. This acquired knowledge affects the way they are able to apply their skills and abilities to study. They also learn about their work group, the specific people they work with on a daily basis, their own role among their peers and the skills needed to do perform within the university system. *Routinisation - how are these values important?* Here, the process routinisation involves questioning former behavior patterns and reflexes, admitting to new ones as part of a transition in one's life. If the university's normative context involves student entrepreneur as heroes and associate positive values with student who show entrepreneurial behaviour, it will influence the values of the entrepreneurs.. *Explanation - perhaps we need to evaluate our values.* A stronger agent may also influence the values within the university

Discussion and Conclusion

This paper has discussed the role of student entrepreneurship and the importance of creating a university context conducive to student entrepreneurship. By discussing the structuration theory of Giddens we suggest that the university has to consider how to shape potential student entrepreneurs.

Model 1: The structuration of student entrepreneurship

Normative Framework



Assuming an iterative role of the student, we use the Scotts three-dimensional institutional framework and suggest that universities must have formal rules, which makes it possible for students to pursue their education at the same time as they are working on their entrepreneurial project. This can be done by crediting the work on entrepreneurial projects according to the knowledge topics it tangents. It can also be done by creating a physical infrastructures such as student incubators, design labs, idea and business plan contests and mentor systems. Further, the university should promote the knowledge of setting up a business and commercializing. Faculty who are open to student ideas and who have network and knowledge about entrepreneurial activities may be helpful in introducing students entrepreneurship. Further, peer students who are interested in entrepreneurship and have the skills to develop their own ideas and start their own business may share this knowledge with other students.

Finally, the university should promote values that support entrepreneurship so that an entrepreneurial route may be a legitimate career way and that students that start their own businesses are respected and looked up to.

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INTERNATIONAL ENTREPRENEURSHIP AND FIRM PERFORMANCE OVER ECONOMIC CRISIS

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INTERNATIONAL ENTREPRENEURSHIP AND FIRM PERFORMANCE OVER ECONOMIC CRISIS

ABSTRACT

Small and medium firms (SMEs) that operate in global markets are vulnerable to external shocks in uncertain, hostile and volatile business environments given their limited resources and inexperience. In such environments entrepreneurial firms respond by making strategic choices to mitigate such vulnerabilities. This research examines one such important strategic choice – *entrepreneurial posturing* and its link to financial performance in Finnish SMEs during the global financial crisis. Findings suggest that the dimensions of entrepreneurial posturing have a differential effect on firm performance depending upon the severity of the business environment as well as the firm's degree of internationalization. Implications for theory and practice are discussed and directions for future research provided.

INTRODUCTION

Surviving and competing successfully in uncertain international business environments is difficult and challenging for firms as it undermines their viability and performance. Global economic shocks such the global financial crisis (GFC) exacerbate the situation and probably present an even greater threat to small and medium firms (SMEs) on account of their inexperience, limited resources, and their inability to absorb the consequences of poor strategic choices (Covin & Slevin, 1989). Between late 2007 and the second quarter of 2009, the global economy slid into a deep economic crisis (Naidoo, 2010). The global economic crisis has not only been severe for large enterprises, but also for small and medium-sized enterprises (SMEs), which have become an increasingly important component of economic development (Paul, Whittam & Wyper, 2007). In a globalised interconnected world, the Finnish economy too was adversely impacted by the GFC. For instance, since the last quartile of 2008 the number of layoffs, order cancellations and financial difficulties has increased drastically, which has led among others to a 30 per cent increase in the number of bankruptcies among Finnish SMEs (Statistics Finland, 2011). Theory and empirical evidence suggest that deep economic crises have profound effects on firms, but the effects are unevenly distributed among them (Narjoko & Hill, 2007). In this context, it is critical to further investigate firm specific strategic factors, an understanding of which will better equip SMEs to face uncertain business environments.

In this paper we will focus on the entrepreneurial orientation (EO) which has attracted considerable attention in the field of entrepreneurship research and on the firm's degree of internationalization. By EO we generally refer to a firm's propensity to be innovative, to be proactive and to take risks (Andersén, 2010). The EO concept is widely used in the field of entrepreneurship and a large number of EO studies (e.g. Zahra, 1986; Covin and Slevin, 1990; Zahra and Covin, 1995; Wiklund, 1999; Wiklund and Shepherd, 2005; Kraus *et al.*, 2012) have focused on the EO-performance relationship and have found that adopting EO associated entrepreneurial behaviors will help firms to create or sustain a high level of performance (Rauch *et al.*, 2009). While considerable attention has been devoted by entrepreneurship scholars to examine the link between EO and firm performance, very little is known how the relationship performs under stress induced by external uncontrollable environmental dimensions.

Miller (2011) argued that the performance implications of EO vary across contexts. In business environments especially, where rapid changes, hostility, uncertainty, and aggressive competition are present, a firm's entrepreneurial posture plays an important role as a performance enhancing factor. The latest global economic crisis therefore offers a very

fruitful context for studying the effects of EO on the performance of small and medium-sized enterprises. The amount of studies focusing on firms' entrepreneurial activities and the performance implications in such extreme environmental and market turbulence is surprisingly small (Kraus *et al.*, 2012).

In this study we aim to build upon prior literature by exploring how the firm's entrepreneurial posture, degree of internationalization affect its financial performance and how the characteristics of the external business environment influence the relationship between EO and performance. Our contribution is manifold: Firstly, as Yusuf (2002) points out, there is a lack of consensus about the relationship between EO and performance in the presence of environmental uncertainty, hence this study. Secondly, instead of the unidimensional approach towards entrepreneurial orientation used in many papers (see for instance, Rauch *et al.*, 2009), in this paper we take a multidimensional approach, as suggested by Lumpkin & Dess (2001) to more precisely capture the differential effects of the dimensions of the EO on the firm's performance. Thirdly, we contribute to the young and rapidly growing field of international entrepreneurship (Jones *et al.*, 2011), by examining the joint effects of EO and internationalization on firm performance. Prior EO studies in this domain are scarce, and have used EO either as a determinant of the type of internationalization process (Knight & Cavusgil, 2005) or as an antecedent of international performance (Jantunen *et al.*, 2005). Fourthly, we examine multiple facets of financial performance using objective measures over a seven-year period before, during, and after the economic crisis. This will shed a more nuanced light on the performance implications of EO compared to the previously most commonly applied cross-sectional studies applying subjective evaluations of profitability or growth.

THEORETICAL FRAMEWORK AND HYPOTHESES

A substantial amount of research has examined the concept of entrepreneurial orientation (EO) thus it has become a central concept in the domain of entrepreneurship (Covin, Green & Slevin, 2006). For instance, Wales *et al.* (2011) pointed out that more than 150 studies of EO have been conducted, implying that the conceptual meaning of EO is widely accepted and that it is widely considered as relevant concept and a cornerstone in the literature on firm-level entrepreneurship. Miller (1983) conceptualized the three focal dimensions of EO as *innovativeness*, *risk taking* and *proactiveness* and these three dimensions have thereafter been consistently used in the literature (Dimitratos *et al.*, 2004; Kemelgor, 2002). Lumpkin and Dess (1996) describe innovativeness as follows: Innovativeness reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes. Innovativeness represents a basic willingness to depart from existing technologies or practices and venture beyond the current state of the art. They see innovativeness as an important component of an EO, because it reflects an important means by which firms pursue new opportunities. According to Baird and Thomas (1985) there are three different types of strategic risk taking such as venturing into the unknown, heavy borrowing, and/or committing large portions of corporate assets to uncertain environments. Similarly, Lumpkin and Dess (1996) state that firms with entrepreneurial orientation are often typified by risk-taking behavior, such as incurring heavy debt or making significant resource commitments in the interests of obtaining high returns by seizing opportunities in the marketplace. Rauch *et al.* (2009) describe proactiveness as an opportunity-seeking, forward- looking perspective characterized by the introduction of new services and products ahead of the competition and acting in anticipation of future demand.

The modern business environment is considered to be highly dynamic; the life cycles of products and business models are shortened, the future profit streams from existing operations are uncertain, and businesses need to constantly monitor the environment for new opportunities. In such circumstances, adopting an entrepreneurially oriented posture may be beneficial for firms (Rauch *et al.*, 2009). The supportive impact of EO on performance is related to the first-mover advantages and the tendency to take advantage of emerging opportunities (Wiklund, 1999).

The literature has confirmed the role of EO behind the economic success of firms. Several empirical studies have found that firms with high EO perform better than firms with low EO, for example Keh, Ngyuen & Hg (2007) found that EO plays an important role in enhancing firm performance and Wiklund and Shepherd (2003) found a strong correlation between EO and performance. Moreover, Soininen *et al.* (2012a) found a positive relationship between EO and firm's long term growth. Whereas Wiklund (1999) showed that investments in EO may be worthwhile for small firms since there is a positive relationship between EO and performance and the relationship actually increases over time.

Lumpkin and Dess (2001) suggest that the dimensions of EO may relate differently to firm performance. Jones *et al.* (2011) in their recent review of 323 articles raise the question of differential effects of various EO dimensions in the context of international entrepreneurship. Similarly, Soininen *et al.* (2012b) also demonstrated that the different dimensions of EO can have conflicting effects on performance. Moreover, Pearce II & Robbins (1994) indicate that firms that experienced externally caused downturns were more successful in their turnaround efforts when they emphasized entrepreneurial activities, which are very similar to the innovativeness and proactiveness dimensions of EO in recovery response. Therefore, in the context of the recession we hypothesize the following:

H1a: Innovativeness and proactiveness in a firm is positively related to its financial performance.

H1b: Risk-taking in a firm is negatively related to its financial performance.

The origin of the latest economic crisis is in the US markets, from which it started to spread all over the globe in late 2007. Therefore it can be seen as an exogenous negative shock, which hit the Finnish economy with a lag. Indeed, as the crises today spread almost instantly across the globe internationally operating entrepreneurs do not have the same means as before to even out the losses made on one market with the profits made on some other markets. Therefore it is only logical to argue that export dependent companies would be the first to suffer from the crisis and those that are less reliant on international sales would be harmed less and face the challenges only later. Therefore, we hypothesize the following:

H2: The degree of internationalization in a firm is negatively related to its financial performance.

Several studies have shown that the fit between entrepreneurial orientation and performance may be moderated by environmental factors such as market turbulence (Javalgi and Todd, 2011). Implying that targeting as high levels of EO as possible is not the optimal goal in certain specific market and structural conditions (Bhuan *et al.*, 2005; Tang *et al.*, 2008). In the same manner Zahra and Garvis (2000) argued that although firms that aggressively pursued EO in hostile international environments had higher levels of profitability, as the level of environmental hostility increased, the increase in the firm's entrepreneurial activities tended to lead to a situation which profitability fell. Hence, Zahra and Garvis (2000) concluded that also under excessively hostile environment the relationship between EO and profitability is not linear. These findings confirm that the pursuit of the highest possible EO may under some conditions lead to undesired end results. Similarly the

firm's degree of internationalization alters the external business environment of the firm and hence new combinations of strategic actions may be needed to be able to take advantage of these new opportunities provided by the change in the external environment (Javalgi and Todd, 2011). Therefore the interface between the firm and the environment in which it must operate is important to note as Javalgi and Todd (2011) argued that firm's reaction to changes in the business environment influences its performance. Therefore based on the discussion and empirical evidence above, we hypothesize the following.

H3a: Firm's degree of internationalization moderates the relationship between innovativeness and firm's financial performance.

H3b: Firm's degree of internationalization moderates the relationship between risk taking and firm's financial performance.

RESEARCH METHOD

Sample and Data Collection

To empirically test our hypotheses we use two distinct but very similar data sets. The first data set was collected in spring 2008 by a web survey from a sample of 1,147 Finnish entrepreneurial SMEs in five industries in the manufacturing and service sectors. The sample was retrieved from the Amadeus database and consists of firms employing 10-500 persons. The pretested questionnaire was targeted at the top-management level in the firms in order to enable a reliable appraisal of the firm strategies. After an initial phone call and two rounds of reminders, the final response rate was 22%, resulting in usable responses from 255 companies.

The second data set was drawn from a mail survey conducted in spring 2009 by means of a structured questionnaire. The initial population consisted of Finnish small private limited companies (they typically had few shareholders and were usually owner-managed family businesses) with an annual sales turnover between one and 10 million Euros. A total of 13,495 firms were identified from the Voitto+- database, and a systematic random sample of 1,026 firms was drawn. The pre-tested survey questionnaire with an introductory cover letter was mailed to the respondents, who were assured of confidentiality and promised a summary of the results. A follow-up was sent to those who had not responded within two weeks. Final responses were received from 194 companies, yielding a satisfactory effective response rate of 18.9 percent (194/1026).

It was possible to obtain financial information on the companies responding to these surveys from the Amadeus database. However, 25 respondent firms in the first survey and 23 firms in the second survey could not be found in the Amadeus database. Thus both the survey and financial information were available for $230 + 173 = 403$ companies. Both surveys were checked for possible non-response biases according to the procedure suggested by Armstrong and Overton (1977) with satisfactory results.

Measures and analysis method

We utilize multiple items to capture the three dimensions of EO conceptualized by Miller (1983). The items are based on the work of Covin and Slevin (1990). However, they were slightly adapted to better suit the context of Finnish small enterprises. The item wordings were also adjusted between the two samples, because the firms in the second survey were smaller than in the first survey. A principal component analysis of the EO items was run separately for each sample, and the results are shown in Appendix 1. Both samples

resulted in two components with eigenvalues greater than unity, explaining together 66% of the variance in the items in sample 1 and 61% in sample 2. In both samples, the items measuring innovativeness and proactiveness merged into the first component, while risk taking items loaded highly on the second component. The final measure for innovativeness- proactiveness was taken as an average of the five items that had highest loadings on the first principal component, and the risk-taking measure was the average of four items in sample one and three items in sample two. Finally, the original 7-point Likert scale applied in the first survey was converted to a 5-point scale to achieve comparability across datasets. This was done using the following conversion formula:

$$(Eq. 1) \quad \text{Likert5} = 2/3 * (\text{Likert7} - 1) + 1$$

The internal consistency of the scales was good, as the Cronbach's alpha values for innovativeness/proactiveness were .861 in the first sample and .865 in the second sample. The reliability coefficients for risk-taking were .823 and .671 respectively.

As measures for financial performance we are using measures representing scale, solvency, and profitability over the nine-year period from 2004 to 2012, which was the most recent year available for the majority of the companies at the time of the study. The scale of the company was measured by the number of employees, and operating revenue in thousands of Euros. The solvency measure was the solvency ratio percentage, and profitability measures included profit after tax in thousand Euros, return on total assets as a percentage and the profit margin percentage.

To measure the firm's internationalization we used a simple indicator variable coded as 1 if the firm had international sales at the time of the survey, and 0 if the firm's revenues came totally from the domestic market.

In the final analyses we used pooled OLS regression analysis to test our hypotheses. The pooled data consists of 403 firms with financial performance data for up to nine different years. Due to missing values the total number of observations in the regression models varied between 3001 and 3034. We used the financial performance indicators for t=2004 to t=2012 as dependent variables in estimating the following equation:

$$(Eq. 2) \quad FP_{it} = b_0 + EMPL_{it} + b_2INT_i + b_3INNO_i + b_4RISK_i + b_5INNO*INT_i + b_6RISK*INT_i + b_7YEAR2004 + \dots b_{14}YEAR2011$$

Number of employees was used as a control variable to measure the size of the firm. The explanatory variables include the main effects of internationalization, innovativeness-proactiveness and risk-taking. The interaction terms account for the moderating effect of internationalization on EO-performance relationship, and the year dummies for the effect of the economic crisis. Several alternative panel data estimation methods were considered. Fixed effects estimator was outruled by the time-invariant nature of our main explanatory variables, and the random effects estimator turned out to be inconsistent based on the Hausman test. Panel data entails a risk of violating the basic OLS assumptions, as the observations are not independent. This was taken into account by using robust standard errors clustered within firms. The analyses were made with STATA 11 – software.

RESULTS

Descriptive statistics

The descriptive comparison of the two datasets can be seen in Appendix 2. In the first dataset 88 (36%) firms operated internationally at the time of the survey. In the second dataset 47 (28% out of 168 who responded to this question) firms had some international operations. The distributions of the two dimensions of entrepreneurial orientation were normally distributed with a mean value close to the midpoint of the scale. The average risk taking propensity was lower than the mean value of innovativeness and proactiveness. There was a statistically significant difference between the two datasets, as both EO dimensions had larger values in the second sample.

The average numbers of employees in sample 1 were about twice the numbers in sample 2. The average trend was similar in both samples: the numbers of employees increased slightly from 2004 to 2008, then dropped in 2009 but recovered to the 2008 level in 2011. In operating revenue, the distribution was more skewed in the first sample, resulting in larger means and standard deviations than in the second sample. However, the median values were about the same in both datasets. Both datasets showed a similar trend in average revenues over time: there was a growing trend from 2004 to 2008, followed by a sharp decrease of about 20% in 2009 and the year 2010 remaining about the same as the previous year. In 2011, the revenues had almost recovered to the pre-crisis level.

In terms of profit, 2007 was the peak year, followed by three years of decline. After the crisis there was some fluctuation as year 2012 profit margins and return on assets were again lower than those of year 2011. The average profitability ratios were higher in sample 2 until 2009, but after the financial crisis sample 2 firms seemed to be slightly more profitable on an average. Solvency ratios were quite stable over time, sample 2 companies having higher average solvency than companies in sample 1.

The comparison between domestic and international firms is shown in Table 1. International firms were more entrepreneurially oriented (the difference was statistically significant at the 5% level according to Mann-Whitney test).

The operating revenues of international firms were on an average more than double compared to those of companies operating only in the domestic market. The increasing trend from 2004 to 2008 and the following decline in 2009 were more dramatic in international companies than in domestic ones. The domestic companies had also recovered their revenues above the pre-crisis level by the year 2011, while the international companies have not reached the pre-crisis revenues yet. The development in average number of employees showed an interesting difference between domestic and international firms; in domestic firms the average number of employees has gradually and monotonically increased from about 19 in 2004 to nearly 24 in 2012, whereas in international firms the number of employees has developed in a similar manner as the operating revenue.

The solvency ratio has on the average remained about the same during the time period, the lowest values occurring in 2006. The domestic firms were on an average a bit more solid than the international ones. The profitability of Finnish SMEs has clearly been affected by the financial crisis. ROA increased about 4% units from 2004 to 2007, then reverted to the 2006 level in 2008, but dropped again about 4% units in 2009 and did not show much recovery by the year 2012. Prior to the crisis, the domestic firms had about 5% units higher return on assets than international firms, but the difference has reduced to about 3% units during and after the crisis. The profitability differences between domestic and international firms show a similar pattern if we look at the profit margins.

Table 1. Descriptive information on key variables

	Year	Mean			Std. Deviation		
		Dom.	Intl	Total	Dom.	Intl	Total

Innopro	n.a.	3.16	3.57	3.30	.87	.65	.83
risktaking	n.a.	2.62	2.76	2.67	.87	.78	.84
Number of employees	2004	18.71	27.51	21.75	27.85	36.86	31.48
	2005	18.31	27.79	21.48	24.43	38.06	29.97
	2006	19.39	32.60	23.93	24.92	52.59	37.30
	2007	19.89	40.71	26.95	23.05	68.62	45.12
	2008	22.56	40.32	29.13	25.09	65.28	45.13
	2009	22.89	33.55	26.73	30.56	44.66	36.58
	2010	22.62	35.48	26.93	31.05	43.26	36.06
	2011	23.61	42.22	30.03	34.25	56.94	44.23
	2012	23.73	41.79	29.89	35.40	61.17	46.52
	Total	21.14	35.62	26.14	28.50	53.29	39.50
Op.revenue th EUR	2004	2238.86	4234.05	2898.19	4447.47	6673.83	5361.03
	2005	2299.49	5066.92	3201.41	4298.77	8179.35	5983.73
	2006	2446.96	6160.33	3668.59	4255.75	11943.94	7865.79
	2007	2764.91	7594.35	4366.63	4258.88	15476.64	9814.67
	2008	3010.52	8340.75	4733.83	4893.50	18582.04	11552.71
	2009	2732.80	5871.37	3742.19	4862.10	11926.65	7979.77
	2010	2723.68	5666.04	3662.73	4572.70	9590.17	6729.81
	2011	3281.93	7148.23	4549.57	5317.73	12121.59	8377.87
	2012	3333.64	7411.47	4620.74	5350.86	12788.15	8628.85
	Total	2760.20	6413.74	3947.66	4713.78	12536.54	8305.09
P/L (th EUR)	2004	122.32	223.00	155.98	291.57	508.96	380.62
	2005	128.11	289.87	181.58	294.54	644.59	447.63
	2006	143.72	291.93	192.48	255.96	750.05	482.55
	2007	188.38	429.05	268.20	306.13	1209.37	747.02
	2008	175.57	360.68	235.57	332.36	1646.69	977.94
	2009	120.96	139.00	126.85	363.95	1479.44	894.63
	2010	131.47	-5.01	88.28	305.99	1960.29	1130.11
	2011	176.24	238.55	196.84	408.06	770.81	554.53
	2012	162.68	290.27	203.45	393.42	883.73	597.24
	Total	150.24	252.70	183.74	331.27	1204.00	741.54
Return on total assets %	2004	12.21	8.58	11.00	21.49	18.58	20.61
	2005	14.31	9.01	12.56	18.59	20.42	19.35
	2006	14.38	9.26	12.69	17.07	18.34	17.64
	2007	16.26	13.82	15.45	17.22	16.23	16.92
	2008	14.04	8.87	12.36	18.27	23.50	20.23
	2009	9.14	5.72	8.02	22.20	21.04	21.86
	2010	8.41	6.27	7.73	19.70	17.58	19.06
	2011	10.38	6.78	9.19	19.35	15.90	18.34
	2012	8.63	5.53	7.63	19.23	15.29	18.09
	Total	12.03	8.28	10.80	19.45	18.88	19.34

Profit margin %	2004	5.45	3.80	4.90	13.84	15.40	14.37
	2005	7.02	4.66	6.25	10.42	12.86	11.32
	2006	7.30	4.12	6.26	10.21	13.64	11.52
	2007	8.35	7.58	8.09	10.84	10.57	10.75
	2008	6.71	5.16	6.22	12.39	12.59	12.46
	2009	5.30	1.40	4.05	13.71	16.03	14.59
	2010	5.59	2.37	4.58	13.77	15.32	14.33
	2011	7.03	3.89	6.01	17.01	10.30	15.22
	2012	5.07	3.01	4.41	13.05	11.95	12.73
	Total	6.45	4.05	5.67	12.96	13.38	13.14
Solvency ratio %	2004	42.30	37.93	40.85	27.51	26.44	27.20
	2005	41.67	39.62	41.00	27.18	25.32	26.57
	2006	39.47	34.74	37.91	29.79	33.30	31.03
	2007	42.57	35.37	40.17	28.48	31.58	29.70
	2008	44.52	37.04	42.12	30.85	33.92	32.02
	2009	46.15	38.67	43.74	32.63	34.64	33.43
	2010	45.80	39.45	43.78	28.94	30.92	29.69
	2011	45.71	37.67	43.04	30.77	32.44	31.52
	2012	46.00	40.00	44.07	30.95	32.14	31.41
	Total	43.79	37.76	41.82	29.79	31.34	30.43

Hypotheses testing

The results of the pooled OLS regression models are shown in Tables 2-4. Table 2 presents the results of the models with operating revenue and absolute monetary profit/loss as the dependent variables. The models were statistically significant at the 1% level, explaining 49% of the variance in operating revenues and 8% in profits, respectively. The parameter estimate for the number of employees was significant, implying on an average 159 thousand Euro increase in operating revenue with an increase of one employee. Using the year 2012 as the reference, the operating revenues in the beginning of the period of interest were nearly a million euros lower, growing until 2008, and being about 650 000 euros lower during the crisis years 2009 and 2010. Controlling for the effects of firm size and time, the main effects of internationalization and entrepreneurial orientation were not significant. However, there was a marginally significant positive interaction between innovativeness-proactiveness and internationalization, implying a moderating effect. In the model for profit/loss in thousands of Euros, the effect of employees was still significant, amounting to 4500 euro additional profit per employee. Compared to the revenues equation there was a notable difference in year 2007, which stood out as being the most profitable although not the highest in terms of revenues. On the other hand, the year 2009 sharp decline in revenues showed in profits with some lag as the 2010 profits were clearly the lowest. EO dimensions had non-significant main effects, but the international companies were significantly less profitable than their domestic counterparts. The significant positive interaction between innovativeness- proactiveness and internationalization implies that the positive effect of innovativeness becomes significant if the firm operates in international markets.

Table 2. Regression Analysis Results: Operating Revenue and Profits

	Operating revenue			Profit th EUR		
	b	Robust s.e.	T	b	Robust s.e.	T
Constant	267.90	1025.57	.26	44.85	2.53	2.91
Employees	158.80***	24.37	6.52	4.48***	.01	-2.88
Y2004	-974.28***	292.45	-3.33	-32.27	1.00	-.38
Y2005	-860.92***	292.61	-2.94	-8.28	.84	1.30
Y2006	-582.77*	324.44	-1.80	1.83	.79	1.47
Y2007	-221.84	359.25	-.62	64.41*	.74	3.89
Y2008	255.59	418.72	.61	36.01	.71	1.96
Y2009	-661.05**	269.98	-2.45	-81.06	.86	-1.16
Y2010	-654.62***	211.14	-3.10	-120.14*	.79	-.40
Y2011	-142.61	167.15	-.85	-12.62	.70	.21
Y2012	0	.	.	0	.	.
International	-6351.78	4038.45	-1.57	-759.57**	4.36	-1.95
Domestic	0	.	.	0	.	.
Innoprop	-230.59	491.98	-.47	16.69	.68	1.47
Risktaking	183.44	421.04	.44	-10.64	.80	-2.12
Inno x Intl	1979.06*	1125.44	1.76	353.35***	1.50	1.99
Risk x Intl	399.37	1279.96	.31	-167.14	1.46	-1.11
Model fit	R Square	N	F (df)	R Square	N	F (df)
	.49***	3030	6.77 (14; 402)	.08***	3008	5.79 (14; 401)

Table 3 presents the results with profitability ratios as dependent variables. The models were statistically significant, but the model fits were modest, with R Squares of five and four percent. The negative effect of the number of employees implies higher profitability ratios in the smaller firms. Compared to the year 2012, the pre-crisis years 2007-2008 were significantly better, but the firms had not yet significantly improved from the crisis years 2009-2010. Innovativeness had no significant main effects, but risk taking and internationalization had a negative impact on profitability. However, the positive significant interaction between innovativeness and internationalization implies that more innovative firms can mitigate the profitability challenges brought by the international operating environment.

Table 3. Regression Analysis Results: Profitability ratios

	Return on total assets			Profit margin %		
	B	Robust s.e.	T	b	Robust s.e.	T
Constant	14.00***	3.62	3.87	7.36***	2.53	2.91

Employees	-.05***	.01	-4.14	-.02***	.01	-2.88
Y2004	1.59	1.49	1.07	-.38	1.00	-.38
Y2005	3.75***	1.33	2.81	1.10	.84	1.30
Y2006	3.90***	1.15	3.41	1.16	.79	1.47
Y2007	6.82***	1.13	6.04	2.88***	.74	3.89
Y2008	4.32***	1.20	3.61	1.40*	.71	1.96
Y2009	-.69	1.29	-.53	-1.00	.86	-1.16
Y2010	-1.40	1.11	-1.26	-.32	.79	-.40
Y2011	.31	1.05	.30	.15	.70	.21
Y2012	0	.	.	0	.	.
International	-10.96*	6.34	-1.73	-8.49*	4.36	-1.95
Domestic	0	.	.	0	.	.
Innopro	.48	1.05	.45	1.01	.68	1.47
Risktaking	-1.72	1.13	-1.53	-1.70**	.80	-2.12
Inno x Intl	4.66**	2.29	2.03	2.99**	1.50	1.99
Risk x Intl	-3.28	2.11	-1.55	-1.63	1.46	-1.11
Model fit	R Square	N	F (df)	R Square	N	F (df)
	.05***	3011	9.39 (14; 402)	.04***	3008	5.79 (14; 401)

Table 4 presents the results with the solidity measure as a dependent variable. The effects of internationalization and EO were very similar to the ones seen for profitability ratios. The notable difference was the effects of the year dummies: during the immediate years preceding the crisis the firms have had lower solvency, but otherwise there were no significant differences between years.

Table 4. Regression Analysis Results: Solvency ratio

	Solvency %		
	b	Robust s.e.	T
Constant	52.35***	6.13	8.54
Employees	-.01	.03	-.58
Y2004	-2.97	2.00	-1.48
Y2005	-2.87	1.97	-1.46
Y2006	-5.02**	1.98	-2.53
Y2007	-3.49*	1.88	-1.85
Y2008	-.35	1.77	-.20
Y2009	-.02	1.85	-.01
Y2010	-.84	1.49	-.56

Y2011	-1.95*	1.18	-1.66
Y2012	0	.	.
International	-46.74***	14.89	-3.14
Domestic	0	.	.
Innoprop	2.73	2.25	1.21
Risktaking	-5.69***	2.11	-2.69
Inno x Intl	11.77**	5.19	2.27
Risk x Intl	-1.11	4.07	-.27
Model fit	R Square	N	F (df)
	.05***	3001	3.06 (14; 402)

To sum up, the regression analyses imply that the effect of entrepreneurial orientation on financial performance is not straightforward: the two main dimensions seem to have different impacts on profitability as risk taking decreases solvency and profit margins regardless of the markets, while innovativeness-proactiveness increases profitability and solvency but only for firms operating in international markets. Thus H1a about the main effect of innovativeness-proactiveness is not supported but H1b about risk taking is supported by our empirical analysis. Furthermore, the hypothesis H2 about the negative main effect of internationalization on financial performance is clearly supported. The final hypothesis H3 about the moderating effect of internationalization on the EO-performance relationship is supported due to the significant positive interactions between innovativeness and internationalization.

CONCLUSION

International entrepreneurs play an increasingly important role in the current global economy. However, after two decades of intensive research, there is still a limited understanding of the variables that determine the performance and survival of international entrepreneurial firms (Mudambi and Zahra, 2007). In this paper we tested how Finnish entrepreneurial firms were affected by the global financial crisis and if some firm specific factors mitigated the effects of the economic downturn.

Our findings indicated that the recessions more strongly affected the performance of those Finnish companies which are internationally active in their businesses. However, high levels of innovativeness and proactiveness can help international firms to improve their performance. Our results also showed that more risk taking firms tended to suffer in terms of profitability and solvency. This could be due to the fact that more risk-taking firms may suffer more from rising interest rates than their less risk-taking counterparts, since risk-taking is typically associated with heavy borrowing and high indebtedness. Finally, we hope that our study will help to identify the factors that influence the survival and recovery of international entrepreneurial firms.

In future research it would be interesting to see what (kind of) role the entrepreneurial orientation and the firm's degree of internationalization play in the recovery process in the longer term. Now this question remains unanswered due to the lack of data while the financial crisis is still too close. Also, a second inviting avenue for future research would be to explore the role of EO in internationalization. It would be interesting to see whether being

innovative, proactive, and willing to take risks can actually enhance a firm's readiness to go abroad and achieve success there.

APPENDIX 1

Principal component analysis of EO items in the first sample

Items	Innovativeness- proactiveness	Risk- taking	Communality
In dealing with its competitors, my firm is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.	.823	.197	.715
In general, the top managers of my firm have a strong tendency to be ahead of others in introducing novel ideas or products.	.797	.250	.698
In dealing with its competitors, my firm typically initiates actions which competitors then respond to.	.776	.110	.614
We have very many new product lines/services (marketed in the past 5 years)	.705	.357	.624
In general, the top managers of my firm favor a strong emphasis on R&D, technological leadership, and innovations	.637	.485	.641
A strong proclivity for high risk projects (with prospects for very high returns)	.114	.875	.778
Owing to the nature of the operational environment, bold and wide-ranging actions are necessary to achieve the firm's objectives	.254	.838	.766
When confronted with decisions involving uncertainty, my firm typically adopts a bold posture in order to maximize the probability of exploiting opportunities	.270	.741	.622
Changes in product or service lines have usually been quite dramatic	.447	.557	.510
Eigenvalue	4.76	1.21	
Cum % var	52.92	66.34	
Cronbach's alpha	.861	.823	
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.			

Principal component analysis of EO items in the second sample

Item	Innovativeness- proactiveness	Risk- taking	Communality
Continuous renewal and innovation are important for our company	.809	.237	.711
We invest heavily in developing new products, services and business practices.	.805	.168	.676
In our company, new ideas come up all the time.	.788	.122	.635
We aim at being at the forefront of development in our business sector.	.759	.222	.625
Lately we have launched many new products/ services.	.729	.135	.550
Our company often acts before the competitors do.	.629	.193	.434
In uncertain situations we are not afraid to take substantial risks.	<.200	.820	.677
Bold action is necessary to achieve our company's objectives.	.316	.737	.643
We prefer the cautious line of action even if some opportunity might be lost that way.(Reversed)	-.197	-.695	.522

Eigenvalue	4.22	1.25
Cum % of variance	46.9	60.8

Cronbach's alpha	.865	.671
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Principal Component Analysis with Varimax rotation. KMO measure of sampling adequacy =.846, Bartlett Chi Square= 686 with 36 d.f., p=.000, MSA for individual items ranged from .73 to .93

APPENDIX 2

Comparison of key variables in samples 1 and 2.

	Year	Mean			Std. Deviation		
		Data 1	Data 2	Total	Data 1	Data 2	Total
innopro	n.a.	3.16	3.50	3.30	.84	.77	.83
risktaking	n.a.	2.48	2.94	2.67	.80	.82	.84
domvsint	n.a.	.36	.28	.33	.48	.45	.47
Number of employees	2004	27.12	14.16	21.71	38.07	15.00	31.25
	2005	26.72	13.86	21.30	35.96	15.40	29.77
	2006	30.20	14.75	23.81	45.33	16.34	37.02
	2007	34.29	15.97	26.69	55.19	18.27	44.70
	2008	36.84	17.26	28.85	54.15	20.66	44.70
	2009	35.67	15.37	26.53	45.26	14.34	36.30
	2010	34.30	16.01	26.77	43.24	16.47	35.91
	2011	38.06	18.25	29.96	52.92	21.47	43.98
	2012	38.95	17.48	29.79	57.35	18.43	46.25
	Total	33.33	15.81	25.99	47.97	17.42	39.22
Op.revenue th EUR	2004	3590.96	1951.88	2887.17	6844.30	1505.02	5320.01
	2005	4032.02	2080.74	3187.35	7666.55	1570.79	5938.42
	2006	4711.70	2266.56	3645.87	10161.23	1710.43	7802.12
	2007	5606.93	2615.24	4332.15	12593.60	1897.89	9724.99
	2008	6115.29	2801.47	4706.71	14824.96	2266.53	11445.35
	2009	4841.45	2219.37	3724.16	10193.56	1745.61	7905.85
	2010	4572.70	2377.25	3630.15	8567.30	1977.81	6682.97
	2011	5836.96	2719.95	4511.82	10565.36	2392.23	8297.49
	2012	5954.47	2835.22	4584.16	11040.53	2398.62	8550.51
	Total	5045.49	2432.22	3922.47	10630.89	1983.72	8234.02
P/L before tax th EUR	2004	171.27	136.37	156.23	467.74	210.09	378.78
	2005	198.52	155.62	180.12	552.52	231.35	444.18
	2006	196.77	183.86	191.14	597.78	253.51	478.68
	2007	279.40	251.72	267.60	942.25	303.10	740.13
	2008	248.66	218.27	235.71	1257.00	277.92	968.58
	2009	124.61	135.09	129.05	1150.09	279.90	891.10
	2010	48.80	139.61	87.79	1453.87	347.27	1121.38
	2011	243.00	131.89	195.76	681.56	275.10	549.17
	2012	247.53	141.58	200.54	758.68	249.90	591.58

	Total	195.29	167.32	183.27	944.44	275.76	735.80
Return on total assets %	2004	9.36	13.07	10.96	22.60	17.12	20.48
	2005	10.27	15.44	12.49	20.96	16.22	19.21
	2006	9.73	16.36	12.62	18.57	15.35	17.53
	2007	12.35	19.67	15.47	18.34	13.43	16.80
	2008	10.42	14.99	12.39	22.81	15.42	20.08
	2009	7.05	9.48	8.09	23.86	18.82	21.86
	2010	6.57	9.03	7.62	20.57	16.73	19.04
	2011	9.67	8.73	9.27	20.72	14.20	18.21
	2012	7.51	7.71	7.60	19.77	15.44	17.95
	Total	9.25	12.82	10.79	21.03	16.37	19.24
Profit margin %	2004	3.64	6.55	4.90	16.32	10.89	14.28
	2005	4.91	7.88	6.20	12.88	8.36	11.23
	2006	4.46	8.48	6.22	12.63	9.23	11.43
	2007	6.48	10.34	8.12	11.06	9.73	10.68
	2008	4.89	8.14	6.28	13.67	10.20	12.40
	2009	2.90	5.77	4.11	16.44	11.34	14.56
	2010	4.86	3.80	4.40	14.11	15.50	14.71
	2011	6.51	5.56	6.10	14.02	16.57	15.15
	2012	4.51	4.37	4.45	13.95	11.02	12.73
	Total	4.81	6.83	5.68	13.98	11.83	13.13
Solvency ratio %	2004	40.16	41.71	40.82	27.00	27.56	27.21
	2005	39.41	43.23	41.04	27.44	25.28	26.57
	2006	33.67	42.71	37.63	35.22	25.30	31.54
	2007	34.74	47.14	40.05	32.29	24.54	29.83
	2008	35.86	50.35	42.08	34.94	25.40	31.99
	2009	37.00	52.82	43.85	36.01	26.96	33.31
	2010	40.62	47.84	43.79	30.40	28.53	29.77
	2011	37.85	49.79	43.00	33.07	27.71	31.39
	2012	39.85	49.43	44.10	32.11	29.38	31.25
	Total	37.58	47.30	41.79	32.31	26.91	30.47

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OVERCONFIDENCE VS. PLANNING COMPETENCE IN ENTREPRENEURIAL VENTURES

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Overconfidence vs. Planning Competence in Entrepreneurial Ventures

Abstract

In their attempt to capture the leading characteristics of entrepreneurial behavior, researchers are often quick to abandon the assumption of rationality. Instead, entrepreneurs are typically regarded as being overconfident in their investment decisions and driven by hubris when assessing their own abilities to start a new venture. In this paper we challenge this view and argue in favor of a more rational entrepreneurship paradigm, which emphasizes the rationale of entrepreneurial decisions, rather than just observing their outcomes. We first show that observations of entrepreneurial behavior, which have often been attributed to overconfidence, can just as well be motivated by rational decision making. However, rather than dismissing the relevance of overconfidence, we defend rational behavior, as it provides a sound theoretical basis for understanding the logic of entrepreneurship. We then propose a framework for studying the rationality of an overconfident entrepreneur. We study the properties of relevant entrepreneurial decision contexts and derive implications for entrepreneurship policy and education.

1. Introduction

In their fundamental agenda for entrepreneurship research Shane and Venkataraman (2000) raise the question why some people, but not others, discover and exploit opportunities for value creation. In particular, with regard to exploitation, several prominent psychological explanations have been established. For one, self-efficacy (Bandura, 1977), i.e., confidence in one's own abilities, is viewed as a major determinant for entrepreneurial intent (Boyd and Vozikis, 1994; Cassar and Friedman, 2009). However, in their attempt to capture the leading characteristics of entrepreneurial behavior, researchers over the past years have often been quick to abandon the assumption of rationality. As a consequence, entrepreneurs are frequently regarded as being overconfident in their investment decisions and driven by hubris when assessing their own abilities to start a new venture. Overconfidence is a psychologically well investigated (mis)perception that conveniently explains why some people, e. g., entrepreneurs, do things that others wouldn't dare.

Empirical entrepreneurship research typically takes an outside perspective by observing the decisions of entrepreneurs in different contexts. From this viewpoint it is understandable why Hayward, Shepherd, and Griffin (2006), among others, find it "puzzling and intriguing that so many ventures start in the presence of the alarmingly high rates of failure." Building on empirical and experimental research, they offer a "hubris theory of entrepreneurship" which explains why and how overconfidence induces entrepreneurs to initiate ventures, knowing that they are most likely to fail. As a solution to the fundamental research question posed above by Shane and Venkataraman (2000), overconfidence would imply, though, that entrepreneurship, the engine of economic growth, is driven by people who persistently make decision errors.

In this paper we challenge this view and argue in favor of a more rational entrepreneurship paradigm, which emphasizes the rationale of entrepreneurial decisions, rather than just observing their outcomes. In order to understand why the entrepreneur's decisions differ from those of other decision makers, it is, therefore, useful to leave the outside position and take the entrepreneur's perspective in the decision context. The main point is to look not at what he does, but to understand why he does it. Within a decision-theoretical framework, we are able to view the entrepreneur's decisions from his own perspective, and, as a benchmark for empirical observations, we can analyze what a rational decision maker would do.

Confidence is an important aspect of decision making, in general, and of the entrepreneurial process, in particular, because it is a crucial prerequisite of acting and carrying out the deci-

sion after it has been made. In this context, different forms of confidence may be relevant, e. g., confidence in one's abilities to prepare and carry out the decision, confidence in the outcome of the decision, often associated with optimism, or confidence in one's judgment concerning the outcomes under uncertainty. Overconfidence is strictly speaking a misperception of the decision maker, who sees himself as more able than he actually is, his future outcomes as more favorable than they can be expected to be, or his estimate as more precise than the uncertainty of the situation permits. From the viewpoint of rational decision making, overconfidence thus leads to decision errors.

We show, however, that observations of entrepreneurial behavior, which have often been attributed to overconfidence, can just as well be motivated by rational decision making. In particular, one can easily justify the rationality of starting a venture, even when failure is the most likely outcome. Market entry, even under unfavorable conditions, does not require hubris or even risk-seeking behavior.

Although we argue that overconfidence is not required to understand or model entrepreneurial behavior, the entrepreneur may nevertheless be prone to overconfidence, just as everyone else is. Hence, we do not deny the relevance of overconfidence, which we view as a general human characteristic rather than a particular entrepreneurial trait (Kahnemann, 2011). We nevertheless prefer to defend rational behavior, as it provides a sound theoretical basis for understanding the logic of entrepreneurship as a process of value creation. Since overconfidence is based on a misperception, we propose a framework for studying the rationality of an overconfident entrepreneur. This allows us to investigate formally the consequences of overconfidence in the entrepreneurial process.

If the entrepreneur's overconfidence is related to his incorrectly perceived abilities, which is most often the case in the literature, we can show how it exaggerates his prediction of market success. However, it may not affect his actual decision to enter the market, if this depends on his external information system, which may very well be independent of his subjective perception of himself. The decision to enter the market can be influenced by overconfidence, if the entrepreneur's choice of the information system is affected by his overconfidence. Thus, we can show how overconfidence may, indeed, lead to excessive market entry and reduce the entrepreneur's chances of success. The explanation, however, is intricately related to the specific decision context. Yet, if the observed outcomes are the same, one may wonder why it should matter how overconfidence affects the entrepreneur's behavior.

A clear understanding of the impact of overconfidence is crucial for the implications. First of all, if the creation and implementation of an entrepreneurial venture can generally be conceived as a rational process, it is much easier to plan and support this process. The fundamental tools of business planning that are taught worldwide have been designed to be employed rationally. As we show in our analysis, planning competence enables and induces entrepreneurs to exploit opportunities and enter markets, even in the light of high rates of failure.

Nevertheless, the many decisions of the entrepreneur will be affected by his perceptions. Empirical studies have revealed that the different manifestations of confidence depend strongly on the type and the difficulty of the tasks performed, which may lead to over- as well as underconfidence (Moore and Healy, 2008). If we understand better how rational decision making is affected by misperceptions, we are in a much better position to detect them and provide support on how to correct or even to avoid them.

The rest of the paper is structured as follows. In section 2, we provide a review of the broad literature on overconfidence in entrepreneurship, and we discuss how this topic is related to business planning. Section 3 introduces a decision-theoretical setting, in which we are able to contrast rational decisions with empirical observations of entrepreneurial behavior. In section 4, we acknowledge overconfidence in entrepreneurial behavior, and we look at its impact on

rational decision making. In section 5, we point out the implications of our work for practice, policy, and teaching. Section 6 concludes and highlights aspects for further research.

2. The Development of Research on Overconfidence in Entrepreneurship

In order to better understand the effects of overconfidence and the differing observations in empirical research, Moore and Healy (2008) distinguish between three different notions of overconfidence that have been discussed in the research literature. Presumably most prevalent in the entrepreneurship literature is the decision maker's *overestimation* of his ability, performance, level of control, or chance of success. In contrast, the decision maker may assess his performance in comparison with others, in which case overconfidence becomes an *overplacement* of oneself as compared to the median or average. A third aspect, which has received less attention in the entrepreneurship literature, is *overprecision* of one's own estimation, i. e., when decision makers provide overly narrow estimations of confidence intervals. By making these precise distinctions, the relationship between the different notions of confidence can be investigated, revealing also instances of underconfidence that may, in fact, coincide with overconfidence in another form (Moore and Cain, 2007; Moore and Healy, 2008). Hence, one cannot infer that one type of overconfidence implies another.

Overprecision was the first variant of overconfidence that was investigated in psychological research by Fischhoff, Slovic, and Lichtenstein (1977), who discovered a general tendency of decision makers towards extreme confidence in their estimates. Klayman, Soll, González-Vallejo, and Barlas (1999) show in different experiments how overprecision varies with the nature of the decision. Forbes (2005) analyzes how this form of overconfidence varies with individual as well as contextual factors. Since estimation tests are fairly easy to conduct with subjects in experiments, they can be used to test subjects for overconfidence, in order to then contrast overconfidence with other market behavior. For example, in their comparison of decisions made by entrepreneurs and managers, Busenitz and Barney (1997) focus on overprecision, and find entrepreneurs to be more overconfident, which they attribute to the nature of uncertainty in the decision contexts. Building on evidence that entrepreneurial intentions are determined by entrepreneurial attitudes and self-efficacy, Fitzsimmons and Douglas (2006) find that overconfidence, also measured as overprecision, strongly moderates this relationship.

For entrepreneurship researchers trying to understand the driving forces of market entry, the experimental work of Camerer and Lovo (1999) has been highly influential. According to the above terminology, their experiments focus on overplacement, and they find that subjects who consider their performance better than average are more likely to enter a competitive market. In this context, the comparison with potential competitors is what initiates the overconfidence. However, Grieco, Hogarth, and Karelaia (2007) warn against inferring overconfidence from excessive market entry, which they find mainly the result of fallible judgments, irrespective of the form or degree of overconfidence (Hogarth and Karelaia, 2008; Karelaia and Hogarth, 2010).

Although there is hitherto no clearcut relationship between the different types of overconfidence, in trying to explain excessive market entry many entrepreneurship researchers have advocated overestimation rather than overplacement as the driving force (Bernardo and Welch, 2001; Hayward et al., 2006). This is understandable given the close relationship between self-efficacy, i. e., confidence in one's own abilities (Bandura, 1977) and overestimation, i. e., overconfidence in one's abilities (Trevelyan, 2011). Moreover, overestimation of one's entrepreneurial abilities appears to be related to overoptimism concerning market performance (Cooper, Woo, and Dunkelberg, 1988). Whereas Hmieleski and Baron (2008, 2009) argue how overconfidence results from strong self-confidence and optimism, Dushnitsky

(2010) finds the overestimation of competencies leading to optimism regarding one's own success. Overoptimism, however, is not identical to overplacement, as no direct comparison with other decision makers is required.

In the empirical literature based on panel or survey data, overestimation is not tested directly. The typical procedure is to measure the level of confidence that entrepreneurs have in their abilities according to different variables. Overconfidence and overoptimism are then deduced as an empirical result, when confidence or expectations are contrasted with behavior, e. g., market entry, and outcomes. For example, Cassar (2010) specifically considers the overestimation of competencies, in particular with regard to forecasting. Townsend, Busenitz, and Arthurs (2010) find that confidence in one's abilities is a robust predictor of market entry, whereas outcome expectancies play only a minor role. Similarly, Wu and Knott (2006) find that entrepreneurs' risk-seeking behavior (overconfidence) with respect to the uncertainty of their abilities weighs stronger than risk-averse behavior with respect to demand (outcome) uncertainty. Simon and Shrader (2011) investigate which actions of entrepreneurs are actually affected by optimistic overconfidence. Their findings from a sample of 55 small firms show mixed results. Trevelyan (2008) finds in her analysis of Australian small firms that overoptimism is beneficial for entrepreneurial intent, but harmful when reacting to setbacks. And, although Verheul and Carree (2008) find that entrepreneurs with relevant business information are less optimistic than entrepreneurs with a high level of general knowledge, acquired through education or unrelated experience, Lowe and Ziedonis (2006) cannot find that overoptimism is a determining factor in the decision to start a firm in their analysis of university related startups.

Overestimation is also used as an explanation for failure as the outcome of market entry. Koellinger, Minniti, and Schade (2007) show for a sample of surveys from 18 countries that self-efficacy is a strong determinant for entrepreneurial propensity, but that there is a negative correlation between self-efficacy and the chance of survival, which could be seen as evidence for overconfidence. Empirical observations of high market entry despite the high rates of market failure have, thus, given strong support to theories of overconfidence. In addition, there is also evidence that experienced failure has little effect on entrepreneurs' subsequent confidence and optimism. For example, Ucbasaran, Westhead, Wright, and Flores (2010) find in their study of entrepreneurial experience in subsequent ventures that failure dampens optimism for portfolio entrepreneurs, but not for serial entrepreneurs. According to Hayward, Forster, Sarasvathy, and Fredrickson (2010), overconfident entrepreneurs positively rebound from failure.

As the above overview highlights, theories of overconfidence, in general, and overestimation, in particular, have been nourished mainly by empirical observations, i. e., outside of the laboratory. Gui, Cai, and Wang (2009) critically observe, though, that the behavior of overconfident decision makers may not be empirically distinguishable from the behavior of better-informed decision makers. It is, therefore, crucial to acknowledge this aspect in the modeling of decisions, by taking explicitly into account, what information entrepreneurs are drawing on in making their decisions.

For example, if an entrepreneur bases his decision to enter the market on a completed business plan, then the high confidence that he reports in surveys may, indeed, just be the result of his planning activities. Consequently, he will be considered as overconfident compared with someone in the same situation without a plan, if one just observes the decision to enter the market. Verheul and Carree (2008) find that external advice or business planning does not seem to limit overoptimism. But, if planning is a value enhancing activity prior to a decision

under uncertainty, then it will increase the value of the decision taken. There is, thus, no reason why optimism should be dampened.

The value of business planning has been discussed extensively in the literature over the past years, also with mixed results (Brinckmann, Grichnik, Kapsa, 2010). On the one hand, opponents of rigorous business planning have pointed out that many highly successful entrepreneurs have never had a business plan, and they argue that there is a lack of empirical evidence that business planners, indeed, perform better than non-planners (Bhidé, 2003; Honig and Karlsson, 2004; Lange, Mollov, Pearlmutter, Singh, Bygrave, 2007). On the other hand, proponents of business planning argue that the value of planning is revealed through the planning activities and depends on what the entrepreneur learns in the process of planning (Shane, 2000; Delmar and Shane, 2003; Gruber, 2007; Chwolka and Raith, 2012). The value of business planning, thus, seems to depend on the perspective taken. As we will show in the following sections, the same also applies to the impact of overconfidence in entrepreneurial decision making.

3. A decision-theoretical framework for entrepreneurial decisions

We begin our analysis by contrasting empirical outside observations of entrepreneurial behavior with the entrepreneur's own assessment of a decision to make, e. g., the decision to enter the market with a new firm. For Hayward et al. (2006) as outside observers "[i]t is puzzling and intriguing that so many ventures start in the presence of the alarmingly high rates of failure." However, by just taking the perspective of the decision maker, it is quite simple to solve this puzzle. Consider the decision problem of a representative entrepreneur, shown in Fig. 1, where the square depicts the entrepreneur's decision node, the circle characterizes a random choice, i. e., by nature, and the triangles denote terminal nodes leading to (monetary) payoffs for the decision maker.

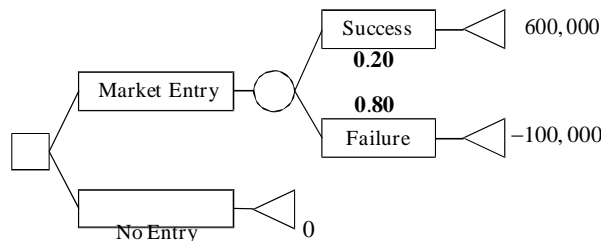


Fig. 1: The entrepreneur's decision to enter the market

In this very basic decision context, the entrepreneur has the choice to either enter the market or to stay out, in which case he will receive a payoff, which we normalize at zero for convenience. If he enters the market, his venture may turn out a success, with an estimated payoff of 600,000, or a failure, in which case the entrepreneur loses 100,000. According to the statistical survival rates, the entrepreneur sees a high chance (80%) of market failure. Nevertheless, with an expected payoff of $0.2 \cdot 600,000 - 0.8 \cdot 100,000 = 40,000$, a risk-neutral entrepreneur would enter the market – and most likely fail.¹

The situation becomes a bit more sophisticated, if we increase the loss of failure to, say, -200,000, because then the expected payoff becomes $0.2 \cdot 600,000 - 0.8 \cdot 200,000 = -40,000$, which is less than the normalized payoff of staying out of the market. Hence, no risk-neutral or risk-averse entrepreneur would choose to enter the market in this situation.

¹ Note that risk neutrality is not the driving force behind this result. The decision to enter the market can also easily be established for risk-averse decision makers.

If we observe market entry, nonetheless, must it then be related to the personal characteristics of the entrepreneur? Can we infer that a market entrant is necessarily risk seeking, or is he perhaps overconfident in assuming that his own personal performance statistics are so much better than average that he has reason to expect a positive payoff. If, indeed, these personal statistics are unfounded, then the entrepreneur's likely market failure is driven by what Hayward et al. (2006) refer to as hubris – the dark side of overconfidence.

As an alternative explanation for conspicuous entrepreneurial behavior, we consider here the consequences of business planning prior to market entry. Business planning is generally seen as a process that involves several steps and employs a variety of analytical techniques (cf. Gruber, 2007). While the business plan as the final outcome can take different forms, depending on the specific purpose, the planning process itself follows two main objectives. The first is venture creation and development, where planning focuses on exploiting a business idea as far as possible. This involves setting up the business model, configuring a blue-ocean strategy, developing a market strategy, or envisioning a growth strategy. The second objective is venture evaluation, where planning is supposed to reveal how valuable a given business idea is. This is where tools are employed for opportunity analysis, SWOT analysis, market analysis, or financial analysis. Venture creation and evaluation are typically conducted in an iterative process that eventually becomes detailed enough to initiate the startup. In particular, the evaluation is intended to provide the planning entrepreneur with signals on whether to carry on with the entrepreneurial venture or terminate the process due to insufficient possibilities for capturing value.

There has been much debate on the value of business planning, where empirical researchers have typically focused on decision outcomes. However, as Chwolka and Raith (2012) point out, business planning is valuable prior to market entry, if, and only if, it raises the entrepreneur's expected payoff. Its value to the entrepreneur must, therefore, be assessed prior to his decision to enter the market rather than afterwards. Moreover, planning is only of value, if it provides the entrepreneur with a signal that will affect his decision behavior – only then is it rational for him to plan. Fig. 2 shows how the entrepreneur's decision to plan affects his decision to enter the market.

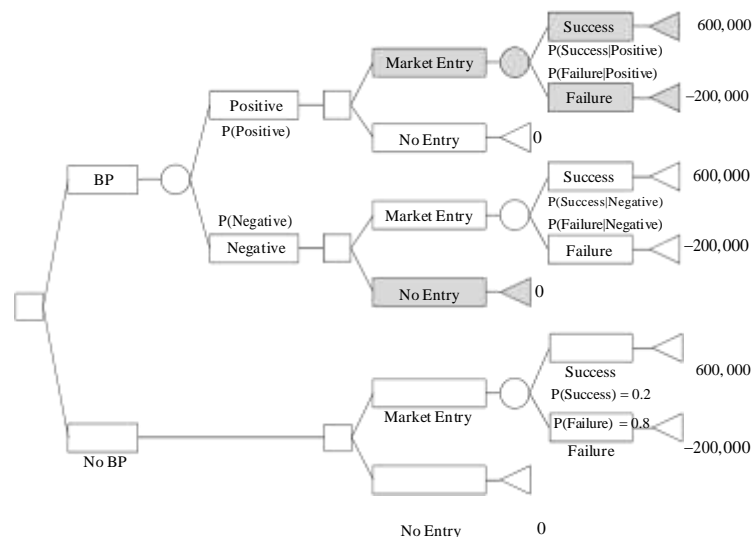


Fig. 2: The entrepreneur's decision to plan before entering the market

If the entrepreneur chooses not to plan (No BP) the decision is as in Fig. 1, where we have only raised the loss of market failure to 200,000, so that, without planning, a rational decision maker would not enter the market. Note that this is also the position from which an empirical researcher typically observes the market.

If, on the other hand, the entrepreneur chooses to plan (BP), then he should expect the planning process to reveal some signal telling him what to do. In the simplest case, it is a positive signal to proceed with market entry or a negative signal to terminate (No Entry). If success and failure of the venture are determined by chance, the signal given by business planning will also be a chance outcome. Nevertheless, planning only has value, if its signal is reliable. This requirement places a quality restriction on business planning. If the quality of planning is not high enough, the signal will not be sufficiently reliable to affect the entrepreneur's decision, in which case business planning loses its value.

In order to quantify the quality of planning, suppose there are different planning standards, where the quality of a specific standard can be measured by the relative frequency with which it signals positively the success or negatively the failure of a venture. More formally, the quality of a planning standard is assumed to be characterized by the conditional probabilities $P(\text{Positive}|\text{Success})$ and $P(\text{Negative}|\text{Failure})$, i. e., the probabilities with which venture outcomes – success or failure – are correctly signaled – positive or negative – in the planning process, thus guiding the entrepreneur to the correct market decision. For expositional convenience, we assume in the following that success and failure are forecasted equally well, i. e., $P(\text{Positive}|\text{Success}) = P(\text{Negative}|\text{Failure}) = q$, with $q \in [0.5, 1]$, if one considers tossing a coin to be the worst forecast system. With the help of Bayes' rule, these conditional probabilities enable us to calculate all the conditional probabilities in the upper branch of Fig. 2, which, intuitively, now all depend on the quality of planning, q :

$$P(\text{Success}|\text{Positive}) = \frac{q \cdot P(\text{Success})}{q \cdot P(\text{Success}) + (1 - q) \cdot P(\text{Failure})},$$

$$P(\text{Failure}|\text{Positive}) = \frac{(1 - q) \cdot P(\text{Failure})}{q \cdot P(\text{Success}) + (1 - q) \cdot P(\text{Failure})},$$

$$P(\text{Success}|\text{Negative}) = \frac{(1 - q) \cdot P(\text{Success})}{q \cdot P(\text{Failure}) + (1 - q) \cdot P(\text{Success})},$$

$$P(\text{Failure}|\text{Negative}) = \frac{q \cdot P(\text{Failure})}{q \cdot P(\text{Failure}) + (1 - q) \cdot P(\text{Success})}.$$

A positive signal is regarded as reliable to follow, if the expected payoff of entering the market is greater than staying out, i.e.,

$$\begin{aligned} 600,000 \cdot q \cdot P(\text{Success}) - 200,000 \cdot (1 - q) \cdot P(\text{Failure}) &> 0 \\ \Leftrightarrow q &> \frac{4}{7} = 0.57. \end{aligned}$$

Analogously, a negative signal is regarded as reliable, if the expected payoff of staying out of the market is greater than entering, i. e.,

$$\begin{aligned} 600,000 \cdot (1 - q) \cdot P(\text{Success}) - 200,000 \cdot q \cdot P(\text{Failure}) &< 0 \\ \Leftrightarrow q &> \frac{3}{7} = 0.43. \end{aligned}$$

Hence, if $q > q_{\min} = 0.57$, the planning quality is sufficiently high to provide reliable signals – positive and negative – to the entrepreneur. Note that $q_{\min} = 0.57$ is only slightly better than

tossing a coin, implying that planning quality does not have to be very high to yield trustworthy signals. By now also considering the probabilities of the two signals,

$$P(\text{Positive}) = q \cdot P(\text{Success}) + (1 - q) \cdot P(\text{Failure}),$$

$$P(\text{Negative}) = q \cdot P(\text{Failure}) + (1 - q) \cdot P(\text{Success}),$$

given by the denominators of the posterior conditional probabilities, one can verify that the expected value of planning is positive and, thus, greater than the value of not planning, if, and only if, $q > q_{\min}$. Hence, the positive value of planning is, indeed, given by the reliability of its signals for the decision maker (cf. Chwolk and Raith, 2012).

In order to investigate the entrepreneurial behavior that planning induces, we consider a numerical example with $q = 0.75 > q_{\min}$. The quality of planning is, thus, assumed to be high enough to guide the entrepreneur, but, with only 75% correct forecasts, far from being perfect. Inserting this value into the previous example yields the numerical outcomes shown in Fig. 3.

Within this context, a rational risk-neutral entrepreneur will choose to plan, because the expected value of business planning is $0.35 \cdot 144,000 + 0.65 \cdot 0 = 50,400$, which is greater than the expected value (0) of not planning and then staying out of the market. If planning reveals a positive signal, the entrepreneur will enter the market, whereas, if a negative signal occurs, he will terminate the venture. It is important to note, though, that most entrepreneurs will terminate their venture due to a 65% chance of a negative signal. Observers of nascent activities will observe this, observers of the market will not.

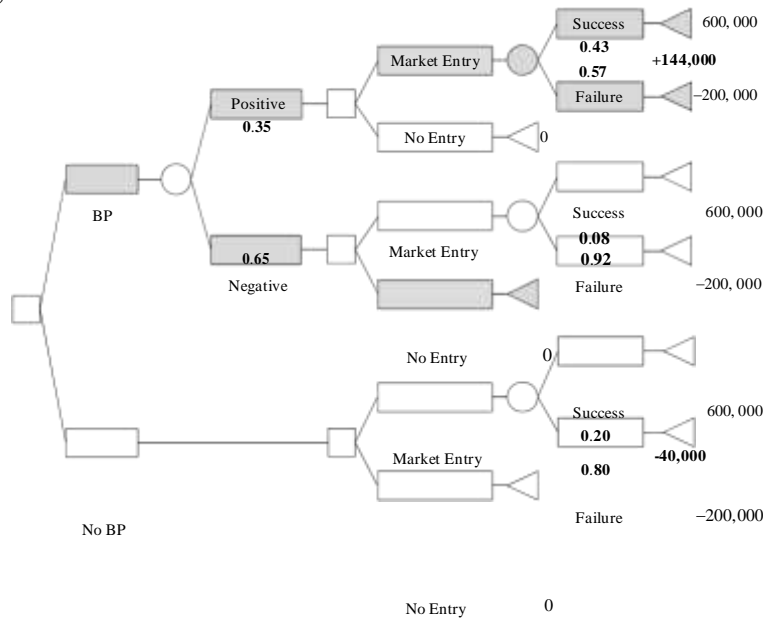


Fig. 3: The entrepreneur's decision to enter the market based on business planning

Of those entrepreneurs that enter the market with a business plan, the majority (57%) will fail. Intuitively, if business planning provides signals that are less than perfect, starting a venture will remain a risky business. Nevertheless, for the market entrant with a business plan the probability of success more than doubles from 20% to 43%, thus raising the entrepreneur's expected outcome to 144,000. Hence, for an entrepreneur with a sufficiently reliable business plan it is absolutely rational to enter the market, even if he is likely to fail. To observe this behavior, no hubris whatsoever is required.

4. Overconfidence in entrepreneurial behavior

None of the previous analysis is supposed to suggest that entrepreneurs are not susceptible to overconfidence. We do, however, see no convincing evidence in the empirical literature that overconfidence is the driving force behind entrepreneurial behavior. Moreover, overconfi-

dence does not stand in contrast with rational decision making, it just influences the decision makers view of the context (cf. Moore and Healy, 2008). With this in mind, we can now investigate within a decision-theoretical framework, what role overconfidence may play in the entrepreneur's decisions.

In experiments, Moore and Healy (2008) reveal that the occurrence of overconfidence depends on the task with which the decision maker is confronted. And, indeed, just as different types of *overconfidence* may occur, one can, in fact, also observe variants of *underconfidence* of decision makers. Moreover, the specific forms of overconfidence respond differently to variations in the task difficulty. Fig. 4 shows the experimental results of Moore and Healy (2008) translated to our specific decision context, where we have shown how overconfidence in one's planning abilities leads to overconfidence in one's expected market outcome.

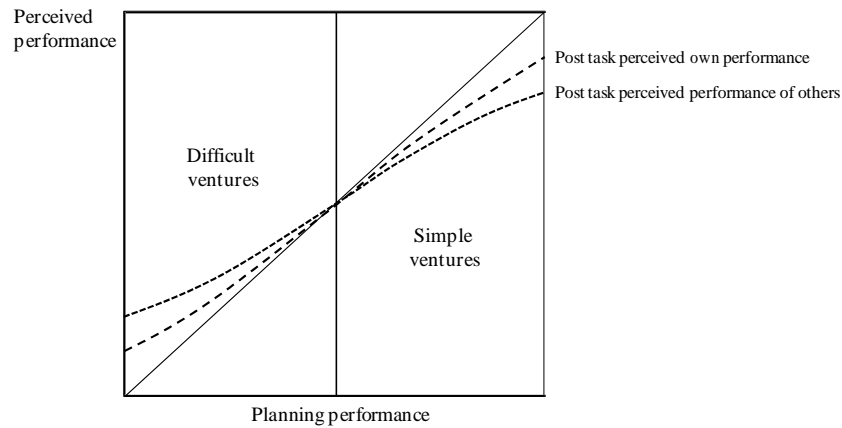


Fig. 4: Over- and underestimation vs. over- and underplacement

The left-hand side of Fig. 4 characterizes difficult venture projects, for which one might expect lower planning quality due to higher planning costs. These are ventures, where, according to Moore and Healy (2008) one can observe overestimation of one's abilities, but an underplacement with respect to other entrepreneurs. The right-hand side features simpler ventures, where actual planning quality should be higher. Here the situation is reversed as an underestimation of one's own performance coincides with an overplacement in comparison with competitors.

As the difficulty of the venture will presumably also be reflected in the prior probability of success, $P(\text{Success})$, one may expect simple ventures to have a higher success rate than difficult ventures. For the planning entrepreneur this carries over to the probability of entry, since $dP(\text{Positive})/dP(\text{Success}) > 0$. Most of the discussion of overconfidence in the entrepreneur-

ship literature, thus, seems to focus on the left-hand side of Fig. 4 featuring more difficult venture projects with low success rates.

In their seminal research, Camerer and Lovallo (1999) found in laboratory experiments that overconfidence increases the likelihood of market entry, where overconfidence, in their setting may be understood as overplacement, as it is based on the comparison with other participants. In the framework of Fig. 4, this experiment based on relatively simple tasks (cf. Moore and Healy, 2008) is located on the right-hand side. Among subjects who had revealed overplacement, they found more market entrants than among non-overconfident subjects. If we denote by E the market entrants and by O the overconfident subjects, then one can state this result formally as $P(E|O) > P(E|\bar{O})$. According to Bayes' rule, the previous relation is

equivalent to $P(O|E) > P(O|\bar{E})$, stating that overplacement is more likely among market

entrants than among non-entrants. This observation could, in fact, be a source of confusion in

the entrepreneurial literature, because, if one is on the look-out for overconfidence, the market is a proven area. Hence, captivating stories of overconfident entrepreneurs may be just as deceiving as the frequent case studies of extremely successful entrepreneurs without a business plan. Just as the latter tell us little about the usefulness of business planes, the former tell us little about the prevalence of overconfidence among entrepreneurs.

In contrast to the empirical literature, we can investigate theoretically within the decision context of the previous section where and how overconfidence will affect the decisions of the entrepreneur. If the entrepreneur's overconfidence is related to his own perceived abilities, in the sense of overestimation, then this will affect his assessment of his planning quality that, together with the a-priori probability of success, determines his personal success forecast.

For the present discussion, the precise format of business planning is irrelevant. All that matters is that the entrepreneur is guided in his decision to enter the market by a signal related to his own personal abilities. The signal may come from business planning activities, but it may also from a personal information system, e. g., inside information, private contacts, business networks, etc.

In the decision setting above, the entrepreneur's overconfidence could be reflected by his perceived planning quality $q^o > q$, i. e., lying above the actual planning quality, which would

then affect his perceived probability of success P^o when he enters the market,

$$P^o(\text{Success}|\text{Positive}) = \frac{q^o \cdot P(\text{Success})}{q^o \cdot P(\text{Success}) + (1 - q^o) \cdot (1 - P(\text{Success}))},$$

where, intuitively, $dP^o(\text{Success}|\text{Positive})/dq^o > 0$ (cf. Cooper et al., 1988, or Cassar, 2010).

It is important to note, though, that the entrepreneur's decision to enter the market is initiated by a positive signal, which is determined by nature and, therefore, depends on the actual quality of planning q rather than the perceived quality q^o . Hence, overconfidence has no effect

on the entrepreneur's actual decision to enter the market, because the signal that he receives does not depend on the planning quality that he perceives.

The entrepreneur's perception of his abilities does, however, influence his perception of the signal and thereby his perception of the value of planning, which will affect his decision to plan. Here there are two cases to distinguish:

Case 1: $q^o > q_{\min} > q \geq 0.5$: Actual planning quality is too low to reveal a reliable signal, i. e., $q < q_{\min}$, meaning that planning is, in fact, without value. Consequently, a rational entrepreneur should proceed with whatever he would do without planning. In the example shown in Fig. 2, without planning, the entrepreneur will not want to enter the market. However, due to sufficient overconfidence, i. e., $q^o > q_{\min}$, the entrepreneur incorrectly perceives value in his information system and enters the planning process.

For $P(\text{Success}) = 0.2$, as we have assumed above, a positive signal becomes more likely the lower planning quality is, because $P(\text{Success}) < 0.5$ implies $dP(\text{Positive})/dq < 0$. Intuitively,

in a world in which most ventures fail, good planning will reveal this and dissuade the entre-

preneur from market entry. However, with $q < q_{\min} = 0.57$, the likelihood of observing a positive signal becomes $P(\text{Positive}) > 0.458$, implying that market entry is essentially determined by coin toss. With a chance of almost 50%, the overconfident entrepreneur will enter the market and most likely fail, as the actual probability of success is determined by his actual competence, q , rather than his perceived competence, q^o .

This case very much captures the situation characterized by Hayward et al. (2006). It is over-estimation alone, which is driving market entry. It is important to acknowledge, though, that overconfidence in this case is associated with insufficient competence, which may not be the most appealing foundation for a theory of entrepreneurial behavior.

Case 2: $q^o > q > q_{\min}$: With planning quality sufficiently high, a rational entrepreneur will want to plan, and he will enter the market, if he receives a positive signal. As we have argued above, though, market entry is determined by the entrepreneur's actual competence, q . Overconfidence has no effect on the entrepreneur's decision to enter the market. Overconfidence does, however, have an effect on the entrepreneur's prediction of his market success and the value that he sees in his abilities (cf. Cooper et al., 1988; Cassar, 2010). Hence, if we assume that entrepreneurs are typically sufficiently competent to perform valuable business planning, then we can expect overconfidence to result in exaggerated predictions, but it will not affect entry behavior. Whether or not exaggerated predictions affect the interaction with further stakeholders is a different issue, but beyond the scope of the present analysis.

Our discussion of overconfidence up to this point has focused on the entrepreneur's actual and perceived planning quality, in order to investigate how overconfidence in his planning abilities influences the entrepreneur's behavior, in particular with respect to market entry. We now go one step back by treating planning quality itself as a decision variable, in order to investigate how overconfidence may affect planning behavior itself.

Chwolka and Raith (2012) show that, with given parameters of the decision context, i. e., payoffs and prior probabilities, that the informational value of planning rises linearly in the quality of planning, q , for $q \in [q_{\min}, 1]$. This is depicted in Fig. 5 by the function $IV(q)$. In addition,

we now consider that planning is costly, and we assume that the cost of planning is a convex function of the quality of planning, $C(q)$, beginning at q_{\min} with a fixed cost and rising exponentially as q goes to 1. The net benefit of planning, $NB(q)$, is then given by the

difference between the informational value and the cost of planning. In Fig. 5, the resulting net benefit of planning is shown as a concave function of q , with a maximum at q^* . This is

the optimal quality of planning, which will be chosen by a rational entrepreneur. The quality of planning is, thus, determined by optimization rather than exogenously given as before.

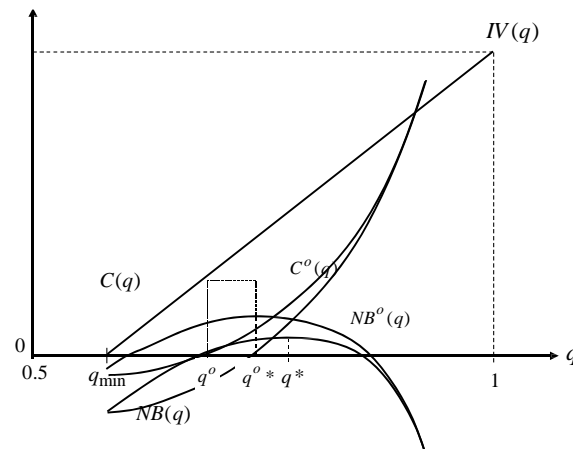


Fig. 5: The optimal quality of planning

Hayward et al. (2006) argue that “more overconfident [founders] will underestimate their ven-

tures' need for initial resources." Within the current setting, one can infer that overconfident entrepreneurs will underestimate their costs of planning. In Fig. 5, overconfidence thus turns the entrepreneur's perceived cost curve downward to $C^o(q)$, where we assume that the overconfidence effect diminishes as planning quality approaches higher and more costly levels.

With the new perceived net benefit of planning, the rational but overconfident entrepreneur will wish to reduce his costs until he perceives lower marginal costs at the optimal planning level q^o^* . However, with his actual costs given by $C(q)$, his actual planning quality will

turn out to be $q^o < q^o^*$. Hence, the overconfident entrepreneur's perceived planning quality is, again, higher than his actual quality.

In comparison with our previous analysis above, there is a major difference in the overall outcome, because the actual planning quality of the overconfident entrepreneur is now lower than the planning quality of the non-overconfident planner. As a consequence, the likelihood of market entry is higher, since $dP(\text{Positive})/dq < 0$, in our setting, but the probability of suc-

cess decreases as does the expected outcome. Hence, overconfidence, does promote market entry, and it increases the likelihood of failure, but for economic reasons related to the optimal use of planning resources, rather than exaggerated market expectations. This differentiation is important, because the resulting implications for support will be different.

5. Implications

Within our decision-theoretical framework we have been able to show that entrepreneurial behavior that is often attributed to overconfidence can just as well be the outcome of rational decision making, if planning competence is taken into account. Intuitively, the decision maker's high confidence is justified by his competence. If the decision maker's competence is not recorded, but only his behavior, then he may be mistaken as being overconfident.

For the practical support of nascent entrepreneurs, this has important implications. Through a process of evaluative business planning that yields directive signals, the entrepreneur is able to abort or increase the value of his venture project. The better his planning is, the higher his confidence in the planned venture can be. Yet, as all decision makers, the entrepreneur is prone to overconfidence, and it is important to understand psychologically how these situations may arise. The business plan, as a documentation of the rational planning process, serves as a safeguard against overconfidence. If appropriately done, it reveals the coherence or incoherence of the entrepreneur's predictions and strategies. This is of valuable assistance to the individual entrepreneur as the main decision maker, to a team consisting of different personalities with their individual idiosyncrasies, or to a facilitator supporting an entrepreneur in the process of venture creation.

For policy makers, relying on entrepreneurship as the engine of innovation and economic growth, it makes a fundamental difference, whether this process is driven by an underlying logic or mostly by decision errors. Surely, the individual entrepreneur cannot be regarded as being fully rational, but what matters for policy makers is whether the average behavior follows some conceivable rationale, because this is the basis for policy measures. It is also a social issue how entrepreneurs are regarded. As they are often today celebrated as the heroes of economic development, it is important for society, in general, and politics, in particular, to know whether they should promote overconfidence, i. e., a "just do it" behavior, or encourage a more planned process. Interestingly, opponents of business planning seem to provoke the former.

For teachers of entrepreneurship, the methods and tools that they teach depend crucially on how they view the process of entrepreneurial decision making. If they believe that entrepreneurship is driven by overconfidence, it is not clear whether any systematic approach to venture creation is supportive for or detrimental to the process. As we have shown, however, the rational paradigm acknowledges all the crucial aspects of entrepreneurial decision making. Moreover, it

provides a benchmark for identifying deviations due to psychological traps. If

planning competence leads to decisions and actions that others wouldn't dare, then it is clear what this implies for entrepreneurship education: promote and teach planning.

6. Conclusions

As we have argued in this paper, overconfidence is a biased perception of the decision maker, which, however, does not preclude rationality in decision making. This perspective enabled us to critically view the phenomenon of overconfidence and to analyze within a formal decision-theoretical framework the effect of overconfidence on entrepreneurial decisions. With our paper we hope to have made three important contributions.

First, by distinguishing between different forms of overconfidence, we were able to sort the various contributions to this field into separate categories. This helped us to reveal that overconfidence of one type need not coincide with overconfidence of another type. Hence, one must be careful in transferring empirical accounts of overconfidence to other contexts. Moreover, even within the same category, we could not find overwhelming evidence that entrepreneurial behavior is driven by overconfidence. In particular, experimental research, where overconfidence can be directly controlled, provides mixed results in all categories. The strongest cases for overconfidence come from empirical research based on panel or survey data, where overconfidence is statistically deduced rather than directly tested. Here the question arises whether observed behavior is, indeed, sufficient to support a theory of overconfidence.

Second, by explicitly excluding any form of overconfidence, we were able to show that entrepreneurial decisions, in particular related to market entry, which are often attributed to overconfidence, are fully compatible with rational decision making. Just because we see entrepreneurs doing things that others wouldn't dare, it is premature to conclude that they are persistently making mistakes. More plausible is that they are doing things that we may not observe, such as getting informed. We, therefore, oppose the view that overconfidence is a driving force behind entrepreneurial decisions. Moreover, by reestablishing the rational paradigm, the entrepreneur becomes a much less mysterious decision maker – a perspective that also makes it easier to derive implications for educators and policy makers. Hence, if we go back to the initial question of Shane and Vankataraman, why some people but not others see and exploit opportunities, we find it safe to assure that it is not because they are persistently making mistakes.

Nevertheless, we acknowledge that entrepreneurs are prone to overconfidence, just like everyone else. Hence, third, by acknowledging different forms of overconfidence that have been identified in the literature, we were able to investigate whether and how overconfidence affects entrepreneurial decisions. As we showed, entrepreneurs' perceptions of their own abilities may have counterintuitive effects on their decisions.

It is, therefore, important in future research to investigate, how over-/underconfidence affects specific entrepreneurial decisions rather than only entrepreneurs' observed actions. Moreover, it is important to be able to identify overconfidence in entrepreneurial decisions, as these decisions will generally not be optimal for the individual entrepreneur. Business planning should, therefore, be based on models of rational decision making. Good business plans can reveal the coherence of the entrepreneur's predictions and strategies and, thus, help to prevent overconfident actions. In which way entrepreneurial overconfidence affects social welfare is a different issue that needs to be addressed separately.

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BEYOND PROSOCIAL AND ALTRUISTIC: IDENTIFYING OTHER-ORIENTED MOTIVES OF SOCIAL ENTREPRENEURS

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Beyond Prosocial and Altruistic: Identifying Other-oriented Motives of Social Entrepreneurs

Abstract

Social entrepreneurs create new ventures to fill market-based gaps in the provision of social goods or services. The young academic field of social entrepreneurship lacks a theory of social entrepreneurial motivation. Both prosocial motivation and altruism are identified as foundations for social entrepreneurial activities, but they are poorly defined and supported by limited empirical evidence. We propose nurturance, social justice and reciprocity as additional other-oriented motives for social entrepreneurs. Based on 217 responses to an online survey, we conduct exploratory and confirmatory factor analyses. Our findings suggest that while nurturance is not a distinctive motivating factor, social entrepreneurs are influenced by prosocial motivation, altruism, social justice and reciprocity. A better understanding of what drives social entrepreneurs to invest resources in ventures that benefit others may offer insights into ways to encourage continued engagement in this important and growing sector of the economy.

Introduction

Entrepreneurs start ventures for a variety of reasons, some pursue wealth and fortune, some seek basic financial security, some aim to help others and some simply want to keep busy (Mair & Martí, 2006; Miller, Grimes, McMullen, & Vogus, 2012; Naffziger, Hornsby, & Kuratko, 1994). Understanding the motivations that drive entrepreneurship is important not only because they influence whether or not new ventures are launched, but also because underlying motivations may influence the outcomes of new ventures (Baum & Locke, 2004; Baum, Locke, & Smith, 2001). In fact, the motivations underlying a new venture may be an important parameter in determining whether the venture is successful in the eyes of the founding entrepreneur(s) (cf. Carter, 2011; Hamilton, 2000; Kuratko, Hornsby, & Naffziger, 1997). However, research on entrepreneurial motivation tends to neglect or downplay social entrepreneurship, and few empirical studies of social entrepreneurial motivation exist.

Social entrepreneurs create new ventures to fill market-based gaps in the provision of social goods or services (Austin, Stevenson, & Wei-Skillern, 2006). Social entrepreneurs behave entrepreneurially in the sense that they identify opportunities, innovate, take risks and earn income through trade (Peredo & McLean, 2006). The social aspect of social entrepreneurs lies in their aim to bring about positive social change for target communities in need (Martin & Osberg, 2007). It is the presence of both a social and entrepreneurial element that differentiates social entrepreneurs from other entrepreneurs (Seymour, 2012).

As a subset of entrepreneurs, it seems that social entrepreneurs may have some motives that are similar to those of commercial entrepreneurs, but the factors that drive them to act socially may differ. The literature on entrepreneurial motivation tends to either omit social entrepreneurs altogether or to claim that social entrepreneurship is likely to be driven by entrepreneurial activities as ends in themselves or by general and unspecific social motives (cf. Baum & Locke, 2004; Carsrud & Brännback, 2011). Social or other-oriented motives are particularly important as they drive behavior to help others (Batson, 1990). The literature focusing specifically on social entrepreneurship suggests both prosocial motivation and

altruism are key other-oriented motives and the foundations for social entrepreneurial activities (Mair & Martí 2006; Miller, Grimes, McMullen & Vogus 2012). The empirical work addressing prosocial motivation as a driver of entrepreneurship relies on coded, qualitative responses to open-ended questions in the Panel Study of Entrepreneurial Dynamics II (Renko, 2013).

While prosocial motivation and altruism might be important drivers of social entrepreneurship, they do not exhaust the spectrum of other-oriented motivations that may underlie entrepreneurial ventures. Moreover, scales for measuring other-oriented motivation have yet to be developed and tested in the field of social entrepreneurship. Consequently, there is a gap in our understanding of what types of other-oriented motivation are experienced by social entrepreneurs and how to measure them. A better understanding of other-oriented social entrepreneurial motivation may be useful in three ways. First, it can offer insights into ways to encourage continued engagement on the part of social entrepreneurs in an important and growing sector of the economy. Second, being able to measure other-oriented motivation in social entrepreneurs will enable us to assess the impact different mixes of other-oriented motivation have on ventures. Third, it may foster a better understanding of how similar or different commercial and social entrepreneurs actually are.

This paper has two aims: 1) to draw on the psychology literature to extend the conceptual foundation for other-oriented motivation in social entrepreneurship and 2) preliminary development and testing of constructs for possible inclusion in a scale to measure social entrepreneurs' other-oriented motivation. The remainder of the paper is organized as follows. We review the study of motives in entrepreneurship. We then draw from the psychology literature both to distinguish self- and other-oriented motivation and to propose that social entrepreneurs may be motivated by three other-oriented motives in addition to altruistic and prosocial motivation. Next, we describe our methodology for collecting data and analysis. Finally, we present our results and a discussion.

The Study of Motives in Social and Commercial Entrepreneurs

Recent research suggests that particular motives can distinguish non-entrepreneurs from entrepreneurs, and can even allow for predictions of performance (Baum & Locke, 2004; Collins, Hanges, & Locke, 2004; Stewart & Roth, 2007). Motives that have consistently been linked with entrepreneurs include the needs for achievement (Carsrud & Brännback, 2011; Deshpande, Grinstein, Kim, & Ofek, 2013; Shane, Locke, & Collins, 2003) and autonomy (De Clercq, Honig, & Martin, 2013; Douglas, 2013; Lam, 2011). Both of these motives are self-oriented to the extent that acting on them is in one's self-interest (Batson, 1990). A person who pursues achievement, for example, may benefit both from the personal satisfaction of completing a challenging task to a high standard as well as extrinsic rewards associated with their performance. In contrast, other-oriented motives drive behaviors that benefit others (Van de Ven, Sapienza, & Villanueva, 2007).

Guided by our interest in social entrepreneurs, we focus on other-oriented motives. It seems reasonable that social entrepreneurs, whose primary aim is to help a target community in need (Bacq & Janssen, 2011), experience other-oriented motivation. While entrepreneurship research focuses almost exclusively on self-interest, evidence suggests that entrepreneurs who consider self- and collective interests are more likely to recognize opportunities and generate resources (Tiessen, 1997; Van de Ven, et al., 2007). Academics identify social entrepreneurial motivation as either altruistic (Mair & Martí, 2006; Miller & Wesley Ii, 2010) or prosocial (Miller, et al., 2012; Renko, 2013). Studies to date that consider social

entrepreneurial motivation tend to be either conceptual (Mair & Martí, 2006; Miller, et al., 2012; Nicholls, 2006) or qualitative (Prabhu, 1999; Shaw & Carter, 2007). One quantitative study relies on coded, qualitative responses in the Panel Study of Entrepreneurial Dynamics II survey to determine whether or not entrepreneurs are prosocially motivated (Renko, 2013, p. 1054). These limitations in the existing literature suggest a need for expanded understanding and better measurement tools associated with other-oriented motivation in social entrepreneurship.

Other-oriented motives in Social Entrepreneurship

A recent review of the psychology literature identifies four reasons people seek to help others: 1) people act in their own self-interest, 2) they are driven by an emotional connection with those they help, 3) they have a particular affinity for the target community and 4) by helping they are upholding a universal principal, such as social welfare (Forbes, 2011). Yet, only two individual constructs, prosocial motivation and altruism, are discussed in the social entrepreneurship literature.

Prosocial motivation is the drive to benefit others (Grant, 2008). It seems intuitive that people who act entrepreneurially to benefit a target community in need are driven by the relatively generic prosocial motive. In one study, almost eighty percent of social entrepreneurs demonstrate prosocial motivation when they identify bringing about social change as one of the reasons they started their ventures (Shaw & Carter, 2007). At the same time, having prosocial motivation may reduce the likelihood that a social venture will get off the ground, possibly because of a lack of support for innovative social ideas (Renko, 2013). It is perhaps not surprising that many social entrepreneurs are motivated to help others, but it is unclear whether they anticipate receiving material returns.

Altruism motivates people to help others without expectation of an extrinsic reward (Bar-Tal, 1985). Altruism is identified conceptually as a motive for social entrepreneurship, but without empirical evidence or a clear definition (cf. Mair & Martí, 2006; Nicholls, 2006; Prabhu, 1999). There is some acknowledgement that social entrepreneurs may benefit from intrinsic rewards (Mair & Martí, 2006), which does not preclude the presence of altruism. Expansive definitions of social entrepreneurs encompass both individuals who focus exclusively on social impact and those who balance goals of social impact and profitability (Peredo & McLean, 2006). Social entrepreneurs who seek profit are not acting on altruism, because they anticipate financial rewards for their actions. Research suggests that altruism motivates at least some types of entrepreneurs. Female entrepreneurs are motivated relatively consistently by altruism across their lifespans, while male entrepreneurs' altruistic motivation tends to increase as they age (Wasserman, 2008). Altruistic motivation helps sustainable entrepreneurs identify opportunities that support the environment (Patzelt & Shepherd, 2011), enables family business owners to benefit both family and non-family staff (Karra, Tracey, & Phillips, 2006), and influences the way some who operate private practices handle ethical dilemmas (Calnan, Silvester, Manley, & Taylor-Gooby, 2000). Although evidence in the context of social entrepreneurs is lacking, it seems that social entrepreneurs who focus on bringing about social change without striving for financial returns or other extrinsic rewards are motivated by altruism. Social entrepreneurs, then, seem driven to help others, and at least some sub-set of social entrepreneurs appears not to anticipate extrinsic rewards.

Drawing on the psychology literature, we identify some further reasons that social entrepreneurs might help others. First, **nurturance** is the drive to care for and foster the development of familiar others (Murray, 1938; Reiss, 2004). Erikson's (1982) lifecycle

analysis suggests that people are motivated to care for others across generations. Although it is not referred to as nurturance, there is some evidence that green entrepreneurs are aware of how their ventures impact the children of their communities and future generations (Allen & Malin, 2008; Salome, van Bottenburg, & van den Heuvel, 2013). It seems that nurturance may be a motive for social entrepreneurs, who foster positive social change in communities they know well, or of which they are members (Tapsell & Woods, 2010). Second, as a motive, **social justice** drives efforts to achieve equitable distribution of opportunities and resources (Tyler, 2000). Through their ventures, entrepreneurs can both raise awareness of social justice issues and bring about related social change (Allen & Malin, 2008). Social justice may play a role in social entrepreneurs' motivation when they support social impact in disadvantaged communities that are unable to bring about change without intervention (Martin & Osberg, 2007). Generalized **reciprocity** is an exchange in which person A offers a gift to person B, and person B offers a reciprocal gift to person C, rather than directly back to person A (Yamagishi & Cook, 1993). An individual may reciprocate a gift at a later date (Offer, 1997). A study of the factors that sustain organizational citizenship behaviour suggests that people do, indeed, help others when they feel an obligation to reciprocate (Korsgaard, Meglino, Lester, & Jeong, 2010). Social entrepreneurs may establish ventures as a way to give back to communities based on earlier advantages they received. Thus, there is some evidence to suggest that additional motives for social entrepreneurs to help others may include nurturance, social justice and reciprocity.

Methodology

We employed a multi-phase process to gain a better understanding of the types of other-oriented motivation that are relevant to social entrepreneurs. Initial steps included survey development, scale identification, modification and pilot testing. We used an online survey with the finalized scales to collect data from entrepreneurs within Australia. An exploratory factor analysis (SPSS 21) using principal axis factoring with a pro max rotation (Schmitt, Gollwitzer, Maes, & Arbach, 2005), enabled us to develop an appropriate measurement model to articulate which items of prosocial motivation, altruism, nurturance, social justice and reciprocity are factors of other-oriented motivation (Cardon, Gregoire, Stevens, & Patel, 2013; Chrisman, Chua, Pearson, & Barnett, 2012). Finally, we conducted a confirmatory factor analysis (Amos 21) to assess the existence of specific types of other-oriented motivation.

Phase 1: survey development, scale identification, modification and pilot testing

First, we did an extensive review of the psychology, management and entrepreneurship literatures to identify existing valid and reliable scales to measure prosocial motivation, altruism, nurturance, social justice and reciprocity. We chose scales based on the fit between the scale items and the definition of the constructs we wanted to measure. We selected three to five items from each scale (Begley & Boyd, 1987) and adjusted the wording for consistency across scales (Grant, 2008). Second we engaged a panel of six academics with backgrounds in psychology or entrepreneurship to assess the face validity of the modified items and scales (Shepherd, Patzelt, & Wolfe, 2011). All finalized items used a 5-point Likert-type scale from strongly disagree to strongly agree. Questions were added to gather background information about the entrepreneur and their venture. Finally, ten entrepreneurs pilot tested the survey and offered feedback about the length, flow and readability of the survey.

Measures of other-oriented motivation

We included all four items of a four-item scale to measure **prosocial motivation** with an alpha coefficient of .91 (Grant, 2008). All four items were adopted *verbatim*. We nominated four items from the fourteen item Wrightsman (1964) **altruism** scale, which had reliability coefficients ranging from .60 to .91 with different sample populations. One item was dropped based on feedback from the academic panel. In keeping with other measures adopted for the survey, all items were modified from third person to first person. For example, “most people do not hesitate to go out of their way to help someone in trouble” became “I often help people and expect no reward.” To measure **nurturance**, we selected four items from the fourteen-item Davis (2003) caring scale, which had a Cronbach’s alpha ranging from .65 to .86. Following panel review, we dropped one item for a final three-item scale. Two items were adopted *verbatim*. The third was adapted to be less limiting in terms of the fields of work undertaken by social entrepreneurs. “I like taking care of children” was changed to “I like to help people feel better.” For **social justice**, we proposed five items from the ten-item observer sensitivity subscale of the justice sensitivity inventory, which had a reliability coefficient of .97 (Schmitt, et al., 2005). Items were adapted to be more general. For example, “It disturbs me when someone receives fewer opportunities to develop his/her skills than others” became “It disturbs me when someone receives fewer opportunities.” One item was removed on recommendation of the academic panel for a final four-item scale. To measure **reciprocity**, we identified three items from the four-item Goei and Boster (2005) obligation scale with a standardized item alpha of .88. The items were modified both to be in present tense and to reflect reciprocity from earlier advantages, rather than simply returning favors. For example, “I felt obligated after receiving the favor” was adjusted to “I feel obligated to help others because of the advantages I have.”

Phase 2: online survey

Thirty-seven agencies that support entrepreneurs in Australia agreed to distribute an announcement to their membership base with a link to an online survey. According to agency preference and the communication channels they tend to use, the announcement and link were sent by direct email, embedded in an electronic newsletter or posted to social media. Several weeks after the initial links were sent out, we re-contacted the organizations to ask them to resend the announcement and link either by the same method, or preferably, by multiple methods. Between the initial distribution of the link and follow-up distributions, we received 168 responses. Without knowing the exact membership base of each agency or which members receive communications through the various channels, it is difficult to calculate the response rate. The agencies estimated having membership bases that range from two hundred to five thousand. If we use an estimate of 250 members on average, and assume that fifty per cent of the membership base might have been reached through the combination of distribution channels, we come up with an estimated 4,625 entrepreneurs who received the link. This gives us a low response rate of 3.6 per cent.

In a second round of survey distribution, we targeted social entrepreneurs directly to increase the number of survey responses from social entrepreneurs. We developed a list of social enterprises from online databases that seem likely to have a high percentage of social enterprise listings. One of the authors worked with a research assistant to call each social enterprise and invite a social entrepreneur to respond to the survey. Calls to 524 social enterprises yielded 142 survey responses, or a response rate of 27 percent. Of the 310

responses from the two rounds of data collection, twenty-two respondents were removed because they did not respond to all of the motivation items. A further seventy-one respondents were removed, because they did not identify themselves as a founder, owner, successor or CEO of the enterprise. This resulted in 217 complete responses for the final analysis.

Results

Descriptive Statistics

The total number of entrepreneurs with complete responses to the survey was 217. When presented with a situation in their venture that forces a choice between social impact and profitability, 92 respondents report they would choose social impact, while 125 would ensure profitability. It is interesting to note that the distribution of firms by industry, venture structure and number of employees is quite similar across firms focused on social impact and profitability. Younger, female entrepreneurs with more education appear to be more focused on social impact than their older, male counterparts with less formal education. The higher percentage of profit-focused entrepreneurs with higher incomes could be associated with their attention to profitability or it may be associated with the profit-focused firms being in business for longer on average. For a summary of firm and entrepreneur demographics by focus on social impact or profitability, please see Table 1.

Please insert Table 1 here.

Exploratory Factor Analysis

The initial exploratory factor analysis indicates a significance of .000 on Bartlett's test of sphericity, suggesting that the set of variables is appropriate for an exploratory factor analysis. The preliminary test based on Eigenvalues over one indicates that four factors explain 52.3 percent of the variance. Two nurturance items, one altruism item and one social justice item cross-loaded substantially. We ran a second exploratory factor analysis without the items that were cross-loading and specified a four-factor solution. The result was a clean four-factor solution including the original four prosocial items as the first factor, a second factor with the original three reciprocity items, a third factor including three of the four social justice items, and a fourth factor combining one nurturance item with two altruism items (Table 2). For simplicity, we refer to the fourth factor as altruism in the remainder of the paper, because the three factors that loaded together adhere more to the definition of altruism than nurturance. The second factor model indicates that the four factors explain 56.3 percent of the variance.

Please insert Table 2 here.

Confirmatory Factor Analysis

In the next step of analysis, we conducted a confirmatory factor analysis (Amos 21) with the four factors identified in the exploratory factor analysis (Figure 1). The CMIN/DF ratio is 2.414, which is well within the outer limit of five. The GFI and CFI, which should both be close to one, are good at .904 and .923, respectively. The PCLOSE, which should be above .05 is a bit low, but the RMSEA, which should be below one is tolerable at .081. These statistics suggest that the model is a reasonable fit. In addition, most of the factor loadings for each item of the four other-oriented motives are good. Three items, two from the altruism

factor and one from the social justice factor, fall below the .7 ideal threshold. These results suggest that altruism is the weakest of the four constructs and not as well-defined.

Please insert Figure 1 here.

Discussion and Conclusion

Other-oriented motivation has historically received less attention than self-oriented motivation (Batson, 1990). There is gradually increasing recognition of the importance of other-oriented motivation in the context of entrepreneurship (Tiessen, 1997; Van de Ven, et al., 2007). The findings of this study offer strong empirical evidence for prosocial motivation among social entrepreneurs, but less so for altruism. Additionally, we extend the literature by showing that social justice and reciprocity may also play a role in motivating social entrepreneurs. Although further research is needed, these findings have some academic and practical implications.

At an academic level, we offer empirical evidence of four types of other-oriented motivation among social entrepreneurs. Further research is needed to assess whether these four motives contribute to the experience of other-oriented motivation. It is possible that social entrepreneurs experience prosocial motivation, altruism, social justice and reciprocity, but only a subset of these motives influence the drive to help others. Thus, our findings offer preliminary support for the idea that a conceptual model of other-oriented social entrepreneurial motivation includes social justice and reciprocity alongside prosocial motivation and altruism.

At a practitioner's level, social entrepreneurs, themselves, may benefit from a better understanding of what drives them. If further research substantiates the presence of additional types of other-oriented motivation among social entrepreneurs, this knowledge may facilitate the work of social entrepreneurs, impact investors and agencies that train social entrepreneurs. For example, if social entrepreneurs know they are motivated by reciprocity, they can structure their ventures to ensure direct or generalized exchanges with communities from which they receive support. In an arena where the decision-making processes of social venture financiers receives attention (Miller & Wesley Ii, 2010), understanding other-oriented motives may facilitate appropriate matches. If, for instance, a donor seeks equity of opportunities and resources for a particular community, he/she may be more likely to fund a social entrepreneur who is motivated by social justice. Social entrepreneurship educators can tailor their coursework to train social entrepreneurs to structure their ventures in ways that offer rewards that correspond with their motives to establish the venture. For example, a social entrepreneur who is motivated prosocially can structure outcome reporting to ensure they get feedback on how the target community is benefiting from the venture's interventions. Such adaptations may ensure that individual social entrepreneurs receive rewards that are appropriate to their motivations, thus fostering their continued engagement in the sector. Although these examples are speculative, they illustrate the kinds of impact a better understanding of social entrepreneurial motivation might have on the practice of social entrepreneurship at several levels.

Some areas for future research include further confirmatory factor analysis regarding the extent to which the four motives contribute to the experience of other-oriented motivation. It will also be interesting to explore the presence of self-oriented motives among social entrepreneurs. Although self-oriented motives have been neglected in social entrepreneurship research, social entrepreneurs, like other entrepreneurs, may be motivated by the needs for

achievement and autonomy. Finally, as motives have been identified as a valid way to distinguish social from commercial entrepreneurs (Renko, 2013), it will be interesting to assess whether social and commercial entrepreneurs fall into two distinct categories according to their motivations, or whether they exist along a continuum from pure social focus to pure profit focus as has been suggested in prior research (Austin, et al., 2006; Peredo & McLean, 2006).

In conclusion, we offer a set of four distinct other-oriented motivation factors that are present among social entrepreneurs. In addition to empirical evidence of altruism and prosocial motivation as identified in the literature, social entrepreneurs appear to be motivated by social justice and reciprocity. This extended understanding of social entrepreneurial motivation has implications for researchers, donors, educators and social entrepreneurs.

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Tables

Table 1: Firm and Entrepreneur Demographics By Focus on Social Impact or Profit

	Social Impact N = 92	Profitability N = 125
Industry		
Property and business services	13.0%	15.2%
Retail trade	9.8%	16.8%
Education, community and health services	15.2%	11.2%
Wholesale trade	8.7%	8.8%
Culture and recreation services	12.0%	1.6%
Personal services	5.4%	6.4%
Agriculture	4.3%	7.2%
Venture structure		
Company	29.3%	38.4%
Sole trader	32.6%	29.6%
Non-profit	19.6%	8.8%
Partnership	13.0%	12.0%
Venture age in years		
< 1	2.2%	7.2%
1-5	47.8%	44.0%
6-15	37.0%	27.2%
16-50	13%	21.6%
Number of employees		
0	13.0%	15.2%
1-10	71.7%	74.4%
11-25	9.8%	4.0%
25+	5.4%	6.4%
Entrepreneur's age		
20-25	4.3%	2.4%
26-45	42.4%	27.2%
46-65	34.8%	51.2%
66+	5.4%	4.0%
Entrepreneur's gender		
Male	41.3%	45.6%
Female	47.8%	40.8%
Entrepreneur's education		
School	13.0%	22.4%
Trade, some college	10.9%	12.0%
University degree	64.1%	52.0%
Entrepreneur's income from venture		
< \$20,000	42.4%	21.6%
\$20,001 – 50,000	26.1%	24.8%
\$50,001 – 80,000	4.3%	17.6%
\$80,001 – 120,000	9.8%	8.0%

\$120,001+

6.5%

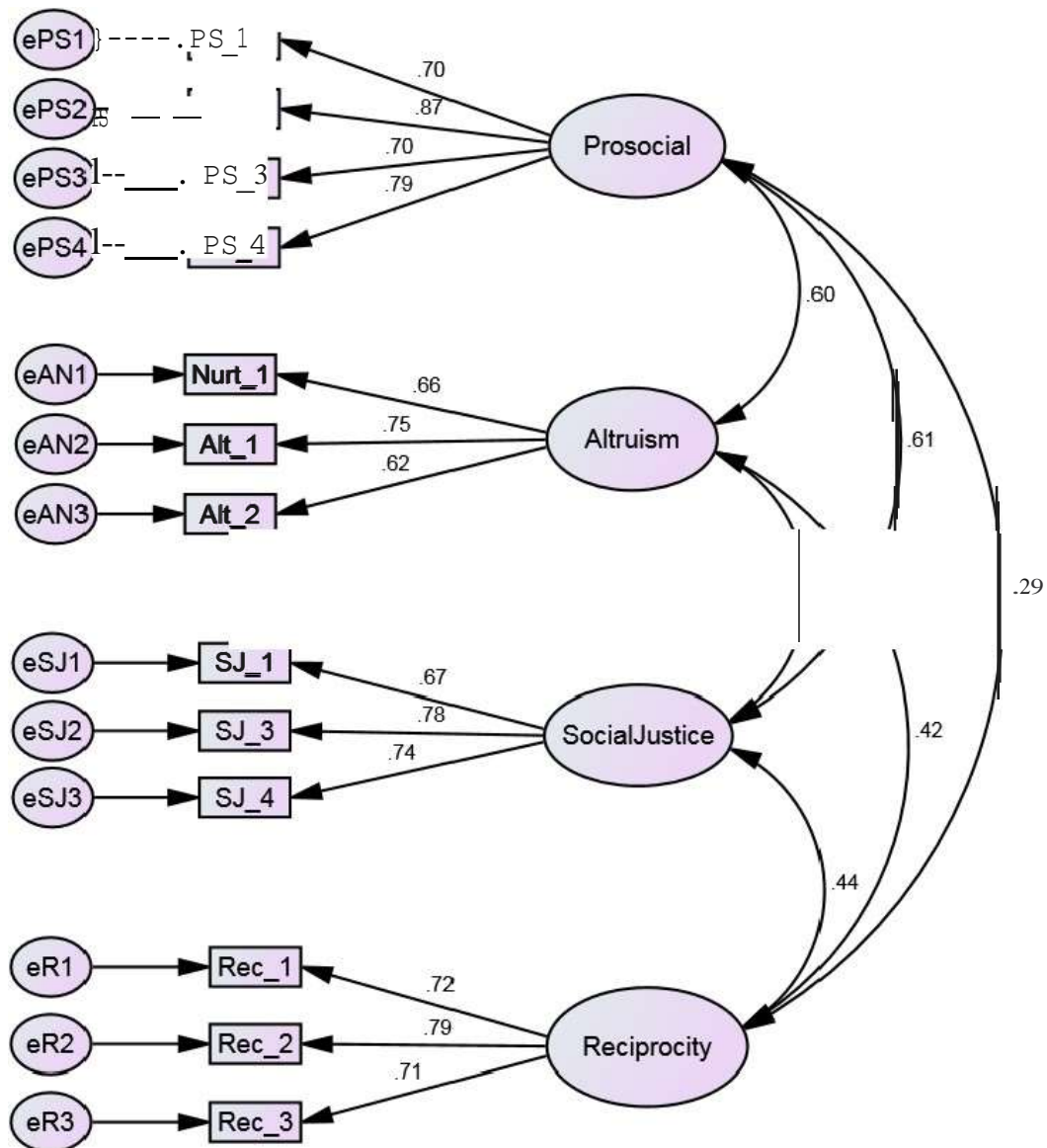
14.4%

Table 2: Pattern Matrix for Four Other-oriented Motives

Items	Initial Eigenvalues for each factor	Factors			
		1	2	3	4
Prosocial_1	4.912	.695			
Prosocial_2		.948			
Prosocial_3		.666			
Prosocial_4		.719			
Nurturance_1	1.059				.448
Altruism_1					.872
Altruism_2					.620
Social Justice_1	1.229			.582	
Social Justice_3				.829	
Social Justice_4				.739	
Reciprocity_1	1.795		.583		
Reciprocity_2			.841		
Reciprocity_3			.760		

Figures

Figure 1: Confirmatory Factor Analysis for Four Other-oriented Motives



GLOBAL ENTREPRENEURIAL ORIENTATION FOR DYNAMIC COMPETITIVE ADVANTAGE

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Global Entrepreneurial Orientation for Dynamic Competitive Advantage

Abstract

This conceptual paper extends the dynamic-resource-based view to highlight additional issues to be considered if the entrepreneurial firm is to gain and maintain sustainable competitive advantage over the longer term in the global economy. We argue that entrepreneurs must adopt a ‘global entrepreneurial orientation’ to gain ‘dynamic competitive advantage’. We argue that global entrepreneurial orientation requires eight main preconditions and that mastery of these elements constitutes the organizational capacity that the firm needs, in addition to strategic resources, to achieve dynamic competitive advantage.

1. Introduction

Firms of all types and sizes are increasingly being affected by the growing intensity of global competition. The accelerating use of information-communication technology, and global and regional financial crises, have forced firms to refocus their activities and revise patterns of behavior to avoid being forced out of business. This trauma is particularly applicable to small and medium sized enterprises (SMEs), most of whom remain locally oriented with scant resources and unclear financial futures (Korsakienė & Tvaronavičienė, 2012). They usually build their competitive position in situations of limited information, local knowledge and locations, and as intermediaries or small service companies servicing specific local needs. SMEs often exhibit risk- and growth-aversion, especially toward international markets, and may be primarily oriented toward tradition and non-monetary rewards (Gomez-Mejia, Cruz, Berrone & De Castro, 2011).

Four examples illustrate the vulnerability of SMEs today. While previously Italian marble firms achieved high profits, now good-quality Chinese marble is sold in Europe, cheaper than Italian marble, despite the transportation costs of a product that is both heavy and fragile. Second, British seafood companies fly prawns to China where the cost to peel them is much lower, and within hours fly them back for packaging and selling as ‘British prawns’. Third, hotels previously engaged local travel agencies and print media to market their accommodation services, but customers now use the Internet to compare quality and price information, to refer to the experience of previous customers, and book transportation and holiday activities. Fourth, local beverage and food manufacturers whose nearby customers now prefer global brands struggle to survive in local markets as heavily-promoted global brands (manufactured locally in many cases) increasingly dominate the local markets. These examples illustrate the impact of cheaper foreign labor; the greater speed and reliability of international transportation services; the increasing utilization and effectiveness of information and communications technology; and the homogenization of consumer preferences globally.

Such “Schumpeterian shocks” (Barney, 1991) disrupt the sources of the firm’s competitive advantage and redefine what it takes to achieve sustainable competitive advantage. Additionally, the opening of once closed national economies and the integration of these into larger regional forms facilitate more intense engagement in other transnational alliances and organizations (e.g. NAFTA, EFTA, ASEAN) that stimulate and liberalize international trade, increasing international competition. These changes all undermine the firm’s competitive advantage, meaning they are no longer able to rely on resources associated with local specifics, history, or information possession. The threat is especially strong for born-local firms in relatively small domestic markets, for whom internationalization might prove to be essential for the firm’s survival and success (Autio, Sapienza & Almeida, 2000; Efrat & Shoham, 2012).

The entrepreneurship literature has focused primarily on the initial competitive advantage of entrepreneurial firms, emphasizing the entrepreneur's proprietary knowledge, insight, or technology that allows the new venture to enter the market with a new product¹ with an initial monopoly position within the confines of its local market. Subsequently other firms may imitate the new product and compete for the profit potential that has been demonstrated by the pioneer firm. The neo-classical theory of the firm says that firms will enter markets in search of maximum profits until profits are driven down to the normal profit level². Since entry of new rivals pushes profit back to normal levels (or below), superior profit is available only if there are effective barriers to entry of new firms. 'Sustainable competitive advantage' (SCA) connotes the situation in which a firm can earn above-normal profits in successive periods. The resource-based view (Wernerfelt, 1984; Barney, 1991) explained that SCA can be attained only if the firm controls 'strategic' (inimitable) resources, such that other firms cannot become direct rivals.

The corporate entrepreneurship literature proposes the concept of 'entrepreneurial orientation' (EO) (Lumpkin & Dess, 1996) as being fundamental to the realization of the entrepreneurial opportunity by the business firm, and positively affecting its performance (Wiklund, 1999; Wiklund & Shepherd, 2005) and growth (Anderson and Eshima, 2013). One of the prevailing definitions of EO (Lumpkin & Dess, 1996) uses five dimensions, including autonomy, innovativeness, risk taking, proactiveness, and proactive aggressiveness to explain the 'new entry' of firms to markets, but neglects the time after company establishment, when the real struggle for survival starts. The EO approach also neglects the mindset of the entrepreneur (i.e. the cognitive element on the personal level of analysis); and specifics of entry and operations in foreign markets as well as the pre-establishment and pre-internationalization phases, in which entrepreneurs have already started to acquire certain strategic resources, such as knowledge, experiences and networks. While Dai, Maksimov, Gilbert & Fernhaber (2013) have integrated the international business literature by illustrating the multifaceted role of EO in firm internationalization, the pre-internationalization phase and the cognitive level of EO has been largely neglected.

The international entrepreneurship literature emphasizes that ventures engage in international markets to exploit the firm's unique competencies (in terms of production, technology, product or services), and to achieve economies of scale, along with other motives. Internationalization is mainly perceived as an outward movement of increasing involvement (Welch & Luostarinen, 1993; Calof & Beamish, 1995) of a firm's international operations. As an inherently entrepreneurial process it involves resourceful behaviours to create value "beyond domestic boundaries" (McDougall & Oviatt, 2000). Thus scholars predominantly focus on the cross-border *expansion* of the entrepreneurial business ventures, generally presupposing that firms will start their operations locally, and either immediately (Oviatt & McDougall 1994, 1995) or later and gradually in stages (Johanson & Vahlne 1977) expand internationally to gain access to new markets for their products and/or to secure cheaper resources.

In this paper we examine the internationalization process from the reverse perspective – our focus is on the potential *contraction* of new ventures and SMEs due to the incursion of international firms into local markets, and the imperative that this places on born-local firms to 'go global' defensively such that they may survive. We will argue that the born-local firm

¹ We shall use the word 'product' to mean the end result of a production process, and thus it may mean a tangible item, or an intangible service, or some combination of the two. In some cases the firm's product is a resource to be used in another firm's production process.

² 'Normal profits' are used in the economic sense to mean that they are just sufficient to retain investment in the business venture, and thus are equal to the entity's opportunity rate of return on investment in the next-best alternative investment opportunity.

must go global to claim the profit potential (if that exists) from international markets for its products, and/or to obtain resources at the least possible cost, and to organize production in the most efficient way starting right after inception and throughout its whole life cycle, if it is to retain a competitive advantage over the longer term. Accordingly, we integrate and build upon the previous management, entrepreneurship and international business literatures to propose a new concept of 'global entrepreneurial orientation' (GEO) which is necessary for 'dynamic competitive advantage'. GEO, to be defined more fully subsequently, means that firms must relentlessly pursue innovative opportunities in global product and resource markets. Dynamic competitive advantage (DCA), also to be defined more fully subsequently, means that firms have achieved the dynamic capabilities (Teece, Pisano &, Shuen, 1997) necessary to maintain SCA over the longer term. In effect, mastery of the various elements of GEO constitutes the dynamic capabilities that the firm needs to achieve sustainable competitive advantage over the longer term. This is in line with the contribution of Cepeda & Vera (2007: 427) who differentiated operational capabilities (i.e. how you earn your living) from dynamic capabilities (i.e. how you change your operational routines). In our case, specific elements of GEO represent the operational capabilities while (continuous) mastering of GEO elements represents the firm's dynamic capabilities, leading firms to DCA.

This paper will make the following main contributions to the literature. First, we extend strategic management literature by contribution to the clarification of the nature of dynamic capabilities. Second, we extend the dynamic-resource-based-view of sustainable competitive advantage to integrate issues such as the necessities for relentless innovation, maximal firm growth, and maximal absorptive capacity. Third, we extend entrepreneurship theory by arguing that the firm must practice opportunity recognition not just in product markets but equally in resource markets, perpetually seeking the lowest-cost resources to ensure sustainable competitive advantage on a global scale. Fourth, we extend the boundaries of international entrepreneurship by arguing that even the smallest locally-operated firms must adopt a GEO if they are to survive, and by integrating the 'born-global' and 'stages theory' of internationalization with the concept of 'entrepreneurial orientation'.

In the following section we introduce the 'resource-based view' as the theoretical platform for our new concept of GEO and our model of dynamic competitive advantage. Then we introduce and clarify the various elements of GEO that we argue are preconditions to achieving DCA in the global business environment. In the discussion section we consider implications for existing entrepreneurship and international entrepreneurship theory, and the theory of the firm more generally. Finally we list our contributions to the literature and the implications for practice, policy, education, and research.

2. The Resource-based Theory of Sustainable Competitive Advantage

The theoretical lens for our concept development is the resource-based view that sustainable competitive advantage requires the control of at least one valuable, rare, hard-to-copy and non-substitutable 'strategic' resource (Wernerfelt, 1984; Barney 1991). Combining 'hard to-copy' and 'non-substitutable' as 'Inimitable' and accepting that even with strategic resources the new venture must have the organisational capability to efficiently organise those resources, the preconditions for sustainable competitive advantage (SCA) are (i) that the firm controls at least one resource that is Valuable, Rare, and Inimitable (i.e. VRI), and (ii) has the necessary Organizational capability (O) to achieve SCA, giving us the acronym VRIO. The firm's organizational capability is critically important also because it facilitates the manipulation of resources into value-creating strategies (Wiklund & Shepherd, 2003; Eisenhardt & Martin, 2000).

New ventures typically start with proprietary technology with intellectual property protection, a locational advantage, and/or rare employee skills, and these strategic resources allow the firm to produce a distinctively differentiated product that cannot be copied immediately. At the time of start-up, the strategic resource(s) are most likely to be found within the venture's physical, intellectual and/or technical resources.³ Following start-up, the new venture will typically strive to gain or further develop strategic resources, most fruitfully in the areas of reputation, organizational efficiency, and human resources. As time passes, new ventures often lose their 'initially-VRI' resources due to other firms mimicking, inventing around, and substituting other resources to achieve the same ends. Thus inimitable does not mean impossible to copy, nor impossible to substitute – rather does it mean that it will take other firms a substantial period of time and/or substantial amount of money to achieve imitation of the resource. Loss of the 'strategic-ness' of all strategic resources means the firm is destined, at best, to survive with only normal profits, since rivals would be free to enter the focal firm's market with a functionally-identical product. Consequently, at best the focal firm can make only normal profit, and at worst it will be bankrupted. Accordingly, the O in VRIO can be regarded as the firm's organizational capability to gain and maintain sustainable competitive advantage, and we will argue that the firm must pursue strategies to ensure that it continues to have VRI resources and to utilize them most effectively, such that its SCA in the short to medium term continues into the longer term to attain DCA. This suggests the basic proposition of the resource-based view, namely:

P1: For dynamic competitive advantage the SME must continually ensure that its vulnerability to the offensive competitive actions of rival firms is negated by development of strategic resources that can be maintained over the longer term.

3. Global Entrepreneurial Orientation

We assume that the new venture is intended by its founders to be an ongoing entity and thus managers will take actions to build and maintain the capability to earn above-normal profit rates, or at least normal profits, into the future. By introducing the GEO mindset, we are advancing the widely accepted definition of entrepreneurial orientation (EO) in several dimensions. The first difference concerns the time perspective relative to the firm's life cycle. While "EO refers to the processes, practices, and decision making activities that lead to new entry" (Lumpkin & Dess, 1996: 136), GEO encompasses this time frame but also extends it to include the period after a new venture's establishment to the subsequent period of its growth and survival, in which entrepreneurs acquire certain strategic resources, such as knowledge, experience and networks. Second, the GEO definition extends the level of analysis from "the processes, practices and decision making activities" at the behavioural level to include also the cognitive level associated with the GEO mindset of the entrepreneur (or top management team). Third, while EO is concerned with the firm level of analysis, our definition of GEO applies at the personal level of analysis. But note we introduce cross-level analysis by considering the firm's organizational capability as an extension of the GEO of the founding entrepreneur or top management team. In SMEs the ownership and control of the firm are typically in the hands of key decision-makers or their families (Glancey, 1988) who are able to exert a powerful influence on the way they pursue their objectives and allocate scarce resources in the pursuit of profit and/or socio-emotional wealth (Gomez-Mejia et al., 2011). In most cases the founders and owners directly or indirectly manage the operations of

³ Technical resources typically involve agreements with other parties, such as intellectual property protection (patents, trademarks, brand names, designs, copyright, and licences), strategic alliances, joint ventures, celebrity endorsements, supply agreements, and so on.

their firms, and thus their mindset is crucial for their firm's strategies and is the central factor explaining the firm's behaviour.

3.1 Firm's Learning Processes and Absorptive Capacity

In developing such dynamic capabilities firms need to constantly improve their "ability to recognize the value of new information, assimilate it, and apply it to commercial ends" (Cohen & Levinthal, 1990). Such firm's learning capability, called also "absorptive capacity" depends on transfers of knowledge across environmental boundaries. Greater absorptive capacity in turn facilitates the acquisition of additional knowledge required for speedier international market involvement (Oviatt & McDougall, 2005). Thus, international knowledge acquisition can result in the discovery of new opportunities in both domestic and international markets. Without such abilities, resulting in specific knowledge, the firm will be less capable of discovering and exploiting new opportunities (Wiklund & Shepherd, 2003). SMEs that seek to survive and prosper over the longer term therefore need to have very effective learning capabilities and strong absorptive capacity. This suggests:

P2: For dynamic competitive advantage firms must maximize their absorptive capacity and develop learning capabilities that will enable them to recognize and capitalize on international profit-making opportunities.

3.2 Global Resource Markets

Rivals with access to cheaper resources, or who better organize their production process, would be able to undercut the focal firm's price and ultimately force its exit from the industry. For SCA the 'O' in VRIO requires the organizational capability to run the production process at 'state of the art' efficiency, and to know about the availability of, and successfully procure, resources at their least cost. In markets that are spatial, the cost of acquiring any resource will include its transportation or delivery cost, such that resource prices will include a transportation component. Accordingly, the least-cost source of transportation services must (also) be found and utilized. An added layer of complexity is that if raw material or component inventories are transported in for the production process and later transported out to the market it might be more efficient to shift the production process to a location that is closer to the resource markets and/or to the product markets (Kalinic & Forza, 2012).

Thus business failure due to ongoing losses may be due to (a) the firm's failure to retain or build strategic resources that sustain the differentiation of their product in product markets, and/or (b) their failure to acquire common resources in resource markets at the lowest possible costs, and/or (c) their failure to use the most efficient production processes. With free entry to markets the number of rival firms will grow, and prices will fall until no firm can earn more than normal profit. At the price where all other firms can barely make normal profit, the focal firm, if suffering higher production costs, must make losses and subsequently will exit the market in search of normal profit that is (by definition) available via an alternative deployment of the firm's resources.

Profit-seeking firms producing inputs utilized by the focal firm will be under similar pressures to innovate continuously in their production processes in pursuit of SCA. Thus we should expect continuing downward pressure on the prices of inputs as input-producing firms innovate to reduce production costs, to reduce transportation costs, and to increase the quality of their output (in terms of the productivity of these in downstream production processes). Accordingly, managers of firms operating in product markets must maintain continual awareness of resource prices, resource productivities, and transportation innovations, and continually strive to acquire the necessary resources at least-cost if they are to maintain SCA.

With rare examples, the focus of the international entrepreneurship literature has been mostly on ‘offensive’ internationalization, i.e. exporting to or setting up production within other countries. We note that firms must also practice ‘defensive’ internationalization by importing lower-cost resources and production methods to allow them to survive in their local markets. Thus, resources such as cheap, high quality or domestically-unavailable inputs, or valuable new information, can be obtained from foreign suppliers, which enables buyer firms to upgrade their own products and services, and can as a result make importing resources a precursor to further internationalization (Hessels & Parker, 2013) and survival. The foregoing discussion suggests the following propositions:

P3: For dynamic competitive advantage firms must relentlessly seek to acquire resources at least cost in global resource markets, inclusive of transportation costs.

P4: For dynamic competitive advantage firms must relentlessly pursue innovation in production processes to ensure they are able to produce their products at least cost.

3.3 Product and service innovation

Location differences mean differing monetary and non-monetary costs (including inconvenience) to the buyer of purchasing the product, such that buyers will prefer the nearest or most convenient supplier, other things being equal, and thus even identical (physical) products are differentiated once we consider locational differences. Even at the same general location (e.g. a shopping center) customers for the same product (e.g. bread) may prefer one vendor’s cheerful manner over another’s and differentiate the products on that basis. These preferences are not absolute; they apply when prices are roughly equal. If the cheerful vendor increases his/her price, some customers would switch to lesser-priced bread from a less-preferred vendor (and/or at a less-preferred location). Conversely, if a baker from another city (or country) can bake the bread, ship it in, and sell it at a lower price, at least some customers will see the lower-priced bread as a better value proposition and switch their purchase to the cheaper vendor. Accordingly these firms face a highly-elastic downward- sloping demand curve and are operating in what is known as monopolistic competition (Barney, 1986).

Firms operating in monopolistically competitive product markets have differentiated products but do not have sustainable competitive advantage – they can earn only normal profits after rivals adjust their product attributes, prices, and production volumes. Their cheerful disposition, convenient location, or other differentiating resource, is inimitable only temporarily and can be imitated by others given the passage of time, learning, and the expenditure of funds. Rival vendors can act more cheerfully, hire extroverts, and otherwise mimic the product features and service attributes of their rivals such that they ‘steal’ sales from the focal firm. This will cause the focal firm to reduce its price to maximize profits, and this process will continue until the focal firm, and indeed all firms are reduced to normal profitability. To again make above-normal profits, the firm must innovate to gain a new point of differentiation in its market, which will allow a slightly higher price and thus above- normal profit once more. This innovation might be in the form of new product attributes, new service accoutrements, new locations for sales and/or service, new business processes, and so on. But since rivals will strive to imitate the firm’s differentiation advantage, to gain sustainable competitive advantage, the firm must innovate continually to re-establish its perceived basis for differentiation. This suggests:

P5: For dynamic competitive advantage the firm must innovate continuously to maintain its differentiation in product markets.

3.4 Growth orientation and firm size

Implicitly we have been talking about ‘symmetric’ differentiation of products in product resource markets, meaning that products are equally differentiated from each other, such that at equal prices we should expect each firm to sell $1/n$ of total sales where n is the number of firms. This implies an equal distribution of buyer preferences across a multi-dimensional spectrum of product attributes. Moreover, if a firm were to raise its price by, say, one dollar, the quantity demanded will fall by the same amount regardless of which firm it was that raised its price. This is not the general case, of course. Rather, real-world markets are characterized by asymmetric product (and resource) differentiation, whereby at equal prices we expect market shares to be unequally distributed, and price increments (decrements) to result in differing decreases (increases) of quantity demanded, depending on which firm it was that changed its price (Normann, 2000).

It can be demonstrated theoretically that a firm with a positive asymmetric product differentiation – i.e. larger than $1/n$ market share and less-elastic demand – can attain a profit advantage over firms that have minor shares of the market and whose demand is more sensitive to price changes. Larger more-differentiated firms can gain higher gross profit margins, other things being equal, because the profit-maximizing mark-up is inversely related to price elasticity (Berry, Levinsohn & Pakes, 1995). Thus, where several firms ranging in size have differing cost and product differentiation parameters in a closed market, this will result in an asymmetric market equilibrium where the firms have differing market shares, profit-maximizing price levels, and profit margins (Normann, 2000). Subsequently if this equilibrium were to be disrupted by entry of a larger firm from another country there would be downward pressure on all firms’ prices, reducing all firms’ profit margins and market shares. If entry of foreign firms continued this would almost certainly force some of the smaller local firms to incur losses since their gross margin is likely to be smaller than that of larger firms. Thus, to insulate themselves from global competition firms must strive to grow and obtain larger market shares, rather than remain small and allow other firms to gain a size advantage over them. Similarly, firms must strive to differentiate their product more strongly to attain asymmetry of product differentiation, to allow proportionately larger gross margins as an insurance against price competition that is likely to occur when global firms enter their local market.

Larger firms also have greater negotiating power when dealing with supplier firms and customers and may also benefit from economies of scale and scope. As a result, they can obtain discounts in resource markets for bulk purchases of inputs, and are able to negotiate longer-term supply agreements at lower unit rates. These cost reductions for resources and production efficiencies allow them to set lower (yet profit-maximizing) product prices, thus putting downward pressure on prices in the product market and thereby reducing the profit of smaller firms with lesser market power. Thus, both the demand-side effects and the cost-side effects put pressure on the small firm’s profit, forcing it downwards and making SCA less likely for the smaller firm. This suggests:

P6: For dynamic competitive advantage the firm must strive to maximize the growth of the firm and the asymmetry of product differentiation.

3.5 Cooperation and User Involvement

Increased globalization means that the SME can no longer rely on the traditional ‘supply-side’ product innovations. SMEs must increasingly shift their approach to innovation to the demand side (i.e. new products developed with the market), which means that they involve the market in the co-creation of new products. To increase their innovation success with scarce resources, they should ‘open their innovation space’ to encourage the inflows and

outflows of knowledge to accelerate the internal innovation of SMEs and the possibility of integrating external entities into their innovation process (Chesbrough, 2003). Knowledge exchange activities could include licensing technologies or processes from other firms, while internal inventions not being used in a firm's business should be offered outside the company via licensing, joint ventures or spin-offs (Chesbrough, 2003), such that knowledge flows in both directions. SMEs could profit from established relationships in the process of innovation development with larger firms to accelerate their international involvement, and by the distribution networks of larger firms' to make their innovations accessible (Acs and Terjesen, 2012). User-driven or user-centered pathways of innovation with active involvement of users along all the innovation process is considered to be the key to success in today's rapidly changing hyper-competitive environment. This suggests:

P7: To achieve dynamic competitive advantage firms must seek to cooperate and collaborate with both its customers and its suppliers to co-create knowledge and ideas that culminate in innovative new products, resources, and production processes.

3.6 Human and Social Capital

Entrepreneurs have individual-specific resources that facilitate the recognition of new opportunities and the assembling of resources for their venture (e.g. Manolova, Brush, Edelman & Greene, 2002; Westhead, Wright & Ucbasaran, 2001; Davidsson & Honig, 2003; Birley, 1985). Such individual specific resources are the human and social capital of their "owners". Individuals with higher levels of human and social capital should be better in perceiving, developing and exploiting (potentially) profitable opportunities for new economic activities (Davidsson & Honig, 2003). Higher levels of human and social capital of entrepreneurs are also associated with higher levels of internationalization (Ruzzier, Antončič, Hisrich & Konečnik, 2007).

Human capital theory maintains that knowledge provides individuals with increases in their cognitive abilities, leading to more productive and efficient potential activity (Becker, 1993). Human capital represents an investment in education and skills and is created when a person's skills and capabilities are improved. The acquisition of human capital improves the conditions for an individual to act in new ways, enabling them to adapt to changes in the firm's operating environment. Further, if profitable opportunities for new economic activities exist, individuals with higher-quality human capital should do better in perceiving and developing them. Concrete capabilities and skills helping entrepreneurs to develop their GEO includes previous expatriate business or travel experience, knowledge of foreign languages, and other exposure to foreign cultures, trends, and business practices.

Social capital is the valuable relationships a person has accumulated over time and gives that person access to valuable resources embedded in those personal relationships (Lin, 1982). Therefore entrepreneur's personal networks may be the strategically most significant asset of their firms. With regard to the network content, entrepreneurs' social networks can provide entrepreneurs and their firms with information and access to other scarce resources and they facilitate their identification, collection and allocation (Birley, 1985; Welch & Luostarinen, 1993a). They help them identify new opportunities, and obtain knowledge and learn from experiences (Hatani & McGaughey, 2013). Higher social capital refers to the greater number of networks or contacts and their quality in terms of good relationships and mutual trust with clients, suppliers, facilitators or partners. For survival and growth in a globally integrated environment, such networks and relationship must be established and maintained on international levels. They are beneficial also in facilitating distribution, marketing and customer relations, when firms start and develop their international involvement (Coviello & Cox, 2007). Increasingly, such networks are becoming a source of

global competitive advantages (Hatani & McGaughey, 2013). The foregoing discussion suggests:

P8: To achieve dynamic competitive advantage firms must seek to build human and social capital as a strategic resource, this being an indispensable element underlying the organizational capability required for sustainable competitive advantage.

Taking the above eight propositions together suggests that to achieve dynamic competitive advantage (DCA) firms must adopt a global entrepreneurial orientation (GEO), which will allow them to develop and maintain the organizational capability to (i) develop inimitable resources initially; (ii) maximize absorptive capacity, (iii) relentlessly pursue innovative opportunities in global resource markets; (iv) ensure that their production processes are 'state of the art' globally; (v) innovate continually to build and maintain asymmetric differentiation in its product markets; (vi) maximize growth; (vii) cooperate and collaborate with customers and suppliers; and (viii) build and maintain human and social capital as strategic resources. These eight components of GEO allow DCA when the component elements are all present and operating synergistically.

4. Discussion

4.1 Integrating the Stages and Born-global Internationalization Perspectives

The initial focus of research on SME 'internationalization' was on the firm's gradually increasing international involvement (Johanson & Vahlne 1977). The delayed start of international activities and gradual involvement were mainly attributed to the resource scarcity and lack of knowledge. Observing the increasing trend of many small firms being successfully internationalized at inception or early thereafter, Oviatt & McDougall (1994), extended the focus of internationalization to the time dimension, and these firms were later dubbed born-global firms. By defining such firms as those "that from inception, seek to derive significant competitive advantages from the use of resources (and the sale of outputs) in multiple countries" (Oviatt & McDougall, 1994, p. 49) they also considered the aspect of international sourcing of resources and firm 'inception' as a process rather than a single act (Hewerdine & Welch, 2012). Consequently the timing of international involvement became an important aspect of internationalization research, which challenged the conventional internationalization stage theories and was proposed as a strategic dimension of SMEs internationalization (alongside mode, market, and product) (Ruzzier, Antončič, Hisrich & Konečnik, 2007).

More recently Weerawardena, Sullivan, Liesch, and Knight (2007) note the importance of the learning process and knowledge creation needed for international engagement in a timely manner, which we have identified as a prerequisite of GEO. In the stages model there is no representation of the pre-internationalization phase, and hence little attention is paid to time of the firm's birth, which potentially exaggerates the speed, and does not necessarily capture the start, of the internationalization process (Hewerdine & Welch, 2012). Since our GEO relates mostly to SMEs, where firm behavior reflects the owner/founder's vision and behaviour, we cannot differentiate between personal and company level. Therefore we could not neglect the pre-internationalization and pre-company establishment phase of knowledge generation (Weerawardena, et al., 2007; Hewerdine & Welch, 2012) and strategic resource (human and social capital) accumulation needed in the internationalization processes, which is inseparably tied to the entrepreneurs (Madsen & Servais, 1997) and used by their firms, which conflates the pre-organizational venture with the individual founder (Hewerdine & Welch, 2012). The process of strategic resource acquisition and knowledge creation to achieve GEO starts long before the firm's inception

and continues throughout its life cycle. Such knowledge and resources can be transferred to a new firm created by the entrepreneur, and are not totally dissolved if the firm closes.

The dynamic perspective of firm internationalization and changes in environments also brought forth other new theories and concepts explaining the process of SME internationalization and the born-global firm that converge under the umbrella of international entrepreneurship. Their focus has been on resources mobilization, accumulation and development, market knowledge and entrepreneurial orientation (Weerawardena et al, 2007), as well as on relationships and networks (Johanson & Vahlne 1977; Acs et al., 1997). Relationships and networks with other companies can be relevant also when considering the time aspect of internationalization (in terms of starting time and speed of establishment) (Hatani & McGaughey, 2013). SMEs, which are generally resource constrained in attempts to accelerate their international involvement, are threatened by rivals copying their (innovative) products. In this regard, Acs & Terjeson (2012) argue that firms are 'born local' and have two alternatives to choose in 'going global'; either independently or via an intermediary multinational enterprise based on the relative transaction costs of these two alternatives, bringing the focus toward collaborative dimensions of knowledge generation.

4.2 Natural Monopolies and Oligopolies

Is GEO required of all firms and all entrepreneurial new ventures? What about a situation where the born-local firm enjoys a 'natural' monopoly, or is part of a 'natural' oligopoly?⁴ We contend that even in these cases, the local firm must produce at least cost to avoid being vulnerable to a new entrant (with GEO) that sources its resources from elsewhere at lower cost including transportation. Instead of a merger with the new entrant firm, the (previously) natural monopolist would be driven out of the market, absent collusion, because the lower-cost firm's shareholders would prefer to earn monopoly profits rather than some share of monopoly profits.

High transportation costs may preserve monopolies or oligopolies in local markets – in effect the cost of transporting products or resources into the local market may transform the lower-cost (at place of origin) product or resource into a higher-cost product or resource in the focal firm's local market. But we have seen that even a very heavy and fragile resource like natural stone can be transported around the world to threaten the livelihood of local firms operating with relatively high labor costs, inefficient production methods and/or insufficient product differentiation. Another possible situation of a natural monopoly or oligopoly might be where consumer tastes and production technologies are peculiar to a local market and demand is small enough to support only one or a few firms. Other situations of such barriers to entry include where a resource is available only in one country (such as a tourist attraction) and the access to that resource is regulated by the local government.

It is in this context that we can say that a 'born global' firm is essentially a special case of GEO where the local market is either too thin to support a locally-oriented firm, or is too congested with rivals, and instead the entrepreneur pursues the opportunity to launch in international markets to take advantage of scale economies and unserved markets elsewhere. The stages approach to internationalization can similarly be explained as a special case of GEO where the born local firm moves in sequence to export to other countries, to set up production in other countries in order to procure lower-cost labor and/or raw materials from those countries, and to import raw materials, components and sub-assemblies from those

⁴ A natural monopoly is where a firm's market is small relative to the availability of economies of scale, such that the entry of another firm would result in a voluntary merger of the two firms, since the merged entity could make greater profits than the sum of the profits of the two firms acting independently. Similarly, a natural oligopoly exists where a small number (n) of firms can make profits but $n+1$ firms would cause all firms to make losses such that one firm must eventually exit the industry to allow the remaining firms to make profit.

countries. As many critics of the stages approach have noted, the problem is in overcoming inertia and routines that firms use to operate in domestic markets while waiting for ‘the right time’ to start international involvement, which may lead to the problem of starting too late, where foreign competition has already eroded the profits and their competitive advantage has been lost or copied. As we suggest, entrepreneurs and their firms should start developing elements necessary for the GEO (e.g. human and social capital elements) even before firm establishment and throughout the firm’s life cycle. The time element is an important factor in the convergence of the theories of stage models and born-globals, and time is a strategic dimension of internationalization.

4.3 Growth-oriented vs. Independence-oriented Entrepreneurial Firms

What about firms that are not growth-oriented, preferring to be forever-small independence and lifestyle ventures (Douglas, 2013). The lack of motivation to grow does not save the SME from vulnerability to attack by a firm that has a more-desirable product at the same price, or a less-desirable product at lower price, such that it offers a superior value proposition to the customer. As in the case of natural monopolies and oligopolies, such firms must continually seek to be as efficient as possible or will be replaced by firms that are. Most likely such independence-oriented firms, including many family businesses, can only ever earn normal profits in the longer term, rather than sustainable competitive advantage, because they lack resources that are VRI in the longer term.

In the context of independence-oriented firms and family businesses, one might also ask what about firms for whom profits are less important than the non-monetary rewards associated with conducting their own business (see, e.g. Gomez-Mejia, Crux, Berrone & De Castro, 2011). Broadening the definition of normal and above-normal profits to include both monetary and non-monetary rewards provides the answer – normal profit can be viewed as a level of psychological rewards (utility) that derives partly from monetary returns (profit) and partly from socio-emotional wealth (Gomez-Mejia et al., 2011) that in sum are equal to what the firm’s owners could gain by deploying their resources in the best alternative investment opportunity. Thus some SMEs, particularly family businesses, eke out a relatively low level of financial return but would not exit the industry because they cannot envision another line of employment that would provide the same or better combination of monetary income and socio-emotional wealth. But note that production inefficiencies and/or failure to maintain product differentiation will cause the level of financial return to be reduced as competition from firms with GEO enter the market with lower prices and/or better value propositions.

Also relevant here is the distinction between different types of entrepreneurs. Some entrepreneurs may be primarily motivated by the lifestyle associated with ‘being your own boss’ and are not interested in maximizing their profits or expanding their firms (Glancey, 1998; Douglas, 2013), although they still need to earn a satisfactory level of profit in order to earn for living. Other entrepreneurs may want to create dynamic firms with the potential to generate high levels of profit and growth by exploiting opportunities in domestic and international markets. The existence of such decision-maker characteristics can mediate the impact of the environmental and firm contextual characteristics when deciding to “profit” from global opportunities.

5. Conclusion and Implications

We have considered the requirements for dynamic competitive advantage in the context of the born-local entrepreneurial firm. In the short to medium term the firm may gain and maintain strategic competitive advantage by the acquisition of a strategic resource. The inimitability of a resource is essentially temporary, however, even if it might last for several consecutive years. But as time passes substitutes do in fact arise as technological progress

continues, and indeed the financial incentive for directed research to ‘invent around’ hard-to-copy resources is directly related to the profitability of the ownership of the strategic resource. Thus the firm must not rest on its laurels but instead must develop the dynamic capability to maximize its absorptive capacity, search for and acquire resources at lowest-cost globally, innovate continually in product design, innovate continually in production methods, strive for maximum growth and asymmetric product differentiation, collaborate with stakeholders, and build and maintain human and social capital as a strategic resource.

In this paper we make the following main contributions to the literature. First, we extend the dynamic capabilities view of the RBV in the strategic management literature by explicitly considering both the time dimension and what the firm must do to maintain resource inimitability and product differentiation over the longer term. In effect we ‘unpack’ the O in VRIO to itemise the most important elements of the organizational capacity that are required to ensure that the firm can enjoy DCA. In so doing we also contribute to the clarification of dynamic capabilities and their relationship to operational capabilities, which constitute the elements of GEO. Second, we contribute to the entrepreneurship literature by suggesting that new ventures must practice GEO and constantly remain alert to profit-augmenting opportunities not just in product markets but also in resource markets. Third, we contribute to the international entrepreneurship and international business literatures by considering the ‘inward’ and ‘defensive’ aspects of the internationalization by the born-local firm, and argue that the born-local firm must undertake eight specific actions to avoid bankruptcy caused by imports of products and resources by internationalized firms. Practising GEO by the founding entrepreneurs may start even before the new venture’s establishment and should be performed throughout the firm’s life cycle, which allows us to reconcile the prevailing theories of born-global firms and the stage models of internationalization. Fourth, the introduction of the GEO concept has some interdisciplinary aspects, because it advances theory in the entrepreneurship, leadership and the strategic management literatures. This is evident in the advancement and convergence of the concepts of entrepreneurial orientation and global mindset, as well as the introduction of critical strategic choices that entrepreneurs should make to ensure the survival and growth of their firms. The concept of the entrepreneurial process is advanced in terms of utilizing GEO in the pre-establishment phase and in the timing of firm internationalization. The entrepreneurial orientation (EO) concept is extended by adding the international perspective, while still supporting the basic dimensions proposed by the founding authors (Covin & Slevin, 1991; Lumpkin & Dess, 1996), namely innovation, proactiveness and risk taking, all of which are inherently associated with the internationalization of the firm. On the other hand, GEO, when compared to the concept of the ‘global mindset’ of corporate managers, integrates aspects that differentiate entrepreneurs from managers, such as continuous innovation and opportunity recognition and exploitation. Finally, our work advances the field of international entrepreneurship by facilitating an understanding of the internationalization process by including multiple theoretical perspectives (Jones & Coviello, 2005; De Clercq & Bosma, 2008). This emerging new field could benefit from flexibility in the conceptual frameworks used and could move further in combining previous achievements of international business, entrepreneurship and other fields (De Clercq & Bosma, 2008). With our new concepts of GEO and DCA, we hope we have provided a sense-making answer to the problems faced by SMEs struggling under the current shocks and trends in the global business environmental, which are drastically impacting the operating conditions of new and small firms.

5.1 Implications for Practice

The introduction of GEO to the entrepreneurship and international entrepreneurship literature was motivated by observation of the major trends currently affecting SMEs,

operating both domestically and internationally. Thus we can derive certain implications for practitioners that should positively affect survival and growth of SMEs. First, entrepreneurs and potential entrepreneurs should start with the development of networks and relationships or different elements of human capital, such as experience with and knowledge of foreign markets and foreign languages even before the establishment of their companies or their international involvement. Second, firms are encouraged to maximize their learning capabilities and absorptive capacity. Third, they should start optimizing and pursuing innovative opportunities in resources and activities along their firm's value chain generally, and not just in the sales and marketing of their products. Their focus should be on proper management, optimization, and organization of activities and resources on the global scale, while performing those activities where they have the greatest competitive advantages. Fourth, they should continuously innovate, collaborating with customers and suppliers in this regard. Fifth, they should strive to grow their companies to gain cost-efficiencies and demand asymmetries that will serve to insure against global competition. Finally they should carefully observe the main technological and environmental trends that may affect their business and think how might incorporate them in their operations to profit from them. Mastering the proposed activities will lead their achievement of a GEO, which is needed to gain dynamic competitive advantage.

5.2 Implications for Policy and Educators

Most support activities for new ventures currently focus on realization of opportunities related to sales and marketing, while little support is given to activities for innovative opportunities in resources markets. Such supporting activities could be directed to collection of information, databases and development of networks for sourcing. Other supporting measure could be directed toward development of other elements of human capital, such as knowledge of foreign markets, with organization of international trade missions for entrepreneurs, facilitating meetings with global suppliers, and support for learning foreign languages. Policy makers could prepare and distribute foresight reports that would be industry specific, and these could be beneficial for all firms and not just for SMEs. Other measures could be also presentations of examples of best practice, demonstrating how different companies have managed to develop their GEO, by mastering particular elements. Most SMEs still have much potential for the adoption and use of ICT for improving their competitive ability. In this regard, policy makers could implement measures for implementation of new business models with support of ICT and their presence in global markets. Public policy should partner with educational institutions to develop specific courses for lifelong learning that would develop skills and competencies relevant in international business (such as languages, cultural differences, knowledge of foreign markets, information sources, use of new technologies) that would help develop a GEO on the company level in realization of global opportunities for a dynamic competitive advantage.

5.3 Suggestions for Further Research

The introduction of a new concept such as GEO is a theory-building exercise that inevitably leaves open many points and aspects that could be further elaborated. Conceptually, the proposed concept of GEO may be further clarified to include other elements and dimensions, or may be more parsimoniously stated by combining some of the proposed elements. Measures need to be developed for each of the eight dimensions of the GEO concept. Subsequently the concept and its operationalized constructs need to be empirically tested to support or deny the theoretical propositions advanced here. There remains considerable scope for further research in this area.

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POLICY IMPLICATIONS FOR FEMALE ENTREPRENEURS: A CASE STUDY OF THAILAND

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POLICY IMPLICATIONS FOR FEMALE ENTREPRENEURS: A CASE STUDY OF THAILAND

ABSTRACT:

It is the purpose of this paper to acknowledge the growing participation of women in entrepreneurship in Thailand. Business ownership is a significant opportunity for women in the business world. Entrepreneurship as a research field of study is receiving growing attention from researchers worldwide especially since women are considering 'being an entrepreneur' as a practical option for them given their personal and family commitment or even for some who have encountered 'glass ceiling' in the organisations. However, the existing literature is still fairly limited to those women's participation in their family businesses, the majority of studies assume that women are a homogeneous group. Especially in the context of developing Asian countries such as Thailand, whereby, the literature as to what and how the government supports the new start-up businesses which are owned and run by Thai women is still very limited.

The central focus of this research paper is on successful women entrepreneurs in Thailand. It will attempt to answer the following questions:

1. Does Thai government help in facilitating the success of successful female entrepreneurs in Thailand?
2. If yes, how and to what extent are the existing support available?
3. Did any of the successful female entrepreneurs face any sexist issue when they started up their businesses or during their ongoing business operation?
4. What are the necessary improvements to such policies?

There is still much research to be done on female entrepreneurship, as it is significant in economic growth as they have untapped resources for the local economy including job creation and diversified sets of knowledge and talents. However, very little is known about women entrepreneurs especially those with success stories to share. The fact that women in business have just started to receive attention is a worldwide phenomenon. Only 6% of all academic research deal with women and minorities. And often, previously, traditional assumptions underlying ethnic entrepreneurship were often gender blind as they were based on the experience of men.

The trend is now changing for women as they are playing different roles, such as business owners and professionals. Women managers offer diverse management procedures, structures and cultures. The number of women participating in businesses is not only growing in numbers but also women are performing well in terms of contributing to economic output in different countries around the world especially in many developed nations. 40% of the participation rate in global economy today is contributed by women.

Women entrepreneurs are becoming independent with a high level of self confidence. They are also highly competitive, perfectionists and flexible entrepreneurs. Their goals of starting their businesses are oriented towards personal and internal motivation such as flexibility and independence rather than aiming for financial gain. They start businesses as their lifestyle choice and they are confident women entrepreneurs. They do not limit their choices of business/industry to past employment experiences.

In the developing countries like Thailand, this research study found that the only support for women entrepreneurs come from their own families. And randomly, they might get support from banks through easy loans and government in terms of tax. It was, therefore, important to examine whether there are any existing policies in Thailand which help to contribute to the success of female entrepreneurs and if there is any, what is available. And finally, how could such policies be improved to assist the female entrepreneurs.

This research defines entrepreneurs as “those who aspire to maximize profits as well as other objectives like innovation”. Entrepreneurs are usually owners of those small businesses which are categorised by the Australian Bureau of Statistics as any non-agricultural, private-sector firms as small businesses if they employ fewer than 20 employees. Small business entrepreneurs here also refer to those who have at least one employee.

In this research study, the author explored, investigated and identified the existing policies which help female entrepreneurs in Thailand. Then, interviews were conducted with 5 successful female entrepreneurs over a period of two months. Only successful Thai women entrepreneurs were interviewed and they were selected based on self-defined success. The first part of the data collected was analysed to understand the general personal characteristics of these women and their businesses background.

It is important to understand what the Government can do to assist the female group of entrepreneurs through understanding of what is available already and what is hindering the progress of women starting up their businesses. For example, it could be the limited child care or child support facilities to help when women go to work, or it could be the sexist issues that prohibit women to deal with government officials.

According to OECD (2004), governments should incorporate women entrepreneurs’ concerns and their views when designing any small business policies. Policymakers should regularly assess the effects of existing small business policies on successful women business owners and the degree to which they make use of such benefits. Perhaps, women entrepreneurs can be updated periodically on the availability of any new incentives, such as grants and loans. Another important suggestion for government and/policymakers is to cultivate an entrepreneurial way of thinking among young people, perhaps through teaching them how to carry out businesses.

Unfortunately, it was found out in this study that there was no known support from the government specifically for the women. The only support government provides the entrepreneurs in general are through tax which would exempt tax for the first 6 months of business operation.

This research suggests that if the governments of developing countries can help female entrepreneurs (like the developed western countries) through knowledge provision, facilities, childcare rebates. The economies can tap the untapped resources through women entrepreneurs. This can be used as a platform to study the success stories of other successful female entrepreneurs in other countries too.

INTRODUCTION

The study of female entrepreneurship has recently become an area of interest and as such there has been a remarkable increase in the number of studies of women entrepreneurs (Anna,

Chandler, Jansen, and Mero, 2000; Becker-Blease and Sohl, 2007). It has been widely recognized that women's entrepreneurship is an essential untapped cause of economic development due to interrelations of cultural and economic coercion that hinder women's choices of career development and labor marketability (Basil, 1972; McElwee and Al-Riyami, 2003; OECD, 2004). Women's participation in the labor market is often challenged by implicit and unrecorded social traditions in a patriarchal and male dominant society (McElwee and Al-Riyami, 2003). While there are many women facing difficulties or prejudices in their workplaces (Bhavnani and Coyle, 2000) and family business, there are still some women who have overcome such challenges and became successful, through their dedication, confidence and family support. According to Taormina and Lao (2007), business environment plays significant influence on entrepreneurial motivation and operation.

Previous entrepreneurship research has developed along two major spheres including the personal characteristics of entrepreneurs and the influence of socio-economic, culture and political contextual factors (Mazzarol, Volery, Doss and Thein, 1999). However, this research is unique as it deals with Thai women entrepreneurs and to investigate if the women have been supported by the government of Thailand in any way. Such a significant issue has not been explored before although it has an important impact on successful female entrepreneurship.

Since globalization began in the 1980s, more women are positioned in the entrepreneurship representation (Lumpugnani and Holton, 1991). Women play a significant role in entrepreneurial activities.

Success in terms of career as an entrepreneur is defined based on the subjective and objective elements of achievement and progress of an individual through an organization or occupation (White, 2000). Many people place great emphasis on objective aspects such as quantitative measures including profits, sales, promotions, and so on. However, this research emphasizes personal measures of a woman's success, which is being able to contribute her personal values to the workplace. Also, a woman's success is often self-defined as one who believes she can achieve intrinsic values such as flexibility, balance between work and family responsibilities and independence, and in which financial success would follow (Still and Timms, 2000). It is also perceived that increased confidence reduces the risk of entrepreneurial activity (Brindley, 2005).

Successful Thai women entrepreneurs in this research are the women located in Thailand and whose capability does not only involve child bearing or taking care of their family's wellbeing but they also have aspirations to earn their living through innovation in entrepreneurial activities, usually owning small businesses. Moreover, these independent women consider themselves as being successful as their businesses reap reasonable profits and they are satisfied with the rewards.

THEORETICAL FRAMEWORK

Women are required to incorporate business leadership roles with the diverse dimensions of their lives, including balancing work and home commitment (Blisson and Rana, 2001). In order to avoid unfair treatment and glass ceilings, many women choose to start their own

entrepreneurial activities (Still, 2005). Entrepreneurship is also a practical direction to achieve economic improvement for Thai women (Robb, 2002).

There are two levels of female involvement in businesses (Dhaliwal, 2000a; Chavan and Agrawal, 2004). Firstly, women are considered as co-owners or participants in their family businesses where there is a male dominant player who is the main decision maker. There have been many research studies with primary focus on this level of women involvement in other countries.

Another level is where women own the businesses as a whole or in part. They are usually independent entrepreneurs who have complete control over business operations and decision making (Dhaliwal, 2000a, b; Chavan and Agrawal, 2004). Increasingly, such successful women have more valuable choices and resources to utilize (Mattis, 2000). They are usually middle-class women who have a diversified set of skills, different expectations, resources and are well integrated into their host country whilst maintaining the positive attributes of their home culture (Levent, Masurel and Nijkamp, 2003).

All in all, this research study will be the pioneer in female entrepreneurship in Thailand as there has never been a study dedicated exclusively to the female entrepreneurs before.

The roles of Thai women, despite being in modern societies revolve around the balance between domestic and business responsibilities (Adler, 1993). Working women face the challenge of participating in two mismatched activities implying that their business involvement does not reduce their traditional roles as wives and mothers (Omar and Davidson, 2001). Such women are sometimes referred to as 'superwomen' as they combine their roles of family caring and conducting business (Omar and Davidson, 2001).

Nevertheless, increasing education levels and dynamic entrepreneurialism are now determining the emerging improved status for Thai women (Adler, 1993). Thai women entrepreneurs appear to bring together not only business opportunities but also personal characteristics to enhance their businesses performance. The personal characteristics include their own psychological factors such as entrepreneurial aspirations, risk-taking and affirmative decision making styles which lead to better operated businesses.

METHODOLOGICAL CONSIDERATION

This research is designed as a descriptive study using in-depth interviews with 5 successful women entrepreneurs over a period of two months in Thailand. Thai women were selected to be the population for this research because the researcher could be termed an insider of this particular grouping, this facilitated access to these communities and it also enhances the originality of the research methodology.

Although there are two levels of involvement among Thai women in small businesses, this research focuses only on independent Thai women who co-own or own their businesses with a fair amount of decision making power and authority. This is because this group of women is not only growing in number but also play significant roles in the economy.

The respondents come from various industries. The sample of successful Thai women was established through the author's personal business networks in Thailand. Open-ended questions in the semi-structured interviews were used in the process.

DISCUSSION OF FINDINGS

There was no evidence that women operators in Thailand are at a disadvantage. A positive attitude is prevalent among the Thai women entrepreneurs in this study. The findings of this study revealed that Thai women entrepreneurs are treated fairly and that they have never faced with any sexist comments or double standard when they operate their businesses. However, they are not much supported through formal channels like the Thai governments or Chambers of commerce, specifically designed to help women. The only support government provides the entrepreneurs in general are through tax which would exempt tax for the first 6 months of business operation. There is no help with child care so that these women could operate their businesses. But they all receive fair amount of support from their families whether it would be financial, child care, knowledge and facilities. This can be resulted from the Thai culture as having the family as a main group of support. It is very common that children are raised by grandparents and/or in house maids/nannies who help with the household chores. And income earners of the family are also responsible of well beings of their parents who in turn help to help care for the women's children.

According to OECD (2004), governments should incorporate women entrepreneurs' concerns and their views when designing any small business policies. Policymakers should regularly assess the effects of existing small business policies on successful women business owners and the degree to which they make use of such benefits. Perhaps, women entrepreneurs can be updated periodically on the availability of any new incentives, such as grants and loans. Another important suggestion for government and/policymakers is to cultivate an entrepreneurial way of thinking among young people, perhaps through teaching them how to carry out businesses.

CONCLUSION

The findings in this study are significant both in terms of theoretical and practical standpoints as they contribute to the existing literature of female entrepreneurship, especially it is the pioneer study of such themes of female entrepreneurs in Thailand. Specifically, entrepreneurship is considered as one of the important economic growth mechanisms that creates wealth and generates growth through employment, invention and diversity. This research adds to academic knowledge in female entrepreneurship, especially in terms of stronger literature and information that future research can be built upon.

There is scope to further expand this research by using Quantitative research methodology to generalize the results to Thai women as a whole. Also, the choice of sample in this study includes 'successful' Asian women entrepreneurs that have been defined based on self-definition. As such, more studies could be developed to study the success of Asian women entrepreneurs based on monetary and financial terms considering the growth, profit and loss of their businesses.

Further research could also involve comparisons among different policies to assist women entrepreneurs in different countries. Also more studies can be conducted to find which group

is more successful or have lower failure rates. Research could also study the impact of role models, whether such successful women entrepreneurs have had any role models and whether or not these role models generally come from a similar ethnic community.

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**CAPABLE BUT NOT ABLE: THE EFFECT OF INSTITUTIONAL CONTEXT AND
SEARCH BREADTH ON THE ABSORPTIVE CAPACITY-CORPORATE
ENTREPRENEURSHIP RELATIONSHIP**

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Capable but not able: The effect of institutional context and search breadth on the absorptive capacity-corporate entrepreneurship relationship

Abstract

This study investigates how the interaction of institutional market orientation and external search breadth influence the ability to use absorptive capacity to raise the level of corporate entrepreneurship. The findings of a sample of 331 supplier companies providing products and services to the mining industry of Australia and Iran indicate that the positive association between absorptive capacity and corporate entrepreneurship is stronger for companies with greater external knowledge search breadth. Moreover, operating in a less market-oriented institutional context such as, Iran diminishes the ability to utilise a firm's absorptive capacity to raise their level of corporate entrepreneurship. Yet, firms operating in such contexts are able to overcome these disadvantages posed by their institutional context by engaging in broader external search of knowledge.

Keywords: Absorptive capacity, external knowledge search breadth, institutional market orientation, corporate entrepreneurship.

1.1 INTRODUCTION

Corporate Entrepreneurship, comprising a company's innovative, venturing and strategic renewal activities (Simsek, 2007; Zahra, 1996), is increasingly considered as a valid path to high levels of corporate performance (Yiu & Lau, 2008; Zahra, 1995), growth (Zahra, 1993; Zahra & Covin, 1995) and competitive advantage (Ireland, Covin, & Kuratko, 2009). Given these potential contributions, scholars have sought to identify organizational factors stimulating corporate entrepreneurship (Heavey, Simsek, Roche, & Kelly, 2009; Simsek & Heavey, 2011; Yiu & Lau, 2008). Recently researchers have pointed to the importance of the capability of a firm to recognise the value of external new knowledge, assimilate and exploit it for commercial purposes, which was first introduced by Cohen and Levinthal (1990) as *absorptive capacity*, in stimulating corporate entrepreneurship (Qian & Acs, 2013; Teng, 2007; Zahra, Filatotchev, & Wright, 2009). Scholars argue that one of the main challenges firms face in undertaking corporate entrepreneurship is generating *new knowledge* (Agarwal, Audretsch, & Sarkar, 2007; Teng, 2007; Zahra, et al., 2009). Indeed, corporate entrepreneurship is knowledge-intensive and relies on new knowledge for doing things differently or doing different things manifesting in the forms of innovation in products and services, processes, systems, strategies and markets (Teng, 2007). Absorptive capacity through making sense of external new knowledge and combining it in value creation processes enables firms to fill out their knowledge gaps in a timelier and more economic manner for pursuing corporate entrepreneurial activities (Qian & Acs, 2013; Teng, 2007; Zahra, et al., 2009).

Effective exploitation of absorptive capacity for entrepreneurial initiatives; however, depends on the extent to which companies are exposed to external new knowledge (Audretsch & Keilbach, 2007; Qian & Acs, 2013; Zahra & George, 2002). Recently scholars have argued that contexts are heterogeneous with regards to new knowledge richness (Acs, Braunerhjelm, Audretsch, & Carlsson, 2009; Agarwal, et al., 2007) depending on their *institutional market orientation*, which is the extent to which a context adheres to free market policies (Shinkle & McCann, 2013; Zhao, 2006). Thus, the impact of absorptive capacity on corporate entrepreneurship should be subject to institutional context disparities, and companies may need context-specific mechanisms to increase their exposure to new knowledge. This raises

these questions how firms in less market-oriented institutional contexts can mitigate the baffling impacts of the institutional voids in their contexts to more effectively utilise their absorptive capacity for corporate entrepreneurship, and to what extent these mechanisms are subject to institutional contexts disparities.

This study suggests that the interaction of two factors at different levels, firm and institutional context, shapes the effect of absorptive capacity on entrepreneurial activities in companies. We first build on the prior literature and posit that absorptive capacity can stimulate corporate entrepreneurship through facilitating the transfer and utilisation of external new knowledge (Qian & Acs, 2013; Teng, 2007; Zahra, et al., 2009). We; however, argue that this positive relationship is Weaker for firms operating in a context with less institutional market orientation due to their less exposure to new external knowledge (Shinkle & McCann, 2013; Zhao, 2006). We then focus on *external knowledge search breadth* as a mechanism enabling firms to more effectively benefit from their absorptive capacity for corporate entrepreneurship. External knowledge search breadth refers to “the number of external sources or search channels that firms rely upon in their innovative activities” (Laursen & Salter, 2006, p. 134). Scholars have lately posited that a firm’s exposure to new knowledge depends on how widely the firm has decided to search external knowledge or the extent to which it would like to engage external knowledge resources in its value creation processes (Chesbrough, 2007; Drechsler & Natter, 2012; Laursen & Salter, 2006). The more widely they search, the greater the chance of gaining the knowledge leading to a valuable innovation (Laursen & Salter, 2006; Leiponen & Helfat, 2010). Nevertheless, we expect that external search breadth to be more important as a booster of absorptive capacity benefits for companies in less market-oriented institutional contexts. I test our hypotheses through conducting a comparative survey in two contexts with different levels of institutional development for market functions, Australia and Iran.

Overall, this study makes at least two important contributions to the literature of corporate entrepreneurship. It first enriches the literature by showing that the impact of absorptive capacity on corporate entrepreneurship varies across institutional market orientation. This study also suggests external knowledge search breadth as a compensatory approach in the contexts with less institutional market orientation. This advances our understanding of how firms operating in less market-oriented institutional contexts can offset the voids in their institutional contexts to more effectively exploit their capabilities in entrepreneurial activities (Khanna & Palepu, 1997; Peng, 2003; Peng & Heath, 1996). This study also shows that the impact of external knowledge search breadth a booster of absorptive capacity is subject to institutional context disparities. This provides more insights into how institutional forces affect the effectiveness of organisational actions for entrepreneurial activities, which is understated in the literature (Bruton, Ahlstrom, & Obloj, 2008; Hitt, Ireland, Sirmon, & Trahms, 2011; Welter, 2011). Hitt et al., (2011), in particular, recently call future research for investigating how institutional voids like under-developed property rights in less market- oriented institutional contexts may affect decisions and actions of companies for undertaking entrepreneurial activities. This study also adds to the literature by showing how the effects of absorptive capacity and its interaction with external knowledge search breadth may be subject to institutional market orientation disparities.

1.2 THEORETICAL BACKGROUND AND HYPOTHESES

The term corporate entrepreneurship refers to entrepreneurial activities within established firms. These entrepreneurial activities entail innovation, venturing, and strategic renewal (Zahra, 1996). Innovation concerns the development of new products and services. Venturing

refers to the birth of new businesses within existing companies through expanding operations in current or new markets. Firms tend to create new ventures when opportunities in new markets are not attainable with current resources and structures or they put out of the purview of their current base businesses such as entering new technological spaces or areas (Teng, 2007; Verbeke, Chrisman, & Yuan, 2007). Strategic renewal means the redefinition of the scope of a business or significant changes in its competitive strategy, leading to new positions in the market (Sharma & Chrisman, 1999; Zahra, 1996). These activities are complementary and mutually supportive. For example, renewing the competitive approach may enhance the benefits of venturing activities, and new product development may make strategic renewal activities more beneficial (Heavey, et al., 2009; Simsek, 2007; Simsek & Heavey, 2011; Simsek, Veiga, & Lubatkin, 2007). As such, “treating individual components of corporate entrepreneurship as independent ignores their potential complementarity” (Simsek & Heavey, 2011, p. 83). It is also worth noting that corporate entrepreneurship is the actual entrepreneurial acts or the market-oriented results and differ from constructs like entrepreneurial orientation which are “predispositions of firms with respect to their strategy-making processes, practices, and activities” stimulating corporate entrepreneurship (Dess & Lumpkin, 2005; Simsek & Heavey, 2011, p. 83).

Researchers contend that a key feature of corporate entrepreneurship is its knowledge intensity or knowledge orientation (Agarwal, et al., 2007; Teng, 2007; Zahra, et al., 2009). Indeed, corporate entrepreneurship “deals with generating new know-how for doing things differently”, manifesting in the forms of new products, processes and systems (Teng, 2007). New knowledge can be either developed within the internal boundaries of firms such as sustained investments in R&D activities or abstained from external resources of knowledge including suppliers, customers, research centres and competitors (Hitt, Ireland, & Lee, 2000; Zahra & Nielsen, 2002). Scholars argue that since corporate entrepreneurship mainly centres on emerging opportunities (Kuratko & Audretsch, 2009; Simsek & Heavey, 2011) and uncertainty and momentariness are integral parts of opportunities, it is not often economic or competitive for companies to only rely on internal resources for developing the new knowledge, leading corporate entrepreneurship (Agarwal, et al., 2007; Teng, 2007; Zahra, et al., 2009). As such, they need to fill out their knowledge by leveraging new knowledge from external resources and integrate them in their value creation processes to both exploit opportunities in a timely manner and reduce the high risk accompanied by developing new products, technologies and systems (Chesbrough, 2007; Laursen & Salter, 2006; Teng, 2007).

To effectively benefit from external knowledge flows; however, firms need to invest in capabilities and approaches, facilitating recognition and utilisation of external new knowledge (Cohen & Levinthal, 1990; Laursen & Salter, 2006). Yiu and Lau (2008), for example, argue that political, social and reputational capital are the capabilities helping firms in emerging economies stimulate their corporate entrepreneurship through facilitating knowledge and resources acquisition from government agencies, other companies and stakeholders. Similarly, Zahra, et al., (2009) develop a conceptual model arguing that corporate entrepreneurship require firms to gain varied knowledge from different external sources, and threshold firms, those between start up and established stages, can fulfil this requirement through investment in their absorptive capacity and forming an effective board of directors. However, to our knowledge, the association between absorptive capacity and corporate entrepreneurship has not been empirically tested. More importantly, the organisational mechanisms enabling firms more effectively benefit from their absorptive capacity for corporate entrepreneurship, particularly in the interaction of institutional contexts, have been less understood in the literature of corporate entrepreneurship (Hitt, et al., 2011; Welter,

2011). In the following sections, we discuss how and why the interaction of external search breadth and institutional market orientation may shape the effects of absorptive capacity on corporate entrepreneurship.

1.2.1 Absorptive capacity and corporate entrepreneurship

Absorptive capacity is defined by Cohen and Levinthal (1990) as a firm's capability to recognize, assimilate and exploit external new knowledge. In their seminal article, Cohen and Levinthal (1990) discuss that one strong reason why some companies are able to value, understand and apply new knowledge with less costs and efforts than others is that they have already invested in cultivating their absorptive capacity. This capability mitigates the barriers of knowledge transfer between companies such as tacitness or embeddedness (Cummings & Teng, 2003). Firms with high levels of absorptive capacity can understand external knowledge, combine it with their existing knowledge and use that for commercial ends (Zahra & George, 2002). As such, one key function of absorptive capacity is facilitating knowledge transfer which enables firms to fill out the knowledge gaps they tend to experience while pursuing corporate entrepreneurship (Teng, 2007). Through combination of external knowledge with pre-existing knowledge companies may also reach new insights providing them with different options for corporate entrepreneurship (Zahra, et al., 2009). Lane et al., (2006, p. 836) discuss that "unlike learning-by-doing which allows firms to get better at what they already do, absorptive capacity allows firms to learn to do something different." Thus, we expect that absorptive capacity to infuse external knowledge in firms' value-creation processes, fill out their knowledge gaps and create the new knowledge leading to corporate entrepreneurship. Thus, it is predicted that:

Hypothesis 1: Absorptive capacity is positively associated with corporate entrepreneurship.

1.2.2 Absorptive capacity and institutional market orientation

Institutional market orientation refers to the extent to which rules and regulations in a context adhere to free-market policies (Shinkle, Kriauciunas, & Hundley, 2013). It is measured by the level of freedom in such areas as trade, investment, financial, business operations and property rights (Kane, Holmes, & O'Grady, 2007). Institutional contexts with higher level of institutional market orientations are characterized by higher levels of "profit-driven incentive structures, rule of the law including strong intellectual property rights, regulatory frameworks that support market behaviour and high economic productivity" (Shinkle & McCann, 2013). Due to the positive effect of market-based systems on economic growth (Svejnar, 2002) or functional, political and social pressures (Oliver, 1992), economies are essentially moving toward more market oriented systems by undertaking different institutional reforms such as privatization, price and trade liberalization, development of market-oriented legal systems and banking system reform (Peng, 2003; Svejnar, 2002). However, the breadth of reforms differs across countries such that the greater an economy's institutional market orientation, the less the breadth of reforms and the resulted uncertainty in that economy (Kim, Kim, & Hoskisson, 2010; Shinkle, et al., 2013). Recently researchers have started to recognize the importance of different levels of institutional market orientation in action-output relationships. They argue that companies need different capabilities and strategies for rationally pursuing their interests in different institutional frameworks with different levels of market orientation (Lin, Peng, Yang, & Sun, 2009; Luk et al., 2008; Peng, 2003; Peng & Heath, 1996; Shinkle, et al., 2013; Shinkle & McCann, 2013). Firms in less market-oriented institutional contexts in particular endeavour to adopt approaches for offsetting their institutional voids (Khanna & Palepu, 1997; Peng, 2003; Peng & Heath, 1996).

We expect that absorptive capacity to have less of an effect on corporate entrepreneurship in a context with lower levels of institutional market orientation. Indeed, build on prior literature we discussed the possibility that absorptive capacity stimulate corporate entrepreneurship through filling knowledge gaps (Teng, 2007; Zahra, et al., 2009). we argue; however, the effect of absorptive capacity on corporate entrepreneurship depends on the extent to which firms are exposed to the external new knowledge filling their gaps or leading to corporate entrepreneurship (Audretsch & Keilbach, 2007; Qian & Acs, 2013). Scholars posit that institutional voids such as weak intellectual property rights protection and insufficient contract enforcement in less market-oriented contexts (Hoskisson, Eden, Lau, & Wright, 2000; Newman, 2000; Peng, 2003; Peng & Heath, 1996; Shinkle, et al., 2013), decreases companies' tendency to invest in developing new knowledge such as their R&D investments (Shinkle & McCann, 2013; Zhao, 2006). The institutional voids also make companies act closer and use isolating mechanisms to protect their knowledge-based discoveries (Zahra & George, 2002). As such, companies in such contexts may have less access to diverse and complementary knowledge, reducing their capacity to undertake corporate entrepreneurial activities through filling their knowledge gaps or the recombination of external knowledge (Agarwal, et al., 2007; Teng, 2007). Audretsch and Keilbach (2007) contend that contexts rich in new knowledge provide more extensive entrepreneurial opportunities for actors in the context than those poor in new knowledge. They consider entrepreneurship as a conduit of commercialising knowledge that generated by different incumbents in the context. As such, it is expected that firms in a contexts with less institutional market orientation to be less able to benefit from their absorptive capacity for corporate entrepreneurship than those in a more market oriented contexts due to their reduced access to external new knowledge and not being able to fill out their knowledge gaps. Thus, the following hypothesis can be developed:

Hypothesis 2: The level of institutional market orientation positively moderates the [positive] association between absorptive capacity and corporate entrepreneurship. Thus, we expect the effect of absorptive capacity to be more strongly positive in countries with high institutional market orientation (empirically represented by Australia) than in countries with low institutional market orientation (represented by Iran).

1.2.3 Absorptive capacity and external market knowledge search breadth

Laursen and Salter (2006, p. 134) define *external knowledge search breadth* as “the number of external sources or search channels that firms rely upon in their innovative activities”. It is considered as a strategic approach, reflecting a firm's tendency for searching widely and engaging more external knowledge resources in its value creation processes (Chesbrough, 2007; Drechsler & Natter, 2012; Laursen & Salter, 2006). Laursen and Salter (2006) that gaining knowledge from different sources can be challenging for firms as approaching each of the search channels may require different corporate practices. Nevertheless, firms may miss opportunities due to lack of openness or focus only on a narrow range of sources. They suggest that companies can more effectively benefit from their absorptive capacity through adopting a search approach focusing on leveraging knowledge from diverse resources of knowledge (Grimpe & Sofka, 2009; Laursen & Salter, 2006).

Following Lauarsen and Salter's suggestion, we argue that companies can better leverage their absorptive capacity towards corporate entrepreneurship adopting an external search approach. Firstly, searching widely enhances the chance of obtaining the required knowledge for filling out knowledge gaps. Leiponen and Helfat (2010, p. 225) contend that “by accessing a greater number of knowledge sources, the firm improve the probability of abstaining knowledge that will lead to a valuable innovation output.” Secondly, researchers posit that

external search breadth increases the *amount* and *variety* of knowledge entering in the process of value of creation (Leiponen & Helfat, 2010, 2011; Nieto & Santamaria, 2007). This enable firms with higher levels of absorptive capacity to undertake corporate entrepreneurship through recombination of external complementary knowledge (Kogut & Zander, 1992). Zahra et al., (2009) argue that obtaining varied knowledge from diverse source increases options for corporate entrepreneurship. As such, we expect that firms to be better able to utilise their absorptive capacity through searching widely for filling out their knowledge gaps and solving their internal problems (Teng, 2007) as well as creating new knowledge through recombination of external knowledge (Kogut & Zander, 1992). Conversely, companies with high levels of absorptive capacity which adopt a narrow search breadth may not be able to commercialise their knowledge-based discoveries due to not being able to fill out their knowledge gaps or miss many potential entrepreneurial opportunities. Thus, it is predicted that:

Hypothesis3: firms' breadth of external knowledge search positively moderates the [positive] association between absorptive capacity and corporate entrepreneurship.

1.2.4 Absorptive capacity, external search breadth and institutional market orientation

In our previous discussion we introduced two factors, shaping the effects of absorptive capacity on corporate entrepreneurship, external search breadth and institutional market orientation. we argued that adopting an external search breadth approach strengthens the association between absorptive capacity and corporate entrepreneurship; while lower levels of institutional market orientation weakens the effect of absorptive capacity on corporate entrepreneurship. In this section, we contend that firms in a context with a lower level of institutional market orientation more require external search breadth to benefit from their absorptive capacity for corporate entrepreneurship than those in a higher level of institutional market orientation.

As discussed before, institutional voids in less market-oriented contexts reduce firms' tendency to invest in creation of new knowledge or technologies (Shinkle & McCann, 2013; Zhao, 2006) and make them closer for protecting their knowledge-based discoveries (Zahra & George, 2002), reducing the exposure of other companies to new complementary knowledge. Thus, firms pursuing corporate entrepreneurship in such contexts should more widely search external sources of knowledge to acquire new knowledge or filling their gaps. The more widely a firm search, the greater the chance of gaining the knowledge filling its knowledge gaps or leading to a valuable innovation (Laursen & Salter, 2006; Leiponen & Helfat, 2010). On the other hand, firms in more market-oriented contexts have more incentives to invest in developing new knowledge and technologies (Shinkle & McCann, 2013; Zhao, 2006). As such, the pool of new knowledge in their environment reduces the necessity for searching widely to gain new knowledge and fill out their knowledge gaps (Leiponen & Helfat, 2010). Thus, it is predicted that:

Hypothesis4: There is a three-way interaction among absorptive capacity, external search breadth, and institutional market orientation. Specifically, we expect external search breadth to be more important as a booster of absorptive capacity benefits for firms in less market- oriented institutional contexts (empirically represented by Australia) than countries with high institutional market orientation (empirically represented by Australia).

1.3 METHODOLOGY

1.3.1 Sample and data collection

To test our model, a comparative study was conducted in two contexts with different institutional market orientation, Iran and Australia. The sample was supplier companies providing products and services to the Iranian and Australian mining industries. Like similar comparative studies (e.g. Lin, et al., 2009), we focused on a single industry to confine the extraneous variation of heterogeneous industry factors (Davidsson, 2008; Wales, Parida, & Patel, 2012). We also selected supplier companies in the mining industry, called Mining, , Equipment, Technology, and Service (METS) sector, because this section is mainly considered as a technologically advanced section (Bartos, 2007; Tedesco & Haseltine, 2010), and should therefore be suitable for studying absorptive capacity, which is discussed as a capability more related to assimilating and utilizing technological knowledge (Cohen & Levinthal, 1990; Tsai, 2001). Finally, we selected two distinct institutional contexts of Iran and Australia, as we investigated institutional market orientation and needed two contexts with different levels of institutional market orientation.

The first survey was conducted in Iran from mid-September to mid-November 2012. Around 800 companies were identified in Iran, using publicly available databases. Since some of the firms in our sample were not contactable, some did not exist or were irrelevant, the sample finally reduced to around 600 companies. To minimise the potential common method bias in cross-sectional studies, the questionnaire was divided into two parts, one comprised independent variables and one dependent variables, and two informants in each company were asked to fill out the questionnaires, one for independent variables and one for dependent variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We eventually received completed and usable double-respondent questionnaires from 126 firms, consulting services (1.6%), contracting (18%), equipment manufacturer (63.9%), supplies and consumables (13.1%), support and services (3.3), for an effective response rate of 21%.

The second survey was conducted in December and January 2012 in Australia. A sample of around 2100 companies providing products and services to the Australian mining sector were recognised, using the same approach as used in Iran. As some of the companies turned out as irrelevant, non-existent and unreachable firms, the sample finally reduced to around 1700 companies. Following Dillman's (2000), a mixed method (triangulation) approach was used to induce participation and the companies were provided both hard copies and unique passwords for accessing to an online version of the survey. Participants were also promised to receive a management report of the project results upon completing the survey. Eventually, 205 questionnaires were returned, consulting services (19.3%), contracting (12.3%), equipment and manufacturer (24.1%), supplies and consumables (30.8%) and support and services (13.3%), for a response rate of 12%, consistent with the 10-12% typical response rate in studies targeting top executives (Hambrick, Geletkanycz, & Fredrickson, 1993).

To test the non-response bias, chi-square and t-tests on the mean differences between early and late respondents in terms of size and key variables in the model were conducted. The logic is that late respondents are assumed to be more like those not participating in a survey (Armstrong & Overton, 1977). Following Simsek, et al., (2007), we considered those returning the questionnaire after the second reminder as late respondents and before that as early respondents. No statistically significant differences were detected between early and late respondents in terms of size and key variables in the model supporting that the non-response bias was not a major issue in our study.

1.3.2 Measures

Corporate entrepreneurship: The extent to which companies pursue corporate entrepreneurial activities was measured based on Zahra's (1996) scale capturing the dimensions of *innovation*, developing new products and services, *international and local venturing*, the birth of new business within existing companies and entering new markets, *renewal*, redefining the business scope or strategy (Heavey, et al., 2009; Simsek, 2007; Simsek & Heavey, 2011; Simsek, et al., 2007). Respondents were asked to answer 15 items, rated on a five-point scale, ranging from 1 ("strongly disagree"), to 5 ("strongly agree"). Following Simsek (2007), we used corporate entrepreneurship as a meta construct, as it better captures the synergies between factors. The results of the confirmative factor analysis for measuring the measurement validity suggested reasonably good model fit (χ^2 (86) = 248.916, $n = 331$, $p < 0.001$, $\chi^2/df = 2.89$; SRMR = .069; RMSEA = .076; CFI = .908; GFI = .911). All factor loadings were highly significant ($p < 0.001$) and the coefficient alpha for the overall scale was .83. Furthermore, a target coefficient statistic of .96 showed this higher order model effectively accounted for the relationships between the lower order individual dimensions (Marsh & Hocevar, 1985).

Absorptive capacity: Absorptive capacity was measured in this study using Lichtenthaler's (2009) scale, capturing six dimensions through three learning processes, *exploratory learning*, comprising acquisition and assimilation dimensions, *transformative learning*, encompassing maintenance and reactivation dimensions, and *exploitative learning*, capturing transmutation and exploitation dimensions, as a three-dimensional meta-construct represented by 21 items rated on a five-point scale, ranging from 1 ("strongly disagree"), to 5 ("strongly agree"). One of the items, related to the assimilation dimension, was eliminated while running factor analysis because of a low level of loading value. The results of the confirmatory factor analysis for this model suggested reasonably good model fit (χ^2 (162) = 388.800, $n = 331$, $p < 0.001$, $\chi^2/df = 2.40$; SRMR = .053; RMSEA = .065; CFI = .917; TLI = .902). The coefficient alpha for the overall absorptive capacity scale is .90.

Institutional market orientation: Consistent with the literature (e.g. Lin, et al., 2009; Luk, et al., 2008), a dummy variable was used in this study to represent the level of market-based institutional development, where Australia was treated as an institutional setting with high level of market orientation (institutional market orientation=1) and Iran as a setting with low degree of institutional market orientation (institutional market orientation=0). The Heritage Foundation Index of Economic Freedom (Kane, et al., 2007; www.heritage.org), containing data about 50 independent variables divided into 10 categories, including business freedom, trade freedom, property rights, investment freedom, and financial freedom, has been extensively used in business or strategic management studies as a proxy to measure the strength or degree of institutional market orientation (Shinkle & Kriauciunas, 2010; Shinkle, et al., 2013). Providing updated information is an important advantage over other measures used in the literature (Meyer, Estrin, Bhaumik, & Peng, 2009). According to the 2012 Index of Economic Freedom, Iran ranks the 168th freest economy, while Australia ranks the 3th freest economy in the 2012 index. Furthermore, according to the International Monetary Fund (IMF), Iran is in the early stages of transition and moving to a more market-oriented economy (Jbili, Kramarenko, & Bailén, 2007).

External search breadth: To measure external search breadth, in align with the approach adopted by Laursen and Salter (2006) and Leiponen and Helfat (2010), seven important sources of technological knowledge in the industry, including customers, suppliers, competitors, investors, other companies, industry associations and councils, universities and

research centres, were identified and respondents were asked to answer whether they have acquired new and important knowledge about technologies from each of the sources or not, using a yes/no binary variable. They got 0 for not using and 1 for using the source. Then, their scores were summed so that the firm not gaining knowledge from any sources got 0, while one who received knowledge from all of the resources got 7.

Control variables: To control the possible confounding effects and extraneous variation, a number of variables were included in this study as control variables. As *firm size* is an important factor in explaining firm behaviour (Liao, Welsch, & Stoica, 2003) and larger companies may have more resources, but less flexibility, for corporate entrepreneurial activities (Burgers, Jansen, Van den Bosch, & Volberda, 2009), the number of full time employees, accounting for firm size, was controlled in this study. Following to the Australian Bureau of Statistics (ABS), firm size was measured through a categorical scale such that “1 to 4” was considered as micro, “5 to 19” as small, “20 to 199” as medium and “over 200” as large businesses. The literature also acknowledges that *environmental dynamism* influences corporate entrepreneurial activities (Heavey, et al., 2009). As such, environmental dynamism, capturing the rate of changes in the competitive environment, was controlled through a four-item scale, used in the literature (Jansen, Van Den Bosch, & Volberda, 2005). The coefficient alpha for this scale was .83. *Past performance* can be considered as an indication of slack in companies and influence corporate entrepreneurial activities (Bradley, Wiklund, & Shepherd, 2011; Zahra & Hayton, 2008). Thus, based on previous literature (Burgers, et al., 2009), a four-item scale was included, measuring past performance in terms of net profit, sales growth, cash growth and growth of the company’s value, with a coefficient alpha of .83. Finally, additional industry effects were controlled, using five *industry* dummies: consulting services, contracting, support and services, supplies and consumables, and equipment and manufacturer.

1.3.3 Measurement validity tests

First, Harman’s single factor test was conducted to test the presence of the common method bias among the whole sample. As multiple factors emerged from the solution, and the first factor did not account for the majority of the explained variance, it was less than 20%, common method bias should not be a major concern in this research (Podsakoff & Organ, 1986). Harman’s test; however, is considered incomplete because the likelihood that a single-factor model fits the data is very low (Chang, van Witteloostuijn, & Eden, 2010). As such, I also followed the partial correlation procedure proposed by Lindell and Whitney (2001) to more precisely assess the method bias in the data. I added a theoretically unrelated item to the instrument as a marker variable. Since the original correlations between all significantly correlated variables remained still significant while controlling for the marker variable, the method bias does not appear to pose a major issue for the data.

To test the convergent and discriminate validity of absorptive capacity and external search breadth, the procedure recommended by Anderson and Gerbing (1988) was followed in this study. First, an unconstrained model, in which items related to each factor were loaded to their intended indicator, was tested. It resulted in a reasonably good fit ($\chi^2/df = 1.978$; RMSEA = .054; CFI = .90; IFI = .902), providing support for convergent validity. Then, we tested a constrained model with a high correlation between the constructs to see whether the former model was significantly better than the limited one or not. Since the chi-square difference, 264, was well above 3.84, the critical chi-square value for 1 degree of freedom at $p = .05$, it was highly significant, supporting discriminate validity. We also ran the chi-square difference test between exploratory learning and external search breadth, and the test was

highly significant, confirming discriminate validity ($\Delta\chi^2(1) = 228, p < .001$). Furthermore, following Larraneta et al., (2012), we excluded exploratory learning from the absorptive capacity construct and tested the regression model, the results were similar.

1.3.4 Analysis and results

Hierarchical regression analysis was used to test the hypotheses. Predictors, except for institutional market orientation, were both mean-centred (Cohen, Cohen, West, & Aiken, 2003). Table 1.1 (appendix A) presents the means, standard deviations and correlations of the variables in this study. Since the correlations between each pair of the variables are all below the suggested cut off of .70 (Tabachnick & Fidell 1996) and the calculated variance inflation factors (VIF) for each regression equation is well below the recommended level of 10, multicollinearity should not bias our results. Table 1.2 (appendix A) also shows moderated regression results for corporate entrepreneurship. Model 1 tested the relationship between the control variables and corporate entrepreneurship. This model contained 3 of the 4 firm size dummies, as medium was used as the reference group and 4 of the 5 industry dummies because manufacturing was considered as the reference group. Institutional market orientation and external search breadth also entered as control variables in this model so that the unique variance explained by absorptive capacity can be examined in model 2, adding the direct effect of absorptive capacity to the first model. Model 3 included the two-way interaction of absorptive capacity and institutional market orientation as well as absorptive capacity and external search breadth, and finally model 4 tested the three-way interaction.

Model 1, containing control variables, shows that micro and large business have a positive effect on corporate entrepreneurship, indicating that larger companies have more corporate entrepreneurial activities. Environmental dynamism and past performance also significantly influence corporate entrepreneurship, but institutional market orientation and external search breadth do not have direct effect on corporate entrepreneurship (see table 1.2). Model 2 also in table 1.2 indicates that absorptive capacity positively influences corporate entrepreneurship ($\beta = .344, p < .01$), providing support for hypothesis.

The interaction term of absorptive capacity and institutional market orientation in model 3 is significant ($\beta = .348, p < .01$), indicating that the variance explained by this two way interaction is significant (see table 1.2). To interpret the significant interaction effect, Aiken and West's (1991) plotting technique was used in which the effects of independent variable on the dependent variable in the low (one standard deviation below mean) and high (one standard deviation above mean) levels of moderator variables are depicted. In this case, low and high levels of a dummy variable, Iran versus Australia, have been used for creating the interaction plot such that Iran has been used as the reference group. As it can be seen in figure

5.1, the relationship between absorptive capacity and corporate entrepreneurship is much stronger in the more developed institutional context, Australia, and higher levels of absorptive capacity better stimulates corporate entrepreneurship in this context, indicating that hypotheses 2 is supported by the data (see figure 1.1 appendix B).

Model 3 in table 1.2 also indicates that indicating that the variance explained by the two way interaction of absorptive capacity and external search breadth is significant ($\beta = .059, p < .05$). The interaction plot in figure 1.2 (appendix B) shows that as absorptive capacity increases, higher levels of external search breadth lead to more corporate entrepreneurship and vice versa, supporting hypothesis 3.

With regards to hypotheses 4, the variance explained by the three-way interaction in model 4 is also marginally significant ($\beta = -.093, p < .10$), indicating that the variance explained by the three-way interaction is marginally significant (see table 1.2). A graphic representation of the three-way interaction needs to be created to see whether the pattern of relationships between

the variables is as predicted or not. Pursuing the approach proposed by Cohen et al., (2003) and by Aiken and West's (1991), used widely in the literature (e.g. Wiklund & Shepherd, 2005; Zhou & George, 2001), the relationships between absorptive capacity and corporate entrepreneurship at high and low levels of external search breadth and institutional market orientation (Iran versus Australia) are depicted through four plots in figure 1.3 (appendix B).

The difference between slopes were also checked following Dawson and Richter's (2006) procedure. The main purpose of this post hoc probing technique is to find out the significant three-way interaction results from significant difference between which pairs of the six combinations, created at high and low levels of the moderators, here external search breadth and institutional market orientation (Dawson & Richter, 2006).

As it can be seen in figure 1.3 and table 1.3 (appendix B), slope 2 is significantly more positive than slope 4 ($t = 2.38, p < .05$), and slope 1 is significantly more positive than slope 3 ($t = 2.71, p < .01$), indicating that interaction effect holds across both contexts, further supporting hypothesis 3. In terms of the three-way interaction, the data suggest there is not a significant difference between the contexts when knowledge search is high, since the slope difference between slopes 1 and 2 is insignificant ($t = 1.09, p > .10$). This means that as long as Iranian firms use high knowledge search their absorptive capacity is just as effective in generating corporate entrepreneurship as in Australia. Yet, when knowledge search is low, Iranian firms' absorptive capacity is far less effective in generating corporate entrepreneurship than Australian firms' absorptive capacity because the slope difference between slopes 3 and 4 is also significant ($t = 2.92, p < .01$). These results supports hypothesis 4, suggesting than firms in a context with a lower level of institutional market orientation more require external search breadth to benefit from their absorptive capacity for corporate entrepreneurship than firms in a higher level of institutional market orientation.

1.4 DISCUSSION

The main purpose of this study was to investigate how the impact of absorptive capacity on corporate entrepreneurship might be subject to the firm's institutional market orientation and external knowledge search breadth. The findings indicate absorptive capacity is positively associated with corporate entrepreneurship, providing support for hypothesis 1. This is consistent with prior studies contending that absorptive capacity should contribute to innovative activities in companies through enriching their stocks of knowledge (Chen, Lin, & Chang, 2009; Cohen & Levinthal, 1990; McKelvie, Wiklund, & Short, 2007). These results firstly extend the corporate entrepreneurship literature through empirically testing the suggestion that absorptive capacity stimulates corporate entrepreneurship by facilitating the infusion of new knowledge within value creation processes in firms (Teng, 2007; Zahra, et al., 2009). It also adds to the literature of absorptive capacity by connecting absorptive capacity to other dimensions than innovation in products and services (Lane, Koka, & Pathak, 2006) such as business venturing and strategic renewal activities. Scholars suggests that absorptive capacity can lead to any commercial ends to which knowledge is used (Cohen & Levinthal, 1990; Zahra & George, 2002).

The results also confirm hypotheses 2 suggesting absorptive capacity has less of an effect in the contexts with less institutional market orientation. The data indicate that in the less market-oriented institutional context the relationship between absorptive capacity and corporate entrepreneurship is weaker. This supports our argument that institutional voids in the contexts with less institutional market orientation decrease firms' exposure to new knowledge. As such, absorptive capacity should be under-utilized in such contexts compared to their counterparts in more market-oriented institutional contexts. This advances the

literature of corporate entrepreneurship by showing that the impact of absorptive capacity on corporate entrepreneurship is subject to the firm's institutional market orientation (Teng, 2007; Zahra, et al., 2009). This partly responds to the call for more research on how institutional forces may shape the impact of corporate actions on entrepreneurial purposes (Hitt, et al., 2011). These results are in line with the assumption of entrepreneurship theory that contexts are also heterogeneous in entrepreneurial opportunities (Davidsson, 2004). Besides, these findings have insight for the literature of absorptive capacity. Previous studies in this literature posit the role of *task* or business environmental dynamisms in intensifying the effect of absorptive capacity on organizational outcomes (Liao, et al., 2003). I extend this literature by showing the way a firm's *institutional* market orientation affects the effectiveness of absorptive capacity for innovative purposes (Lane, et al., 2006; Santoro, Bierly Iii, & Gopalakrishnan, 2007; Volberda, Foss, & Lyles, 2010).

Regarding the moderating impact of external knowledge search breadth, the findings support hypotheses 3. Zahra et al., (2009) has lately suggested boards of directors as a complementary mechanism for more effective utilization of absorptive capacity for corporate entrepreneurship. I add to this stream by investigating the empowering effects of external search breadth on the relationship between absorptive capacity and corporate entrepreneurship. Our findings show that companies with higher levels of absorptive capacity can generate more corporate entrepreneurship through searching widely. Broader external search of knowledge is more likely to provide firms with the knowledge leading to a valuable innovation (Laursen & Salter, 2006; Leiponen & Helfat, 2010). The increased amount and diversity of knowledge supplies firms more options for entrepreneurial activities (Burt, 1992, 1997; Zahra, et al., 2009), and enhances their potential for filling out their knowledge gaps and solving their internal problems (Teng, 2007). In the literature of absorptive capacity, scholars have lately focused on organizational factors assisting firms with more effective exploitation of their absorptive capacity for corporate outcomes, and acknowledged the moderating effects of factors such as strategic orientations (Liao, et al., 2003; Wales, et al., 2012). We further extend this stream of research by empirically testing external search breadth as a mechanism for optimizing the effect of absorptive capacity on corporate entrepreneurship.

With regards to the way the interaction of external knowledge search breadth and institutional market orientation shape the effects of absorptive capacity on corporate entrepreneurship, the data provide marginally support for hypotheses 4. We suggest that external knowledge search breadth is more important as a booster of absorptive capacity benefits for firms in less market-oriented institutional contexts. The results indicate that firms in the context with low institutional market orientation, Iran, can utilise their absorptive capacity for corporate entrepreneurship as effectively as those in the more market oriented institutional context, Australia, when they search widely. However, their ability to generate corporate entrepreneurship from their absorptive capacity reduces much more than those in a more market-oriented context when they do not search widely. This supports my discussion that external knowledge search breadth can be more effective for firms operating in less market-oriented contexts to mitigate the baffling effects of institutional voids and utilise their absorptive capacity for corporate entrepreneurship. These findings advance the literatures of corporate entrepreneurship and absorptive capacity by showing the effects of organisational knowledge-gap filling mechanisms on firm outcomes vary across different levels of institutional market orientation.

Appendix A

Table Error! No text of specified style in document..1 Standard deviation, and correlations^a

	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1. Corporate entrepreneurship	3.39	.56	(.83)													
2. Absorptive capacity	3.63	.52	.37**	(.90)												
3. External search breadth	3.60	2.03	.08	.05	(.70)											
4. Institutional market orientation ^b	.61	.48	-.008	.15**	-.38**	-										
5. Dynamism	3.54	.64	.19**	.29**	.14**	-.06	(.83)									
6. Past performance	3.46	.65	.34**	.25**	.03	.10 ⁺	.17**	(.83)								
7. Support and service	.09	.28	.11*	.10 ⁺	-.03	.16**	.05	.10	-							
8. Supplies and consumables	.22	.42	.04	.02	.01	.10**	-.006	.07	-.17**	-						
9. Contracting	.13	.34	-.03	.002	.10 ⁺	-.08	-.003	.04	-.12*	-.21**	-					
10. Consulting	.12	.32	-.09	.01	-.14**	.25**	-.15**	-.08	-.11*	-.20**	-.14**	-				
11. Manufacturing	.37	.48	-.01	-.05	.04	-.39**	.05	-.06	-.24**	-.42**	-.31**	-.28**	-			
12. Micro	.09	.30	-.16**	-.01	-.05	.26**	-.04	-.14**	.14*	.05	-.04	.03	-.11*	-		
13. Small	.35	.47	-.01	.02	.08	-.18**	-.05	-.13*	.07	-.04	-.02	-.005	.006	-.24**	-	
14. Medium	.45	.49	.02	.02	-.03	-.11**	.12**	.17**	-.09 ⁺	.008	.03	-.07	.13*	-.30**	-.67**	-
15. Large	.07	.26	.14**	.10	-.008	.22**	-.05	.08	-.09 ⁺	.001	.14**	.13*	-.11*	-.09 ⁺	-.21**	-.26**

^a N=331. Numbers in parentheses on the diagonal are Cronbach alphas of the composite scales.

^b Iran context served as reference group

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

⁺ Correlation is significant at the 0.10 level (2-tailed)

Table **Error! No text of specified style in document..2** Moderated regression results for corporate entrepreneurship ^a

	Model 1	Model 2	Model 3	Model 4
Control variables				
Industry dummies ^b				
- Consulting	-.084	-.103	-.089	-.120
- Contracting	-.111	-.120	-.102	-.125
- Supplies and consumables	.040	.057	.075	.063
- Support and service	.188*	.165	.137	.160
Organizational size dummies ^c				
- Micro	-.178**	-.192*	-.189*	-.197**
- Small	.070	.055	.035	.020
- Large	.350**	.360**	.343**	.373**
Environmental dynamism	.114**	.034	.020	.003
Past performance	.248***	.192***	.191***	.167***
Institutional market orientation ^d	-.040	-.091	-.096	-.063
External search breadth	.011	.016	.012	.06**
Main effect				
Absorptive Capacity		.344***	.152*	.115
Interaction effects				
Absorptive capacity * Institutional market orientation			.348**	.371**
Absorptive capacity * external search breadth			.059*	.120**
Institutional market orientation * external search breadth				-.076**
Absorptive capacity * external search breadth * Institutional market orientation				-.093*
F- Change	6.711***	36.693***	5.059**	2.674*
Adjusted R ²	.160***	.245***	.264**	.282*

^a N=331. Unstandardized regression coefficients are displayed in the table.

*** = p<.01, ** = p < .05, * = p < .10.

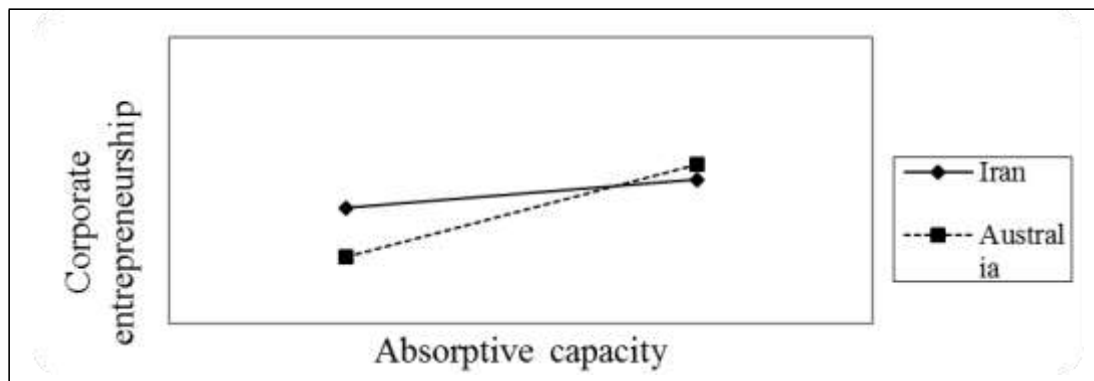
^b Manufacturing served as reference group in regression analyses.

^c Medium size served as reference group in regression analyses.

^d Iran context served as reference group in regression analyses.

Appendix B

Figure **Error! No text of specified style in document..1** Interaction of absorptive capacity and institutional market orientation



Error! No text of specified style in document..2 Interaction of absorptive capacity and external search breadth

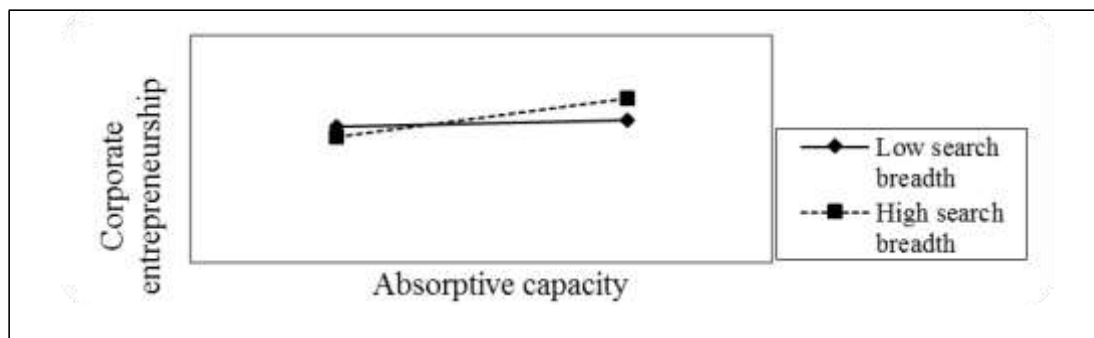
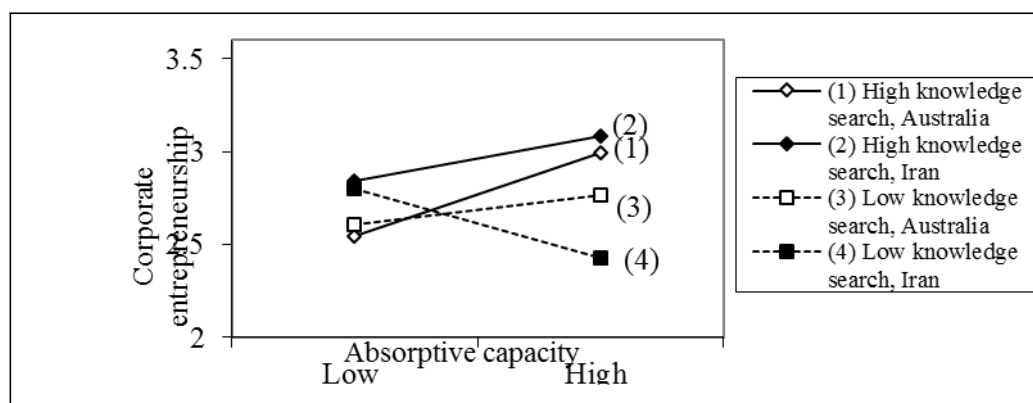


Figure Error! No text of specified style in document..3 Interaction of absorptive capacity, external knowledge search breadth and institutional market orientation



Er

ror! No text of specified style in document..3 Slope difference tests

Pair of slopes	<i>t</i> -value for slope difference	<i>p</i> -value for slope difference
(1) and (2)	1.09	0.27
(1) and (3)	2.41	0.01
(1) and (4)	3.25	0.00
(2) and (3)	0.46	0.64
(2) and (4)	2.38	0.01
(3) and (4)	2.92	0.00

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**THE MODERATING ROLE OF ENTREPRENEURIAL MANAGEMENT IN THE
RELATIONSHIP BETWEEN ABSORPTIVE CAPACITY AND CORPORATE
ENTREPRENEURSHIP: AN ATTENTION-BASED VIEW**

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The moderating role of Entrepreneurial Management in the relationship between Absorptive Capacity and Corporate Entrepreneurship: An Attention-Based View

Abstract

Building on the attention-based view, we argue that companies need a challenging mechanism to focus their absorptive capacity attention on corporate entrepreneurship versus mainstream activities or other purposes. We suggest entrepreneurial management as the attentional driver for deploying absorptive capacity towards corporate entrepreneurship. From our analysis of a sample of 331 supplier companies providing products and services to the mining industry of Australia and Iran, we observe that absorptive capacity positively affects corporate entrepreneurship. The data also demonstrate that the effect of absorptive on corporate entrepreneurship increases when firms adopt the entrepreneurial culture and reward systems. However, the entrepreneurial growth and resource orientations negatively moderate the relationship between absorptive capacity and corporate entrepreneurship.

1.1 INTRODUCTION

Why are some firms more able to create higher levels of corporate entrepreneurship than others? This question has gained a lot of attention in the literature as corporate entrepreneurship is increasingly considered as a path to high levels of corporate performance (Yiu & Lau, 2008; Zahra, 1995), growth (Zahra, 1993; Zahra & Covin, 1995) and competitive advantage (Ireland, Covin, & Kuratko, 2009). Recently researchers have pointed to the importance of a firm's capability to recognise the value of external new knowledge, assimilate and exploit it in stimulating corporate entrepreneurship (Qian & Acs, 2013; Teng, 2007; Zahra, Filatotchev, & Wright, 2009). This capability was first introduced by Cohen and Levinthal (1990) as *absorptive capacity*. Corporate entrepreneurship is mainly based on recognising and exploiting new and emerging opportunities (Ren & Guo, 2011; Simsek & Heavey, 2011; Teng, 2007). Absorptive capacity enhances companies' ability in identifying and pursuing entrepreneurial opportunities, and; hence, undertaking corporate entrepreneurship through making sense of external new knowledge and utilising it (Qian & Acs, 2013; Teng, 2007; Zahra, et al., 2009).

Absorptive capacity; however, may be applied in a variety of activities and areas (Lane, Koka, & Pathak, 2006; Zahra & George, 2002). Scholars argue that exploratory processes underlying corporate entrepreneurship are mostly at odds with mainstream activities. As such, corporate entrepreneurship is competing with ongoing business operations for catching corporate attention (Burgelman & Valikangas, 2005; Burgelman, 1983; Burgers, Jansen, Van den Bosch, & Volberda, 2009; Van de Ven, 1986). Thus, a channelling mechanism to focus absorptive capacity attention on corporate entrepreneurship may be necessary and possible. Building on the attention-based view (Ocasio, 1997, 2011), we suggest *entrepreneurial management* as a channelling mechanism assisting firms with better exploitation of their absorptive capacity for corporate entrepreneurship. Entrepreneurial management has recently emerged as a useful conceptualization of a firm's managerial approach with regards to stimulating entrepreneurial activities (Bradley, Wiklund, & Shepherd, 2011; Brown, Davidsson, & Wiklund, 2001; Stevenson, 1983; Stevenson & Jarillo, 1990). Stevenson attempts to develop a framework driving organisational attention to opportunity recognition and exploitation. While this conceptualisation has been widely addressed in the literature, the mechanism through which it may affect corporate entrepreneurship has been less understood

in the literature. We argue that it may channel the firm's absorptive capacity attention towards corporate entrepreneurship.

Our research makes at least two important contributions to the existing literature. It first advances the literature of corporate entrepreneurship by investigating how entrepreneurial management shapes the effect of absorptive capacity on corporate entrepreneurship (Teng, 2007; Zahra, et al., 2009). Attention management and the necessity of allocating organisational efforts to entrepreneurial versus mainstream activities is a long-standing argument in the literature (Burgelman & Valikangas, 2005; Burgelman, 1983; Van de Ven & Engleman, 2004; Van de Ven, 1986). However, how companies' capabilities in tandem with attentional divers promote corporate entrepreneurship is less argued in the literature. Second, this study provides a better understanding of the possible mechanism through which the underlying dimensions of entrepreneurial management promote corporate entrepreneurship which is understated in the literature. Finally, we enrich the absorptive capacity literature by examining organisational mechanisms leveraging this capability towards more innovative and valuable organisational output (Lane, et al., 2006). In a critical review of this literature, Lane, et al., (2006) argue that prior studies have mainly focused on the effect of absorptive capacity on incremental innovation, and little attention has been paid to how this capability might be deployed for more valuable entrepreneurial initiatives such as break through innovation, entering new markets or developing new systems. We contend that given absorptive capacity may be used in a wide variety of activities; companies may need a challenging mechanism to focus their absorptive capacity attention on corporate entrepreneurship. This also may contribute to literatures on capabilities suggesting that our understanding of corporate capabilities such as absorptive capacity can be enhanced by investigating the role of strategic managerial approaches in creating, developing, and deploying corporate capabilities (Ambrosini & Bowman, 2009; Lane, et al., 2006; Volberda, Foss, & Lyles, 2010; Wang & Ahmed, 2007).

1.2 THEORETICAL BACKGROUND AND HYPOTHESES

The term corporate entrepreneurship refers to entrepreneurial activities within established firms. These entrepreneurial activities entail innovation, venturing, and strategic renewal (Zahra, 1996). Innovation concerns the development of new products and services. Venturing refers to the birth of new businesses within existing companies through expanding operations in current or new markets. Firms tend to create new ventures when opportunities in new markets are not attainable with current resources and structures or they put out of the purview of their current base businesses such as entering new technological spaces or areas (Teng, 2007; Verbeke, Chrisman, & Yuan, 2007). Strategic renewal means the redefinition of the scope of a business or significant changes in its competitive strategy, leading to new positions in the market (Sharma & Chrisman, 1999; Zahra, 1996). These activities are complementary and mutually supportive. For example, renewing the competitive approach may enhance the benefits of venturing activities, and new product development may make strategic renewal activities more beneficial (Heavey, Simsek, Roche, & Kelly, 2009; Simsek, 2007; Simsek & Heavey, 2011; Simsek, Veiga, & Lubatkin, 2007). As such, "treating individual components of corporate entrepreneurship as independent ignores their potential complementarity" (Simsek & Heavey, 2011, p. 83). It is also worth noting that corporate entrepreneurship is the actual entrepreneurial acts or the market-oriented results and differ from constructs like entrepreneurial orientation which are "predispositions of firms with respect to their strategy-making processes, practices, and activities" stimulating corporate entrepreneurship (Dess & Lumpkin, 2005; Simsek & Heavey, 2011, p. 83).

Scholars argue that corporate entrepreneurship are based on exploratory activities for creating new knowledge or extending capabilities to exploit new and emerging opportunities manifesting in the forms of innovation in products, processes, systems and markets (Teng, 2007). Since capability building is a time-consuming and path-dependent process, corporate entrepreneurship mainly resides from the extension of existing core capabilities (Hill & Birkinshaw, 2012; Keil, Maula, Schildt, & Zahra, 2008; Schildt, Maula, & Keil, 2005). As such, absorptive capacity and existing knowledge bases play an important in identifying and evaluating new opportunities and undertaking corporate entrepreneurship (Qian & Acs, 2013; Teng, 2007; Zahra, et al., 2009). However, a basic challenge facing any company is whether to engage its capabilities such as absorptive capacity in exploratory activities for future viability or in exploitative and mainstream activities to assure their existing viability (March, 1991; Van de Ven & Engleman, 2004). A perfect balance is mostly hard to achieve due to resource limitations (March, 1991) or people's limited attentional and information-processing capacities confining their ability in attending to a wide range of stimuli at the same time (Ocasio, 1997, 2011). As such, corporate entrepreneurship tends to compete with other and mainstream activities for attracting organisational attention and efforts (Burgelman & Valikangas, 2005; Burgelman, 1983; Van de Ven, 1986). In a seminal paper, Van de Ven (1986, p. 591) argues that "organisations are largely designed to focus on, harvest, and protect existing practices rather than pay attention to developing new ideas." Hence, the management of attention, which is concerned with the allocation organisational efforts and capabilities to entrepreneurial versus on-going corporate operation, is the most essential step towards enhancing corporate entrepreneurship.

Absorptive capacity like other capabilities and resources can be used in a variety of areas. Thus, to effectively benefit from this capability for corporate entrepreneurship, companies need to use an organisational mechanism to deploy it towards corporate entrepreneurship. Theorising an attention-based perspective of a firm, Ocasio (1997, 2011) considers organizational attention as the most valuable resource in companies and the main reason why firms act differently in adapting to their business environment and developing new products and services. This theory builds on three related premises: 1) companies' actions depend on what issues or answers they focus on. 2) Their focus of attention depends on the situation employees or decision makers find themselves. 3) The specific situation is shaped through organisational communication and procedural channels such as key players' strategic orientations, corporate culture, structure, and reward systems. These organisational factors affect the availability, salience, legitimacy, value and relevance of issues and answers for decision makers within companies, leading to different actions. As such, this theory proposes that innovative activities are not only a function of organisational resources, but more importantly conditional on how well organisational attentional drivers channel employees attention to the suitable set of issues and answers (Ocasio, 1997). We build on this theory and argue that absorptive capacity can be used for different purposes such as entrepreneurial versus mainstream activities. However, to generate higher levels of corporate entrepreneurship, firms need to conduit their absorptive capacity to corporate entrepreneurship through suitable strategic and procedural channelling factors.

1.2.1 Absorptive capacity and corporate entrepreneurship

Absorptive capacity is defined by Cohen and Levinthal (1990) as a firm's capability to recognize, assimilate and exploit external new knowledge. In their seminal article, Cohen and Levinthal (1990) argue that one strong reason why some companies are able to value, understand and apply new knowledge with less costs and efforts than others is that they have already invested in cultivating their absorptive capacity. This capability mitigates the barriers

of knowledge transfer between companies such as tacitness or embeddedness (Cummings & Teng, 2003). Firms with high levels of absorptive capacity can understand external knowledge, combine it with their existing knowledge and reach new insights about markets, technologies, customers and competition (Zahra, et al., 2009; Zahra & George, 2002). Lane et al., (2006, p. 836) discuss that “unlike learning-by-doing which allows firms to get better at what they already do, absorptive capacity allows firms to learn to do something different.” These new insights assist firms with recognising opportunities and new options for corporate entrepreneurship (Zahra, et al., 2009). Particularly it enables firms to fill out the knowledge gaps they tend to experience while pursuing corporate entrepreneurship (Teng, 2007). Thus, we expect that absorptive capacity through making sense of external new knowledge and utilising it to improve a firm’s ability in recognising and exploiting emerging opportunities and undertaking corporate entrepreneurship. Thus, it is predicted that:

Hypothesis 1: Absorptive capacity is positively associated with corporate entrepreneurship.

1.2.2 Absorptive capacity, entrepreneurial management and corporate entrepreneurship

Stevenson and his colleagues (1983; 1985; 1990) conceptually contrast two opposite kinds of managerial approach. The first approach is entrepreneurial management which is opportunity-driven and directed by emerging opportunities in environment. The second is administrative approach or administrators, guided by the most efficient use of controlled resources (Stevenson, 1983; Stevenson & Gumpert, 1985; Stevenson & Jarillo, 1990). Stevenson and his colleagues try to develop a framework for understanding managerial approaches emphasizing opportunity recognition and exploitation (Brown, et al., 2001). They posit that “entrepreneurship is a process by which individuals-either on their own or inside organisations-pursue opportunities without regard to the resources they currently control” (Stevenson & Jarillo, 1990, p. 23). Brown, et al., (2001) empirically identify six sub-dimensions determining the extent to which a company displays an entrepreneurial versus administrative approach. These dimensions are growth orientation, strategic orientation, resource orientation, reward philosophy, management structure, and entrepreneurial culture. From an attention-based view (Ocasio, 1997, 2011), I now argue how these dimensions may shape the effects of absorptive capacity on corporate entrepreneurship.

Strategic orientation refers to the factors driving the creation of strategy in companies. At one end of the continuum, companies with more entrepreneurial approach are opportunity driven and their perception of the opportunities in the environment drives their strategy. As such, almost any opportunity can be relevant to the company, and they actively and rapidly pursue the recognized opportunities. The other extreme, administrative firms are resource-driven and consider resources as their starting point and try to efficiently utilise their resources. Thus, only opportunities related to the current resources are relevant to them, and their commitment to the opportunities is slow, but longer compared to opportunity-driven firms. Administrative companies focus more on their current situation and while defining their strategy they essentially “try not leap far beyond current situation” (Stevenson, 1983, p.

4). I expect that companies with an opportunity-driven strategic orientation to better leverage their absorptive capacity toward corporate entrepreneurship than those with the resource-driven strategic orientation. As opportunity-driven firms base their strategies on new and emerging opportunities, their absorptive capacity acts in way commensurate with their strategic orientation (Ocasio, 1997, 2011) and is more likely devoted to exploratory activities and processes stimulating corporate entrepreneurship. That is, absorptive capacity in such companies should be directed towards the development of knowledge or capabilities

underlying their corporate entrepreneurship. On the other hand, resource-driven firms consider their resources as their starting point, and they should engage their absorptive capacity in the better utilisation of their current resources. These firms may screen out many entrepreneurial opportunities or ideas falling beyond their situation or not related to their current resources (Ren & Guo, 2011). Thus, it is expected that:

Hypothesis 2: The positive association between absorptive capacity and corporate entrepreneurship is stronger for companies with an opportunity-driven strategic orientation than a resource-driven strategic orientation.

Resource orientation is described through the dimensions of commitment of resources and control of resources. Companies with a more entrepreneurial approach attempt to reduce their resource commitment through investing in a multi-stage manner and using others' resources. On the other hand, administrative companies try to invest at a single stage after conducting a thorough analysis. Plus, while firms with entrepreneurial resource orientations prefer to utilize others' resources such as financial capital, intellectual capital, skills, and competencies through subtracting, outsourcing or renting, conservative companies would rather control resources by the ownership or employment of the resources required. Such a resource orientation makes firms flexible in changing their directions and following multiple opportunities with others' help (Bradley, et al., 2011; Brown, et al., 2001). We expect that the interaction of absorptive capacity and entrepreneurial resource orientation to result in more corporate entrepreneurship. As this companies invest in a multi-stage manner and they try to use others' resources, they have more flexibility for attending to new and emerging opportunities and ideas for corporate entrepreneurship (Lane, et al., 2006; Ren & Guo, 2011). As such, it these companies absorptive capacity is more likely to engage in identifying opportunities and pursuing them by filling their knowledge gaps through leveraging others' resources. On the other hand, administrators have difficulty reversing due to their large resource commitment (Chesbrough, 2007). As such, they might be forced to ignore many entrepreneurial opportunities and concentrate their absorptive capacity on doing mainstream activities or exploiting existing opportunities. Thus it is expected that:

Hypothesis 3: The positive association between absorptive capacity and corporate entrepreneurship is stronger for companies with an entrepreneurial resource orientation than an administrative resource orientation.

Management Structure reflects the desired degree of structural organicity. Companies with more entrepreneurial approach have organic and flat structure which is composed of multiple informal networks and enable employees to freely seek opportunities. On the other hand, administrative companies possess mechanistic structure with a formalized hierarchy and clearly defined authority lines, routines, responsibilities, and systems for measuring efficiency (Brown, et al., 2001). One of the main attentional drivers addressed by Ocasio (1997) is organisational structure. He argues that companies through structural actions such as creating communication channels, job descriptions, and information and control systems conducive to attending to their desired actions can manage their organisational attention. Stevenson contends that firms with an entrepreneurial approach through developing organic structures create an environment where people can freely locate and pursue opportunities. Indeed, creating loose and informal control systems, disregarding formal procedures, being allowed to use a wide range of management styles, acting based on situations and their personality, and not job description (Brown, et al., 2001), increase decision makers' discretion or latitude of action. Scholars argue that as the amount of managerial discretion increases, the amount of entrepreneurial attention for attending to opportunities and answers

for entrepreneurial activities enhance (Cho & Hambrick, 2006). In an organic structure people have flexibility for attending to broader knowledge (Van Den Bosch, Volberda, & De Boer, 1999). It also facilitates identifying relevant external knowledge in a timely and efficient manner (Foss, Lyngsie, & Zahra, 2013), and has high potential for rapid distribution of knowledge across the company (Anderson, Covin, & Slevin, 2009; Burns & Stalker, 1961). As such, the entrepreneurial structure facilitates channelling absorptive capacity towards undertaking corporate entrepreneurship. Ireland and Webb (2009) argue that exploratory activities require more organic organisational structures. On the other hand, administrators may channel employees' attention and their absorptive capacity to doing mainstream activities through tight control systems, uniformed management style, formal job descriptions and formal routines and processes (Brown, et al., 2001). Thus it is expected that:

Hypothesis 4: The positive association between absorptive capacity and corporate entrepreneurship is stronger for companies with an entrepreneurial organisational structure than an administrative organisational structure.

Reward Philosophy refers to how companies compensate their employees' efforts. As the main focus of firms with the entrepreneurial approach is value creation through seeking and exploiting opportunities, compensations and promotions in these companies are based on the success of individuals or teams in adding value to the firm. As such, compensation is value-driven and performance-based in these companies. On the other hand, conservative companies compensate their employees based on their position in the hierarchy, their responsibilities, the amount of controlled resources, and seniority, and in case of success they are even promoted to higher positions with more resources under control (Brown, et al., 2001; Stevenson, 1983). It appears that companies with an entrepreneurial reward system can more effectively benefit from their absorptive capacity for corporate entrepreneurship. As corporate entrepreneurial activities are value-creating outputs (Simsek & Heavey, 2011; Yiu, Lau, & Bruton, 2007; Yiu & Lau, 2008) and the entrepreneurial reward philosophy is based on value-sharing with involved employees, this reward system is more likely to channel corporate attention and absorptive capacity towards corporate entrepreneurship. Bradley et al., (2011) argue that the compensation of employees based on value added motivates greater percentage of employees to pursue entrepreneurial opportunities. Simsek et al., (2007) likewise suggest that out-come based incentives can serve like a lubricator and deploy organisational resources towards corporate entrepreneurship. Thus it is expected that:

Hypothesis 5: The positive association between absorptive capacity and corporate entrepreneurship is stronger for companies with an entrepreneurial reward philosophy than an administrative reward philosophy.

Growth orientation refers to a firm's intended pace or speed of growth. While companies with entrepreneurial approach prefer rapid growth by looking beyond controlled resources and acting based on available opportunities for growth, administrative companies desire slower growth at a steady pace so that it does not unsettle the company or put the accumulated resources at risk (Brown, et al., 2001). Building on the attention-based view, we believe that companies with higher levels of growth orientation can better benefit from their absorptive for corporate entrepreneurship. As discussed before, companies with higher levels of absorptive capacity possess the potential to identify opportunities, accurately evaluate their commercial values, and exploit them commercially (Cohen & Levinthal, 1990; Zahra & George, 2002). Pursuing and extracting value from opportunities in the forms of corporate entrepreneurship; however, depends on the extent to which absorptive capacity is deployed for corporate entrepreneurship versus mainstream activities. As a valid path to growth for

firms is through corporate entrepreneurship (Zahra, 1993; Zahra & Covin, 1995), companies with higher level of growth orientation are more likely to channel their absorptive capacity towards corporate entrepreneurship than mainstream operations. Conversely, firms with administrative growth orientation may channel their absorptive capacity for doing their ongoing operations or exploiting current opportunities which are a more predictable and certain method of growth (March, 1991; Ren & Guo, 2011). As uncertainty and momentariness are integral parts of emerging opportunities (Teng, 2007), these firms may ignore and miss many opportunities and options for corporate entrepreneurship. Thus it is expected that:

Hypothesis 6: The positive association between absorptive capacity and corporate entrepreneurship is stronger for companies with higher levels of growth orientation than lower levels of growth orientation.

Culture can be defined as “pattern of shared values and beliefs that help individuals understand organizational functioning and that provide norms for behaviour in the organization” (Deshpande & Webster 1989, p. 4). Companies with entrepreneurial culture repeatedly encourage and promote new ideas, creativity, experimentation, and broad search for opportunities because opportunities are considered as the starting point in these companies. As such, a work environment full of new ideas is created in these companies. Conversely, as administrative companies focus on the optimal use of controlled resources, search for opportunities is restricted by resources and only ideas related to increasing efficiency would be encouraged. As such, a work environment with just enough or a lack of ideas is generated by administrative companies (Brown et al., 2001). It is logical to expect that firms with the entrepreneurial culture to better deploy their absorptive capacity towards corporate entrepreneurship. Ocasio (1997) argue that corporate culture through valuing selected issues and answers structures organisational attention. An entrepreneurial culture values seeking opportunities, experimentation, developing new ideas, and potential failures. This should distribute organisational attention and absorptive capacity to activities for fostering corporate entrepreneurship. On the other hand, an administrative culture may channel absorptive capacity to mainstream activities or a limited set of proved opportunities for increasing efficiencies in firms. Thus, it is predicted that:

Hypothesis 7: The positive association between absorptive capacity and corporate entrepreneurship is stronger for companies with an entrepreneurial culture than an administrative culture.

1.3 METHODOLOGY

1.3.1 Sample and data collection

We collected quantitative data through the questionnaire survey to test the strength of relationships between the variables in our model (Edmondson & McManus, 2007). We focused on a single industry to confine the extraneous variation of heterogeneous industry factors (Davidsson, 2008; Wales, Parida, & Patel, 2012). For developing the survey instrument, it was pre-tested and modified based on feedback from a panel of 15 scholars familiar with the literature, 6 practitioners from companies, consultants and associations in the industry. The instrument then was translated to Farsi, the native language of Iran, using the most frequently employed technique of back-translation (Brislin, 1970). A bilingual person translated the English version into Farsi and a second and independent translator translated back it to English, and remaining wording issues were resolved through discussion. The translated instrument was also pre-tested and reviewed by a panel of 5 academics and 8

practitioners from companies, consultants and associations in the mining industry of Iran before launch.

The first survey was conducted in Iran from mid-September to mid-November 2012. Around 800 companies were identified in Iran, using publicly available databases. Since some of the firms in our sample were not contactable, some did not exist or were irrelevant, the sample finally reduced to around 600 companies. To minimise the potential common method bias in cross-sectional studies, the questionnaire was divided into two parts, one comprised independent variables and one dependent variables, and two informants in each company were asked to fill out the questionnaires, one for independent variables and one for dependent variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). We eventually received completed and usable double-respondent questionnaires from 126 firms, consulting services (1.6%), contracting (18%), equipment manufacturer (63.9%), supplies and consumables (13.1%), support and services (3.3), for an effective response rate of 21%.

The second survey was conducted in December and January 2012 in Australia. A sample of around 2100 companies providing products and services to the Australian mining sector were recognised, using the same approach as used in Iran. As some of the companies turned out as irrelevant, non-existent and unreachable firms, the sample finally reduced to around 1700 companies. Following Dillman's (2000), a mixed method (triangulation) approach was used to induce participation and the companies were provided both hard copies and unique passwords for accessing to an online version of the survey. Participants were also promised to receive a management report of the project results upon completing the survey. Eventually, 205 questionnaires were returned, consulting services (19.3%), contracting (12.3%), equipment and manufacturer (24.1%), supplies and consumables (30.8%) and support and services (13.3%), for a response rate of 12%, consistent with the 10-12% typical response rate in studies targeting top executives (Hambrick, Geletkanycz, & Fredrickson, 1993).

To test the non-response bias, chi-square and t-tests on the mean differences between early and late respondents in terms of size and key variables in the model were conducted. The logic is that late respondents are assumed to be more like those not participating in a survey (Armstrong & Overton, 1977). Following Simsek, et al., (2007), we considered those returning the questionnaire after the second reminder as late respondents and before that as early respondents. No statistically significant differences were detected between early and late respondents in terms of size and key variables in the model supporting that the non-response bias was not a major issue in our study.

1.3.2 Measures

Corporate entrepreneurship: The extent to which companies pursue corporate entrepreneurial activities was measure based on Zahra's (1996) scale capturing the dimensions of *innovation*, developing new products and services, *international and local venturing*, the birth of new business within existing companies and entering new markets, *renewal*, redefining the business scope or strategy (Heavey, et al., 2009; Simsek, 2007; Simsek & Heavey, 2011; Simsek, et al., 2007). Respondents were asked to answer 15 items, rated on a five-point scale, ranging from 1 ("strongly disagree"), to 5 ("strongly agree"). Following Simsek (2007), we used corporate entrepreneurship as a meta construct, as it better captures the synergies between factors. The results of the confirmative factor analysis for measuring the measurement validity suggested reasonably good model fit ($\chi^2 (86) = 248.916$, $n = 331$, $p < 0.001$, $\chi^2/df = 2.89$; SRMR = .069; RMSEA = .076; CFI = .908; GFI = .911). All factor loadings were highly significant ($p < 0.001$) and the coefficient alpha for the overall scale was .83. Furthermore, a target coefficient statistic of .96 showed this higher order model

effectively accounted for the relationships between the lower order individual dimensions (Marsh & Hocevar, 1985).

Absorptive capacity: Absorptive capacity was measured in this study using Lichtenthaler's (2009) scale, capturing six dimensions through three learning processes, *exploratory learning*, comprising acquisition and assimilation dimensions, *transformative learning*, encompassing maintenance and reactivation dimensions, and *exploitative learning*, capturing transmutation and exploitation dimensions, as a three-dimensional meta-construct represented by 21 items rated on a five-point scale, ranging from 1 ("strongly disagree"), to 5 ("strongly agree"). One of the items, related to the assimilation dimension, was eliminated while running factor analysis because of a low level of loading value. The results of the confirmatory factor analysis for this model suggested reasonably good model fit (χ^2 (162) = 388.800, $n = 331$, $p < 0.001$, $\chi^2/df = 2.40$; SRMR = .053; RMSEA = .065; CFI = .917; TLI = .902). The coefficient alpha for the overall absorptive capacity scale is .90.

Entrepreneurial management: Stevenson's conceptualisation of entrepreneurial management was operationalised by Brown et al., (2001) based on a sample size of 1278 companies operating in different industries with different sizes and corporate governances. They empirically identified six dimensions measuring the extent to which a company displays entrepreneurial versus administrative approach. These sub-dimensions are strategic orientation, growth orientation, resource orientation, reward philosophy, management structure, and entrepreneurial culture. In the original scale the Cronbach's Alpha values of reward philosophy ($\alpha = .58$) and resource orientation ($\alpha = .58$) were a little below the acceptable level of .60 (Kline, 1999). As such, we adapted four items from Balkin and Gomez-Mejia (1990) to address the possible issues with the reward philosophy dimension. These items measure how much a company's reward system is based on performance or value-creation, consistent with Stevenson's conceptualisation of reward philosophy. I used the original scale validated by Brown et al., (2001) for measuring the other dimensions as used in the literature (Bradley, et al., 2011; Bruining, Verwaal, & Wright, 2013). These dimensions were measured on a seven-point semantic deferential scale, contrasting entrepreneurial with the administrative approaches. Respondents were asked to determine for each pair of the opposite statements which position in the continuum best described their managerial practices. The results of the confirmative factor analysis for measuring the measurement validity suggested reasonably good model fit (χ^2 (120) = 303.570, $n = 331$, $p < 0.001$, $\chi^2/df = 2.53$; SRMR = .062; RMSEA = .068; CFI = .90; GFI = .907). All factor loadings were highly significant ($p < 0.001$) except for one item related to reward philosophy and two related resource orientation which were dropped from the analysis. Growth orientation was measured with a two item scale ($\alpha = .64$), strategic orientation with a three item scale ($\alpha = .75$), management structure a five item scale ($\alpha = .82$), organisational culture a three item scale ($\alpha = .70$), resource orientation a two item scale ($\alpha = .66$), and reward philosophy a three item scale ($\alpha = .68$).

Control variables: To control the possible confounding effects and extraneous variation, a number of variables were included in this study as control variables. As *firm size* is an important factor in explaining firm behaviour (Liao, Welsch, & Stoica, 2003) and larger companies may have more resources, but less flexibility, for corporate entrepreneurial activities (Burgers, et al., 2009), the number of full time employees, accounting for firm size, was controlled in this study. Following to the Australian Bureau of Statistics (ABS), firm size was measured through a categorical scale such that "1 to 4" was considered as micro, "5 to 19" as small, "20 to 199" as medium and "over 200" as large businesses. The literature also acknowledges that *environmental dynamism* influences corporate entrepreneurial activities

(Heavey, et al., 2009). As such, environmental dynamism, capturing the rate of changes in the competitive environment, was controlled through a four-item scale, used in the literature (Jansen, Van Den Bosch, & Volberda, 2005). The coefficient alpha for this scale was .83. Finally, additional *institutional* and *industry* effects were controlled, using one dummy institutional context in which Iran served as the reference group and five industry dummies: consulting services, contracting, support and services, supplies and consumables, and equipment and manufacturer.

1.3.3 Analysis and results

Hierarchical regression analysis was used to test the hypotheses. Predictors, except for institutional market orientation, were both mean-centred (Cohen, Cohen, West, & Aiken, 2003). Table 1.1 presents the means, standard deviations and correlations of the variables in this study. Since the correlations between each pair of the variables are all below the suggested cut off of .70 (Tabachnick & Fidell 1996) and the calculated variance inflation factors (VIF) for each regression equation is well below the recommended level of 10, multicollinearity should not bias our results. Table 1.2 (appendix A) also shows moderated regression results for corporate entrepreneurship. Model 1 tested the relationship between the control variables and corporate entrepreneurship. This model contained 3 of the 4 firm size dummies, as medium was used as the reference group and 4 of the 5 industry dummies because manufacturing was considered as the reference group. The sub-dimensions of entrepreneurial management also entered as control variables in this model so that the unique variance explained by absorptive capacity can be examined in model 2, adding the direct effect of absorptive capacity to the first model. Model 3 to model 9 included the two-way interactions of absorptive capacity and different sub-dimensions of entrepreneurial management. Model 1, containing control variables, shows that micro and large business have a positive effect on corporate entrepreneurship, indicating that larger companies have more corporate entrepreneurial activities. Growth orientation, reward philosophy and organisational culture also have positive direct significant effect on corporate entrepreneurship (see table 1.2, appendix A). Model 2 also in table 1.2 indicates that absorptive capacity positively influences corporate entrepreneurship ($\beta = .28, p < .01$), providing support for hypothesis 1. Conversely, model 3 shows that the variance explained by the two way interaction of absorptive capacity and strategic orientation is not significant ($\beta = .053, p > .10$), not supporting hypothesis 2.

Our data also indicate that resource orientation negatively moderates the relationship between absorptive capacity and corporate entrepreneurship ($\beta = -.126, p < .01$), which is contrary to our hypothesized prediction. To further interpret the interaction effect, Aiken and West's (1991) plotting technique was used in which the effects of independent variable on the dependent variable in the low (one standard deviation below mean) and high (one standard deviation above mean) levels of moderator are depicted. As shown in figure 1.1 (appendix B), the increasing level of absorptive capacity generates more corporate entrepreneurship for the administrative than entrepreneurial resource orientation. This may suggest that higher levels of absorptive capacity overcome the lack of attention towards corporate entrepreneurship. With respect to hypothesis 4, which predicted that entrepreneurial management structure would have a positive moderating effect on the relationship between absorptive capacity and corporate entrepreneurship, our results did not support the hypothesis ($\beta = -.019, p > .10$). The data; however, support hypothesis 5, which suggested that entrepreneurial reward philosophy would positively moderate the effect of absorptive capacity on corporate entrepreneurship ($\beta = .079, p < .05$). As shown in figure 1.2 (appendix

B), corporate entrepreneurship increases in a faster rate for entrepreneurial versus administrative reward philosophy.

With regards to hypothesis 6, contrary to our hypothesised prediction that growth orientation would positively moderate the relationship between absorptive capacity and corporate entrepreneurship, I found that growth orientation actually negatively moderated the relationship between absorptive capacity and corporate entrepreneurship ($\beta = -.063$, $p < .05$). As it can be seen in figure 1.3 (appendix B), for companies with the entrepreneurial growth orientation, increasing the level of absorptive capacity has almost little impact on corporate entrepreneurship. By contrast, for firms with the administrative growth orientation, increasing the level of absorptive capacity has a significant positive effect on corporate entrepreneurship. This suggests that higher levels of absorptive capacity may overcome the lack of attention towards corporate entrepreneurship. Finally, hypothesis 7 which advanced entrepreneurial organisational culture positively moderate the effect of absorptive capacity on corporate entrepreneurship was supported ($\beta = .122$, $p < .01$). The interaction plot in figure 1.4 (appendix B) indicates that for entrepreneurial culture, the increase of absorptive capacity has a positive stronger effect on corporate entrepreneurship. Conversely, these effects are attenuated for administrative culture.

1.4 DISCUSSION

The main purpose of this study was to investigate how organisational mechanisms assisting firms with the deployment of their absorptive capacity towards corporate entrepreneurship. The findings indicate that entrepreneurial reward philosophy positively moderates the relationship between absorptive capacity and corporate entrepreneurship. This supports our main argument that the entrepreneurial reward system emphasising on sharing created value with employees is more likely to channel absorptive capacity towards the value-creating corporate entrepreneurial activities (Simsek & Heavey, 2011; Yiu, et al., 2007; Yiu & Lau, 2008). These results are consistent with Oliver's (1997, p. 706) proposition that "firms will be more likely to make optimal use of accumulated resources when the effective use of resources is tied formally to the firm's incentive system." The findings also suggest that the entrepreneurial culture, valuing creativity, experimentation, risk-taking and new ideas, strengthens the impact of absorptive capacity on corporate entrepreneurship. From the attention-based view, it implies that the entrepreneurial culture better leverages absorptive capacity towards corporate entrepreneurship than the administrative culture. Ocasio (1997) argues that corporate culture by valuing selected issues and answers structures organisational attention. These results enrich the corporate entrepreneurship literature by empirically connecting absorptive capacity to corporate entrepreneurship, and more importantly showing the mechanisms firms can more effectively benefit from their absorptive capacity for entrepreneurial activities (Teng, 2007; Zahra, et al., 2009). The results suggest that absorptive capacity may not suffice to raise the level of corporate entrepreneurship. Companies also need mechanisms to conduit their absorptive capacity attention towards corporate entrepreneurship (Burgelman & Valikangas, 2005; Burgelman, 1983; Van de Ven, 1986). This research suggests that entrepreneurial reward philosophy and culture can be such attentional divers.

Contrary to our hypothesized prediction, the data; however, indicate that resource orientation negatively moderates the relationship between absorptive capacity and corporate entrepreneurship. Stevenson's theory has been criticised for undervaluing the role of resources while pursuing entrepreneurial activities (Baker & Nelson, 2005). Stevenson and

Jarillo (1990, p. 23) contend that entrepreneurship is pursuing opportunities “without regard to resources currently controlled”. They argue that the use of external resources give companies flexibility for pursuing new and emerging opportunities. In contrast, the resource based view suggests that the imperfectness of strategic factors’ market and lack of strategic factors mobility may restrict firms’ ability to utilise external resources for proceeding to their entrepreneurial purposes (Spanos & Lioukas, 2001). Accordingly, this view suggests that opportunities should match current resources (Baker & Nelson, 2005; Hill & Birkinshaw, 2012; Keil, et al., 2008). The data show that for firms with the administrative resource orientation absorptive capacity more adds to corporate entrepreneurship than those with the entrepreneurial resource orientation. This means that the entrepreneurial resource orientation has a suppressive impact (Black & Boal, 1994) on the relationship between absorptive capacity and corporate entrepreneurship. One speculative explanation for this finding is that as firms with entrepreneurial resource orientation try to pursue opportunities without regard to controlled resources, they may pursue opportunities which are less related to their existing knowledge bases. As such, their current absorptive capacity and knowledge bases may not be as important for pursuing corporate entrepreneurship as they are for firms with the administrative resource orientation. The findings also indicate that the entrepreneurial growth orientation negatively moderates the effect of absorptive capacity on corporate entrepreneurship. The same speculation might also be used for this finding such that companies intending to grow as big and fast as possible may be less reliant on their own current knowledge bases. Overall, the main implication of these findings is that the underlying dimensions of entrepreneurial management hold differential effects on the relationship between absorptive capacity and corporate entrepreneurship. We refrain from further speculation about the possible reasons such as the context. Thus, it remains a potentially interesting issue for further investigation in future studies.

Finally, this study contributes to the absorptive capacity literature from an attention-based view (Ocasio, 1997, 2011). Since absorptive capacity can be applied in a wide variety of areas and activities, it might be necessary and possible for firms to focus their absorptive capacity attention on more valuable innovative purposes for more effective exploitation of this capability (Lane, et al., 2006). This study is among the very first empirical studies adopting an attention-based view to absorptive capacity. Prior studies mainly discuss absorptive capacity from learning-based rationales. This literature; however, provides less explanation on how companies can utilise their absorptive capacity for more valuable innovation (Lane, et al., 2006). We argue that they may need to channel their absorptive capacity for more exploratory activities underlying corporate entrepreneurship through strategic and corporate attentional drivers. In particular, our findings indicate the way absorptive capacity may be applied for more valuable entrepreneurial initiatives using more concrete attentional procedures such as entrepreneurial reward systems (Ocasio, 1997). Researchers suggest that the literature of absorptive capacity lacks insight about how the inter-relationships between corporate factors like reward systems or culture and absorptive capacity shapes organisational outcomes (Lane, et al., 2006; Volberda, et al., 2010). Our findings suggest that entrepreneurial reward systems and culture have an enhancing effect on the relationship between absorptive capacity and entrepreneurial outputs possibly through leveraging it towards corporate entrepreneurship versus mainstream operations.

Appendix A

Table 1.1 Standard deviation, and correlations^a

	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
1. Corporate entrepreneurship	3.39	.56	(.83)																	
2. Absorptive capacity	3.63	.52	.37**	(.90)																
3. Growth orientation	3.86	1.78	.18**	-.04	(.64)															
4. Strategic orientation	4.27	1.53	.01	.18**	-.46**	(.75)														
5. Resource orientation	3.60	1.51	.11**	.05*	.31**	-.14**	(.66)													
6. Management structure	4.02	1.31	-.12**	.005	-.30**	.27**	-.15**	(.82)												
7. Reward philosophy	4.50	1.37	.10**	.24**	-.46**	.51**	-.22**	.36**	(.68)											
8. Organizational culture	4.95	1.18	.34**	.34**	.11**	-.04	.03	-.11**	.08**	(.70)										
9. Institutional context ^b	.61	.48	-.008	.15**	-.36**	.27**	-.42**	.30**	.40**	-.12**	-									
10. Dynamism	3.54	.64	.19**	.29**	-.02	.01	.03	.09**	.01	.16**	-.06**	(.83)								
11. Support and service	.09	.28	.11	.10**	-.009	.02	-.09**	-.03	.13**	.12**	.16**	.05*	-							
12. Supplies and consumables	.22	.42	.04*	-.02	.03	.008	-.10**	-.004	.03	-.07**	.19**	-.006	-.17**	-						
13. Contracting	.13	.34	-.03	.002	.04*	-.01	-.02	-.07**	-.009	.02	-.08**	-.003	-.12**	-.21**	-					
14. Consulting	.12	.32	-.09*	.013	-.10**	.06**	-.07**	.17**	.06**	-.12**	.25**	-.15**	-.11**	-.20**	-.14**	-				
15. Manufacturing	.37	.48	-.01	-.05*	.05*	-.04*	.22**	-.03	-.12**	.04*	-.39**	-.05*	-.24**	-.42**	-.31**	-.28**	-			
16. Micro	.09	.30	-.16**	.01	.08**	-.07**	-.08**	.09	.02	-.03	.26**	-.04*	.14**	.05**	-.04*	.03	-.11**	-		
17. Small	.35	.47	.01	-.02	.004	-.02	.16**	.001	-.05*	.02	-.18**	-.05**	.07**	-.04*	-.02	-.005	.006	-.24**	-	
18. Medium	.45	.49	.02	.02	.07**	.003	-.03	-.04	-.04	-.006	-.11**	.12**	-.09**	.008	-.03	-.07**	.13**	-.30**	-.67**	-
19. Large	.07	.26	.14**	.01	-.06**	.13**	-.12**	-.01	.14**	.02	.22**	-.05**	-.09**	.001	.14**	.13**	-.11**	-.09**	-.21**	-.26**

^a N=331. Numbers in parentheses on the diagonal are Cronbach alphas of the composite scales.

^b Iran context served as reference group

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

+ Correlation is significant at the 0.10 level (2-tailed)

Table 1.2 Moderated regression results for corporate entrepreneurship ^a

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Control variables								
Industry dummies ^b								
- Consulting	-.061	-.086	-.088	-.069	-.084	-.082	-.095	-.056
- Contracting	-.084	-.094	.096	-.091	-.096	-.092	-.113	-.085
- Supplies and consumables	.078	.084	.080	.104	.085	.084	.080	.090
- Support and service	.136	.134	.126	.100	.135	.114	.134	.108
Organizational size dummies ^c								
- Micro	-.264**	-.266***	-.264***	-.247**	-.265***	-.274***	-.251**	-.254***
- Small	.023	.022	.024	.009	.025	.026	.025	.013
- Large	.278**	.314***	.320***	.339***	.311***	.318***	.316**	.302***
Environmental dynamism	.123**	.067	.055	.047	.068	.052	.058	.057
Institutional context ^d	.105	.045	.065	.050	.038	.068	.065	.047
Strategic Orientation	.014	-.001	-.003	.003	-.001	-.004	.000	-.001
Resource Orientation	.036	.026	.027	.046**	.024	.033	.021	.027
Management Structure	-.028	-.021	-.024	-.030	-.020	-.025	-.027	-.021
Reward Philosophy	.058**	.043*	.038	.033	.045*	.040	.035	.050*
Growth Orientation	.072***	.065**	.065***	.051***	.064***	.068***	.066***	.070***
Organizational Culture	.127***	.09***	.093***	.101***	.090	.095***	.091***	.098***
Main effect								
Absorptive Capacity		.28***	.276***	.255***	.281***	.288***	.269***	.293***
Interaction effects								
Absorptive Capacity * Strategic Orientation			.053					
Absorptive Capacity * Resource Orientation				-.126***				
Absorptive Capacity * Management Structure					-.019			
Absorptive Capacity * Reward Philosophy						.079**	Absorptive Capacity	
* Growth Orientation							-.063**	
Absorptive Capacity * Organizational Culture								.122***
F- Change	7.081	22.139***	2.266	3.926**	.232	3.926**	4.586**	11.120***
Adjusted R ²	.217***	.266***	.269	.273**	.264	.273**	.274**	.289***

^a N=331. Unstandardized regression coefficients are displayed in the table.

*** P < 0.01, ** P < 0.05, * P < 0.10.

^b Manufacturing served as reference group in regression analyses.^c Medium size served as reference group in regression analyses.^d Iran context served as reference group in regression analyses.

Appendix B

Figure 1.1 Interaction of absorptive capacity and resource orientation

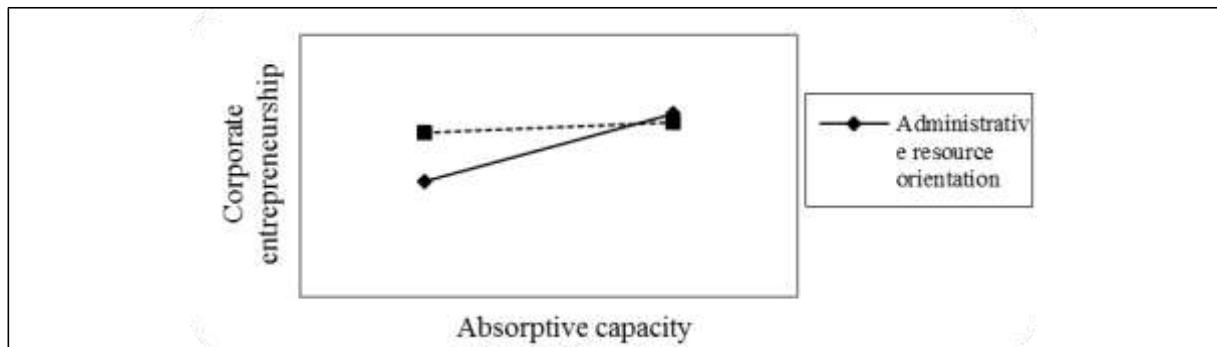


Figure 1.2 Interaction of absorptive capacity and reward philosophy

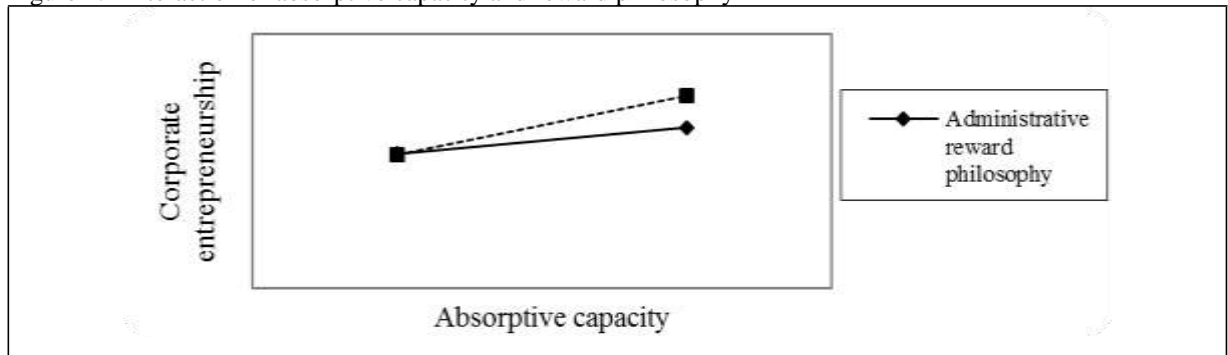


Figure 1.3 Interaction of absorptive capacity and growth orientation

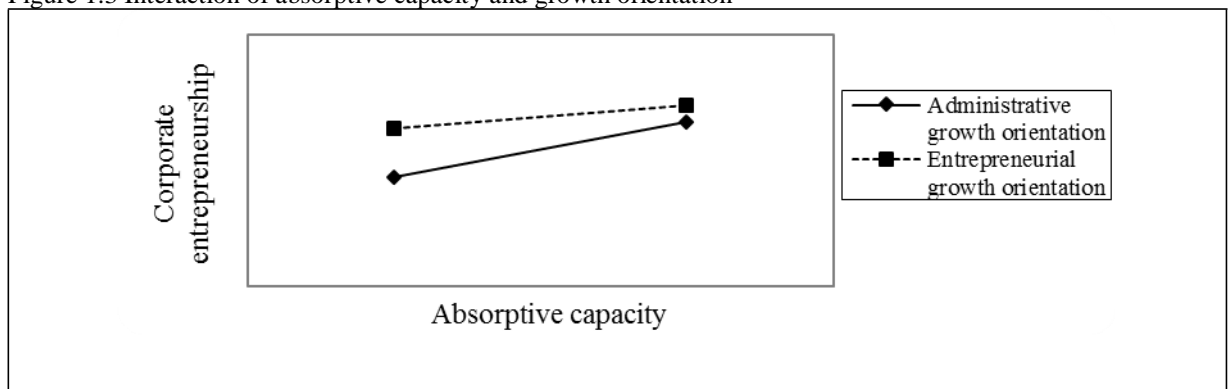
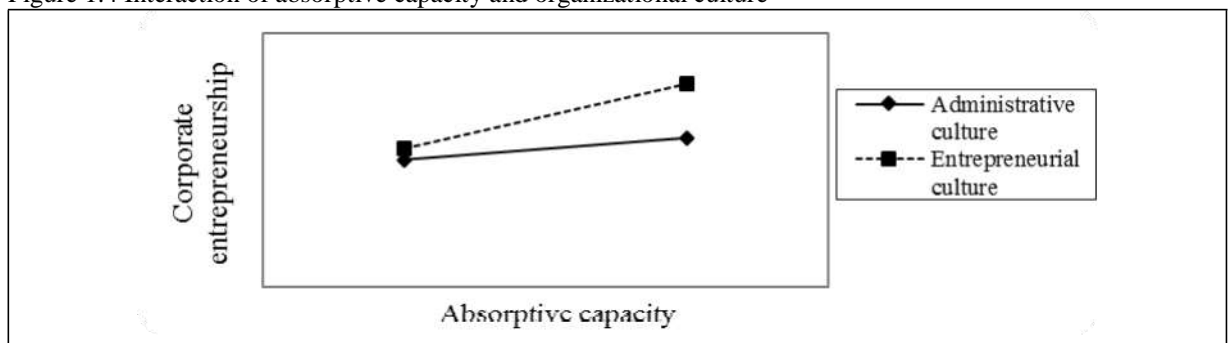


Figure 1.4 Interaction of absorptive capacity and organizational culture



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CO-CREATION, ABSORPTIVE CAPACITY AND INNOVATION PERFORMANCE

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Co-creation, absorptive capacity and innovation performance

Abstract

This paper examines the relationships between firms' co-creation activities, absorptive capacity and effectual logic with novel and non-novel innovation performance. We use data from 731 South African small and medium-sized enterprises (SMEs) emanating from the community innovation survey. To understand the relationships between the constructs, we develop a conceptual framework relating co-creation, absorptive capacity and the role of effectual (non-predictive) logic to innovation performance. We test these relationships in two models, one with sales from new to the industry (novel) innovations and one with new to the firm (non-novel) innovations as dependent variables. Our findings show that co-creation, absorptive capacity and effectual flexibility mattered for novel innovation performance. These initial findings suggest the promise of non-predictive logic for innovation managers. The value of this paper lies in bringing an effectual lens to bear on innovation performance, showing the relevance of this logic for novel innovations.

Introduction

The inherent uncertainty of the innovation process and risks attached to innovation failure, has led to a large body of research focusing on innovation performance (Hulsheger, Anderson and Salgado, 2009; Rosenbusch, Brinckmann and Bausch, 2011). In this regard several authors have shown that non-predictive, collaborative approaches such as open innovation, co-creation and effectuation provide valuable lenses to examine the innovation process (Chesbrough, 2003; Gupta and Govindarajan, 2003; Brettel et al., 2012).

Most scholars agree that firms often need to manage a portfolio of innovation projects in different stages of development, some early stage, some more advanced; as well as a mix of novel, highly innovative projects, balanced with non-novel, less innovative projects (Matthews, 2010). However, managing novel innovation seems to be particularly challenging for small firms with limited resources. Co-creation offers the opportunity for small firms to gain access to a larger knowledge and resource base (De Jong and Freel, 2010; Tether, 2002). Co-creation involves the establishment of networks and collaboration with innovation partners to create novel value innovations for the firms involved, as well as their customers (Lee et al., 2012). Yet there seems to be a dearth of empirical research is available on co-creation and managing the process (Aarikka-Stenroos and Jaakkola, 2012), and hence very little guidance for small firm innovation managers.

We address this gap in the literature by developing a conceptual framework to show how co-creation is related to absorptive capacity and effectual logic for novel innovation performance. We argue that co-creation success and innovation performance is influenced by small firms' absorptive capacity; that is the ability of staff to identify, assimilate and use external knowledge for innovation. Due to the emergent nature of co-creation and learning involved in absorptive capacity we argue that effectual logic, as a non-predictive approach fits with novel innovation performance. Research on the systemic effect of co-creation and effectuation is emerging and the relevance of these approaches for innovation performance has not been tested. Brettel et al. (2012) recently applied effectuation as a lens to study the decision-making logic underlying corporate R&D projects and confirm the relevance of effectual logic for highly innovative R&D projects.

The purpose of this paper is thus to develop and test a conceptual framework where co-creation, absorptive capacity and effectual logic is related to novel innovation performance for small firms. Our results show that co-creation, absorptive capacity and effectual flexibility matter for novel innovation performance. Our paper contributes to the field by showing the promise of non-predictive logic for novel innovations and provides some suggestions for

small firms to utilize the advantages of co-creation, absorptive capacity and effectual logic to improve innovation performance. This paper proceeds by presenting a conceptual framework for co-creation, absorptive capacity and effectual logic. These hypotheses are then tested using OLS regression. The findings are discussed and implications drawn.

Conceptual framework

Co-creation

In today's interdependent world innovation is often the result of collaborative, co-created ideas (Lee et al., 2012). Co-creation results from a convergence process where various stakeholders are engaged with firms to create shared value and signifies an emerging approach to innovation, recognized by various scholars (Lee et al., 2012; Read and Sarasvathy, 2012; Vargo and Lusch, 2004). Co-creation refers to firms partnering in the innovation process to create value collaboratively through relationships for customers, the firm itself as well as network partners (Trott and Hartmann, 2009; Johnsen and Ford, 2006; Donada and Nogatchewsky, 2006).

Co-creation has been explored as part of service-dominant logic (Vargo and Lusch, 2004) applied in a marketing context, and bears similarity to Chesborough's (2003) concept of open innovation. He emphasized that firms should combine their own competencies with external sources of ideas, knowledge and expertise to build an intangible collaboration competence that is hard for competitors to imitate. Gupta and Govindarajan (2003) point out that collaborative innovation can lead to value chain innovations; new products, services, ventures or processes by leveraging innovative ideas; and reinventing customer value by involving customers network partners in engaging experiences. Providing increased value to customers through innovative products, services and processes should therefore improve partner firms' innovation performance, through increased resources and access to knowledge and markets (Hanna and Walsh 2002).

According to the resource dependence theory firms build collaborative relationships and organize resources in response to environmental uncertainty (De Ven, 1976; Salancik and Pfeffer, 1978). Firms are motivated to engage in co-creation in order to obtain more control over their environment, buffering the consequences of environmental uncertainty (Chen et al, 2009) and gaining access to a larger resource base (De Jong and Freel, 2010; Tether, 2002). Co-creation would therefore be more likely in situations where environmental uncertainty and risk is higher, as is the case for novel innovations.

The success of co-creation will depend on the quality of relationships between innovation partners. These relationships can be improved by clarifying expectations, building trust, having a planned though flexible approach. Innovation partners need to be open to learn from one another, change and create new routines and processes and update innovation capabilities (Chen et al, 2009). Co-creation partners' success will be influenced by firms' ability to exploit the knowledge and resources of their innovation partners, impacting in turn on their innovation performance (Narula, 2004). Co-creation is not without its challenges though, small firms can find it a difficult to devote sufficient resources to the co-creation process, while still nurturing and maintaining the necessary resources for growth (Matthyssens, Vandenbempt, Berghman 2006), and to create value for their own firm (Johnsen and Ford, 2006; Donada and Nogatchewsky, 2006). Despite these challenges co-creation can be beneficial.

Co-creation enables accelerated learning, flexibility and open-minded decision making for firms and among the innovation partners, through interaction, learning and experiences (Ramaswamy, 2009). Collaboration for innovation requires a shared purpose such as improved performance. To facilitate co-creation, it is imperative that the firm has an internal collaboration culture in place. Therefore there is often a focus on knowledge production during co-creation through both internal and external collaboration (Lee et al., 2011). Thus co-creation is used by small firms to improve their innovation performance (Hung & Chou, 2013) especially for novel innovations. Co-creation is less likely for non-novel innovations, since firms are more likely to already have the required resources and can make incremental changes without collaborating with external stakeholders. Thus we hypothesize:

H1a: Co-creation is significantly related to innovation performance for novel innovations.

H1b: Co-creation is not significantly related to innovation performance for non-novel innovations.

Absorptive capacity

Absorptive capacity can be defined as a firm's ability to identify, assimilate and apply for commercial purposes know-how generate outside of itself (Cohen and Levinthal, 1990). In the co-creation process innovation partners learn from one another by acquiring knowledge of markets and trends, assimilating external views that help overcome blind spots and learning new technological competencies and organizational routines (Chen et al., 2009), making it possible to transform and exploit new knowledge from its innovation partner. This means that absorptive capacity functions as a dynamic capability in the innovation process (Fosfuri and Tribo, 2008).

Absorptive capacity is integral to successful co-creation, since innovation partners should have the capacity to be receptive to external knowledge; and leverage absorbed knowledge and transform it into an innovation outcome (Forsfuri and Tribo, 2008). During the co-creation process *acquisition* would comprise innovation partners identifying relevant external information sources to enable them to scope and refine their innovation project. *Assimilation* requires innovation partners to work more closely together and establish routines and processes to understand, analyse and interpret knowledge relevant to their innovation project. For co-creation to progress beyond mere collaboration to achieving real innovation outcomes *transformation* is requisite where innovation partners will need to modify and adapt their mutual knowledge and generate new knowledge. Finally *exploitation* is essential where the knowledge created is applied in the co-creation process to develop novel products, services or processes to achieve innovation objectives. Firms who are able to strengthen and increase their absorptive capacity should be more successful and co-creation; and this should impact innovation performance.

The capacity to evaluate and use external know-how is largely a function of prior related knowledge. At its lowest level, this prior knowledge, include basic abilities or even just shared language, but can also refer to awareness of the most recent technological or scientific advances in a given field. Such prior knowledge arises as a by-product of current innovation activities (Vinding, 2006). This implies that innovation partners' experience of the innovation process and collaboration history will influence absorptive capacity during co-creation. Absorptive capacity appears to be one of the most important determinants of firms' abilities to acquire, assimilate and profitably utilize new knowledge to increase its innovation performance. Chen et al (2009) in their study of the Taiwanese manufacturing industry find strong empirical support for absorptive capacity's relationship to innovation performance.

Vinding (2006) takes a human capital approach for manufacturing and service firms in Denmark and empirically find that the share of highly educated employees, application of human resource practices within firms and closer relationships with innovation partners are positively related to novel innovation, however for non-novel innovation absorptive capacity may play a smaller role, since less external knowledge would likely be needed. Incremental changes for current customers are more likely to result from internal organizational learning and competencies (Benner and Tushman, 2003). Additionally Fosfuri and Tribo (2008) in their study of Spanish innovative firms find absorptive capacity (acquisition and assimilation) is positively related to innovation performance, especially in the presence of efficient internal knowledge flows. Therefore we hypothesize:

H2a: Absorptive capacity is significantly related to innovation performance for novel innovations

H2b: Absorptive capacity is not significantly related to innovation performance for non-novel innovations.

Effectual logic

Effectuation, as a set of heuristics for decision-making under uncertainty, is a relatively new lens in innovation management, but its promise to the field has been highlighted by Read and Sarasvathy (2012) and empirically shown by Brettel et al (2012) for novel R&D projects. It is also a likely logic to be adopted for an emergent process such as co-creation where innovation partners need to assimilate, absorb, transform and exploit new external knowledge for novel product and service innovations. Thus for novel innovations involving high uncertain such as co-creation, firms may be more motivated take control over their environments using effectual logic. Effectual logic is a non-predictive approach suitable for emergent outcomes, such as the co-creation process, since firms view the future as turbulent, but controllable through human action. Future outcomes are shaped by the decisions and actions of firms allowing goals to emerge as innovation partners reach agreements (Sarasvathy, 2001). Following a predictive planned approach, based on causal logic where goals are pre-determined and future resource needs predicted, seems to work well for non- novel (incremental) innovation. However, in the case of co-creation and novel innovation effectuation seems to be a more suitable approach (Brettel et al, 2012).

Co-creation provides access to a larger resource base, since both innovation partners bring resources to the process. The rationale for the larger resource base is provided by effectuation, since this logic starts with the *resources at hand*, from a firm perspective this would mean the firm's identity (who we are), the firm's knowledge and experience of the innovation process (what we know) and their networks (whom we know) (Sarasvathy, 2001). Both innovation partners in the co-creation process would therefore add these intangible resources to the innovation process. Furthermore these *resources at hand* are combined with four action-driven principles.

The four effectual principles relevant for the co-creation process facilitating absorptive capacity are as follows. Firstly effectual innovators attempt many small trials and experiments to find viable opportunities, whereas causal logic proceeds by first defining the primary end goal. Secondly effectual innovators attempt to limit losses when embarking on innovation projects, meaning stakeholders only invest what they are prepared to lose. This is termed affordable loss. In contrast causal logic requires a predictive approach by calculating future cash flows and expected return on investment. Thirdly, effectual innovators look for other partners beyond the co-creation process and obtain downstream pre-commitments from

interested stakeholders to facilitate market adoption of novel innovations. Finally effectual logic requires flexibility to adapt to unforeseen events as these inevitably form part of the co-creation process. Thus effectual innovators seek to capitalize on these occurrences and use unexpected surprises to their advantage, such as creating new opportunities; in contrast the causal approach aims to avoid or hedge against contingencies and plan for them, which may result in inertia when unplanned contingencies arise.

It is likely that effectual logic will be prevalent for an emergent process such as co-creation and fits an uncertain situation such as novel innovations. To bring about novel innovations firms need to use trial-and error experimentation to test various alternatives and proceed with feasible ones, talk to potential stakeholders and obtain pre-commitment from those likely to help create demand for the novel innovation and be flexible to unforeseen contingencies. It is expected that these three principles should also have an influence on the sales from novel innovations, however affordable loss represents a cost that was not expended and therefore it would not be directly attributable to sales. For this reason it is not tested empirically in this paper. Thus we hypothesize that during the co-creation process innovation partners would be more likely to use effectual logic for novel innovations, improving chances for success and ultimately innovation performance.

H3 Effectuation matters for sales from novel innovation, since:

- a. Experimentation is significantly related to sales from novel innovation*
- b. Pre-commitment from stakeholders is significantly related to sales from novel innovation*
- c. Flexibility is significantly related to sales from novel innovation*

For non-novel innovations it is more likely that predictive logic, based on historic sales and customer behavior would prevail. Brettel et al (2012) showed empirically that effectual logic was not significantly related to R&D projects with lower levels of innovativeness, therefore we hypothesize:

H4 Effectuation is not significantly related to sales from non-novel innovation.

Method

Our empirical research is based on a sample of South African SMEs, ranging from one to 200 full time equivalent employees. The data used to test our hypotheses emanate from the community innovation survey (CIS) conducted by the Human Science Research Council (HRSC) in 2005. The questionnaire and guidelines of the fourth round of the CIS were used, based on the Oslo Manual (2005). A random stratified sample (by size and industry sector) was drawn from the South African business register. A total of 2 627 firms were targeted with mail surveys, of which 37.3 per cent responded. After data cleaning 731 SMEs remained in the database. CIS data are used widely in academic publications (e.g. Freel, 2005; Laursen and Salter, 2006) and ask firms directly about their ability to produce innovation.

Variables

The rich data from these surveys enabled us to address our research questions. Since the CIS questionnaire does not ask questions specifically related to co-creation, absorptive capacity and effectuation, proxies were identified from the data to test the hypotheses. *Innovation performance*, our dependent variable, is defined as actual sales from innovation, as a percentage of overall sales. While the dataset also contained information on innovation activity, we argue that actual sales are a more accurate measure of how the innovation is

accepted by the market, and therefore performance (Dodgson, Gann and Salter, 2008). We develop models for both sales from innovations that are new to the firm only (non-novel sales) and sales from innovations that are new to the industry too (novel sales). *Co-creation* is a binary variable that draws on two questions in the survey, both asking about the involvement of external stakeholders in the development of product/service or process innovations. This reflects the theoretical construct that firms partner and collaborate with external stakeholders in the innovation process to create value for their customers, the firm itself as well as network partners. *Absorptive capacity* was operationalized as the percentage of staff with degrees or diplomas, following the convention of Rothwell and Dodgson (1991). Last, effectuation was included in our models as ‘*experimentation*’ (R&D active firms), ‘*flexibility*’ (ability to deal with difficulties to find co-operation partners or intense competition) and ‘*pre-commitment*’ (ongoing innovation activities), as binary variables. These proxies are suitable to reflect effectual logic, since experimentation indicating a willingness to trial a number of alternatives to find viable opportunities is inherent in the behaviour of firms who continue with R&D and know that not all attempts and projects will lead to success; therefore R&D is often a continued trial-and-error process. Flexibility reflects the ability to adapt to unforeseen events, which is reflected in our measure of continued innovation activity in the face of adversity such as intense competition and other unforeseen events. Pre-commitment theoretically reflects ongoing activities with partners and being open to their suggestions and involvement, reflected in our measure of ongoing innovation activities.

Findings

Table 1 shows the descriptive statistics and correlations. The firms in our data ranged from one to 200 full time equivalent employees (mean = 55.8); 35 per cent employed fewer than 20 staff and 20 per cent between 100 and 200 staff. These firms were from manufacturing (33.2 per cent), mining (3.8 per cent), and services (20.9 per cent) with the remainder from ‘other’ industries. Several significant correlations were observed.

Table 1 indicates that there are differences in how the independent variables relate to novel versus non-novel sales from innovation. For example, while experimentation and absorptive capacity was important for novel sales, they had a negative relationship with non-novel sales. Absorptive capacity was significantly correlated with two dimensions of effectuation, namely experimentation and pre-commitment. The correlation analysis raised multi-collinearity concerns regarding experimentation and pre-commitment from stakeholders as effectual principles. This is a limitation of the current paper and will be addressed in a next version.

Table 1: Descriptive statistics and Spearman's correlations

	Means	SDs	Manuf	Mining	Services	Firm size	Novel	Non-novel	Cocreation	Absorp capacity	Experiment	Flexible (rs)	Pre-commit
Manufacturing	.3324	.47140	1.000	-.141**	-.363**	.268**	.030	.000	-.197**	-.236**	.169**	-.022	.118**
Mining	.0383	.19206	-.141**	1.000	-.103**	-.006	-.120*	.083	-.038	-.056	.001	-.001	.036
Services	.2093	.40709	-.363**	-.103**	1.000	-.350**	.144**	-.089	.128*	.400**	-.009	.056	.011
Firm size	55.80	51.033	.268**	-.006	-.350**	1.000	-.039	.050	-.051	-.299**	.228**	-.153**	.211**
Novel sales	14.553	18.790	.030	-.120*	.144**	-.039	1.000	-.913**	-.109	.171**	.134*	-.149*	.095
Non-novel sales	85.175	20.641	.000	.083	-.089	.050	-.913**	1.000	.065	-.165**	-.131*	.119	-.075
Co-creation	.7455	.82873	-.197**	-.038	.128*	-.051	-.109	.065	1.000	.107	.000	.050	.219**
Absorptive capacity (AC)	21.594	26.4014	-.236**	-.056	.400**	-.299**	.171**	-.165**	.107	1.000	.105**	-.016	.079*
Experimentation	1.35	.479	.169**	.001	-.009	.228**	.134*	-.131*	.000	.105**	1.000	-.067	.585**
Flexibility (rs)	2.00	.793	-.022	-.001	.056	-.153**	-.149*	.119	.050	-.016	-.067	1.000	-.055
Pre-commitment	1.38	.485	.118**	.036	.011	.211**	.095	-.075	.219**	.079*	.585**	-.055	1.000

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

† Correlation significant at 0.10 level (2-tailed)

Rs = Reverse scored

Table 2: Regression Models

DV's	1: Controls		2: Co-creation		3: AbCap		4: Experiment		5 Pre-commit		6: Flexibility		Full Model	
	Novel	Non- Novel	Novel	Non- Novel	Novel	Non- Novel	Novel	Non- Novel	Novel	Non- Novel	Novel	Non- Novel	Novel	Non- Novel
Constant														
Firm size (log)	-.076	.071	-.058	.125	.000	.002	-.092	.091	-.090	.082	.036	.078	.151	-.031
Manufacturing	.076	.007	.062	-.020	.090	-.008	.063	.019	.068	.013	.021	.012	.015	-.018
Mining	-.060	-.019	-.037	-.097	-.057	-.023	-.062	-.016	-.071	-.012	-.041	-.002	-.019	-.050
Services	.155	-.049	.147	-.043	.103	.025	.143*	-.036	.140*	-.033	.196*	-.077	.177*	.009
Co-creation			-.141*	.072									.146*	.062
Absorptive capacity (AC)					.200**	-.222**							.260**	-.362**
Experimentation							.106*	-.128*					.050	-.066
Pre-commitment									.107*	-.091			.033	-.036
Flexibility											.146*	.112	.166*	.136†
R	.199	.106	.214	.181	.257	.210	.225	.164	.227	.138	.238	.166	.351	.363
R²	.040	.011	.046	.033	.066	.044	.051	.027	.052	.019	.057	.028	.123	.132
Adjusted R²	.028	-.001	.027	.013	.052	.029	.036	.012	.037	.003	.036	.005	.077	.084
F	3.483*	.910	2.457*	1.649	4.757**	2.945*	3.582**	1.777	3.544**	1.212	2.699*	1.209	2.658**	2.757**

Standardised beta coefficients are reported in Table 2

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

† Correlation significant at 0.10 level (2-tailed)

To test our hypotheses, we used OLS regression. The results are shown in Table 2. The regression models first assess the amount of variance explained in sales from novel innovation and sales from non-novel innovation for each of the independent variables. The first set of models for sales from novel innovation revealed that absorptive capacity was more important for novel sales at ($p=.001$) than co-creation ($p=.064$). Furthermore the effectual dimensions of experimentation, pre-commitment and flexibility all mattered for sales from novel innovation. In the full model co-creation, absorptive capacity and flexibility explained 7.7 per cent of the variance in sales from novel innovation.

In the second set of models, with non-novel sales as dependent variable, slightly more variance was explained. Co-creation was not significant for sales from non-novel innovation. Absorptive capacity showed a negative significant relationship with sales from non-novel innovation and none of the effectual dimensions was significantly related to sales from non-novel innovation.

Regarding the hypotheses our results indicated that H1, namely that co-creation matters for innovation performance, was rejected, indeed, it was negative for novel innovation. For absorptive capacity (H2) the findings confirm that absorptive capacity matters for innovation performance. H2a was accepted for novel sales, but rejected for H2b, non-novel sales where it was negative. Regarding the effectual dimensions H3a that experimentation matters for innovation performance, was accepted for novel sales, but rejected for non-novel sales where it was negative. H3b namely that pre-commitment matters for innovation performance was accepted only in the case of novel sales. H3c namely that flexibility matters for innovation performance was accepted for novel sales. When the complete model was tested, co-creation, absorptive capacity and flexibility explained novel sales. It seems that experimentation was absorbed into flexibility as an effectual dimension. For non-novel sales only absorptive capacity (negative) explained non-novel sales.

Another interesting observation is that co-creation and the dimensions of effectuation seemed to matter for the service industry, more than the manufacturing or mining. The perspective of co-creation and effectuation seem to fit well with the service industry.

Discussion and Conclusion

The main purpose of this paper was to develop and test a conceptual framework where co-creation, absorptive capacity and effectual logic is related to novel innovation performance for small firms. Our results show that co-creation, absorptive capacity and effectual flexibility matter for novel innovation performance.

This paper contributes to the literature on co-creation and absorptive capacity in three ways, offering insights to practitioners. First, the results point to the delicate nature of co-creation when working on novel innovations. Our results suggest that success of the collaboration process itself would influence novel innovations' performance and that merely working with external stakeholders is not sufficient. Small firms need to take care to carefully cultivate such co-creation relationships and realize that these type of collaborations required long-term intangible investments as Narula (2004) suggests. Second, absorptive capacity as a dynamic capability is crucial to improve novel innovation performance. The capacity to identify, assimilate use and exploit external know-how is related to prior knowledge and therefore small firms should take care to develop and nurture this capability and focus on learning-by-doing. , our findings indicate that effectual logic, as a non-predictive approach shows promise to improve the performance of novel innovations.

Our findings have implications for small firm innovation managers. While managing an innovation portfolio with both novel and non-novel innovations is complex, our findings indicate that two different managerial approaches are needed for these types of innovations. For novel innovations taking an emergent approach, focused on collaboration, learning-by-doing and following a non-predictive logic should have a greater impact on the performance of these innovations. In contrast non-novel innovations seem to be better suited to a predictive approach. These insights are crucial to a firm's future innovation.

Finally our findings have implications for theory by contributing to our knowledge of co-creation and showing that effectuation matters for the sales performance of novel innovations, building on the work of Brettel et al., (2012). However, these findings are still preliminary and should be considered with caution. More rigor is needed to develop the conceptual framework, proxies for variables and testing for moderation and mediation effects.

This paper is subject to a number of limitations that create future research opportunities. First, some of the variables and constructs were represented by proxies, since the data set was not directly developed or structured to measure these variables. For example the proxies used for experimentation and pre-commitment from stakeholders need to be reconsidered, since multicollinearity was indicated as a problem in the correlation analysis. Second, most of the data were self-reported assessments of firm owner/managers. Although we 'trust' that the institution that administered the questionnaire took steps in the design and testing phases to limit concerns regarding single-informant data, we were not involved with this process. Issues of key informant bias and common method bias cannot be completely ruled out. Third, this research was conducted using an emerging economy, South Africa, as sample. As such it is possible that other environmental factors at play in developed economies may influence innovation performance in differential ways, therefore future research would benefit from testing our research model with other datasets. Finally, the data employed in this study were cross-sectional. In order to establish causal claims of the model longitudinal data is needed. Hence our results should be interpreted as association among variables and not in terms of causality. This limitation can be overcome in the near future as we are negotiating to gain access to another dataset collected, having panel data should improve the strength of the research model and findings, allowing us to address new and interesting research questions.

A number of additional issues will be addressed in our full paper; for example, the industry and size influences on our model, and if effectuation variables should be included as moderators, rather than mediators in our model. Tentatively our findings indicate this paper contributes to theory and practice in three ways. First, we develop an approach that can, with some further refining, be used in future to test the role of effectuation and co-creation in a number of settings. Second, our results show the importance of absorptive capacity for firms that want to successfully develop novel innovations. Last, we find that effectual logic matters for the performance of novel innovations.

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**TRACING BEHAVIOURAL PATTERNS IN BORN-AGAIN GLOBAL FIRMS:
TOWARDS A CONCEPTUAL FRAMEWORK OF THE INTERNATIONALIZATION
ACTIVITIES OF MATURE SMES**

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TRACING BEHAVIORAL PATTERNS IN BORN-AGAIN GLOBAL FIRMS

Towards a Conceptual Framework of the Internationalization Activities of Mature SMEs

ABSTRACT

This paper sets out to identify those factors that influence the internationalization behavior of born-again global firms. Using a generic model of international entrepreneurship, this paper extracts relevant factors for a conceptual framework on the internationalization activities of these ventures. The results of a case study among Swiss firms show that the top management teams play a pivotal role in this context. Driven by the insufficient size of their domestic market these companies typically trigger internationalization after a generational change at CEO level. The results of this study also support the argument that born-again globals deserve consideration as a separate group of research entities.

INTRODUCTION

Since the late 1980s an increasing number of new ventures have been reported as international from their inception. These “international new ventures” (Oviatt and McDougall, 1994) or “born globals” (Rennie, 1993) did not develop in incremental stages with respect to their international activities, nor did they dispose of a large resource base. Instead, other factors, such as their unique intangible assets or specific knowledge, prevailed.

In the meantime additional authors and institutions, including Dimitratos and Jones (2005), Young, Zahra, Hayton, Marcel and O'Neill (2001), and the European Commission (2003), have made us aware of another ‘species’ in the wider corporate population, thus creating a need for an expansion of the international entrepreneurship (IE) field as well. Researchers should shed more light on mature, domestically focused corporations that, for a long time, apparently have little motivation to go international. They then suddenly decide to make a strategic shift and consequently “embrace [...] rapid and dedicated internationalization” (Bell, McNaughton and Young, 2001, p.174). These firms are referred to as “reborn globals” (European Commission, 2003) or “born-again global firms” (Bell et al., 2001).

The main objective of this paper is to contribute to the theory building process and available body of knowledge of the field of IE and the corresponding body of knowledge. By examining the internationalization behavior of mature SMEs this study seeks to address the existing research gap in this area (Hitt, Tyler, Hardee and Park, 1995). More specifically, we investigate in an exploratory fashion the questions why mature, domestically focused firms suddenly turn into born-again global firms, how they do so, and what required and sufficient elements are needed for sustainable born-again global firms.

Internationalization Theories

Process Theory of Internationalization. The process model of internationalization perceives internationalization as a slow and incremental process with firms passing through four distinctive stages of greater involvement abroad (Johanson and Wiedersheim-Paul, 1975): 1) No regular export activities, 2) export via independent representatives (agents), 3) establishment of an overseas sales subsidiary, 4) overseas production or manufacturing units. Johanson and Vahlne (1977) thus view internationalization as comprising causal cycles during which knowledge of foreign markets and market commitment is affected by the firm's current activities and commitment decisions. Firms enhance their resource commitments as they gain experience. Additionally, due to the implied reduction of uncertainty and risk, firms gradually penetrate markets with increasing psychic distance (Knudsen and Madsen, 2003).

Born Global Firms. The steady increase in global business relationships has led scholars from the field of entrepreneurship, but also from strategy and organizational sciences to pay increasing attention to the phenomenon of “born-global” firms (Madsen and Servais, 1997, Rennie, 1993), or international new ventures (INVs) (Oviatt and McDougall, 1994), global start-ups (Oviatt and McDougall, 1995), and early internationalizing firms (Rialp, Rialp and Knight, 2005). These firms internationalize virtually from their inception. By “leapfrogging” (Moen and Servais, 2002, p.66) into the international arena, they challenge theories that view internationalization as an incremental process with several stages over a long period of time (Aharoni, 1966, Bilkey and Tesar, 1977, Reid, 2003).

While “there is absolutely no clear definition - neither theoretically nor empirically - of a born global or similar concepts” Rasmussen and Madsen (2002, p.13), any “born global” definition normally has qualitative and quantitative dimensions. Regarding the qualitative dimension, Knight and Cavusgil (2004) reveal that researchers often refer to Oviatt and McDougall’s (1994, p.49) definition that a born global or international new venture (INV) is “a business organization that, from inception, seeks to derive significant competitive advantage from the use of resources and the sales of outputs in multiple countries.” Authors vary more regarding the quantitative dimension (Andersson and Wictor, 2003, Hashai and Almor, 2004), although Knight (1997) maintains that born globals have to reach foreign sales of at least 25% or more within three years of their inception.

Born-again Global Firms. According to Bell et al. (2001), there is growing evidence of a new phenomenon – the emergence of born-again global firms. We define a born-again or reborn global as a domestically focused firm that undergoes a strategic change and transforms into a globally focused company. More precisely and following Kuivalainen, Saarenketo and Puumalainen (2012), our two defining criteria for born-again globals which mirror the aforementioned qualitative and quantitative dimensions of born globals, are: First, it is a business organization that, from inception, has not sought to derive significant competitive advantage from the use of resources and the sales of outputs in multiple countries and it has not achieved a foreign sales volume of 25% within the first three years of its inception. Second, following a strategic change, this business organization seeks to derive significant competitive advantage from the use of resources and the sales of outputs in multiple countries and reaches a foreign sales volume of 25% within three years of the strategic change.

Bell et al. (2001, p.177) point out that born-again globals’ “epochs” of internationalization are often triggered by “critical incidents.” Critical incidents at the focal firm, its domestic or overseas clients, or network partners may exert such forces on the venture that it adjusts its internationalization activities significantly. According to these authors, the most common critical incident is a change in ownership and/or management, a management buy-out, a takeover by another firm or by an administrator, who then triggers the internationalization process. In addition, take-overs of firms with international involvement, as well as client followership can also be considered critical incidents emerging from a firm’s network.

Yet, despite its apparent significance the academic body of literature on reborn globals or born-again globals is rather small. In their article on how to advance to theory of born globals Gabrielsson, Kirpalani, Dimitratos, Solberg and Zucchella (1998) suggest to generally partition the research on born globals into four types of internationalizing SMEs amongst which the born-again globals category is one. Accordingly some scholars have introduced the born-again global classification as a distinct class of firms in their research, such as Olejnik and Swoboda (2010) who concluded that “SMEs follow three different internationalization patterns” (p. 488): the born-global, born-again global and the so-called “traditionals” (p.489).

Research Model

The international entrepreneurship model by Zahra and George (2002) was used to investigate why, how, when mature, domestically focused companies suddenly internationalize their operations and what the consequences are. The model is in so far unique as it draws not only on theories from international business, but also on strategic management, and entrepreneurship (Zahra and George, 2002). It therefore provides an extremely wide and comprehensive framework for qualitative research as it covers many important aspects of firm internationalization. Moreover, its rather broad nature allows researchers to expand the field of IE and it does not limit research to the domain of start-ups.

*** Insert Figure 1 About Here ***

According to Zahra and George (2002), prior research on international entrepreneurship has generally concentrated on the dimensions: extent/degree, speed, and scope of internationalization. Based on their process-related definition, these authors developed a comprehensive framework linking the inputs and determinants of internationalization with the outputs. More specifically the model comprises the following antecedent, determinant, outcome and context factors:

Antecedents. The integrated international entrepreneurship model states that the environmental, organizational, and strategic factors affect the extent, speed, and scope of a corporation's internationalization process and its ability to create competitive advantage.

Determinants. The IE framework analyses a company's internationalization process on several dimensions, namely extent, scope, and speed. The first dimension indicates the amount of international sales as a percentage of the firm sales (export ratio), the second reflects the number of markets covered or the value chain activities operated abroad, while the third reveals the number of years between the firm's founding and its first foreign sales.

Outcomes. Much attention is paid to the question whether international activities have a positive impact on a firm's performance. Nevertheless, past empirical studies have remained inconclusive concerning the link between international entrepreneurship and performance. Whereas Bloodgood et al. (1996) proved a positive and marginally significant correlation, others reported a negative (Collins, 1990), or even non-existing, relationship between IE and firm income (McDougall and Oviatt, 1996).

Context. Context variables are "those conditions that make internationalization more attractive or lucrative than solely domestic operations" (Zahra and George, 2002, p. 27). Environmental factors such as competitive forces and growth opportunities as well as strategic factors such as competencies and entry strategy chosen are believed to have a moderating effect on the relationship between the antecedents and international entrepreneurship.

RESEARCH METHODOLOGY

Our study is by nature more exploratory and theory building than affirmative and theory testing. Since the theory is fragmented and lacks an established common framework, we thus chose a qualitative methodology to develop our arguments further (Eisenhardt, 1989, Yin, 2002).

Sample

In line with a country-specific focus and due to potentially materializing idiosyncratic factors and patterns (Ruigrok and Amann, 2007), we relied on Swiss SMEs to extend the available body of knowledge. Given the small domestic market, Swiss SMEs are generally very export-oriented.

Our sampling process involved two major steps. First, we obtained a sample of companies from the public listing of Swiss companies. Using complementary historical data from Dun & Bradstreet we retained those companies which (1) were SMEs (based on the EU legal definition) and employed fewer than 250 workers [see European Commission (2003)], (2) were set up before 2008¹, (3) were managed independently, and which (4) were active in at least one foreign country and had reached an export ratio of at least 25% within the first three years after internationalization (Bell et al., 2001, Tuppuru, Saarenketo, Puumalainen, Jantunen and Kyläheiko, 2008). These criteria allowed us to control the variability related to the size of the enterprise, the ownership, and origin, thus improving the external validity of our results. 34 of the enterprises matched all of the criteria.

In a second step we attempted to contact those 34 firms in order to confirm our sampling criteria and to ask whether those entities would be willing to share further information. After having been able to contact 21 firms, not only seven matched our sampling criteria but were also willing to share information and could provide two key contacts from the top management team (TMT) who could serve as respondents for our study.

Data Collection

The information was obtained by interviewing the CEO, as well as a second person who had been involved in the planning and/or implementation of the internationalization measures. The data collection took place from end 2011 until mid 2012. The survey was pre-tested by seeking remarks from various entrepreneurs, CEOs, and from a senior officer of the Swiss export promotion agency OSEC in a pilot test (Andersson, 2011). These individuals diligently reviewed and critiqued the survey and offered a number of suggestions for improving its wording, layout, and administration. Other sources, such as publications, press articles, company brochures, the internet, etc., were also used to prepare for the interviews and acquire information about the companies. Moreover, the interviewers were made aware of the fact that in some cases internationalization took place decades ago and to pay particular attention to potential hindsight bias. In those cases cross-referencing the statements from both interview partners as well as double checking the information provided by the interviewees with archival data became particularly important. Hence, two interviews were conducted at each firm with separate interviewees.

Efforts to ensure the sound collection of empirical insights included the use of a perfectly trilingual interviewer trained in qualitative research and interviewing. Furthermore, the interviews relied on the same number and type of mandatory questions before an in-depth discussion ensued. Each interview, which lasted approximately 90 minutes, was recorded and transcribed. The transcripts were reviewed by the interviewees to ensure that the contents corresponded to their original intentions. The interviews regarding cases A, B, F, G, and D were conducted in German, while the interview regarding case C was held in English, and that of case E was held in French. Consequently, the questionnaire was translated into German and French, and translated back into English by separate parties to clarify and eliminate translation errors (Rodrigues, 2001, Zikmund, 2003). Secondary sources were used to cross-check the responses to further ensure validity. The IE framework described above served as a basis and guideline for the semi-structured interviews. Table 1 shows the studied

¹ to ensure a company age of at least three years at the time when the data collection began in 2011

case companies and their main activities or products. It also provides an overview of the most important demographics of the case study firms.

*** Insert Table 1 About Here ***

RESULTS

In the following paragraphs, we present the outcomes of our case studies. We will proceed as follows: using the Zahra and George (2002) model on international entrepreneurship we will go through the individual components of the model and relate them to our sample of born-again global firms, whenever applicable. The objective is to identify those model constituents which may be of particular relevance to born-again global firms. Following the principle of cause and effect, we will first discuss the model's affecting components and later provide an account of any observed effects and potential moderators. Hence, will first report any observed antecedents, followed by determinants and the outcomes. In a last step we will provide observations on context variables which we suspect to have moderating effect.

Antecedents

Organizational Factors. When analyzing the case companies' organizational factors just before their internationalization process, the TMT characteristics are particularly interesting with regard to their education abroad, previous experience in a multinational company, and professional experience in foreign markets. Table 2 provides a brief overview of the case companies' TMT characteristics.

*** Insert Table 2 About Here ***

With the exception of company E, which already started international activities in 1958, all the companies' TMTs were only later internationally oriented. Remarkably, the first step into international markets mostly occurred shortly after a CEO change – on average less than four years after this event. Firm E is the exception, as is case D, which had already gone abroad four years before the current CEO's appointment.

Firm resources. The firms' unique assets, process know-how, and product knowledge generally seemed to play a more important role than, for instance, their networks as all of them had a strong focus on research and development, although they were not technology based. More strikingly, they built networks through their internationalization activities instead of being internationalized because of their networks. Only company C profited greatly from its close cooperation with a big partner, which significantly influenced its drive to internationalize quickly and comprehensively. The other firms either adopted a reactive or proactive approach to internationalization without disposing of noteworthy contacts or networks beforehand.

Determinants

International Entrepreneurship. With an average export ratio of 51% the extent of the internationalization of our sample firms is very extensive. The lowest export ratio accounted for 20% (company B) whereas the highest went as far up as 80% (company A). The reported pace of internationalization was remarkably high. The surveyed companies tackled between 0.75 and three new markets per year. On average they entered 1.55 new markets per year. The geographical expansion of the seven case firms can be described as fairly comprehensive. With one exception (company A) the sample firms are active in 20 or more foreign markets. Interestingly, all of them are active in Europe and Asia. Eastern Europe is a more important

market than North America: 86 percent (six out of seven) of the interviewed companies export to the former, while only 71 percent (five out of seven) are active in the latter.

*** Insert Table 3 About Here ***

Outcomes

Competitive Advantage. All the companies have profited financially from their international entrepreneurship activities. Their turnover increased tremendously through internationalization. Table 4 provides an overview of the financial outcomes of internationalization.

*** Insert Table 4 About Here ***

Company A managed to increase its turnover by 1580% over 38 years, representing a compounded annual growth rate of 7.7% since first venturing abroad. Even the smallest relative gain is with 90% over 20 years or an annual growth rate of 3.25 % is remarkable.

Context

Environmental Factors. In terms of the context variables that influenced the case companies' internationalization patterns, the limited growth of the domestic market and the increasing competition levels were clearly the pivotal factor for most. Consequently, the owners or CEO's saw internationalization as a viable, or the only, way to sustainably develop their businesses. Other reasons, such as the industry profitability, economies of scale, the institutional environment, etc., played hardly any role.

Strategic Factors. The companies handle most of their international operations themselves or, regarding sales, with a foreign partner. Owing to the lack of resources in Switzerland, all the companies are compelled to establish reliable raw materials procurement in foreign markets. Only company G has set up an international R&D department. Five of the companies have set up part of their firm's infrastructure, such as the general management, planning management, the legal, finance, accounting, and quality management, etc., in international markets. They were not deterred by having to move part of the company from Switzerland, but mainly continue their research there due to the know-how built up over the years.

With regard to their primary activities, all the firms have built up a vast distribution network abroad through which they sell their products. The four companies with production facilities abroad also handle their inbound logistics, operations, and outbound logistics in the respective markets. Four companies deliver international after-sales service; the others organize this from their headquarters.

It is noteworthy that all the companies pursued a differentiation strategy on the corporate level, therefore seeking to be unique in their industry without completely ignoring their cost positions. In all the cases, the focus before internationalization was strongly on their products' quality and on efficient production processes, hence R&D's high significance.

Regarding the integration of their foreign operations, 71 percent (five out of seven) of the companies now have subsidiaries abroad. All the companies, except F, are very flexible in terms of entry modes and choose a strategy according to their goals and the market share they want to gain in the respective country. Most of the companies have agents to represent them in foreign markets regarding their exports, which seems to be an ideal solution for all except company G. In conclusion, all the companies set great store by choosing their strategies

carefully in terms of differentiation, function, and entry. Prior to internationalization, generic strategies and competencies were emphasized far less.

Additional Noteworthy Observations

With the exception of F and D, all the companies have hired at least one employee in their foreign operations, with G's 50 percent being the highest. Case D used to have a subsidiary in Germany as well, but closed it only three years after its establishment. On average, 16.9 percent of all the staff was on the payroll outside Switzerland in 2005.

All the interviewed companies have shown a remarkable development since their first step into foreign markets by, for instance, adapting their business practices or models. They have managed to acquire great knowledge and built the ability to internalize, create, and transfer know-how to new markets, which is the crucial component of sustaining a competitive advantage (Pinch, Henry, Jenkins and Tallman, 2003). The firms have mostly developed new sets of skills or competences and constructed new goals, values, or systems.

While acknowledging the difficulty of undertaking such research with a qualitative study, we could not find any support for environmental or strategic factors actually having moderating effects on the relationship between organizational factors and international entrepreneurship. Nevertheless, critical events, such as a CEO change, do seem to have a moderating effect on this linkage.

Last but not least it may be of interest to learn that we could not make out any systematic differences in the internationalization patterns based on the genders of the TMT, the type of legal framework the firm is operating under (private vs. joint-stock company) or the ownership of the firm (family-owned vs. non family-owned).

DISCUSSION

Internationalization Theories Revisited

In this section of our study we will discuss the suitability of all three internationalization theories, the born global theory of internationalization, the process theory of internationalization, and the born-again global theory for interpreting our empirical findings. Furthermore we will use our empirical insights to refine the above mentioned Zahra and George (2002) model on International Entrepreneurship. The objective here is to identify those factors that are particularly relevant to born-again global firms. Accordingly a distilled model will be presented at the end of this section.

The Suitability of the Born Global Theory of Internationalization. One of the cornerstones of born global theory posits that a firm can internationalize from the moment of its founding. Although we excluded firms from our sample that had started internationalization during the first three years of their corporate life, we wanted to investigate the suitability of the born global theory for born-again globals. Born global theory suggests that young internationalizing firms have a unique ability to identify and exploit market imbalances. To a certain extent this also holds true for the firms we interviewed: With one exception (firm E), all the enterprises had proactively searched for international market imbalances. The INVF also points to emerging alternative governance structures, such as licensing, franchising, etc. We found no support for this proposition with regards to born-again global firms. Networks were used, but, contrary to certain researchers' claims [see, e.g., Oviatt and McDougall (1995), Keeble et al. (1998) or Westhead et al. (2001)], they did not play a significant role prior to the ventures' internationalization. Furthermore, no substantial

licensing or franchising activities emerged and no specific partnerships were formed. Our observations of born-again global firms can also not corroborate that the knowledge applied to enter foreign markets was safeguarded in any way.

The Suitability of the Process Theory of Internationalization. The case companies clearly satisfy the first criteria of the Uppsala model, which states that internationalizing firms do not initially have regular export activities. The examined firms were all exclusively active on the Swiss market for at least 24 years before venturing abroad. However, the assertion that these firms subsequently pass through four distinctive stages does not hold true for all of them, especially not for those which started internationalizing significantly later than the others (cases G, C, and F). The exceptions established production facilities or overseas representative offices within less than five years after their strategic change and saw very fast growth of their export ratios.

However, the internationalization patterns of the others cannot be referred to as a stepwise and reactive process either. Except for E, all firms actively searched for opportunities in foreign markets early on and did not merely wait for customer enquiries from abroad. None of the companies avoided markets with great psychic distance; conversely, even those which launched their internationalization process decades ago entered very distant markets within a short period of time; that is, within four years after their strategic change.

Evidently, the process theory cannot fully explain and describe the rapid and committed internationalization behavior of the studied case companies which leads to growth rates in turnover of up to 12 or 13 percent over a sustained period of time (companies B and G respectively). Furthermore, the firms neither accumulated a great amount of knowledge before venturing into countries with a considerable psychic distance, nor did they only enter a very small number of new markets within the first five years. F is the only company whose behavior is rather process oriented, because it has never had any other market entry strategy than export; nevertheless, it ventured into markets with immense cultural distance from the very beginning and is now active in 51 countries around the globe.

The Suitability of the Hybrid Theory: As proposed by Bell et al. (2001), born-again global firms can be regarded as a combination of the process theory and the INV theory as they incorporate elements from both theories. Hence, this theory will be used to investigate its suitability for interpreting the empirical research's findings.

As the firm-specific variables of the case companies show, they are at least 38 years old, with B the youngest and also the last to internationalize. All of them have been active on the Swiss market for a minimum of 24 years before venturing abroad. The reasons for this step differ from the critical incidents that Bell et al. (2001) describe which were mainly mergers and acquisitions or a domestic client that internationalized. Yet those differences can be potentially explained by structurally different markets: Bell et al. conducted their research in either bigger markets (UK regions and Australia) or more isolated ones (New Zealand) markets that present different challenges than Switzerland with its small but exposed (i.e., in the center of Europe) home market. One of the main reasons for the case companies' internationalization was the small domestic market, the changing demographical environment, and the increasing competition. Initially, everybody was aware that, given these restrictions, the companies' survival and long-term profitability would be difficult to guarantee. However, although the push-factors are "hard facts" imposed by the external environment, the companies' expansion was not only due to those external factors. On the contrary, almost all companies had other motives or "soft factors" that exerted considerable influence, such as a certain risk taking proclivity, entrepreneurial thinking, professional experience, and curiosity, and which drove them to remote international markets. It is certainly no coincidence that in

five of the cases, the internationalization process was launched shortly after a generational change. A new owner or CEO had international experience, new ideas for developing innovative products or services, and perhaps a broader mind. Rather than merely adopting an opportunistic approach towards internationalization and regarding it as the only way to sustainable development, these owners and CEO's were ambitious and prepared to seize opportunities and take risks.

As Bell et al. (2001) suggest, our sample companies substantiated the proposition that internationalization is not a linear and stepwise process. Despite their well-implemented and established structures, strategies, and cultures, our case firms were able to tackle internationalization like born globals do with regard to flexibility and an ability to operate wherever they see fit. Furthermore, it became evident that, as Bell et al. (2001) suggest, traditional corporations are indeed more people driven than knowledge-intensive born globals. The entrepreneurs and their motivation to conquer international markets played a more important role than the ambition to spread pre-emptive technologies and to be first to sell a product or service abroad.

In this context, entrepreneurship corresponds to "a company's formal and informal activities aimed at increasing innovation and venturing. [...] Venturing defines a company's strategic territory (business scope), whereas innovation makes the pursuit of opportunities within given markets possible and profitable" (Zahra et al., 2001, p. 4 & 6). Most international companies have the capability to leverage such innovations across borders by adjusting their products to the local cultures and market conditions. The case companies, too, developed a unique ability to combine their product know-how and experience with fundamentally new knowledge, which allowed them to exploit new opportunities arising from internationalization. March (1991) clearly distinguishes between exploitative learning (learning new things by using existing knowledge) and exploratory learning (gaining radically new know-how), which is particularly important to develop sustainable entrepreneurship (Guth and Ginsberg, 1990). By integrating their knowledge, the case companies were able to build new skills that paved the way to enter new potential markets beyond their business scope.

Case C's development illustrates this ongoing cycle. Before venturing abroad, this firm produced and sold wire cables in a rather narrow market; its main clients were mountain railways, agriculture, and forestry. In the late 1980s, the company entered a new industry when it discovered architects' need for wire cables. After the launch of the internationalization process in 1991, new skills were mainly acquired through project management and cooperation with other companies, which introduced C to new techniques and wire applications – the "webnet." Currently, the firm is a valuable and highly regarded partner in big projects, such as the construction of the Bangkok airport. With every new assignment, C has to adapt to different conditions, thus learning and enlarging its expertise, which helps it develop more sophisticated products for its current and new markets.

This example shows the tremendous impact that internationalization has on the ability to build core competences. Although each of the case companies has a distinct way of gaining knowledge and being innovative, they all experienced the above-described cycle. Another common feature is the shift from the product view to a more holistic approach to satisfying customers' needs through project management and tailor-made services. It is also important to emphasize that although the companies come from diverse backgrounds and internationalized in different decades, their behavior regarding the development of core competences was surprisingly similar.

Whilst some components of the Zahra and George's integrated model of international entrepreneurship (2002) indeed proved to be relevant to explain the internationalization behavior of our set of born-again globals, others were not. We therefore suggest a refinement

of Zahra and George's model. After distilling the factors from the model which had no impact in our empirical survey, the following refined model for born-again global firms emerges.

*** Insert Fig. 2 About Here ***

Bell et al. (2003) highlight the differences in conventional, born global, and born-again global firms' internationalization trajectories. Our findings corroborate this conclusion. Born-again globals deserve recognition as a distinct type of enterprise.

CONCLUSION AND CONTRIBUTIONS

To date, IE has focused on the activities of small and newly-established organizations, largely neglecting the behavior of somewhat bigger and established firms in traditional sectors (Dimitratos and Jones, 2005). This study has shown that established companies can exhibit the same innovative, proactive, and risk-seeking behavior (McDougall and Oviatt, 2000) across borders as new ventures do. Despite their very well-rooted structures, strategies, and cultures, they can flexibly adapt to their new environment. They are prepared to explore areas outside their current business to find new sources of external competence and innovation. All of the surveyed companies have found ways of learning from their customers, suppliers, competitors, new employees or other market players, and of developing important skills as capabilities. Furthermore, they have integrated several aspects of different internationalization strategies, mainly the process theory and the born global concept, to form their own approach to internationalization. Thus, this study shows that research into IE should not merely focus on born globals or on firms following a stagewise internationalization path, but IE should put a particular emphasis on the international activities of well-established, yet rapidly internationalizing firms, regardless of their age, size, or industrial sectors. Only if these hybrids receive sufficient attention a comprehensive view can be gained on the IE research area.

Two main reasons were identified that turned mature SME's into born-again global firms: First, the external environment, especially the small home market, pushed those enterprises into international markets and, second, a committed entrepreneur who actively searched for new opportunities served as a distinguished pull factor. As Jones and Coviello (2005) and their dynamic process of innovation through internationalization behavior propose, these engaged entrepreneurs took advantage of unexpected occurrences and changes in customers' expectations. Hence, these incidents had a strong catalytic effect on these firms' internationalization behavior. Moreover, their internationalization path was never exactly planned, nor was the process a clear strategic procedure; instead it was a rather ad-hoc, opportunistic, and trial and error approach, hence largely reflecting an effectual rather than causal posture (Andersson, 2011).

Preparation and adaptability are key for a born-again global firm to be sustainable. The more informal and flexible the company's structure was before internationalization, the more rapid and dedicated the process seemed to be. Some firms, like C and B, did not even dispose of an organization chart and meetings were not held regularly. It appears as if their internationalization activities also intensified their entrepreneurial activities, somewhat contradicting the findings of Krackhardt (1995), who suggests that, *ceteris paribus*, mature enterprises are less innovative, flexible, and adaptable.

Networks, however, do not play the same predominant role as they do in born globals. This observation resonates with the findings by Ucbasaran et al. (2008), who, in their study of private firms, find that information originating from personal, professional, and business networks is less important for identifying business opportunities than publications are.

Furthermore, we observed that internationalization skills do not necessarily have to exist before internationalization, as they are built during the expansion when they become crucial. Contacts have to be established and partners found before venturing abroad, but they are loose connections rather than networks. The main challenge for companies is to adapt rather quickly to the international expansion and to learn faster than their competitors, as this is a crucial factor in an international environment. This outcome resonates with the ideas of Weerawardena et al. (1988), who suggest that accelerated internationalization should be viewed as a dynamic capability that internationally-oriented entrepreneurs build and fuel.

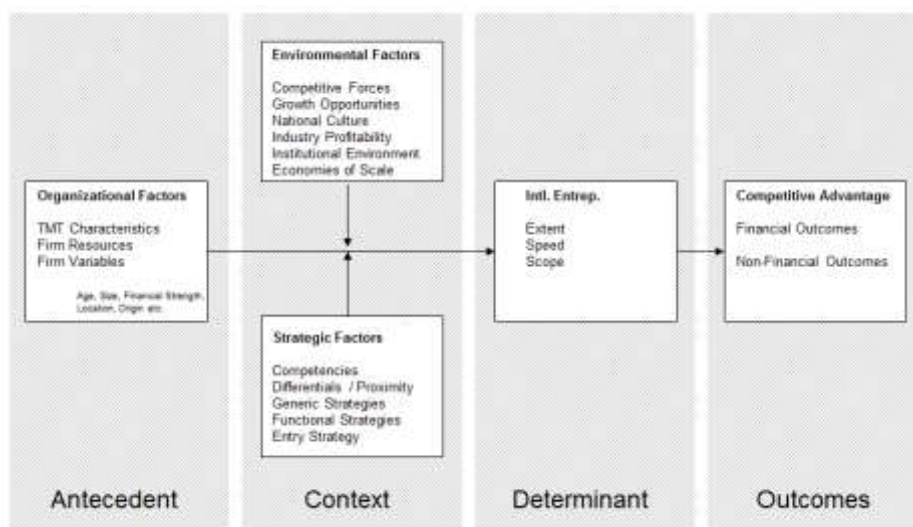
In conclusion, openness regarding learning from other markets and the flexibility to modify products according to clients' needs ensure born-again global firms' competitiveness. According to our findings, born-again globals are innovative regarding adapting to changes, which makes it easier to launch their products in new markets.

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

It is important to note this study's various limitations. First, the sample was drawn across a variety of industries, which indicates that industry-specific conditions could not be taken into account. Future research could provide further insight into the industry-specific characteristics that have a strong impact on established companies' internationalization behavior. Second, researchers building theory from cases might run the risk of generalizing too much due to the topic's complexity and thus overlook or neglect certain specific company characteristics. Third, despite measures to avoid hindsight bias we cannot rule out that in extreme cases, especially when the internationalization event took place decades ago, memories may have become tainted in the meantime, leading to interview results that are potentially not hundred percent accurate.

Possible directions for further research have emerged, the most important of which is a quantitative study. The sample should be drawn from as large a database as possible to cover a wide range of different industries in various regions of Switzerland. Future research could furthermore benefit from carefully examining the potential relationship between internationalization behavior and the firm's innovativeness. It could also be of interest to establish whether the behavior of born-again global firms in Switzerland differ from those in other countries.

Fig. 1: An Integrated Model of International Entrepreneurship



Source: Zahra and George (2002)s

Table 1: Enterprise sample

Case Company	Extent		Number of Export Markets	Speed		Scope
	Export Ratio	Average Export Ratio Growth per Year ¹		Internationally active for n Years	Speed ²	
A	80 percent	1.65 percent	44	32	1.22	Europe, Asia, North America
B	20 percent	3.09 percent	7	6	1.17	Europe
C	50 percent	2.74 percent	45	15	3	Europe, Asia, North America
D	70 percent	1.91 percent	21	28	0.75	Europe, Asia, North America
E	25 percent	1.61 percent	20	14	1.43	Europe, Asia, North America
F	64 percent	0.99 percent	51	50	1.02	Europe, Asia, North America
G	50 percent	5.96 percent	16	7	2.29	Europe, Asia
Average	51 percent	2.56 percent	29	22	1.55	

1) $(\text{Export Ratio})/(n-1)$
 n = internationally active for n years

2) $(\text{Number of countries})/n$
 n = internationally active for n years

Table 2: Top Management Team Characteristics and Resources before Internationalization

Case Company	TMT Characteristics			Firm Resources
	Professional Experience abroad*	Internationally-oriented TMT	Education abroad*	International Networks/Cooperations
A	No	No	Yes	No
B	Yes	No	Yes	No
C	Yes	No	No	Yes
D	Yes	No	Yes	No
E	Yes	Yes	No	No
F	No	No	No	No
G	Yes	Yes	Yes	No

* of at least 50% of the TMT

Table 3: Extent, Scope, and Speed of Internationalization of the Case Companies

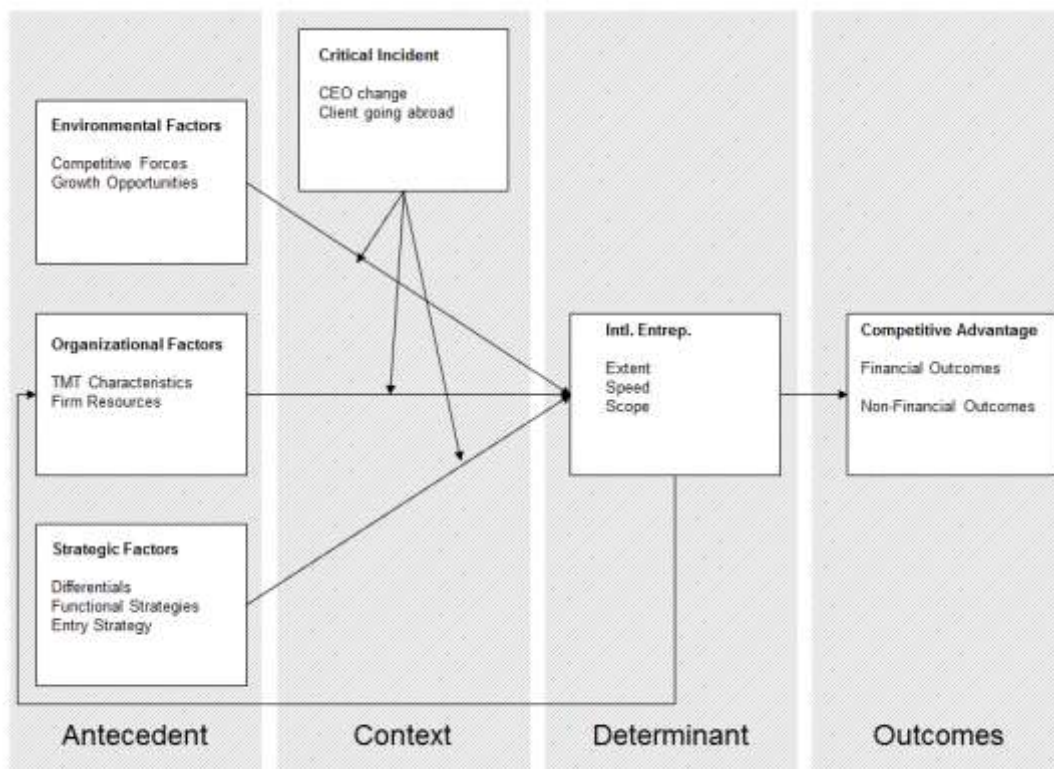
Case Company	Activity/Product	Founding Year	Year of Internationalization	Time Lag before Internationalization (in years)	Turnover before Internationalization (in CHF m.)	Number of Employees before Internationalization	Number of Employees in 2011	Number of Employees in Foreign Operations in 2011
A	Water-miscible cutting fluids, cutting oils and forming oils	1936	1973	37	10	60	400	180
B	Garden design, landscape architecture	1975	1999	24	5	64	100	1
C	Stainless steel wires and components for facade greening, webnet solutions	1904	1990	86	6	30	72	12
D	Water-resistant, synthetic adhesives, elastomeric sealants	1918	1977	59	9	35	75	0
E	Production and supply of honey, dried fruits, nuts, and herbal products	1958	1991	33	29	70	89	5
F	High-quality hand tools: screwdrivers, striking tools etc.	1878	1955	77	2.5	70	120	0
G	Debit/credit/loyalty card manufacturing, identification documents, securities	1859	1998	139	25	120	400	200

Table 4: Increase in Turnover since Internationalization

Company	Turnover before Internationalization (in CHFmn)	Turnover in 2011 (in CHFmn)	Increase in Turnover since Internationalization ¹	Increase in Turnover per Year ²	No of years of international activity in 2011
A	10	168	1580%	7.70%	38
B	5	20	300%	12.24%	12
C	6	25	317%	7.03%	21
D	9	32	256%	3.80%	34
E	29	55	90%	3.25%	20
F	2.5	29	1060%	4.47%	56
G	25	134	436%	13.79%	13

1) $((\text{Turnover 2011}) / (\text{Turnover before Internationalization})) - 1$

2) $(\text{Increase in Turnover}) / (n - 1)$
 $n = \text{internationally active for } n \text{ years}$

Fig. 2: A Conceptual Framework of the Internationalization Behavior of Mature SMEs

Source: Own elaboration

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**ENTREPRENEURIAL BRICOLAGE AND YOUNG FIRM PERFORMANCE: THE
MODERATING EFFECT OF TEAM COMPOSITION.**

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Entrepreneurial Bricolage and Young Firm Performance: The Moderating Effect of Team Composition.

Abstract

Many young firms face significant resource constraints during attempts to develop and grow. One promising theory that explicitly links to resource constraints is bricolage: a construct developed by Levi Strauss (1967). Bricolage aligns with notions of resourcefulness: using what's on hand, through making do, and recombining resources for new or novel purposes. In this paper we further theorize and test the moderating effects of ownership team composition on bricolage and firm performance. Our findings suggest that team size, strong network ties, and functionality enhance the effects of bricolage in young firm performance.

Keywords: Bricolage, Venture Performance, Team Composition, Team size, Network ties.

Introduction

Many new firms experience resource challenges in attempts to grow and develop. Unlike established firms, young firms often lack legitimacy, and face financial, social, temporal and other resource constraints (Wiklund, Baker, & Shepherd, 2010). As a consequence they attempt to make do by applying existing resources to challenges and opportunities (Baker & Nelson, 2005). Often considered a theory of resourcefulness, bricolage is defined as ‘making do by applying combinations of the resources at hand to new problems and opportunities’ (Baker & Nelson, 2005).

Bricolage has been shown to be one way that firms can innovate and grow in the face of constraints (Senyard, Baker, Steffens, & Davidsson, 2013), often leading to “brilliant unforeseen” results (Levi-Strauss, 1967). However, other research suggests it can also lead to poor performance and stagnation (Hatton, 1989). Teams may enhance the better performance of young firms using bricolage (Banerjee & Campbell, 2009). Delmar and Shane (2006) found approximately 50% of start-ups are attempted by entrepreneurial teams, making founding teams and their compositions an important context to study bricolage. But to the best of our knowledge, the impact of teams using bricolage and its impact on performance has not been specified or tested in prior research.

In this paper, we draw on the mostly inductive theorizing prevalent in the bricolage literature to hypothesize that team structural characteristics influence the relationship between bricolage and firm performance, using data from the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE) project (Davidsson, et al., 2011). Our work contributes to the behavioral theory of bricolage by beginning to identify the conditions under which team structural characteristics may enhance or negatively influence performance in recently established young firms using bricolage.

Theory and Hypothesis

Young firms face many challenges in attempts to grow (Shepherd, Douglas, & Shanley, 2000), especially making resource decisions. Some firms attempt to reduce the constraints they face through bricolage (Baker & Nelson, 2005). More generally, the literature suggests bricolage has a positive relationship with firm performance through, a. enabling action rather than resource seeking or inactivity (Baker & Nelson, 2005); b. instigating the potential for fast response to challenges and opportunities (namely through improvisation) (Bechky & Olsen, 2011); c. taking advantage of more opportunities in comparison to doing nothing by going where “others fear to tread” (Baker & Nelson, 2005); and d. more novel idiosyncratic solutions, given the reliance on the means on hand, or through multiple inputs (Garud & Karnoe, 2003) and resources scavenged “cheaply or for free” (Baker & Nelson, 2005). Bricolage outcomes are often celebrated for their ingenious reworkings of existing resources on hand to get the job done. For example, bricolage was used to generate a solution for the Apollo 13 space shuttle crisis, saving the astronauts (Rerup, 2001).

Other literature however, suggests that bricolage solutions may be “just good enough” (Berchetti & Hulsink, 2006) and has been associated with “second best solutions, maladaptation, imperfection, and inefficiency” Lanzara (1999: 347), or at best, a temporary coping mechanism (Powell, 2011) to the challenges these firms face. Given that the relationship between bricolage and performance is unclear, it is worthwhile exploring the mechanisms at play that may influence this relationship. In this research we take an exploratory approach by evaluating the use of bricolage in teams and its potential influence on firm performance.

The few extant studies on bricolage and teams do not examine team structural composition. As bricolage tends to be considered a solo activity there has been a focus on the individual “tinkerer”. Levi-Strauss (1967) describes the bricoleur in these terms: “Consider him at work and excited by his project. He has to turn back to an already existent set made up of tools and materials, to consider or reconsider what it contains and... to engage in a sort of dialogue with it and, choosing between them, to index the possible answers ... to his problem.” Others have provided evidence of bricolage in small teams and suggest the use of teams provide valuable access to resources that enable “momentum” in bricolage (Garud & Karnoe, 2003:278). Alternate arguments exist that the use of bricolage in teams may more generally create confusion, delays and conflict, and that too many individuals within a team attempting bricolage may well be akin to “too many cooks spoiling the broth” via resource behaviours, creating difficulties in both managing resource troves, and confusion within bricolage recombination and resource deployment activities. A lack of consensus within teams and the use of bricolage at its most extreme, as seen in the case of Mann Gulch disaster, produced dire consequences (Weick, 1993). In entrepreneurship literature, Ruef, Aldrich and Carter (2003) found empirical evidence of the importance of team structure including mechanisms of network ties and functionality but these team structural mechanisms have not been applied to bricolage literatures. We begin to explore such themes in this paper.

Team Structural Composition

The relationship between teams and firm performance in entrepreneurship is the focus of much interest and research (e.g. Steffens, Terjesen, & Davidsson, 2012) and studies have examined structural team composition including team size (Heavey & Simsek, 2013), network relationships ties, (Phillips, Tracey, & Karra, 2013), and team functionality (Ruef et al., 2009). These studies show that team mechanisms can often be a double edged sword (Loane, Bell, & Cunningham, 2013), with mixed effects on team performance.

Team Size

Resource availability and resource combinations are critical in bricolage as they shape the solution deployed in response to opportunities and challenges, influencing firm performance. Several studies highlight the benefit of large teams. As Hambrick and D'Aveni assert, “the resources available on a team result from how many people are on it” (1992: 1440). Large teams may offer more resources for bricolage in both scope and scale (Wiersema & Bantel, 1992) and enable quicker collection of resources (Amason, Shrader, & Tompson, 2006), enabling concurrent resource actions, creating more time in evaluating resources, and time to tinker and experiment with existing resources and their combinations.

This may assist in generating different ways to combine and recombine elements, or develop several alternate bricolage choices for resource deployment. Having a suite of solutions on hand to choose from may lead to stronger firm performance.

H1a: Team size will positively moderate the relationship between bricolage and firm performance, strengthening firm performance.

Others however, suggest difficulties with large teams. Larger teams face problems in their ability to communicate, coordinate and recombine resources as the team size increases (Hambrick, 1994) which may be critical for young firms attempting to initiate bricolage (Weick, 1993). Further, attempts to improvise in bricolage resource combinations becomes problematic owing to pockets of knowledge asymmetries and potential group conflicts with resource deployment (Amason & Sapienza, 1997). As such, we propose an alternate, competing hypothesis:

H1b: Team size will negatively moderate the relationship between bricolage and firm performance, weakening firm performance.

Network ties

Research on teams in entrepreneurship studies which tests the influence of network ties show divergent findings. Similarly, we find divergent findings of the use network ties composition in bricolage. In the two papers we found in using bricolage/improvisation and team compositions, one argued the importance strong ties to achieve better performance (Berliner, 1994), the other proposed diverse inputs (Garud & Karnoe, 2003), including weak ties (Granovetter, 1973) for better firm performance.

We hypothesize here that strong ties have a positive influence on the relationship between bricolage and performance in four important ways. First, agency theory arguments suggest strong ties create and confirm trusting relationships, reducing monitoring costs and opportunistic behaviour (Ouchi, 1980). These team members often allow unfettered access to resources used in bricolage; it enables fast recombination and resource deployment owing to trust (Tsai & Ghoshal, 1998) and improved communication flows (Beckman, 2006). Second, team members with strong ties tend to be family or friends who are often willing to assist for free, enabling the young firm to retain the limited resources they do possess, for use on other critical tasks. Third, close ties with customers that have become team members enable both a. highly relevant solutions via specialised co-creation behaviours, and b. tolerance for the “good enough” bricolage solution produced. Finally, strong network ties enable greater use and familiarity of team member’s skills, abilities, resources. This familiarity is critical during resource recombination and experimentation through improvisation activities in bricolage (Miner et al., 2001).

H2a: Young firms that apply bricolage with strong network ties will attain stronger firm performance.

On the other hand, an alternate argument exists that teams composed of strong ties may instigate group think (Janis, 1972) owing to the stress owing to the challenges they face. As a consequence of group think they may instigate less robust evaluation of resources often going with the most acceptable known solution within resource decisions: with incomplete assessment of all resource alternatives, or selective experimentation of resource processes.

Strong tie teams using bricolage may provide access to very similar types of resources, reducing resource scope, limiting resource combinations, and novelty, impacting firm performance. As such, an alternate hypothesis suggests:

H2b: Young firms that apply bricolage with strong network ties will attain weaker firm performance.

Functionality

We could find no literature on functionality of teams in bricolage. Entrepreneurship research provides contradictory findings regarding effects of functionality on teams (Chowdry, 2005). Teams composed of individuals with functional breadth are often promoted as one way entrepreneurs can fill the “gaps” in resource and capability deficiencies leading to broader perspectives and team effectiveness (Knouse & Chretien, 1996).

H3a: Young firms that apply bricolage in teams with high levels of functionality will attain higher firm performance.

Others however, argue that it is unclear whether functionally broad teams always improve outcomes. Functionality in teams using bricolage may initially have a negative influence on the relationship between bricolage and firm performance for a number of reasons. First, when facing resource constraints, bricolage behaviours in teams which have functional breadth may instigate untenable resource decision conflicts between members. Conflicts may exist in resource use, and recombinations, effectively trapping the team in repetitive cycles of improvisation or “going back to the drawing board” until some standoff or team consensus is reached. This wastes valuable financial and human capital resources (Ciborra, 2002; March, 1991). Second, there is the potential for generating too many possible solutions owing to functional breadth, which exacerbates problems of bounded rationality (March, 1978). We therefore suggest an alternate hypothesize that:

H3b: Young firms that apply bricolage in teams with high levels of functionality will attain lower firm performance.

Data, Measures and Analytic Strategy

Sample and Data

The data for this research was drawn from the CAUSEE project, a 4-year longitudinal study studying firm emergence (Davidsson, et al., 2011) administered through telephone surveys. This study builds on the general empirical approach, and some contents from the Panel Study of Entrepreneurial Dynamics (PSED) studies in the US (Reynolds & Curtin, 2008). This analysis uses the randomly selected young firm sample (514 YF cases), the criteria for inclusion was that the respondents had to confirm that they were owners, or part owners of the young firm and that they started “trading in the market doing the type of business you are currently doing” in 2004 or later. The final sample used evaluates young firm teams (n= 259 cases). As CAUSEE is a 4 year longitudinal survey it enables us to study firm development over time. We time separate our independent variable wave 1 (W1) and dependent variable wave 3 (W3). Wave 2 tests (not provided here) show similar results. Additional tests for a curvilinear direct relationship between bricolage and performance (not shown) did not yield any significant changes in the results.

Measures

Bricolage

We use a recently developed bricolage instrument and scale to measure bricolage (Senyard et al., 2013). The questions were designed using Baker and Nelson's (2005: 333) definition of the bricolage: "making do by applying combinations of the resources at hand to new problems and opportunities." The items use a 5-point response scale from 1 "never" to 5 "always", rather than levels of agreement, in order to reflect the behavioural nature of the phenomenon. Reliability testing using the team sample indicates the reliability of the scale is good (.84). Refer to Senyard et al. (2013) for further discussion of the bricolage measure.

Moderator Variables

Team Size

Team size is calculated as the number of team members including respondent on the team. The range of this variable in this sample is 2 to 6 person teams.

Network Ties

We use a scale which is an elaboration of the scale developed for the PSED and PSED II (Ruef et al., 2009) to measure the relational composition of the ties by studying the relationships between the owners of the young firm. We ask respondents if any two owners are related as spouses or partners sharing a household, relatives by blood, friends or acquaintances from current or previous work, friends or acquaintances who have not worked together, strangers to each other before joining the new business team. This scale identifies three categories of the network ties (Ruef, Aldrich, & Carter, 2003) Strong network ties (spouses or partners sharing a household, relatives by blood) weak network ties (friends or acquaintances) and two of the owners strangers to each other before joining the new business team. A continuous variable was computed for these responses and summated to develop the overall network tie measure used in this research.

Functionality

To measure the functionality, we considered the team members education and experience and whether the team could contribute to the firm in a range of functional business areas. For example, the experience question asked "Based on the work experience you or any other owner had prior to starting this business, can any of you help the business with knowledge in any of the following areas?"

- Sales, marketing or customer service
- Administration or Human Resource management
- Knowledge needed for producing products in your industry
- Finance or accounting
- Knowledge needed for developing products/services in your industry

The variables were coded as yes (1) or no (0) and summed up to generate a 5 item scale.

Controls

We use four categories of control variables. The first category aims to capture the overall level of resources available for the firm. Specific variables include age of the firm (product or service firm (dummy), and running a concurrent or parallel firm). A firm's past performance may have a strong influence in following years and will also influence resource availability (Bradley et al., 2011). Therefore, we control for past performance using sales from the year immediately preceding the measurement of firm sales (W1) for Wave 2 sales, (W2) for Wave 3 sales. The second group of control variables aims to capture some of the heterogeneity concerning the ability the firm has to develop resources including human capital of the start-up team: education (number of owners with a university degree), prior entrepreneurial experience (number of previous start-up attempts) (Davidsson & Honing, 2003), and management experience (number of years). We control for financial investments (amount of money invested in firm (log)) available to the venture. The third group of control variables aims to capture some of the heterogeneity within the teams including spousal teams (Davies et al., 2009) and team size (Steffens et al., 2012). The fourth group of control variables relate to other influences including preference for business size "I/We want this new business to be as large as possible" (dummy) as this influences resource behaviours, service (versus product dummy) and industry controls.

Analysis Technique

We used hierarchical moderated regression analysis to test our hypotheses. The independent variables were mean-centered prior to the formation of interaction terms (Aiken & West, 1991). Table 1 provides descriptive statistics and correlations among the variables used in the regression analyses.

Results

Table 1 reports the results of the regression analysis that models bricolage in relationship to firm performance. The first hypothesis proposed that team size may positively (H1a) or negatively (H1b) moderate the relationship between bricolage and firm performance. Table 2 provides the results for the moderated regression. Our results indicate there was a significant positive moderation effect of team size on the relationship between bricolage and venture performance (sales) ($\beta=0.267$, $p<0.05$) in young firm teams. Thus the effect of bricolage on venture performance (sales) becomes significantly stronger if the team size is larger. Our results for Hypothesis 2a suggests strong network ties positively moderates the bricolage- sales relationship, 2b suggests strong network ties negatively moderates the bricolage sales relationship. Our results were positive and significant ($\beta=0.249$, $p<0.05$), finding support for hypothesis 2a. Results of the moderated regression are shown in Table 3. Finally, Hypothesis 3a and 3b proposed that higher levels of functionality would have a positive (H3a) and negative (H3b) influence on the relationship between bricolage and sales, and we find it has a positive significant moderation effect ($\beta=0.156$, $p<0.10$) finding support for H4a (Table 4).

DISCUSSION

In this paper, we developed some early theorizing based on prior descriptive and inductive research on bricolage and considered the influence of structural composition of teams on the bricolage sales relationship. The team structural elements of team size, strong network ties, and functional breadth all had a significant positive moderating effect on the relationship between bricolage and sales in young firms.

Our findings open up additional important theoretical questions about bricolage and young firm team composition. The positive effects we find for team composition on bricolage and sales, suggests that young firms flush from first sales success and when engaged in bricolage, attempt to focus on gathering relevant resources. These results are in line with Baker and Nelson's (2005) notion of developing "diverse resource troves" to take advantage of new opportunities and find solutions to challenges. We believe that even though young firm teams should focus on resource scavenging and developing resource troves, teams also need to be concurrently developing strong resource recombinative capabilities for bricolage so that solutions developed via bricolage behaviours may extend beyond just "good enough", enabling stronger firm performance.

We note here that the firms in our sample were young (6 years or younger with the modal firm being 4 years), and the maximum size of the team was 6 individuals, with over 90% of the teams being 2-3 person teams. As a consequence, our results are not indicative of what we believe may occur in larger, more established teams. Curvilinear relationships may exist in team compositions, leading to significant negative effects of bricolage on firm performance.

Conclusion

We believe that ours are the first systematic empirical tests evaluating team composition and its influence on bricolage and firm performance. The results underline the importance of team structural compositions and bricolage on young firm growth. Although our results have important implications for the further development of bricolage theory, we stress that these results represent only tentative first steps in providing a greater understanding of bricolage and its influence on firm performance. Further waves of data exist in our longitudinal survey, which we expect to examine in the near future.

Table 1 Sample Description and Correlation Matrix

<i>Sample Description</i>			
	<i>Mean</i>	<i>Std. Deviation</i>	<i>N</i>
Bricolage	.1205	4.99841	143
Ownership Team Size	2.2238	.66523	143
Strong Ties	3.3566	1.65472	143
Functionality	3.1818	1.58619	143
Retail-Wholesale	.1119	.31634	143
Hospitality	.0350	.18434	143
Consumer Services	.1049	.30750	143
Health Education	.0559	.23062	143
Manufacturing Mining Utility	.0420	.20120	143
Agriculture	.0769	.26741	143
Communication Transport	.0350	.18434	143
Construction Real Estate	.1608	.36867	143
Business Services Financial Insurance	.2168	.41350	143
Other	.1608	.36867	143
Services (Dummy)	.6713	.47138	143
Prior Sales (W2) Log	5.1113	1.20993	143
Young Firm Age	4.2098	1.08025	143
Growth Expectation	.1818	.38705	143
Education (Degree)	13.2168	14.94598	143
Business Experience	12.2727	13.27827	143
Management Experience	20.9790	12.22239	143
Concurrent Business	.3217	.46876	143
W1_Log_Invest	4.4151	1.16751	143
Spousal Team	.6853	.46602	143

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
1.Wave 1 Bricolage	1																								
2. Team Funct. Div.	.364**	1																							
3. Team Relationship Div.	-.097	-.245**	1																						
4. Team Demographic Uni.	.033	-.039	-.163*	1																					
5. Ownership Team Size	-.083	-.013	-.045	.231**	1																				
6. Retail-Wholesale	-.079	-.063	.020	-.013	-.093	1																			
7. Hospitality	-.017	-.035	.226**	.023	.063	-.076	1																		
8.Consumer/Services	.052	.066	-.110	.002	.032	-.123	-.074	1																	
9. Health/Edu//Social Serv.	-.084	-.051	-.079	.084	.065	-.092	-.055	-.089	1																
10. Mining/Manuf/Utilit.	.019	-.035	.021	-.008	-.074	-.076	-.046	-.074	-.055	1															
11. Agriculture	.002	-.009	.116	-.045	-.111	-.115	-.069	-.111	-.083	-.069	1														
12. Commun./Transport	-.048	.024	-.034	.001	-.074	-.076	-.046	-.074	-.055	-.046	-.069	1													
13. Construct. Real Estate	-.007	-.086	.141	-.017	.142	-.150	-.090	-.145	-.108	-.090	-.135	-.090	1												
14. Financial Insurance	.019	.183*	-.238**	.028	.084	-.178*	-.107	-.172*	-.129	-.107	-.161*	-.107	-.210**	1											
15. Other Industry	.095	-.052	.040	-.034	-.088	-.146	-.088	-.141	-.106	-.088	-.132	-.088	-.172*	-.205**	1										
16. Services (dummy)	.008	.060	-.061	.007	.053	-.450**	-.167*	.121	-.031	-.167*	-.128	.090	.193*	.263**	.071	1									
17. Prior Sales_W2	-.041	.076	.029	.063	.137	.054	-.004	-.089	.006	-.015	-.069	-.014	.223**	-.033	-.093	.030	1								
18. Age of Firm	-.118	-.008	.121	-.191*	.004	-.022	-.104	.020	-.056	.097	-.070	.068	.040	.009	.011	.058	.168*	1							
19. Growth Expectation	.000	.027	-.041	.001	.120	.133	.054	-.062	-.058	-.103	-.045	.054	.022	.000	-.014	-.091	.034	-.059	1						
20. Education (Degree)	-.108	.090	-.184*	.087	.188*	-.110	-.186*	-.014	.192*	-.063	-.107	.184*	-.048	.196*	-.069	.019	.030	-.047	.067	1					
21. Business Exp.	.234**	.102	-.129	.085	.193*	.036	.048	.055	0.000	-.055	-.073	-.021	-.024	.007	.012	-.208**	.110	-.229**	.199*	.040	1				
22. Management Exp.	.186*	.220**	-.108	-.066	.167*	.001	.048	.110	-.059	-.064	-.153	-.064	-.049	.050	.111	-.092	.103	-.074	-.032	.051	.316**	1			
23.Concurrent Ent.	.137	.002	-.120	.052	.283**	-.031	.050	-.062	-.066	.050	.148	-.015	-.024	-.040	.026	-.267**	.036	-.048	.152	.054	.427**	.185*	1		
24. Money Invested (Log)	-.054	.056	.003	-.102	.048	.048	.108	.024	.016	.032	-.004	.028	.074	-.234**	.024	-.210**	.085	.058	.040	.074	-.006	.120	.037	1	
25. Spousal Team	-.011	.014	.363**	-.531**	-.510**	.112	-.119	.057	-.104	.012	.124	-.054	-.019	-.135	.084	-.005	-.082	.108	-.160*	-.148	-.244**	-.126	-.262**	-.034	1

Table Two Team Size n=143

<i>Dependent Variable</i>	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>		<i>Model 4</i>	
<i>Level of Resources Controls</i>								
Years Active	-.082	(.097)	-.067	(.097)	-.066	(.098)	-.026	(.097)
Spousal Team	-.167†	(.239)	-.179*	(.237)	-.182†	(.262)	-.144	(.258)
Financial Investment (Log)	.059	(.090)	.060	(.089)	.060	(.090)	.067	(.088)
Growth Expectation	-.069	(.273)	-.076	(.270)	-.076	(.272)	-.099	(.267)
Services/Products Dummy	-.009	(.286)	-.010	(.283)	-.009	(.287)	-.004	(.280)
Prior Sales (W2)	.372***	(.000)	.379***	(.000)	.379***	(.000)	.361***	(.000)
<i>Resource Heterogeneity</i>								
Single/Parallel Entrep.	.047	(.250)	.037	(.248)	.038	(.253)	.041	(.247)
Education Level	.021	(.007)	.053	(.007)	.054	(.008)	.078	(.007)
Industry Exp	-.068	(.009)	-.098	(.009)	-.097	(.009)	-.066	(.009)
General Manage.Exp	-.069	(.009)	-.089	(.009)	-.089	(.009)	-.101	(.009)
<i>Industry Controls</i>								
Retail-Wholesale	-.001	(.452)	.021	(.449)	.021	(.452)	.017	(.441)
Hospitality	.034	(.618)	.033	(.611)	.034	(.615)	.024	(.601)
Consumer_Services	-.133	(.384)	-.135	(.380)	-.135	(.381)	-.131	(.372)
Health, Education Social	-.048	(.479)	-.040	(.474)	-.040	(.477)	-.019	(.468)
Manufacturing Mining	-.028	(.583)	-.024	(.577)	-.024	(.580)	-.022	(.566)
Agriculture	-.159	(.473)	-.143	(.469)	-.143	(.471)	-.140	(.460)
Communication Transport	.002	(.575)	.004	(.569)	.003	(.578)	.004	(.564)
Construction Real Estate	-.072	(.342)	-.068	(.338)	-.067	(.343)	-.066	(.334)
Other	-.074	(.341)	-.075	(.338)	-.075	(.339)	-.094	(.332)
<i>Direct Effect</i>								
Bricolage			.163†	(.021)	.162†	(.022)	.198*	(.021)
Team Size					-.006	(.188)	.164	(.218)
<i>Moderating Effect</i>								
Bricolage x Team Size							.267**	(.036)
F	1.902**		2.029**		1.916**		2.244***	
Change F			.127		-.113		.328	
R2	.227		.250		.250		.291	
Change R2			.023		.000		.041	
Control entries represent standardized regression coefficients. * P<0.05, **P<0.01, ***P<0.001, †P0.10 (two-tailed).								

Table 3 Network Ties n=143

Dependent Variable	Model 1		Model 2		Model 3		Model 4	
Level of Resources								
Years Active	-.095	(.099)	-.083	(.098)	-.060	(.096)	-.063	(.093)
Team size	.036	(.170)	.071	(.172)	.087	(.169)	.070	(.163)
Financial Investment (Log)	.067	(.091)	.068	(.090)	.048	(.089)	.044	(.086)
Growth Expectation	-.055	(.276)	-.065	(.274)	-.072	(.267)	-.046	(.260)
Services/Products Dummy	-.011	(.293)	-.017	(.290)	-.023	(.283)	-.018	(.274)
Prior Sales (W2)	.378***	(.000)	.384***	(.000)	.384***	(.000)	.387***	(.000)
Resource Heterogeneity								
Single/Parallel Entrep.	.079	(.255)	.062	(.254)	.020	(.251)	.037	(.243)
Education Level	.025	(.008)	.053	(.008)	.050	(.007)	.077	(.007)
Industry Exp	-.054	(.009)	-.084	(.009)	-.080	(.009)	-.082	(.009)
General Manage.Exp	-.067	(.009)	-.091	(.009)	-.099	(.009)	-.078	(.009)
Industry Controls								
Retail-Wholesale	-.033	(.453)	-.014	(.450)	.028	(.444)	.080	(.434)
Hospitality	.045	(.627)	.042	(.621)	.106	(.627)	.111	(.606)
Consumer_Services	-.151	(.387)	-.153	(.383)	-.130	(.375)	-.097	(.365)
Health, Education Social	-.045	(.487)	-.040	(.482)	-.034	(.471)	-.026	(.455)
Manufacturing Mining	-.031	(.591)	-.026	(.586)	.007	(.577)	.009	(.558)
Agriculture	-.184†	(.475)	-.167	(.472)	-.099	(.476)	-.063	(.463)
Communication Transport	.018	(.584)	.024	(.579)	.027	(.565)	.013	(.547)
Construction Real Estate	-.087	(.348)	-.087	(.344)	-.013	(.349)	-.002	(.337)
Other	-.097	(.344)	-.097	(.340)	-.038	(.340)	-.016	(.330)
Direct Effect								
Bricolage			.164**	(.022)	.156†	(.021)	.157†	(.021)
Strong Network Ties					-.231**	(.065)	-.289***	(.064)
Moderating Effect								
Bricolage x Strong ties							.249***	(.012)
F	1.682*		1.805*		2.142**		2.616***	
Change F			.123		.337		.474	
R2	.206		.228		.271		.324	
Change R2			.022		.043		.053	
Control entries represent standardized regression coefficients.* P<0.05, **P<0.01, ***P<0.001, †P0.10 (two-tailed).								

Table 4 Functionality n=143

Dependent Variable	Model 1		Model 2		Model 3		Model 4	
Level of Resources Controls								
YearsActive	-.078	(.098)	-.066	(.098)	-.062	(.097)	-.065	(.096)
Spousal Team	-.185†	(.264)	-.182†	(.262)	-.173†	(.237)	-.188**	(.235)
Financial Investment (Log)	.059	(.091)	.060	(.090)	.073	(.090)	.064	(.089)
Growth Expectation	-.067	(.274)	-.076	(.272)	-.068	(.270)	-.074	(.268)
Services/Products Dummy	-.003	(.290)	-.009	(.287)	-.003	(.283)	-.022	(.281)
Prior Sales (W2)	.373***	(.000)	.379***	(.000)	.387***	(.000)	.389***	(.000)
Resource Heterogeneity								
Single/Parallel Entrep.	.054	(.255)	.038	(.253)	.028	(.248)	.036	(.246)
Education Level	.027	(.008)	.054	(.008)	.063	(.007)	.041	(.007)
Industry Exp	-.068	(.009)	-.097	(.009)	-.092	(.009)	-.080	(.009)
General Manage.Exp	-.065	(.009)	-.089	(.009)	-.073	(.009)	-.071	(.009)
Industry Controls								
Retail-Wholesale	.003	(.455)	.021	(.452)	.009	(.450)	-.031	(.453)
Hospitality	.037	(.621)	.034	(.615)	.030	(.610)	.024	(.604)
Consumer_Services	-.133	(.385)	-.135	(.381)	-.142	(.380)	-.160†	(.378)
Health, Education Social	-.045	(.482)	-.040	(.477)	-.051	(.475)	-.058	(.471)
Manufacturing Mining	-.029	(.586)	-.024	(.580)	-.030	(.577)	-.046	(.573)
Agriculture	-.159	(.474)	-.143	(.471)	-.148	(.469)	-.160	(.465)
Communication Transport	-.004	(.584)	.003	(.578)	-.001	(.568)	.008	(.563)
Construction Real Estate	-.066	(.346)	-.067	(.343)	-.091	(.343)	-.088	(.340)
Other	-.075	(.343)	-.075	(.339)	-.099	(.343)	-.094	(.340)
Direct Effect								
Bricolage			.162**	(.022)	.198**	(.023)	.204*	(.022)
Functional Heterogeneity					-.111	(.070)	-.103	(.069)
Moderating Effect								
Bricolage x Functional							.155*	(.013)
F	1.902		2.029		2.015		2.123	
Change F			.127		-0.014		0.108	
R2	.227		.250		.259		.280	
Change R2			.023		.009		.021	
Control entries represent standardized regression coefficients.* P<0.05, **P<0.01, ***P<0.001, †P0.10 (two-tailed), with directional hypothesis entries (one tailed).								

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ENTREPRENEURIAL NETWORK DEVELOPMENT AS A SIGN OF BUSINESS EMERGENCE

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Entrepreneurial network development as a sign of business emergence

Abstract

This study aims to explain the entrepreneurial processes as developments of entrepreneurial networks. As a theoretical framework, this study adopts the theory of experimentally organized economy and competence blocs. As suggested by this theory, entrepreneurs select profitable innovations and commercialise them. Through logistic regressions on the subjective and objective dependent variables, we find that nascent firms' various activities to network customers, innovators, investors, and employees are positively associated with the business emergence. This study identifies the roles of entrepreneurs and the other actors in the entrepreneurial processes.

1. Introduction

It is essential for entrepreneurship researchers to explain the emergence processes of new business ventures effectively. Research interests in entrepreneurial processes distinguish entrepreneurship research from organization studies. Until now, hundreds of the studies on the entrepreneurial processes have been performed, but their models of entrepreneurial processes for business ventures are highly fragmented and are insufficient for understanding the processes (Moroz & Hindle, 2012). The models on the entrepreneurial processes can be classified into two perspectives, i.e. "static stages theory" and "dynamic states approach" (c.f. Levie & Lichtenstein, 2010). In the static theory, the entrepreneurial processes are divided into several stages and ordered tasks while in the dynamic approach, the processes regarded as temporal and complex phenomena. To explain the temporal and complex phenomena effectively, the concept of "simple sign" is useful. We define simple sign as an effective index of one's progress in a certain process. As an example of simple sign, Dimov (2010) argues that opportunity confidence positively affects venture emergence.

Based on the dynamic perspective, this study aims to explain the entrepreneurial processes as developments of entrepreneurial networks. In the present study, the development of entrepreneurial network is a simple sign of an entrepreneurial process. As a theoretical framework, this study adopts the theory of experimentally organized economy (EOE) and competence blocs. In the theory of EOE and competence blocs, the competence blocs are minimum sets of actors and their roles required to engender new economic combinations, and a firm is described as a team with the required competences (Johansson, 2010). Thus, we conjecture that an entrepreneur's networking activities gathering the required competences are associated with the emergence of a business. Furthermore, the bridging and bonding social capital is a robust predictor for advancing through the start-up process (Davidsson & Honig, 2003). Thus it is promising to explain the entrepreneurial processes as developments of

entrepreneurial networks based on a theoretical framework.

Through this approach, the present study contributes to entrepreneurship research in several ways. 1) This study explains the business emergences by entrepreneurial network developments through a dynamic approach. 2) This study adopts the theory of EOE and competence blocs which has potential within entrepreneurship research. 3) This study identifies the roles of entrepreneurs and the other actors in the entrepreneurial processes, which are essential to conduct entrepreneurship studies from a multi-actor perspective.

2. Theory and hypotheses

In the present study, we adopt the theory of EOE and competence blocs. This theory has potential to explain the entrepreneurial phenomena effectively, although this has rarely been adopted in entrepreneurship research. As a part of this theory, the EOE carries the assumption that all economic actors are boundedly rational, and their activities are experimental in nature, because, in the contemporary environment of immense information, they cannot predict the results of their activity with any confidence. As the other part of this theory, the competence blocs are the minimum sets of actors and their roles required to engender new economic combinations in the EOE (Johansson, 2010).

The competence bloc is composed of the competencies necessary to generate, identify, select, expand and exploit profitable new combinations in the state space. We can categorize the competencies and the actors according to their function, though we cannot specify exactly the content of the competencies. As a main actor in the competence bloc, *entrepreneurs* select profitable innovations and commercialise them. The entrepreneur has the most critical function since he understands, selects and initiates the commercialization of the innovations, other important actors and their roles are listed below (Carlsson and Eliasson, 2003; Johansson, 2010).

- ✧ *The competent customer takes an active part in the development and the commercialization of products. The competent customer serves as a channel of information and informs the firm about the market and specific customer demands. He acts as a catalyst for innovation and has a decisive influence on the development and final design of new products.*

Thus nascent firms' various activities to link the competence customers may be positively associated with the business emergence.

Hypothesis 1-1. "Marketing efforts undertaken" is positively associated with the business emergence.

Hypothesis 1-2. "Contact with potential customers" is positively associated with the business emergence.

- ✧ *Inventors find new combinations that solve specific economic, organizational and technical problems; Innovators integrate different technologies for what is needed for particular product functions. He solves advanced technological problems and puts large-scale technologies together into technically advanced products. The function of an innovator can be carried out by one person or a group of persons.*

Thus nascent firm's various activities to obtain the innovative products or technologies may be positively associated with the business emergence.

Hypothesis 2-1. "Business product, responsibility for product development" is positively associated with the business emergence.

Hypothesis 2-2. "Patent, copyright or trademark application" is positively associated with the business emergence.

- ✧ *Competent venture capitalists recognize and finance viable business opportunities, identified, organized and presented to them by the entrepreneurs. This task includes an assessment of the competence of the entrepreneur as well as that of other managers of the venture. The venture capitalist provides competent money. That is, he provides financial resources bundled with his management competence, personal networks and experience. However, the main task of the venture capitalist is to recognize and correctly price innovations.*

Thus nascent firm's various activities to gain capital may be positively associated with the business emergence.

Hypothesis 3-1. "Financial projections developed" is positively associated with the business emergence.

Hypothesis 3-2. "Financial institution funding received" is positively associated with the business emergence.

- ✧ *Skilled labour carries out production. This includes white-collar as well as blue-collar workers.*

Thus nascent firm's activities to retain employees may be positively associated with the business emergence.

Hypothesis 4. "Employees working for business" is positively associated with the business emergence.

3. Methodology

This study used a longitudinal random panel dataset of 731 nascent firms from the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE) project conducted

by Australian Centre for Entrepreneurship Research between 2007 and 2011. The CAUSEE dataset encompasses gestation activities of nascent firms. Among these gestation activities, the above-mentioned activities of nascent firms are included. Logistic regression analyses were performed to confirm the gestation activities influencing the emergence of a business. As dependent variables, objective as well as subjective variables were used, as the objective dependent variable “Revenue exceeding expenses at a monthly base, past 6 of 12 months” was adopted, and as the subjective dependent variable “Status of venture - nascent” was adopted (Australian Centre for Entrepreneurship Research, 2012).

4. Results

Table 1: Logistic regressions of business emergence

	Subjective dependent variable: “Perceived Status of nascent venture: Operational”	Objective dependent variable: “Revenue exceeding expenses at a monthly base, past 6 of 12 months”
	B	B
H1-1. “Marketing efforts undertaken”	1.221***	.976***
H1-2. “Contact with potential customers”	.133	.693
H2-1. “Business product ... development”	1.244***	.967***
H2-2. “Patent, copyright ... application”	1.340***	1.004**
H3-1. “Financial projections developed”	.908***	.581*
H3-2. “Financial institution funding received”	.505*	.246
H4. “Employees working for business”	1.278***	1.056***
Nagelkerke Pseudo R ²	.364	.257

* A significant coefficient at the .05 level.

** A significant coefficient at the .01 level.

*** A significant coefficient at the .001 level.

The results of the logistic regressions of the business emergence are presented in Table 1. The hypotheses of H1-1 (“Marketing efforts”), H2-1 (“Product development”), H2-2 (“Patent application”), H3-1 (“Financial projections developed”), and H4 (“Employees working”) are significant for both subjective and objective dependent variables. However, H3-2 (“Financial institution funding received”) is significant only for the subjective (perceived) dependent variable. This result shows that nascent entrepreneurs tend to think their firm is “operational” when they have received an external funding regardless the profit of their business. Unlike our expectation, H1-2 (“Contact with potential customers”) is not significant for both dependent variables. This result shows that the simple relations with the potential customers are not so

meaningful for business emergence.

5. Discussion and Conclusion

We perform this study to explain the entrepreneurial processes as developments of entrepreneurial networks based on the dynamic complexity perspective. One of the previous frameworks on the entrepreneurial processes was the concept of “organization emergence” (Katz & Gartner, 1998), but, according to GEM global report, more than a half of nascent entrepreneurs do not intend to build an organization (Kelley, Singer, & Herrington, 2012). Therefore, as suggested in this paper, the concept of network development to build a competence team can be a more appropriate concept explaining the entrepreneurial processes for business venturing, and this concept can be a good sign of emergence of a business venture.

Lichtenstein et al. (2007) argues that certain dynamic patterns in start-up activities lead to the emergence of new firms when the rate of start-up activities is high, start-up activities are spread out over time, and start-up activities are concentrated later rather than earlier. In this context, the dynamic pattern of the confirmed networking activities should also be considered in a further study.

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ANTECEDENTS AND PERFORMANCE OUTCOMES OF ENTREPRENEURIAL ORIENTATION IN EMERGING MARKET CONTEXT

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Antecedents and Performance Outcomes of Entrepreneurial Orientation in Emerging Market Context

Abstract

The research shows that two previously unstudied antecedents influence entrepreneurial orientation (EO) in an emerging economy: (1) spatial remoteness from an economic hub inversely influences EO innovativeness/proactiveness; and (2) growth in foreign competition positively influences EO innovativeness/proactiveness and EO risk-taking. These results are based on a sample of 769 Russian private sector firms. We also show that industry level product change, and management internationalization and size influences different EO manifestations. Furthermore, we show that EO innovativeness/proactiveness and EO risk-taking predict organizational performance.

Key words: entrepreneurial orientation, emerging market, antecedents, organizational performance, Russia.

Introduction

Since its introduction more than 30 years ago, entrepreneurial orientation (EO) remains a central concept in firm-level entrepreneurship. EO is linked to strategic decision making processes, driven by the firm's environment, and connected to firm performance (Birkinshaw 1997; Covin and Slevin 1989, 1991; Burgelman 1983; Kanter 1982; Lumpkin and Dess 1996; Richard et al. 2004). A large body of research is to EO antecedents and consequences to better understand the role played by EO in firm development and success (Rauch et al. 2009). The studies of antecedents of EO are devoted to lighting the genesis of the concept and are designed to expand our understandings of the reasons why some firms are entrepreneurial and others are not.

Despite the importance of EO, insufficient attention has been devoted to EO in emerging markets and transitional economies. For private firms from emerging markets, they are facing institutional environments which are not necessarily conducive to firm performance and which is more turbulent than in those developed economies (Lau and Bruton 2011). The institutional environment in emerging markets such as Russia, encourage us to believe that innovative, proactive and risk-taking entrepreneurial mindset would provide even stronger benefits since the environmental turbulence is even greater than in developed markets (Zhou and Li 2007; Lau and Bruton 2011). This is all the more relevant as EO is a critical tool in emerging economies to revitalize firms, reconfigure resources, and create globally competitive, market-oriented firms (Zahra et al. 2000).

Scholars have often conceptualized the EO as consisting of three primary dimensions: innovativeness, proactiveness and risk-taking (Covin and Slevin 1989; Miller 1983; Miller and Friesen 1982). Covin and Slevin (1989) claim that these three dimensions could be aggregated together in order to assess the overall level of a firm's EO. However, recent studies posit that the three dimensions of EO may offer unique contributions to a firms' overall level of EO (Kreiser et al. 2010; Lumpkin and Dess, 1996; Kreiser, Marino and Weaver 2002) and moreover, each EO component may be defined by different antecedents and may be considered as a separate research subject (Alexandrova 2004; Tan 1996). The results of several empirical studies suggest that the current scale may have item wording that is idiosyncratic to the USA and which may not sufficiently capture the meaning of the construct when translated (Tang et al. 2008; Soininen et al. 2012). George (2011) noted, while the Covin and Slevin (1989) scale served the field well for

almost 20 years, the time may have come to develop a new EO scale which would be equally reliable in different context.

There are two primary motivations in this study. First, this study attempts to specify what are the main antecedents and performance outcomes of EO in emerging market context. Building on the resource-based perspective, we propose four different antecedents of EO in emerging market context. Besides two common antecedents of EO such as industry product change and management internationalization, we discover new antecedents of EO which are very important in emerging market context — foreign competitor growth in industry and spatial remoteness from economic hub and which do play significant role in EO development in emerging market firms.

Second, in this study we focus on two EO components, namely innovativeness/proactiveness and risk-taking. As a check on scale dimensionality, we examined a principle components analysis of the EO items. This revealed the presence of two dimensions consistent with EO innovativeness/proactiveness and EO risk-taking. Thus we could argue that in the emerging market data, EO is not a unidimensional latent variable, but rather multidimensional with innovativeness/proactiveness and risk-taking as distinct orbits of potential influence on firm performance.

The paper has the following structure. After this introduction section, the paper presents the research framework and hypotheses. Section 3 is a brief presentation of the research method and the empirical findings. Section 4 includes discussion and finally, a concluding section summarizes the results along with their implications and research limitations.

Theory and Research Hypotheses

Predicting EO in Emerging Market Firms

Increasing competition in an industry created by international players enhances environment dynamism, hostility and heterogeneity for local firms (Wu and Pangarkar 2006). At the same time competition intensiveness influences firm's innovativeness (Baldwin, Hanel and Sabourin 2002; Damanpour 2010). Monopoly power does not provide stimulus to invent new innovative approaches and leads to complacency and indifference regarding the need of technological improvement and innovative change (Dean, Brown and Bamford 1998). Competition imposes motivation to create and acquire new knowledge and apply knowledge in production, marketing, and distribution processes (Damanpour 2010). Due to the fact that innovative approaches are quite often copied by new players (Yiu and Makino 2002), emerging market firms facing growth in foreign competition are likely to copy innovative approaches developed by foreign players in order to attain guaranteed transaction efficiencies that are in use by foreign players (Fernhaber, McDougall and Oviatt 2007).

The influence of the external environment on strategic orientation choice is long documented in the literature. Environmental dynamism and hostility associate with propensity to engage in entrepreneurial behavior (Khandwalla 1976; Miller 1983). Successful firms are more likely to take an aggressive stance when the environment is hostile (Covin and Slevin 1990). Complex environmental conditions result in adaptation, risk taking, innovativeness, and proactiveness (Miles, Covin and Heeley 2000). A significant body of research confirms the influence of environmental dynamism, hostility and heterogeneity on innovativeness, proactiveness, and risk-taking (e.g., Khan and Manopichetwattana 1989; Tan 1996; Smallbone et al. 2010; Tang and Hull 2012) and EO in general (Covin and Slevin 1989; Boso et al. 2012). Also Tan (1996) found that when the competition is perceived to be hostile, Chinese

entrepreneurial firms still tend to take more risks than nonentrepreneurial firms. We therefore propose that:

H1: Industry level growth in foreign competition positively relates to the level of EO in emerging market firms.

Economic and supply chain research has considered physical remoteness from an economic hub as an independent variable affecting various factors including foreign direct investment and inventory levels (Altomonte 2000; Fung et al. 2003; Kinoshita and Campos 2003; Manaenkov 2000; Tuan and Ng 2003). Costly transportation disadvantages areas more distant from central economic area (Venables 1996). Transaction costs such as costly information about demand conditions and trustworthy suppliers also increase with remoteness, inhibiting trade (Hanson 2005). Distance also appears to be a key factor underlying employment and population growth in remote regions. Distance from economic hub can limit labor mobility by raising the costs of commuting and migration, which produces higher poverty in remote areas experiencing reduction in labor demand (Partridge and Rickman 2008). Remote areas are further disadvantaged in attracting new venture creation and firm growth because of constraints on workforce availability or infrastructure and transportation cost disadvantages due to remoteness (Stephens and Partridge 2011).

Location in remote or peripheral areas also influences the chance of securing finance and access to credit (Bigman and Fofack 2000). When the banking system is highly centralized, the range of options and financial services available at a non-central location is likely to be limited. Local banks that are part of a centralized structure often have little discretionary power and many non-standard referrals or requests will be dealt with by officials removed from the realities of the local area. In terms of the volume of supply of financial instruments, remote places are disadvantaged with respect to more centrally-located areas. Also a centralized financial system, which is commonplace in emerging markets, means inter-regional flows of funds. The direction of this flow is invariably to those areas where returns are greatest. In the case of remote and economically marginal areas, this flow will be unidirectional, thereby lessening amount of funds available for investment locally (Felsenstein and Fleischer 2002).

The pursuit of entrepreneurial strategies requires resources (Wiklund and Shepherd 2005) and EO is a resource-consuming strategic orientation (Covin and Slevin 1991; Romanelli 1987). Resource access facilitates EO and fosters a culture of experimentation as it protects firms from the uncertain outcomes of those projects (Wiklund and Shepherd 2005; Bourgeois 1981). Greater access to financial capital provides firms with the flexibility to explore and support future opportunities without necessarily killing existing products or taking resources away from existing markets that are performing well (Boso et al. 2012). Due to the need to invest resources in the development of EO, top-managers of private sector firms develop innovative, proactive and risk-taking behavior only if they believe that they have access to financial resources on a constant basis. Thus, geographical location of a firm in emerging market context may be an additional factor influencing innovativeness, proactiveness and risk-taking. It is also expected that in settings where weaker institutional support for entrepreneurship exists, less proactive strategic orientations and less risky strategies are followed (Lau and Bruton 2011).

H2: Spatial remoteness from economic hub inversely relates to the level of EO in emerging market firms.

Firms with a high EO level often function in high technology industries (Rialp et al. 2005), which are characterized by high market dynamism, technological uncertainty and levels of industry product change (Moriarty and Kosnik 1989). Meta-analysis research showed

differences in EO levels in low versus high technology industries (Rauch et al. 2009). EO's influence on firm performance is stronger in industries with high level of technological development and a large number of product changes (Lisboa et al. 2011). Additionally, while the trajectory of technological process and product innovation is relatively uncertain, entrepreneurial firms have the opportunity to impact the direction of industry technological growth by establishing and introducing product technology as the standard that dictates the rules of competition (Zahra 1996). While there are pitfalls to rapid product development and deployment, within such industries it appears first-market entrants generate sizable advantages (Mueller et al. 2012).

The high level of industry product change increases the dynamism and heterogeneity for the firms operating in this industry. To develop competitive advantage in such context the firms should be innovative, proactive and willing to take risks (Tang and Hull 2012). This is particularly important for emerging market firms which often face strategic issues related not just to the development of new product and markets, but also to the transformation of current organizational structure and management system (Yiu and Lau 2008). Thus:

H3: Industry product change level positively relates to the level of EO in emerging market firms.

International experience of a firm's managerial team is associated with internationalization of a firm (Reuber and Fischer 1997). Previous international experience of an entrepreneur may trigger international entrepreneurial venture creation (Kuemmerle 2002). Moreover, international new ventures differ from domestic new ventures in that the entrepreneurial team of the former possesses more international experience than the one of the latter (McDougall et al. 2003). International new ventures stress innovation and product development more than domestic new ventures (Brush 1992). Furthermore, non-internationalizing firms manufacture less innovative products (Burgel and Murray 1998). Management internationalization may be a source of information about new management and business practice, about new market opportunities, new technologies that may be exploited through network resource capital access. The relationship between network resource capital and EO has been examined in the literature. In a study of entrepreneurial high-technology ventures, Yli-Renko, Autio and Sapienza (2001) found that social interactions in networks facilitate knowledge acquisition and subsequent knowledge exploitation for new product development. Butler, Brown and Chamornmarn. (2003) found that business networks provide entrepreneurial firms with information needed to recognize opportunity in empirical study of Thai manufacturing firms. Moreover, the skills and information necessary to make strategic decisions in emerging markets are often unavailable in codified form and cannot be easily gathered in real time. Firms with more resource capital from the business networks, including international ones, therefore are more likely to have needed information for entrepreneurial behavior (Yiu and Lau 2008).

H4: Management internationalization positively relates to the level of EO in emerging market firms.

Predicting EO-Performance Relationship

Both direct and indirect impacts of EO on firm performance are discussed in studies on EO (Rauch et al. 2009). However, the empirical findings on the relationship between EO and firm performance are conflicting. Though several studies show that the firm with high EO performs better (Wiklund and Shepherd 2005; Keh, Nguyen and Hwei 2007), some research studies do not find any significant impact of EO on firm performance (e.g., Li, Zhang and Chan 2005; Stam and Elfring 2008); there are also some scholars who suggest a negative EO-

performance linkage (Hart 1992) or a curvilinear relationship between EO and performance (Wales, Patel, Parida and Kreiser 2013; Tang et al. 2008; Su, Xie and Li, 2011). Lumpkin and Dess (1996) suggested that the performance implication of EO is context-specific. For example, Li, Zhang and Chan (2005) found that EO has a positive relationship with performance when the environment is highly uncertain. Zahra et al (2000) highlighted that corporate entrepreneurship and entrepreneurial behavior are the key for emerging market firms to revitalize, reconfigure resources, and transform into market-oriented firms that are ready to compete in the global marketplace. Thus, EO and entrepreneurial culture are the primary mechanisms that are needed in the dynamic and uncertain business environment in emerging markets for the firms to achieve growth and improve their performance, because EO has a larger positive effect on performance in hostile environments than in benign ones (Covin and Slevin 1989; 1991; Zahra and Covin 1995; Covin and Lumpkin 2011).

H5: EO positively relates to the performance in emerging market firms.

Method

Sampling

We decided to test the hypotheses on Russian data as an example of emerging market firms. Russia provides a unique testing ground for several reasons. Russian private firms emerged recently on the global economy are becoming increasingly important in the global marketplace.

The sampling process in Russia in 2010 was comprised of survey design, contracting with a research agency to collect data, screening the surveyed firms to improve sample internal validity, and assessing non-response bias. First, a survey was designed, translated into Russian, and then back translated by a third party. A literature review and discussions with academicians and practitioners guided the construction of the survey. Second, the Russian Public Opinion Research Center (VCIOM) was contracted to collect data. The basic parameters involved a national sample of manufacturers with 100 or more employees across all major industrial sectors. VCIOM's fixed and variable pricing structure in conjunction with a data collection budget constraint led to the decision to sample 1,150 managers from 875 firms. In 275 cases, the mean response of two managers would be taken. VCIOM created a sampling frame consisting of 16,066 firms from various sources the Federal State Statistics Service, the Central National Bank, the Federal Financial Market Service, and the Ministry of Finance. Firms were randomly selected from the frame until the quota had been reached. This required contact with 1,535 firms for a 57% response rate (875/1,535). Telephone interviews were used on VCIOM's advice in that mail and Internet options were inappropriate for the Russian market. Respondents were instructed to provide information only for their division or business unit and only for their operations in Russia. Thirty-three cases (or 3.4% of the sample) were discarded due to excessive missing values, a rate consistent with other research (e.g., Grewal, Charavarty and Saini 2010). This means that 842 cases are taken into the next stage.

The last element of the sampling process involved screening out state-owned and foreign vested firms. The proportion of the firm held by the Russian state and by a foreign enterprise was subtracted from 100 to create a new variable representing the percentage of the firm held within the Russian private sector. The three percentage variables were cluster analyzed using SPSS two-stage clustering. The method, which indicates the optimal number of clusters, suggested two clusters. Of the 842 retained firms, 769 were in the first cluster which was labeled "Russian private sector firms." The respective percentages owned by the Russian state, a foreign firm, and

within the Russian private sector was 1.02%, 0.53%, and 98.45%. The second cluster contained 73 manufacturers with state, foreign, and Russian percentages of 45.95%; 36.97%; and 17.08%. A larger sample size would appear necessary to tease out this cluster into separate state and foreign clusters. Independent sample t-tests showed that all three percentage variables differ across the two clusters at $p < .01$. The sample proportion determined to be Russian private sector firms (91.2%=769/842) was then compared the 89.7% rate generated from Rosstat (2010) data files. The proportions are not significantly different ($z=1.536$), which increases our faith in the sample's external validity. To remove extraneous variance from the sample and increase internal validity, we retain just the 769 Russian private sector firms for further analysis.

Scaling

Industry product change was measured by four 7-point scales with endpoints of "1=strongly disagree" and "7=strongly agree." Table 1 provides a summary of all items used in the research. The items came from a variety of sources; however, the work of Fisher (1997) was the principle guide. Management internationalization was measured by five 7-point scales anchored by "1=strongly disagree" and "strongly agree." Examples include: (1) our business has operations in many foreign countries; (2) we deal with foreign customers on a regular basis; and (3) our managers are exposed to management methods developed in other countries. This measure is original to the research, but it is clearly connected to the extent to which managers in the firm are exposed to globalization through exporting, foreign direct investments in countries other than Russia, dealing with foreign customers either within or outside Russia. With minor modification, we used the classic scale for measuring EO (Covin and Slevin 1989). The original semantic differential scale was judged too difficult to communicate in a telephone interview. We therefore selected one of the anchor points and converted the items into 7-point Likert strongly disagree, strongly agree items (see Table 1 for the exact items used). As a check on scale dimensionality, we examined a principle components analysis of the EO items. This revealed the presence of two dimensions consistent with EO innovativeness/proactiveness and EO risk- takings. Performance was measured by four 7-point items with endpoints of "1=well below industry average" and "7=well above industry average." Respondents were instructed to consider performance over the prior three year period for market share growth, sales growth, average profit, and profit growth (Miller 1991).

The measure of industry level foreign competitor growth came from a secondary data source. Using Rosstat (2010) data files, we constructed separate simple linear regression models for each of the 14 major manufacturing industries tracked by the Russian state. Spatial remoteness from economic hub (Moscow) was measured by the nautical air miles from Moscow to the administrative capital of the Russian federal district in which the manufacturer possessed its principle operations. Size was measured by the natural logarithm of the number of employees.

A confirmatory factor analysis (CFA) was used to assess the measurement model (Table 1).

----- Table 1 goes about here -----

Results

A structural equation model was used to evaluate the hypotheses (Table 2 provides a summary). The initial model includes hypothesized and control effects. The latter involves linking size to the two EO dimensions and linking all five exogenous latent variables directly to performance. The model fit is satisfactory: $\chi^2=854.474$ $df=227$; $p < .001$; RMSEA=.060; CFI=.947; NNFI=.935. EO innovativeness/proactiveness and EO risk-taking were allowed to

correlate in the SEM. H1 stated that industry level growth in the number of foreign competitors predicts both EO dimensions. So for EO innovativeness/proactiveness ($\gamma_{1,1}=.108$; $t=2.785$; $p<.01$) and EO risk-taking ($\gamma_{2,1}=.093$; $t=2.531$; $p<.01$) are supported. The second hypothesis connects spatial remoteness from Moscow to EO. Spatial remoteness inversely predicts EO innovativeness/proactiveness ($\gamma_{1,2}=-.121$; $t=-3.101$; $p<.01$), supporting partly H2 because the path from spatial remoteness to EO risk-taking is not significant ($\gamma_{2,2}=-.030$; $t=-.831$; $p<.01$). Industry product change predicts EO risk-taking ($\gamma_{2,3}=.437$; $t=10.007$; $p<.01$), but not EO innovativeness/proactiveness ($\gamma_{1,1}=-.055$; $t=-1.307$; $p<.01$), thus H3 partly supported. Management internationalization predicts EO innovativeness/proactiveness ($\gamma_{1,4}=.201$; $t=4.479$; $p<.01$) and EO risk-taking ($\gamma_{2,4}=.193$; $t=4.570$; $p<.01$), supporting H4. Supporting expectations embedded within H5, EO innovativeness/proactiveness ($\beta_{3,1}=.249$; $t=5.288$; $p<.01$) and EO risk-taking ($\beta_{3,1}=.195$; $t=3.803$; $p<.01$) predict organizational performance. Two of the seven control effects are significant: (1) size predicts EO innovativeness/proactiveness ($\gamma_{1,5}=.091$; $t=2.144$; $p<.05$) and directly predicts performance ($\gamma_{1,1}=.102$; $t=2.366$; $p<.01$).

----- **Table 2 goes about here** -----

We then assessed the total and indirect effects of the five exogenous latent variables on performance (Table 3). To more finely measure these effects, we trimmed the parent model by fixing to zero paths that were not significant. The difference between the nested and parent model is not significant ($\Delta\chi^2=6.970$; $\Delta df=7$; $p>.10$) indicating that the nested model fits no worse than the parent SEM. Foreign competitor growth (.045; $t=3.100$; $p<.01$), industry process change (.096; $t=4.639$; $p<.01$), management internationalization (.088; $t=4.940$; $p<.01$), size ($\gamma_{1,1}=.108$; $t=2.785$; $p<.01$) associate with superior organizational performance. With the exception of size, one or both of EO innovativeness/proactiveness and EO risk-taking fully mediates or transmits the effect of context to performance. In the case of size, EO innovativeness/proactiveness partially mediates as the direct effect of size on organizational performance is significant. Unlike foreign competitor growth, industry product change, management internationalization, and size, which all positively influence organizational performance, spatial remoteness from Moscow negatively influences organizational performance. Both EO innovativeness/proactiveness and EO risk-taking mediate fully the effect.

----- **Table 3 goes about here** -----

Discussion

Primary industry foreign competitor growth predicts EO innovativeness/proactiveness and EO risk-taking among Russian private sector manufacturing firms. This result may be explained from EO theory and from the specifics of Russian business environment should be taken into account. According to EO empirical studies, successful firms are more likely to take an aggressive stance when the environment becomes hostile (e.g., Khan and Manopichetwattana 1989; Tan 1996; Smallbone et al. 2010). Complex environmental conditions cause the organization to adapt, take risks, and act innovatively and proactively (Miles, Covin and Heeley 2000). Foreign competitor growth increases competition intensity which results in more dynamic and hostile environment. From the Russian perspective, the majority of Russian private firms are oriented towards local markets, especially in case of manufacturing firms which are more likely to have lower level of competitiveness due to low product quality. Only 3% of Russian firms supply goods to foreign markets and only 20% is the portion of high-tech products among them (EBRD 2012, p.34). From 1996 to 2012, the Russia advantage out of 1,242 product categories declined from 156 to 103. In contrast, China increased its competitiveness from 479 to 513

product categories during the same time period (EBRD 2012, p.24). Taking into account foreign competitors, Russian firms are forced to develop new product-service and market capabilities by developing EO.

Spatial remoteness from economic hub, Moscow, inversely predicts EO innovativeness/proactiveness but does not significantly influence EO risk-taking. This result is specific for the Russia case where substantial differences in firm development from the regional point of view in terms of financial, social and human capital is observed. Cross-regional differences are crucial if measured by gross regional product (GRP); however, they are less visible if measured by means of consumption per citizen and other parameters based on household data. A World Bank study devoted to identifying the differences in socio-economic development of the Russian regions revealed an outflow of population from remote regions. Not surprisingly, the largest proportion of empty towns is found in two peripheral regions with the strongest decline in population - in the Magadan and Chukotka regions, where one-third of all settlements are abandoned (from 1989 to 2002, the population of these regions decreased by about 50%) (World Bank 2012). Among all the factors explaining the disparity among regions, such as education, employment, settlement type, and the demographic situation, geographic location of the region plays the major role. The main reason for this is the remoteness of the federal center - Moscow.

The general Russian population tends to be risk averse because the former communist and centrally planned system created guarantee for job security and society benefits (Kickul et al. 2010). Russian firms behave more conservatively and tend to maintain their original business methods. Decision-making under risk involves calculating the odds of a specific outcomes, based not only on existing information, but also on trial and error as managers gain more information (Read et al. 2011). So the willingness to take risk is associated with the willingness to fail. In Russia failure is perceived to be a death knell, financially and socially and doesn't depend on the location inside Russia (GEM: Russia 2011). Also the level of risk-taking does not depend on access to resources but rather deals with the social norms in the particular society. Thus, risk-taking in Russian firms is not affected by regional factors, including the distance from Moscow.

Industry product change predicts EO risk-taking but do not predict EO innovativeness/proactiveness in Russian private manufacturing firms. EO risk-taking is associated with a willingness to commit more resources to projects where the cost of failure may be high (Miller and Friesen 1982). Theoretical support suggests that dynamic environments will result in a stronger link between organizational risk-taking and firm performance. Organizations that do not take risks in dynamic environments will lose market share and will not be able to maintain a strong industry standing relative to more aggressive competitors (Covin and Slevin 1991; Miller 1983). At the same time risk-taking behavior related with tends to underestimate of market obstacles and efforts towards the pursuit of new market opportunities (Jalali 2012). This is linked to the quality of human resources and to the level of top-management professionalism in Russian companies.

EO innovativeness/proactiveness reflects a tendency to engage in and support new ideas, novelty, experimentation, and creative processes (Lumpkin and Dess 1996), which means for a firm the need to invest in innovations in order to address changing customer needs ahead of the competition. Our analysis shows that industry product change does not predict EO innovativeness/proactiveness. This contradicts research in more developed countries where a higher level of EO is observed high technology industries with high rates of product change (Rialp et al. 2005). We explain the result from an institutional theory perspective. Innovation is

influenced by institutional development, especially property rights, including intellectual ones (Li and Atuahene-Gima 2001; Tang and Hull 2012). Because of the lack of clearly established and adequately enforced laws and regulations regarding private and intellectual properties, in hostile and dynamic environment when competition intensifies, opportunistic behaviors such as bribery or hijacking profits through piracy also increase (Li and Zhang 2007). The above factors limit the expected return on innovative projects, which in turn reduces the level of EO innovativeness/proactiveness, because firms are more focused on current products and services and concentrate their resources on products and services that have proven to be effective in the marketplace.

Management internationalization predicts EO innovativeness/proactiveness and EO risk-taking in Russian manufacturing firms. International experience including cooperation with foreign partners, clients and suppliers, along with CEOs management experience influences positively network resource capital development (Butler et al. 2003). Network resource capital is defined as the actual and potential resources available to a firm through its network of relationships (Nahapiet and Ghoshal 1998) and plays an important role in management internationalization (Chetty and Agndal 2007). Russian companies have increasingly acquired new technology through the networks with foreign partners (World Bank 2012). Companies import new technologies from abroad though the rate of such importation remains low. However, international experience stimulates the usage of new technologies and implementation of innovative developments in Russian companies. Russian firms often face more risks in international markets than in home country. The risks of internationalization arise not only through venturing into unknown or unfamiliar markets, but also through continuous investment, finance, and growth (Baird and Thomas 1985). Hence, firms with more international experience are more likely to be willing to take risk.

EO innovativeness/proactiveness and EO risk-taking predict performance in Russian private sector manufacturing firms. The influence of EO on firm performance in Western companies has been studied widely, and the results varied from high positive relationship of EO to firm performance to a lower relationship and even no significant relationship between them (Rauch et al., 2009). Our findings show that in emerging markets like Russia the firm's success is dependent on the ability to develop EO consisting of innovativeness/proactiveness and risk-taking behaviors. With the increased level of involvement of Russian firms in international business and competition in the global marketplace, EO represents both a motive and a tool for internationalization that could help create a competitive advantage in the global business environment. The quality of institutions in Russia is relatively low and has not improved significantly in recent years. Dependence on natural resources also tends to be associated with increases in economic inequality, as commodity rents tend to be distributed narrowly. In such business environment EO can be considered as the most appropriate strategy for improvement of organizational performance.

Conclusion

Despite the significant attention paid to EO in the entrepreneurship literature, this study makes several contributions. First, we examine an understudied emerging market, Russia, and demonstrate that among Russian private sector firms EO associates with organizational performance. The Soviet bureaucratic legacy exerts considerable influence on management practice, even on firms created after the early 1990s dissolution of the Soviet Union. The outdated legacy is no longer applicable in an unpredictable and dynamic global environment. Furthermore, Russian firms confront an institutional environment that is not conducive to growth

or competitiveness (Lau and Bruton 2011). It could be argued that EO is even more critical in emerging economy than in developed economies due to high environmental turbulence, which is greater in a transitional economy relative to developed economies (Zhou and Li 2007).

Russian culture is also very short-term time oriented risk adverse. The latter in part may explain our second finding that EO among Russian private sector manufacturing managers is perceived as consisting of two dimensions: EO innovativeness/ proactiveness and EO risk-taking. This is consistent with the conceptualization of EO as consisting of three primary dimensions: innovativeness, proactiveness and risk-taking (Covin and Slevin 1989; Miller 1983; Miller and Friesen 1982). We do not resolve the debate as to whether the three dimensions should be aggregated into a single EO scale (Covin and Slevin 1989) or whether multiple EO dimensions should be studied for unique contributions (Alexandrova 2004; Kreiser et al. 2010; Lumpkin and Dess 1996; Kreiser, Marino and Weaver 2002; Tan 1996).

Our third contribution concerns the identification and testing of two previously unstudied EO antecedents that are particularly appropriate in emerging market context. The first is the distance of the firm from the nation's economic and political hub, Moscow. Distance from economic hubs has been studied in Russia and China in relation to foreign direct investment and organizational and logistical performance. Remoteness suggests human, capital, and potential infrastructure shortages. We show that spatial remoteness from Moscow inversely impacts EO innovativeness/ proactiveness, but not EO risk-taking. The second unstudied antecedent is primary industry growth in foreign competition. We connect sample data on EO to secondary Rosstat data on foreign competitor growth, thereby reducing common method bias. The results show that both dimensions of EO are predicted by foreign competitor growth.

Table 1: Confirmatory Factor Analysis Summary

Latent variable	Item	λ	ρ
Foreign competitor growth	Growth in the number of foreign competitors over the prior five year period within the firm's primary industry	.966	n.a.
Spatial remoteness from economic hub	Nautical air miles from Moscow to the administrative capital of the Russian Federal District in which the firm operates	.967	n.a.
Industry product change	The primary product is hi-technology	.475	.631
	Product obsolescence costs are high	.712	
	End of period or season markdowns are high	.578	
	Products are frequently made obsolete	.764	
Management	Our business has operations in many foreign countries	.720	.875
internationalization	Our managers regularly meet with managers from foreign countries	.792	
	Our managers regularly receive job postings in foreign countries	.508	
	We deal with foreign customers on a regular basis	.768	
	Our managers are exposed to management methods developed in other countries	.687	
Size	Natural logarithm of the number of employees	.945	n.a.

EO innovativeness/	Top managers favor a strong emphasis on R&D, technological leadership, and products or innovations	.580	.874
proactiveness	Very many new products lines have been marketed over the	.857	

	past 5 years		
	Changes in product lines over the past 5 years have been mostly dramatic	.901	
	My firm typically initiates actions that competitors respond to	.560	
	My firm is often the first with introducing new products, operating technologies, and administrative techniques	.658	
EO risk-taking	Our firm takes bold, wide-ranging acts are necessary to achieve the our objectives	.710	.828
	We typically adopt a bold, aggressive posture in order to maximize the probability of exploiting opportunities	.913	
	Top managers have a strong proclivity for high risk projects	.860	
Organizational performance	Market share growth over the past three years	.642	.832
	Sales growth over the past three years	.670	
	Average profit over the past three years	.827	
	Average profit growth over the past three years	.687	
Model statistics: $\chi^2=854.474$; $df=227$; $p<.001$; RMSEA=.060; CFI=.947; NNFI=.935.			
λ =standardized loading; ρ =scale composite reliability; n.a.=not applicable.			

Table 2: Summary of SEM Results

Hypothesized effects and parameter	Hypothesis	Standardized estimate (t-value)
Foreign competitor growth → EO innovativeness/proactiveness ($\gamma_{1,1}$)	H1	.108 (2.785a)
Foreign competitor growth → EO risk-taking ($\gamma_{2,1}$)	H1	.093 (2.531a)
Spatial remoteness from Moscow → EO innovativeness/proactiveness ($\gamma_{1,2}$)	H2	-.121 (-3.101a)
Spatial remoteness from Moscow → EO risk-taking ($\gamma_{2,2}$)	H2	-.030 (-.831)
Industry product change → EO innovativeness/proactiveness ($\gamma_{1,3}$)	H3	-.055 (-1.307)
Industry product change → EO risk-taking ($\gamma_{2,3}$)	H3	.437 (10.007a)
Management internationalization → EO innovativeness/proactiveness ($\gamma_{1,4}$)	H4	.201 (4.479a)
Management internationalization → EO risk-taking ($\gamma_{2,4}$)	H4	.193 (4.570a)
EO innovativeness/proactiveness → organizational performance ($\beta_{3,1}$)	H5	.249 (5.288a)
EO risk-taking → organizational performance ($\beta_{3,2}$)	H5	.195 (3.802a)
<u>Control effects</u>		
Size → EO innovativeness/proactiveness ($\gamma_{1,5}$)		.091 (2.144b)
Size → EO risk-taking ($\gamma_{2,5}$)		-.013 (-.330)
Foreign competitor growth → organizational performance ($\gamma_{3,1}$)		.001 (.036)
Spatial remoteness from Moscow → organizational performance ($\gamma_{3,2}$)		-.049 (-1.248)
Industry product change → organizational performance ($\gamma_{3,3}$)		.041 (.807)
Management internationalization → organizational performance ($\gamma_{3,4}$)		-.045 (-.994)
Size → organizational performance ($\gamma_{3,5}$)		.102 (2.366a)

Model statistics: $\chi^2=854.474$ $df=227$; $p<.001$; RMSEA=.060; CFI=.947; NNFI=.935.

a, $p < .01$; b, $p < .05$.

Table 3: Summary of Mediation and Total Effects

Exogenous latent variable	Standardized estimate (t-value)			Mediation summary
	Total effect	Indirect effect	Direct effect	
Foreign competitor growth	.045 (3.100a)	.045 (3.100a)	- 0 -	EO innovativeness/proactiveness and risk-taking fully mediate
Spatial remoteness from Moscow	.026 (2.600a)	.026 (2.600a)	0	EO innovativeness/proactiveness fully mediates
Industry product change	.096 (4.639a)	.096 (4.639a)	- 0 -	EO risk-taking fully mediates
Management internationalization	.088 (4.940a)	.088 (4.940a)	- 0 -	EO innovativeness/proactiveness and risk-taking fully mediate
Size	.111 (2.742a)	.023 (2.163b)	.088 (2.208b)	EO innovativeness/proactiveness partially mediates

Effects generated from the nested model wherein non-significant paths in the parent SEM were fixed to null.

Model statistics: $\chi^2=861.444$; $df=234$; $p<.001$; RMSEA=.059; CFI=.947; NNFI=.937.

a, $p<.01$; b, $p<.05$.

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AN EXPLORATORY STUDY OF POLYTECHNIC-SMALL-MEDIUM- ENTERPRISE (POLY-SME) TECHNOLOGY TRANSFER (TT) PROCESSES

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Title

An Exploratory Study of Polytechnic-Small-Medium-Enterprise (Poly-SME) Technology Transfer (TT) Processes

Abstract

The paper draws on data of five in-depth interviews with managers of Small-Medium-Enterprises (SMEs) who were involved in intellectual property (IP) transfer from one of the polytechnics. This initial study focuses upon IP licensing and collaboration in healthcare, information technology and electronics technology. Findings suggest that a polytechnic is generally understood as a public technology provider that could complement a SME as the co-innovator. Participants share the need for 2-way communication without fear of losing the enabling confidential data. Either pull or push innovation model works well if the Poly-SME is connected through a reinforcing and complementary functional relationship. Royalty free period, IP co-ownership framework, simple IP valuation are recommendations that facilitate IP negotiations. Continuation of technical and know-how supports beyond the IP licensing contract is the most significant consideration for under-resourced licensees.

Relevant secondary evidence suggests that the polytechnic sector is expected to produce less foundational knowledge, more translational knowledge in helping SMEs to bring commercial applicable products or services to the marketplace. Government of Singapore, in a typical triple helix innovation model, is providing the Poly-SME TT space with intermediation services, small project gap funding and larger research and development (R&D) funding.

Keywords: Commercialisation, Polytechnic, Technology Transfer, SME, IP

1. Introduction

TT processes are complex and could involve stakeholders such as IP providers (i.e. University or Polytechnic), IP recipients (i.e. Industry) and government agencies, as anticipated by Leydesdorff and Etzkowitz (1996) in their study on the a Triple Helix of University-Industry-Government relation. The potentialities arising from a TT process would depend on the accessible intellectual capital (IC) of each stakeholder, and we agree with Harmon et al. (1997) that an IP could be transferred to extend an established firm's product line, to grow a young start-up or simply to start a new firm. In their views, an IP can be transferred either through a formal arm's-length TT model, an informal networking TT model or a hybrid TT model. It is not clear at this stage which TT model that would encourage more polytechnic-industry TT. Our exploratory study with five established local established SMEs was conducted with an assumption that enabling TT model is the formal and linear one: starting with a common R&D collaboration aiming at knowledge or prototypes creation followed by a knowledge or prototype transfer for a pre-licensing technology evaluation.

In this pilot study, we will first present the attributes of polytechnics as public technology providers, and describe the collective profile of SMEs in Singapore using publicly available resources. For example, to some extent the level of IC stock that resides in a particular polytechnic could be mined through corporate website reviews or referring to secondary data sources such as the national R&D survey results. Next, we will discuss the publicly inaccessible information about Poly-SME TT processes arising from interviews conducted with five different SME's managers.

2. Characteristic of polytechnics

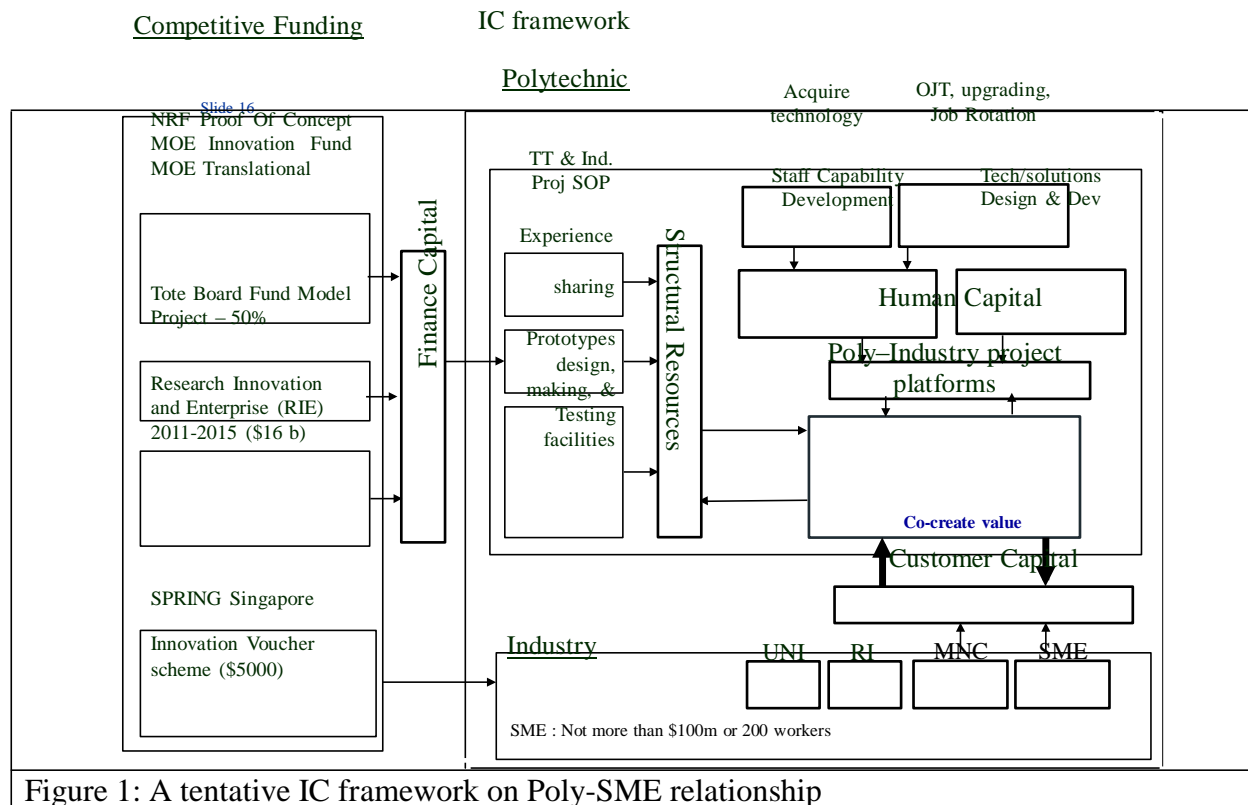
The public knowledge on polytechnic's role as an IP producer is limited. There are prior literature that discusses the roles played by the local university (Wong, P-K, Ho & Singh 2007), the research centres (Lee & Win 2004) and government (Yong & Keng 1992). At the regional level, Wong, P-K (1999) has expressed his concerns over limited literature that informs about the university-industry technological collaboration in the newly industrialised economies, Singapore included. This paper uses Singapore as a context and triangulates secondary data from different public sources including the annual National R&D survey to inform about the university-industry collaboration landscape. In addition, Wong, P-K (1999) has pointed out that the inconsistent use of "tertiary institution" as one common entity to represent universities, research institutions (RIs) and polytechnics in those large-scale surveys may lead to data resolution issues, if a sector-based data is needed. Few years later, in a joint publication, Wong, P-K, Ho and Singh (2007) presented an in-depth findings on the technology transfer activities of the leading university, the National University of Singapore. To fill the knowledge gap found in polytechnic-industry technological collaboration, our study aims to explore new knowledge in the technology transfer space in between polytechnics and SMEs.

Singapore inherited the polytechnic education system from Britain, and has since grown this sector from strength to strength during the past five decades. Today, the polytechnic sector comprising five publicly funded institutions, namely: Singapore Polytechnic, Ngee Ann Polytechnic, Temasek Polytechnic, Nanyang Polytechnic and Republic Polytechnic. Typically, the polytechnic sector provides practice oriented and middle management education to the General-Certificate Education Ordinary school leavers. Most polytechnics' graduates join the workforce directly after their courses, however some would opt to pursue university programs after a few years of work experiences.

Besides teaching and research activities, polytechnics undertake applied R&D and experimental research projects, hence can be considered as alternative public IP producers. Etzkowitz (1998) suggests that entrepreneurial universities are expected to perform all three functions well: teaching, research, and economic development. Over the years, the polytechnic sector has collectively invested \$35 million in R&D to deliver close to 200 patent applications, and 34 commercialised products or services (The Straits Times 2009). We agree with Lockett, Wright and Wild (2013) that a closer university-industry linkage would promote third stream activities that are undertaken outside regular teaching and research activities. Our secondary research shows that each polytechnic is continuously seeking opportunities to co-innovate with local industry through its technology transfer offices (TTOs) or technology centres (Nanyang Polytechnic 2011; Ngee Ann Polytechnic 2010; Republic Polytechnic 2013; Singapore Polytechnic 2013b; Temasek Polytechnic 2012). Polytechnic-industry third stream missions are achievable through mechanisms such as industry commissioned projects, secondment of polytechnic's R&D staff members to industry, and technology transfer to industry. Through real-life industry projects, the polytechnics sustain and renew their IC. According to Chen, Zhu and Xie (2004), IC of an organisation is supported fundamentally by the human capital, that grows in tandem with 3 other elements : structural capital, innovation capital and customer capital.

Supported by his past working experience in one of the polytechnics, the principal researcher observed that through various polytechnic-industry collaboration projects, the polytechnic sector is developing its IC in an effort to fulfil all the three organisational missions: teaching,

research and IP commercialisation. A tentative IC framework as depicted in Figure 1 could be used as a future framework for in-depth investigation of the Poly-SME relationship.



How such IC framework would influence value co-creation is a compelling investigation question here. A validated IC framework would ensure that polytechnics have a common understanding of accessible IC stocks. Effective management of those IC stocks would differentiate them in their ability to produce useful IPs for industry. Typically, polytechnics are capable of producing IPs in subject matters including technological knowledge, projects management expertise, hands-on training expertise, prototype development knowledge, patents, copyrighted materials, registered designs and secret recipes. While some of these IPs can be transferred readily to SMEs, many needs further developments.

The following subsections present our secondary findings on three key mechanisms for knowledge transfer.

2.1 Knowledge transfer through practice-based graduates

The polytechnic sector is the largest public institutions of higher learning (IHLs) in preparing practice-based manpower for industry. According to Chen, Zhu and Xie (2004), individual's competency increases with the transfer of theoretical knowledge through formal education, and transfer of practical skill through routine practicing. Coupled with the desired attitude that is hard to measure, a highly competent individual will be able to deliver the needed human capital to the industry. In terms of headcount, the Department of Statistics (2013) reports that the polytechnic sector has been producing more than 60% of public IHLs' annual graduates in the past 5 years. For example, in 2012, there were 25,063 diploma graduates completed their polytechnic courses in a wide range of practice-based knowledge and skills: including engineering, information technology, sciences, design, business management, media and communication. Based on the Science and Technology Plan 2010 (Ministry of Trade & Industry 2006), the polytechnic sector is expected to supply the industry with quality

graduates. If a sizable number of these polytechnic graduates who have the right attitude

decide to join the industry after completing their respective courses, the resultant flow of their acquired knowledge and skills will be beneficial to the industry.

2.2 *Knowledge transfer through practice-based academic staff members*

The academic and technology professionals in the polytechnics are typically pragmatic and are capable of developing close-to-market prototypes. Being pragmatic, they adopt utilitarian mindset in translating IPs into reliable and cost effective products or solutions. Such IP development works are usually meticulously executed in a sequential manner under supervision of a team leader. On the contrary, the university sector generally lacks the human resources required to develop an IP into commercial viable product (Lipinski, Minutolo & Crothers 2008). The polytechnics' academic staff members are more practice-oriented in comparison with the universities' counterparts.

Department of Statistics (2013) reports that the polytechnic sector is resourced with 4,945 academic staff. Almost all of them are university graduates with prior industry work experiences. A certain proportion of the academic members are involved with polytechnic-industry collaboration projects through respective technology centres or TTOs. Alternatively, they could also engage the industry through national initiatives such as the Centres of Innovation (COIs) and the Growing Enterprises with Technology Upgrade (GET-Up) programme, under the purview of Agency for Science and Technology Research (A*STAR 2011).

A COI is a one-stop resource center for new product or service development where local SMEs and the COI could co-innovate (SPRING Singapore 2012b). Today, there are altogether six COIs co-funded by the Standards, Productivity and Innovation Board (SPRING), and their respective hosting technology providers are listed below:

- Food Innovation Resource Centre at Singapore Polytechnic,
- Centre of Innovation for Electronics at Nanyang Polytechnic,
- Marine & Offshore Technology Centre of Excellence and the Environment & Water Technology Centre at Ngee Ann Polytechnic,
- Centre of Innovation for Supply Chain Management at Republic Polytechnic, and
- Precision Engineering Centre of Innovation at SIMTech, an A*STAR research institute.

From the list above, only the Precision Engineering Centre of Innovation was set up outside of the polytechnic sector. With more polytechnics engaging SMEs in downstream co-innovation activities has strongly validated the polytechnic sector's role as a key technology translator. Based on the TT generic process model (Rombach & Achatz 2007) that comprising blocks of activities: basic research, applied research, in-vitro prototyping, in-vivo prototyping, industrial replication and roll out, a polytechnic playing an IP translator's role could be located between the "applied research" and in-vivo prototyping.

Another national initiative that somewhat endorses the polytechnic's R&D competency is the GET-Up program that encourages polytechnic to provide short-term R&D manpower to help local SMEs to transition to more R&D intensive activities (SPRING Singapore 2012a).

The above national initiatives will fail to deliver the desired outcomes if the right proportion of human capital stock is absent from the polytechnic system, a strategic resource that is

more valuable than financial capital (Bjerke 1998).

2.3 Knowledge transfer through commercial applicable IPs

Polytechnics excel in applied research and experimental studies that lead to various commercially applicable IPs. Lipinski, Minutolo and Crothers (2008) estimate that only about 3 per cent of university's technology in the USA is deemed suitable for start-up companies. The study also points out that most large companies prefer to license in well codified and protected technologies as incremental improvements for their established products. This could be interpreted that continuous improvements or incremental IPs are preferred to radical changes. In a way such interpretation is applicable in our secondary research where we found that a number of polytechnics' incremental IPs have been embodied into commercial products or services. Some of these commercially deployed IPs are grouped and listed in the following categories:

Examples of product IPs sighted include:

1. A quick alert system that prevents unwanted falls of a bed confined patient was commercialised through Plenitum Cares (S) Pte Ltd (Ngee Ann Polytechnic 2011),
2. Elderly friendly mobility aids were licensed to Greenstyle Pte Ltd, a subsidiary of Rehab Mart Homecare (Nanyang Polytechnic 2012),
3. A thin plastic film that converts smartphones or tablets into breathtaking 3D graphic devices was commercialised through Nanoveu Pte Ltd (Temasek Polytechnic 2013), and
4. An ergonomic backpack designed for primary school goers was commercialised through Nexwav International (Republic Polytechnic 2012).

Examples of process IPs sighted include:

1. Unique herbal drinks brewing methods were commercialised through Eu Yan Sang, these teas are made with Rose-Roselle, Plum-Hawthorn and Luo Han Guo-Dates flavours (Republic Polytechnic 2011), and
2. Innovative method of producing the world's first 19K solid purple gold was patented and licensed to Aspial (Singapore Polytechnic 2013).

Examples of software IPs sighted include:

1. An algorithm that augments the visual reality to enhance classroom learning experience is licensed to an international publishing company (Republic Polytechnic 2013), and
2. A customized machine control software for washing and rinsing life science samples was licensed to a company that produces Droparray plates (Nanyang Polytechnic 2011).

Examples of recipe IPs sighted include:

1. Healthier gourmet sausages that were commercialised through Wang Foong Foodstuffs Suppliers (Singapore Polytechnic 2012),
2. A new beverage commercially known as "Lemonsi Delight" was licensed to Pokka Corporation (Singapore Polytechnic 2013a), and
3. Several secret ice cream recipe and healthy beverages were introduced to the marketplace through local companies (Nanyang Polytechnic 2011).

At this juncture, there is no clarity on the performance of the above listed commercially deployed IPs, their existences suggest that polytechnic's IPs are commercially applicable.

Based on the public information of the listed examples, we notice that there is a good mix of firms that collaborated with the polytechnic sector. These firms range from established ones (i.e. Eu Yan Sang, Aspiat and Pokka Corporation) to new start-ups (i.e. Nanoveu Pte Ltd and Plenitum Cares (S) Pte Ltd). It is also interesting to note that established consumer retailers (i.e. Greenstyle Pte Ltd) who do not possess any R&D resources have started to leverage on the polytechnic sector for complementary co-innovation opportunities to stay ahead of competition. This group of underserved SMEs – established consumer retailers, comparing with young start-ups, are financially stronger and endowed with richer market knowledge. Depending on the firm's absorptive capability (Cohen & Levinthal 1990) and deployable resources, an established consumer retailer could rapidly introduce new products or services without investing in R&D through functional collaboration with a matching technology provider.

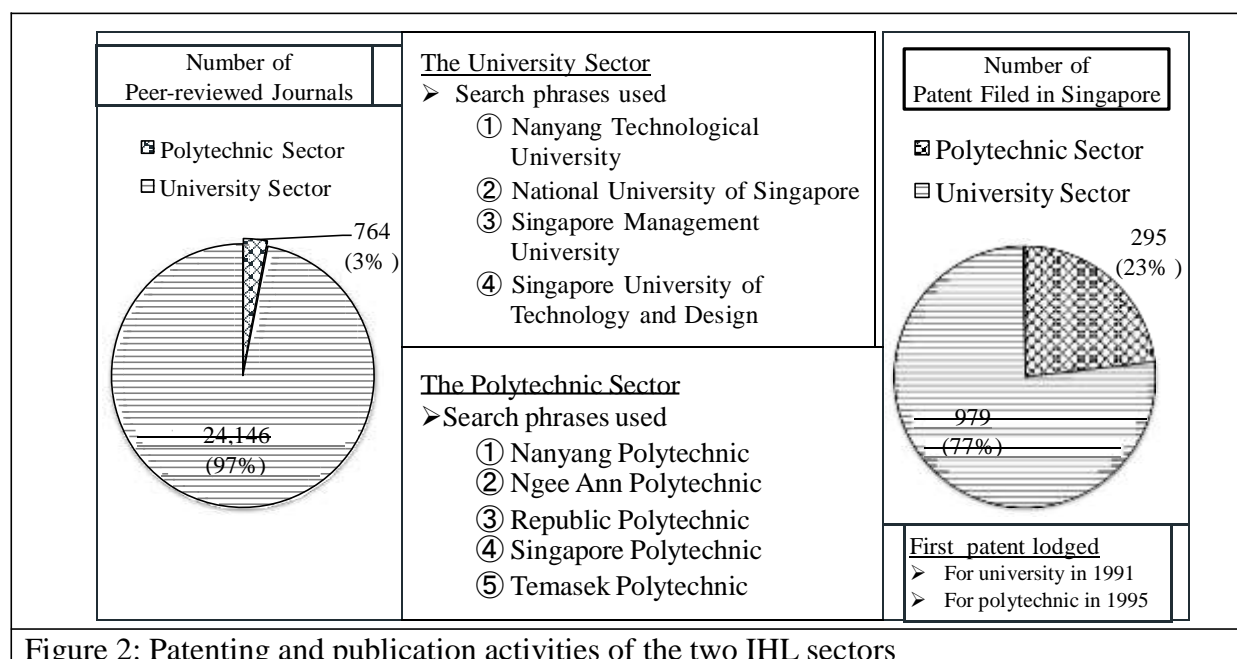
Regardless of the type of IP offerings, there is a general perception that the polytechnic sector tends to produce more market ready IPs as compared to the university counterpart. We conducted a comparative study of the two sectors based on the stock of Singapore patent applications and peer-reviewed articles. The findings are discussed in the following sub-sections.

2.3.1 Knowledge generation through publication

Using the Adelaide University's library database (The University of Adelaide 2013), via the Primo Library one-stop discovery tool hosted by exlibrisgroup.com, we conducted a stocktake of the number of articles published by both university and polytechnic sectors. In mining the data, specific names of the public IHLs (i.e. 4 universities and 5 polytechnics) were supplied to the search field, and the search boundary is defined by the following filters: "Articles", "with my exact phrase" and "anywhere in the record". The cumulative count of peer-reviewed journals of the two sectors confirms that the polytechnic sector produces less publishable foundational knowledge than the university sector. Figure 2 shows that the university sector produces 97% of the peer-reviewed journals, far ahead of the polytechnic sector. This finding confirms that the polytechnic sector is not expected to produce publishable outcome from upstream or basic research - foundational research knowledge.

2.3.2 Knowledge generation through patents

In addition to publishable articles, we conducted a comparative review of the number of patents filed through accessing public patent database hosted by the Intellectual Property Office of Singapore (IPOS 2013). The search was carried out with specific name of each institution (i.e. 4 universities and 5 polytechnics) entered in the search field allocated for name of applicants, proprietors and inventors. Figure 2 shows that the two IHL sectors have collectively lodged 1274 patent applications in Singapore since 1991. Out of this number, the polytechnic sector contributes 23%, a better than expected performance in relation to the stocktake of publishable materials. Besides, this review shows that the polytechnic sector was quick in lodging its first patent application, 4 years after the university sector filed. Most patent offices would determine the patentability of an invention by its novelty, non-obviousness and usefulness (von Wartburg, Teichert & Rost 2005). This affirms that the polytechnic sector has generated respectable amount of patents that are novel, inventive and useful. We will investigate the values of patented technologies to a SME through the primary research.



3. Characteristics of SMEs

Besides Singapore Airlines and Creative Technology, not many Singapore firms are world renown for their new products or services. This could be explained by the Science and Technology Plan 2010 that most SMEs in Singapore are either technology followers or technology-indifferent (Ministry of Trade & Industry 2006). Based on the information provided by SPRING Singapore (2012d), more than 99 percents of enterprises here are classified as SMEs, and they collectively contribute 70% of employment and about 50% of the gross domestic products. A SME in Singapore is defined by at least 30% local ownership, with either annual sale revenue of not more than S\$100 million or an employment size of less than 200 workers.

Wong, PK (2001) is of the view that Singapore firms could be categorized based on their IP generation capability as follows:

- Technically advanced SMEs. This type of SME tends to undertake process improvement R&D activities to satisfy their multinational company (MNC) customers' needs. Some SMEs have ventured into new product developments,
- Government-linked companies (GLCs). GLCs being well resourced are investing proactively in innovation activities, and
- High technology start-ups. Depending on the timing, early high technology start-ups were founded by entrepreneurs who had accumulated sufficient prior work experience. SMEs cited in the article include Creative Technology, Eutech Cybernetics, CSA and Genelab, of which, a few of them were acquired by larger firms. Recent high technology starts-ups involve founders from the public technology providers.

While we agree with Wong that the GLCs are well resourced for independent R&D, we are also intrigued by Chew (2010) that GLCs should collaborate more with SMEs to protect domestic economy from being dominated by MNCs.

Wong's views that technical advanced SMEs are more inclined to practise process innovations may due to higher costs in new product innovation and lower entry barrier related to incremental innovation.

4. Environmental characteristics

In transforming Singapore into a knowledge economy, Singapore government provides needed resources to drive various research, innovation and entrepreneurship initiatives. The Triple Helix innovation model (Etzkowitz 2003) claims that innovation takes place at the intersection of University-Industry-Government (U-I-G) spaces. Such U-I-G interaction and engagements could lead to new knowledge discovery or creation. According to A*STAR (2011), Singapore is still at the early stage of IP commercialisation, and has set up the following entities to provide effective IP intermediation and networking platforms for both technology seekers and providers:

- Exploit Technologies Pte Ltd to sell IPs generated by A*STAR's research institutes, and
- IP Intermediary Ltd, a national IP intermediary service center for all IHLs and research institutes.

Just five years ago, together with 5 polytechnics and 2 universities, Exploit Technology set up a technology transfer network (Technology Transfer Network 2008) which is now subsumed under the IP Intermediary Ltd. Reacting to this new phenomenon, polytechnics are also setting up one-stop TTOs to facilitate the flow of TT activities. Figure 3 illustrates the possible intermediation of the triple helix innovation actors.

The government agencies have supported the push for more public-private IP transfers by providing attractive funding schemes to help under-resourced SMEs. One such scheme is known as the Innovation & Capability Voucher (ICV) administered by the SPRING Singapore, an agency under the Ministry of Trade and Industry (SPRING Singapore 2012c). In addition to ICV, qualified firms could claim tax incentives for investments in innovation and productivity improvement under the Productivity and Innovation Credit (PIC) scheme administrated by Inland Revenue Authority of Singapore (2007). Among other activities, the PIC supports costs of the IP in-licensing activities that are necessary in most innovative product or service developments.

There are no shortages of public funding schemes accessible by the polytechnic sector to develop its IPs for commercial deployments. For example, the National Research Foundation (NRF) provides IHLs with funding for proof-of-concept developments to facilitate IP deployment (NRF 2013), and the Ministry of Education (MOE) offers competitive funding schemes for development of commercially applicable technology related innovations (MOE 2013).

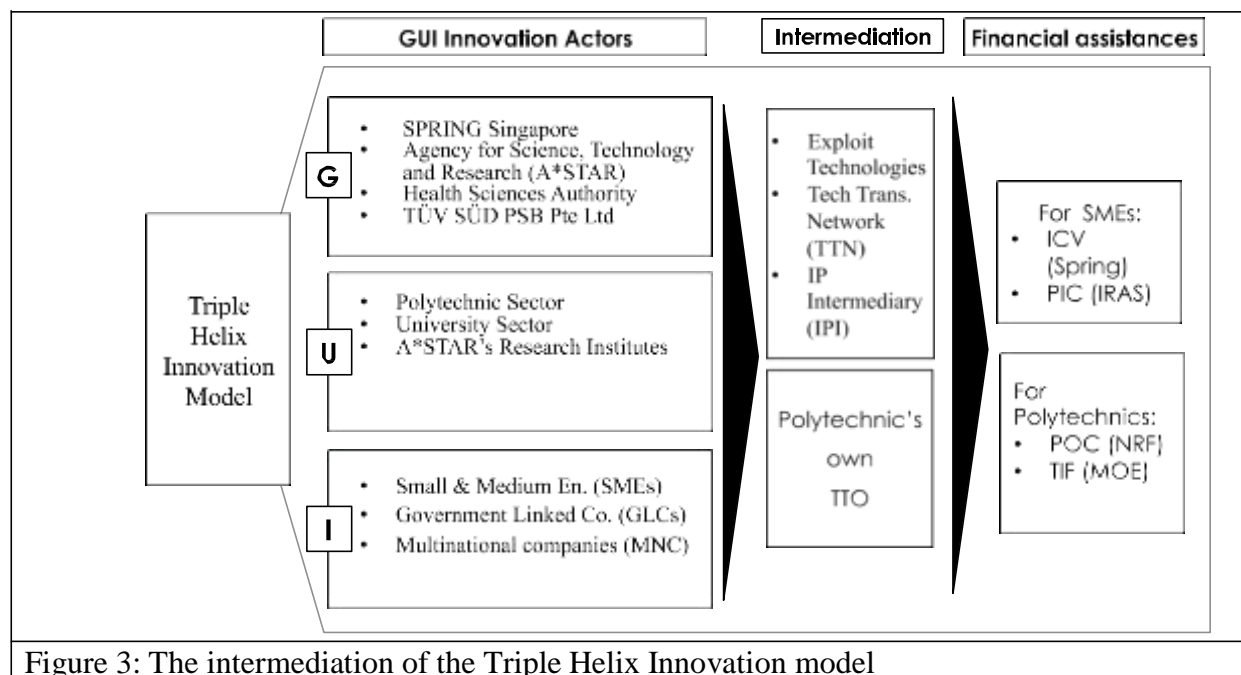


Figure 3: The intermediation of the Triple Helix Innovation model

5. Methodology

The full-scaled study aims to seek lessons from Singapore's SMEs to inform theory about what facilitates the flow of technologies or values between polytechnics and SMEs. Such understanding will help us to develop guidelines to support management of technology transfer from polytechnics to SMEs. Working as a TT manager in one of the polytechnics, the principal researcher will use his judgement in selecting the participating organisations that are fit for the purpose of the study; this is referred to as a "purposive" sampling strategy.

In this paper, a pilot study that draws on data of five semi-structured interviews with managers of SMEs who were involved in IP transfer from one of the polytechnics. Four out of five participants (i.e. P1, P2, P3 and P5) took a license each from the polytechnic for new product or service developments. Figure 4 below lists their concise profiles.

Participant	Business	R&D	TT mechanism	TT object
P1	Mobile Application	Nil	Licensing	Mobile App
P2	Consumer health retailer	Nil	Licensing	Mobility aid
P3	Consumer health retailer	Nil	Licensing	Mobility aid
P4	Electronic products	Yes	Project	Designs
P5	Consumer health retailer	Nil	Licensing	Mobility aid

Figure 4: Profile of participants

In the interviews, participants shared their unique TT experience(s): how those different Poly-SME TT projects are managed and how polytechnics and SMEs could collaborate to co-create values. The topics covered include:

- Basic understanding on the TT mechanisms,
- An account on their personal TT experience with focus on related processes,
- Motivating factors for SMEs to source technologies from the polytechnics,
- Perceived barriers or risks to Poly-SME collaboration in value co-creation, and
- Poly-SME relationship.

6. Results and implications

Participants expressed pragmatic views on their understanding of TT processes. Generally, participants were aware of the role played by the polytechnic sector as a public technology provider. P1 observes: “They (the polytechnic) would have done of studies, come out with innovative products, solutions that could help SMEs to solve their problems either in operational or even in manufacturing...or even in communications areas.” Two themes emerging from this discussion were polytechnics and SMEs could complement each other’s knowledge gaps arising out of inherent mission disparity (i.e. education versus business), secondly the notion that polytechnic as a public technology provider with little interest in business undertakings. Figure 5 depicts diagrammatically the resultant TT value flow and the related TT processes. Our study focuses on interactions between polytechnics and SMEs during IP marketing, IP transfer and post IP-transfer processes.

6.1 IP marketing processes

Concern on effective Poly-SME communication also comes through during the interviews - themes such as “2-way communication” and “proactive communication” appear in responses. P5 points out that confidentiality in communication could be enhanced by a 2-tiered method, informal and formal communication levels. During the first tiered informal or personal level, P5 suggests that the polytechnic member could say something like: “No, no, you don't have to go technical, it's just more to let you know that, look here, we are here, we have a team, we're interested, if you've got a problem, if it is not commercially available, maybe you can work with us to realize into a product.” Enabling technical or business information could be subsequently released in the follow-up discussions after a non-disclosure agreement is reached. We agree with participants that 2-way proactive communication could be enhanced through a 2-tiered knowledge exchange process.

Either pull or push innovation model works fine in Poly-SME TT context. P1 says: “I talk to people and I talk to them and say, can we develop this?” Contrary to the pull approach adopted by the mobile application firm, managers from the consumer health retailers were approached by the polytechnic. P4, the founder of the electronic firm that has its own R&D capability, provides another dimension on TT - the internal TT: “Well, I think for whatever prototype, regardless whether its transfer from polytechnic or transfer from elsewhere or even internally, we have transferred ourselves in the company or transfer the product from the R&D side to the production. You also need the production engineering to improve it. So these are necessary process.” Hence, larger SMEs that are enabled with internal R&D capability will have to ensure cohesiveness of their internal TT processes.

In terms of relationship, a sense of reinforcing, complementary functional relationship emerges in the interviews.

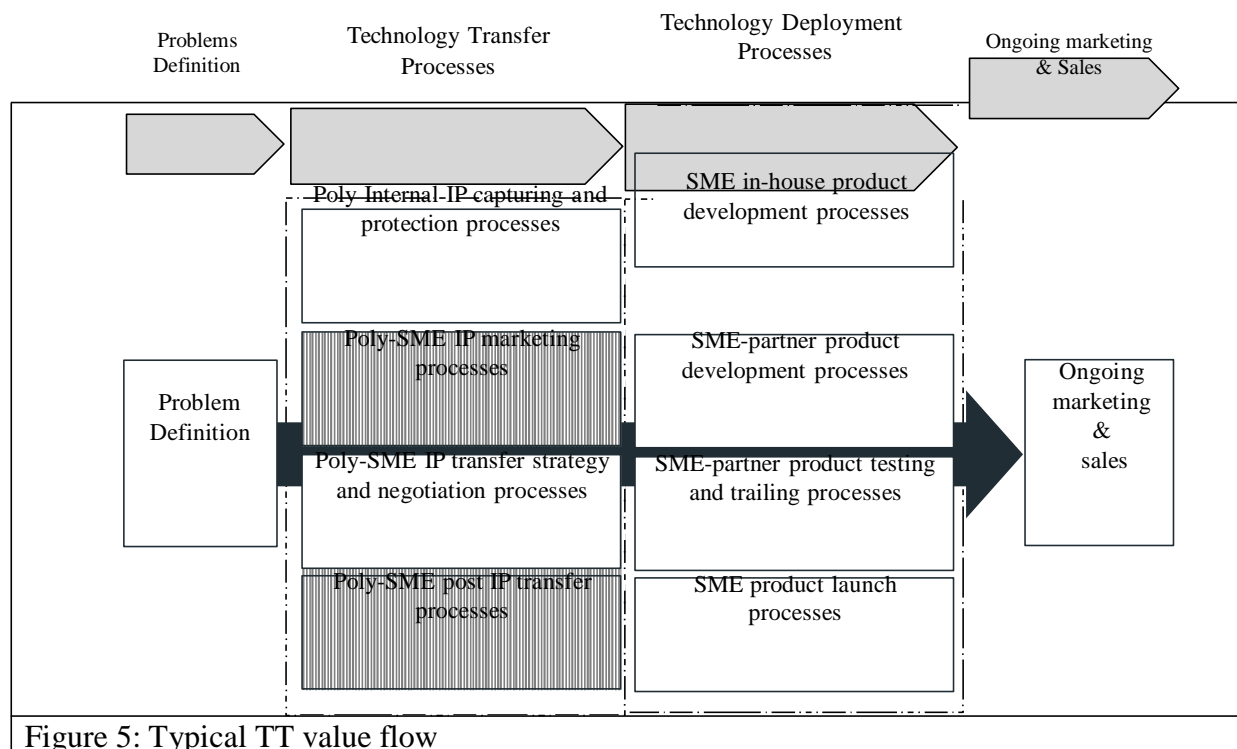


Figure 5: Typical TT value flow

6.2 IP transfer strategy and negotiation processes

Risk sharing is a theme when come to licensing deal negotiation. Three out of four participants who had licensed an IP from the polytechnic prefer to defer the upfront and royalty payments till later years. Such risk sharing arrangement helps under-resourced SMEs to undertake capital-intensive product development ventures.

Licensing a registered IP or not, participants' views appears contradictory. On one hand, participants are confident about the values of registered IPs. On the other, they are sceptical about the enforceability. One participant, P5, put it elegantly: "Licensing is different from owning". The polytechnic remains as the legal IP owner after an IP is licensed out, the polytechnic therefore will be held accountable for IP enforcements. Generally, IP licensees trust the polytechnics in IP enforceability. A consumer health retailer, P3, suggests that a national framework that allows Poly-SME to co-own IPs, a desired future government's initiative to augment the existing financial assistances: "I don't know whether it is also feasible for the establishment of certain framework to allow companies to really co-own the idea." P1 adds: "We also want to be part of the IP to it as well, of our contribution."

Frustration about the fair IP valuation also appears during discussions. The complexity of IP valuation increases with the diversity of the technology, no single expert could affix a fair value to a specific technology or IP. P4 observes that recommendations made by internal technology advisers are more reliable than the external consultants: "If you want to buy some core IPs, then your internal technology directors or expertise must be very high calibre in order to assess accurately." The irony here is: "Third party could be someone in the industry, they also not so sure about that. So many time, they are flawed, their consultant, they can say whatever their expertise. But their true capability and competency are in serious doubts." For SMEs that lacks internal expertise, they have no choice but to trust their business judgement instead of elaborate technology assessments. Sometimes, conflicts in IP valuation do happen: "Yes. When I was negotiating with (the polytechnic), they stressed a lot on IP... institution put a lot of value in IP, but I do not." Secondary findings suggest that polytechnic's knowledge is likely less foundational or core, IP valuation using business acumen instead of

scientific IP valuation may suffice. This makes TT process much easier.

6.3 *Post IP-transfer processes*

Continuation of technical and know-how supports beyond the licensing contract is the most significant consideration for an under-resourced SME. As P1 puts it aptly: “I think technology product is not a complete product. It’s not something that’s complete.” This feeling was echoed by P2: “We have to do a lot modifications.” At this juncture, it is rather clear that Poly-SME IP commercialisation does not stop at prototype development level, it stretches beyond the licensing contract. Further proof-of-concept prototype validation, subsequent proof-of-value validation, follow-through scale-up or mass production consulting and cost down innovation are some of the fitting themes: “..how they manage to change and amend that prototype from maybe type 1 to type 2 to type 3.”

7 Other concerns

Attitude towards TT object characteristics appears to be consistent. Participants are looking for incremental solutions that are proven and market-ready: “Research that has been done and a prototype was developed” said one manager, and “Some research products that they have already turned into prototypes” said another. P1 calls for special consideration when evaluating market readiness of IP offers from polytechnics. For mobile applications, they tend to be narrowly designed and developed for a specific application. In this case, clarity of the sustainable business model would ensure commercial success. Most participants regard radical innovation as hard to come by and will still go for incremental ones. For example, P5 claims that incremental solutions for everyday problems make business sense too. “I think I’m going to sell a lot of this (incremental solutions). I think because historically I sell 5000 a year - normal walking frame.” In developing an incremental innovation, most consumer health retailers feel that their product insights gained through countless interactions with the end-users or influencers is crucial in deciding what IP to co-develop with a polytechnic: “95 % of the things I see is commercially available. 5 % is probably not available, something new.” From the perspective of an electronic manager, polytechnic’s capability to aggregate today’s technology is significant in value creation: “...your word integration, for us, normally we term them as integrating the various core components to form a system. This kind of integration has actually created value.” Combining the secondary findings, it seems that the polytechnic sector is suitably resourced with the requisite human capital stock to translate IPs relatively nearer to the marketplace.

Lack of timely and full disclosure of the documented know-how is reported as one of the perceived barriers to TT processes. Cumbersome funding application process, unclear business prospect, prohibitive minimum order quantity, uncertain future technical issues and unclear project deliverables are other concerns discussed during the interviews.

Conclusions and future works

The paper presents characteristics of polytechnics, government, and SMEs - the triple helix innovation actors, results of secondary research of publicly accessible sources. In a follow-up pilot study, interview data obtained from five SME managers who had prior Poly-SME IP transfer experiences are discussed, and their key concerns were surfaced. Using Singapore as the unique site, more such data will be collected in future study. Ultimately, collected data will be analysed and its findings will be verified through focus group interviews with voluntary managers from the polytechnic sector.

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THE ROLE OF THE ENTREPRENEUR'S BUSINESS MODEL IN SHAPING NASCENT MARKETS: HUSK POWER SYSTEMS AND THE DECENTRALIZED RENEWABLE ENERGY MARKET IN INDIA

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The Role of the Entrepreneur's Business Model in Shaping Nascent Markets: *Husk Power Systems and the Decentralized Renewable Energy Market in India*

Abstract

We examine entrepreneurial action in a nascent market context. In such a context, faced with uncertainty, entrepreneurs act to reduce this uncertainty. Business models are increasingly being seen as key to analyzing entrepreneurial strategy. Using the business model as a unit of analysis, we study how entrepreneurial business model development takes place in a nascent market context. We perform a case study of an exemplary venture in the decentralized renewable energy market in India, a nascent market, and trace the development of its business model since inception. We find that the venture employs multiple business models that it launches sequentially. While each of these business models is developed through a process of experimentation and refinement, the business models and their sequential deployment is in itself a tool to shape the market. We link business model development literature to entrepreneurial action in nascent markets using the market driving concept to explain the reasoning behind the structure of, and sequence of deployment of the business models. We suggest that under conditions of uncertainty, entrepreneurs may use the business model development process itself as a means to shape market conditions, and gain competitive advantage.

1. Introduction

Entrepreneurs often operate under conditions of uncertainty (Alvarez & Barney, 2007; McKelvie, Haynie, & Gustavsson, 2011; Sarasvathy & Dew, 2005). Under such conditions where information is not available or only partially available, entrepreneurs are likely to adopt effectuation (Sarasvathy, 2001) and entrepreneurs make decisions by gathering information through experimental and iterative learning (Alvarez & Barney, 2007).

Nascent markets, which are business environments in an early stage of formation (Aldrich & Fiol, 1994), constitute unstructured settings with extreme ambiguity (Santos & Eisenhardt, 2009). In other words a nascent market is a setting where the market is under development and where there is uncertainty about the characteristics of demand, supply and institutions. Sarasvathy & Dew (2005) state that in such a setting, entrepreneurs act effectually and the actions of the entrepreneur set in motion a process where the new venture and market co-evolve through a series of interactions with stakeholders and ever-increasing commitments in this network of stakeholders. Further, following effectuation logic the entrepreneur seeks to control and create the market rather than to predict and follow it (Sarasvathy & Kotha, 2001). Santos and Eisenhardt (2009) assert that entrepreneurs shape organizational boundaries and construct markets in nascent fields using the processes of claiming, demarcating and controlling the market. We focus our research on the interaction between the entrepreneur and the nascent market context and seek to understand how the two influence each other.

Business models are a key dimension in developing and analyzing entrepreneurial strategy (Morris, Schindehutte, Richardson, & Allen, 2006). The business model can be seen as a representation of the realized strategy of the firm, where the realized strategy is some combination of the intended, deliberate and emergent strategies (Alvarez & Barney, 2007). The business model can therefore be an effective tool to study the interaction between the firm and its context. The concept of business models has received increasing attention over the last decade, from both academics and practitioners (Chesbrough & Rosenbloom, 2002; Morris, Schindehutte, & Allen, 2005; Teece, 2010; Zott & Amit, 2007; Zott, Amit, & Massa, 2011). For entrepreneurs faced with the complex task of starting a new venture, the business model is an effective tool offering a holistic view of how they create and capture value

(Morris et al., 2005; Zott & Amit, 2007; Teece, 2010). For new ventures, developing a robust business model is also key to firm survival and growth (George & Bock, 2011). The task of designing a robust business model is however not easy. The ideal business model rarely appears early in emerging businesses (Teece, 2010). The study of business model development has largely been focused on incumbent firms and how these organizations approach changing their existing business model or designing new business models using trial-and error, experimentation or effectuation (Chesbrough, 2010; McGrath, 2010; Sosna, Treviño-Rodríguez, & Velamuri, 2010). These concepts are applicable to new ventures as well. Indeed, those ventures that are geared towards experimenting with and adjusting their business models are said to be more likely to succeed (Andries & Debackere, 2007; Teece, 2010). In situations where both the firm is new and the market is new the task of developing a business model becomes even more complicated. In this context of uncertainty, where there is “little or no market structure, no clear meaning and unknown dependence” (Santos & Eisenhardt, 2009, p. 666), the entrepreneur needs to act to reduce uncertainty, while also designing the business model (Thompson & MacMillan, 2010). There is however a paucity of literature that covers how entrepreneurs launching new ventures in nascent markets do this.

While different studies have covered the topics of how entrepreneurial action shapes markets and business model development, there are few examples where these two are studied in conjunction, especially empirical studies in the nascent market context. We aim our research at this gap and ask, ‘How do entrepreneurs setting up a new venture in a nascent market interact with this context?’ and ‘If and how this interaction shapes the co-evolution of the firm and the market?’

We study a start-up firm in the decentralized¹ renewable energy (DRE) market in rural India. This market is developing as a result of the Indian government’s Electricity Act of 2003 (Govt. of India, 2003, 2006), which made it possible for private firms to set up decentralized power plants for micro-generation and distribution of electricity. We focus our research on one such firm Husk Power Systems (HPS). Founded in 2007, HPS provides a mini-grid electricity service, based on rice husk gasification technology. Unlike any other company in this sector, they have grown rapidly and have installed 79 power plants serving close to 250 villages in just over 5 years.

Data was gathered during two visits in 2012. To acquire as much rich data as possible we conducted extensive semi-structured interviews with founders and top-managers at HPS. Two focus group discussions with field workers were also held. In addition, semi-structured interviews with partners, and customers were conducted at 8 different power plant sites. We adapt the six-component framework for characterizing an entrepreneur’s business model as proposed by Morris et al. (2005) to study the changes in the business model.

The paper is structured in the following way. We first present the theoretical concepts that this paper draws upon. This is followed by a description of the research setting, research methods, including data collection and analysis techniques, and details about the case company. We proceed by presenting our findings and then discuss these in light of the theoretical concepts presented.

2. Conceptual foundations

We focus our study on entrepreneurial action in a nascent market context using the business model concept as a tool to study realized entrepreneurial strategy of new ventures in nascent markets. We are interested in the interaction between the firm and the context and if and how

¹ Electricity production at or near the point of use, irrespective of size, technology or fuel used - both off-grid and on-grid. (Definition by World Alliance for Decentralized Energy; website: <http://localpower.org/>)

the two influence each other in their evolution. In the following sub-sections, we first introduce the concepts of nascent markets and business models and then discuss entrepreneurial action in nascent market contexts.

2.1 Nascent markets

The term market is used in a wide variety of ways. Sarasvathy and Dew (2005) conclude that the various descriptions could coalesce into three distinct categories: Demand, Supply and Institutions. For well-established markets, it is relatively easy to describe all these three categories. The task is, however, far more complex when it comes a nascent market. Santos and Eisenhardt (2009, p. 644) summarize literature on nascent markets and characterize them as: *“Nascent markets are business environments in an early stage of formation, often appearing in emerging “organizational fields” (Aldrich & Fiol, 1994). Nascent markets are characterized by undefined or fleeting industry structure (Eisenhardt, 1989; Rindova & Fombrun, 2001), unclear or missing product definitions (Hargadon & Douglas, 2001), and lack of a dominant logic to guide actions (Kaplan & Tripsas, 2008; Porac, Ventresca, & Mishina, 2002). Thus, nascent markets constitute unstructured settings with extreme ambiguity.”* In other words a nascent market is a setting where there is uncertainty about the characteristics of demand, supply and institutions, and entrepreneurs operating in such an environment are therefore tasked with reducing this uncertainty while simultaneously developing their business models (Thompson & MacMillan, 2010).

2.2 The business model concept

Business models have received increasing attention over the last decade with different definitions and constituent components described (Morris et al., 2005; Zott et al., 2011). A business model can be seen as “the architecture of the revenue” (Chesbrough & Rosenbloom, 2002, p. 529); “the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit” (Teece, 2010, p. 172); “a representation of a firm’s underlying core logic and strategic choices for creating and capturing value within a value network” (Shafer, Smith, & Linder, 2005, p. 202) or “the content, structure, and governance of transactions, designed so as to create value through the exploitation of business opportunities”(Amit & Zott, 2001, p. 493).

Morris, Schindehutte and Allen (2005) performed a content analysis of 30 definitions of the concept and concluded that these represented three categories of definitions, namely economic, operational and strategic with each category comprised of a unique set of decision variables. Based on this they came up with an integrative definition which states that a business model is *“a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in defined markets”* (Morris et al., 2005, p. 727). This definition draws upon several ideas central to business strategy and its associated theoretical traditions. Further, Morris et.al. (ibid) propose an integrative framework for characterizing a business model. The framework consists of three levels of decision making (foundation, proprietary and rules) and six basic decision making areas at each level. These decision areas, such as “How will the firm create value”, in turn contain factors related to the offering. We adapt this framework for our study, which is focused on studying the changes to the business model as it co-evolves with the market. The framework allows us to present this as changes in a consistent set of decision variables over time. It also helps us analyze these decisions in the context of their effect on the market.

2.2.1 Business model development

All firms employ a business model, whether explicitly or implicitly in the endeavor to organize to meet customer needs, get paid for doing so and make a profit (Teece, 2010). It is rare that entrepreneurs are able to define their business concept correctly right from the beginning and achieve a good fit with available opportunity (Stoica & Schindehutte, 1999). Entrepreneurs start with a hypothesis of the market (Sarasvathy & Kotha, 2001) and refine their initial business concept through a process of 'trial and error' (Teece, 2010; Trimi & Berbegal-Mirabent, 2012) where 'experimentation' in a real-life setting leads to adjustments to the initial concept and its refinement (Murray & Tripsas, 2004). The 'discovery driven' approach emphasizes the path dependency between different business models. This means that as the business model is tested, some business model components change and others are kept fixed. In the discovery driven approach the entrepreneur discovers more and more of an efficient business model as several experiments confirm or disconfirm existing logic (McGrath, 2010). This suggests a sequential approach in business model development. Entrepreneurs can, however, adopt a simultaneous approach, where they test several business models concurrently and over time select one or a limited number of viable models (Andries, Van Looy, Lecoco, & Debackere, 2012). In emerging industries this may, in fact, be the better approach to take.

2.3 Entrepreneurial action in nascent markets

In a nascent market, where market characteristics are still evolving, entrepreneurs are faced with uncertainty. In such a context, entrepreneurs act effectually (Sarasvathy, 2001) trying to reduce uncertainty by gathering information through experimental and iterative learning (Alvarez & Barney, 2007). The business and market then co-evolve through a series of interactions with stakeholders and ever-increasing commitments in this network of stakeholders which sets in motion two concurrent cycles of expanding resources and converging constraints that result in the new market (Sarasvathy & Dew, 2005). In essence the actions an entrepreneur takes in order to reduce uncertainty about particular strategies and resource combinations, also creates the market (Alvarez & Barney, 2007). Further, following effectuation logic the firm seeks to control and create the market rather than to predict and follow it (Sarasvathy & Kotha, 2001).

Santos and Eisenhardt (2009) lend a more strategic view to this shaping of nascent markets by entrepreneurs. In their research on how new firms in nascent markets shape organizational boundaries over time, find that successful entrepreneurs in nascent markets adopt a strategic approach to shaping organizational boundaries. They identify three processes for this, namely, claiming, demarcating and controlling the market. Santos and Eisenhardt (2009) state that power is the unifying boundary logic and entrepreneurs in nascent markets use soft-power strategies, to reduce market ambiguity and influence the actions of others. Both the above ideas of entrepreneurs trying to create or control the market in uncertain conditions are consistent with market driving.

Marketing scholars define, market driving (Hills & Sarin, 2003) or driving markets (Jaworski, Kohli, & Sahay, 2000) as a strategic process engaged in by firms that is aimed at shaping market preferences and stakeholder expectations so as to influence the evolution of their industry in a direction consistent with their own strengths and abilities to derive long-term advantage. Using market driving, firms create new markets by producing discontinuous leaps in the value proposition and the implementation of a unique business system (Kumar, Scheer, & Kotler, 2000). Marketing literature distinguishes between 'market driven' and 'market driving'. Both are part of a 'market orientation' of firms. Schindehutte, Morris et al. (2008) bring a different perspective and argue that market driving behavior reflects the essence of

entrepreneurial action. They present 'Entrepreneurial Orientation' as the guiding logic and say that this is what drives the development of a unique business model that shapes the structure and behavior of a market (ibid).

Firms may take three generic approaches to altering the structure of the market: 1) Deconstruction– which involves the elimination of players in the industry value chain; 2) Construction – which involves the addition of players to the industry value chain; and 3) Functional Modification – which aims at shift the functions performed by players in the market (Jaworski et al., 2000) Kumar, Scheer and Kotler (2000) list certain common characteristics of market driving firms. They say that these firms are guided by vision, rather than traditional market research; they tend to re-draw industry segmentation; they create value through new price points for the quality or service levels they deliver; they focus on sales growth through customer education; they reconfigure channels bringing innovation in distribution and channel management in their industries; they capitalize on 'word-of-mouth' publicity or the 'buzz network' to get their message across; and they exceed customer expectations (ibid). These conceptualizations of market driving behavior suggest entrepreneurs engage in market driving behavior to control and dominate the market they operate in. We can thus expect to observe similar behavior in nascent markets – in fact this may be a means to reduce uncertainty in this context.

Holloway and Sebastiao (2010) link effectuation to market driving in the co-evolution of emerging markets. They propose that entrepreneurs start with a hypothesized business model and refine it. This leads to stakeholder commitments, which forges an increasingly strategic vision. When the business model can be positioned as an industry standard, entrepreneurs engage in market driving to achieve and sustain a dominant position.

Based on the literature review, in the nascent market context, we may thus expect to find a venture that has one or more business models which are in the process of development. Further we may expect that the venture tends towards a preferred business model, or a set of business models based on the results of experimentation. We also expect the venture to engage in market driving strategies to seek dominance for its preferred business model/s as the market evolves.

3. Study Design and Methods

3.1 Research Setting

The rural decentralized renewable energy (DRE) market in India is chosen for our study. There are two primary reasons why this is an appropriate setting for our research.

One, rural electrification is a challenging task, especially in the developing world. It is characterized by the need to serve dispersed populations, in low density settings and high variations in demand coupled with low ability to pay. (Zerriffi, 2011b). Very few organizations, have been able to scale-up in this setting (Zerriffi, 2011b). One of the primary reasons for this is that there is a lot of uncertainty associated with decentralized renewable energy supply. When the dimension of renewable energy technologies is added to the tough conditions of the rural electricity market, matching this new technology to the already unpredictable demand adds to the uncertainty in this market. On the demand side, for people in rural areas with low and seasonal income, electricity is not an integrated part of life. It is therefore difficult to predict user behavior and willingness to pay in this setting (Martinot, Chaurey, Lew, Moreira, & Wamukonya, 2002). In addition, the poorly developed institutional context in India is not very supportive of the DRE market (Patil, 2010).

Two, it is estimated that some 1.3 billion people do not have access to electricity. (Centre for European Policy Studies, 2012; The International Finance Corporation, 2012). India alone

accounts for 350 million people without access to electricity (Balachandra, 2011). Access to modern energy services is a fundamental precondition for poverty reduction (IEA, 2010). The goal of universal energy access for all cannot be met by a single standardized means. Decentralized energy solutions and entrepreneurs are being seen as a necessary and important part of the mix in meeting this challenge (The International Finance Corporation, 2012; Zerriffi, 2011a). It is therefore of interest to study entrepreneurial strategy in this important market.

3.2 Research design

We adopt an inductive, single case research design. A case study design is appropriate when the phenomenon is a contemporary event that can be studied in its natural setting, without need for manipulation or control with the subjects being studied, and when the phenomenon of interest does not enjoy a well-established theoretical base (Benbasat, Goldstein, & Mead, 1987). An entrepreneur who establishes a seemingly viable, sustainable and high growth firm, targeting low-income customers at the base of the pyramid in rural areas in an emerging country is a rather new phenomenon (Zerriffi, 2011a). Given that the decentralized renewable energy market in India was only made possible after the Electricity Act of 2003, this also represents a new research setting where there is little prior research and theory on the topic, making this a setting appropriate for case study research (Eisenhardt, 1989; Yin, 2009).

Our broad selection criteria were that the venture should be a firm launched by an entrepreneur(s) that should be profit oriented with a focus on financial sustainability and returns and operating in our research setting. In order to track the interaction of the venture with its context we needed to access some sources that had been with the firm since inception. In order to understand how the firm and the market had co-evolved we needed a venture that had a track record. In essence we needed a venture that had a stable existence or was growing. It was also considered important that the venture had been able to expand activities to several sites, meaning installing several power plants in different villages demonstrating learning from prior experience and its application in new areas.

Our search for a suitable candidate for research led us to Husk Power Systems (HPS). Founded in 2007, HPS provides a mini-grid electricity service, based on rice husk gasification technology. Unlike any other mini-utility company globally in this sector, they have grown rapidly and have installed 79 power plants serving over 250 villages in just over 5 years. Sampling based on a particularly successful, or a particular problematic case, is an extreme sampling strategy (Flyvbjerg, 2006; Neergaard, 2007). Husk Power Systems (HPS), can be seen as particularly successful within rural electrification. There are several indications that show HPS' leading role in DRE sector both as a business and in terms of their impact. This includes awards and funding raised through both commercial and impact investors. The International Finance Corporation (IFC) confirms HPS as a world leader in rural electrification and places it at the top among firms that are commercially driven and fully or nearly financially viable (IFC, 2012) in the 'mini-utility' sector. Husk Power Systems is therefore chosen as our case company for this research and to capture the process of business model development the research took the form of a retrospective study, which is a study that takes the present as a base and seeks information about recent history (Blaikie, 2000).

3.3 Data collection

We focused our data collection on tracking the decisions on the business model components in HPS over its first five years (2007-2012). In order to do so we relied on two primary data sources, namely, archives and interviews. This was gathered in two data collection sessions, in February 2012 and November-December 2012, which equaled a month in the field. Archival data included reports from the company, presentations and the company website,

and external sources such as media articles and web based articles where HPS was mentioned. Semi-structured interviews were conducted with internal and external organizational stakeholders. This included interviews with two of the founders of Husk Power System who operate as Chief Executive Officer (CEO) and the Chief Operating Officer (COO). We also interviewed the Vice President of Operations who has worked closely with the two founders since a year after HPS' inception. The information from these interviews was matched with archival data to confirm the business model development process. Outside of HPS's headquarters we also conducted two focus group discussions with field staff at two different regional offices. In addition, we conducted interviews with customers and business partners at different power plant sites. While retrospective studies can suffer from recall bias, using multiple sources of data helped mitigate this limitation (Pettigrew, 1990). We further reduced recall bias by triangulating data, matching archival data with the retrospective accounts. Pictures, observation and thoughts recorded in the field, also contributed to a deep understanding of HPS' business model development. A total of 16 interviews were conducted which produced 21 hours of recorded interview data.

The informants are all Indian, and there are several challenges inherent in collecting reliable business data from emerging markets (Hoskisson, Eden, Lau, & Wright, 2000). One potential hindrance is different understanding of formal and informal language. This was solved by the fact that the founder and CEO has lived several years in USA, and understands the researchers' western background. Further, one of the researchers is native Indian and has prior experience in working in rural India through micro credit organizations, and thus possesses understanding of the cultural setting. Having the native Indian on the research-team, reduced the chances for misunderstandings considerably in our interactions with the informants in remote rural locations in India.

All the interviews with founders and VP of operations at HPS' headquarters were conducted in English. Interviews with managers of power plants were all done in Hindi language, while focus group discussions with employees at regional offices were done partly in English, partly in Hindi. Interviews were recorded using digital audio recorders and were transcribed in their entirety. The native Indian on the research team has transcribed all of the interviews from Hindi to English.

3.4 Analysis

After all the relevant material was transcribed, both the researchers read the data independently to code and analyze the data. This was done in a two cycle process, in the first of which we performed holistic coding, where we grouped the respondents' own words into elements that we were looking for. Holistic coding is appropriate wherever researchers have an idea of what to look for in the data (Saldaña, 2013). Since we were looking for elements corresponding to the components of the business model and interaction with the context, the holistic coding approach was appropriate. After the first cycle of coding the results of the coding by the two researchers were compared and discrepancies analyzed and resolved before we moved on to the second cycle. In the second cycle we performed pattern coding, where we grouped the previously identified elements into broader conceptually relevant categories. This helped us to identify the specific patterns of decisions that emerged from the data. This was followed by an iterative process of comparing our findings with theory to relate them to existing theory and clarify our contributions.

3.5 The case company - Husk Power Systems

Husk Power Systems (HPS) is the result of the vision of Gyanesh Pandey. Gyanesh grew up in the state of Bihar in India, one of the poorest and least developed parts of India. An engineer, he was working in the semi-conductor industry in the USA, when the contrast

between the comforts he enjoyed with the conditions back home inspired him to take action. Determined to electrify rural India, he teamed up with his childhood friend, Ratnesh Yadav, who himself had moved from New Delhi back to Patna (Bihar) to pursue an entrepreneurial career. As a result of this partnership, HPS was founded in 2007, with the mission to empower rural people in India on the backbone of electricity produced from renewable energy.

HPS' power plants run exclusively on gasified biomass, rice husk, a locally abundant agricultural waste product. Ranging from 30 to 100 kW in size, each power plant can supply between 300 to 1000 households and/or businesses with basic electricity services. The case of HPS is unique in the rural electrification sector in the sense that it has been able to spread operations to numerous sites.

Prior to official firm foundation in 2007, five years of technology testing and development took place, before finalizing the choice of technology. Starting with just the entrepreneurs' personal resources, HPS was subsequently able to raise financial resources by winning business plan competitions worth a few hundred thousand dollars in the USA. In 2009 Shell Foundation offered HPS a grant and became HPS' main partner. In total, 10 million dollars have been raised through grants, investments and debt. Investors are international venture funds such as Acumen Fund and Draper Fisher Jurvetson. As of the end of 2012, HPS has over 400 employees and has installed 79 power plants, through three different business models.

4. Findings

Results from our data analysis shows that HPS currently operates with three distinct business models. These models were launched sequentially, even though all three are operated simultaneously at the time of this research. While HPS works to refine each business model on its own, in interaction with the market, the latter business models also include learning from the previous model. In addition, each business model serves the additional function of driving the market in particular ways and the sequence of launch is important. There is evidence of a strategic vision in the choice of business models used and the order in which they were launched. We find that the three business models are used strategically to drive the market in a direction that can give HPS a competitive advantage.

The results are presented in more detail below.

4.1 Husk Power Systems business models

The three business models launched by HPS are called (by them) BOOM – Build Own Operate Maintain, BOM – Build Own Maintain and BM – Build Maintain. The salient differences between the three models are presented in Table 1 below.

	BOOM	BOM	BM
Offering	Service (electricity)	Product (power plant) Service (finance)	Product (power plant) Service (maintenance)
Customer	Households	Local village entrepreneur	Local village entrepreneur
Competitive strategy	Reliability of electricity (versus central grid) Quality of light (versus kerosene/diesel)	Offer a product combined with a unique service (financial loan) Intimate customer relationship	Offer a product combined with quality service (maintenance) Intimate customer relationship
Time, scope and size ambitions	Prove (the technical and economical concept)	Demonstrate (short time frame, demonstrate viability to local banks)	Growth (generate capital gain for investors)

Table 1: Key features of the HPS business models

4.1.1 The BOOM (build, operate, own and maintain) model

In this business model, HPS installs the power plant and the mini-grid system in the village and has full ownership of it. That daily operations are managed by staff employed by HPS, which includes procuring rice husk, operating the plant, ensuring maintenance of the plant and the connections provided, and the collection of bills. The product on offer in this business model is an electricity service and it is sold directly to end consumers, who may be either village households or small businesses or even small village units like milling units. This model puts HPS in direct and close contact with the end consumer of the electricity produced from their power plants.

4.1.2 The BOM (build, own and maintain) model

The key difference from the BOOM model is that in this model, HPS partners with a local village entrepreneur, who buys the power plant from HPS on lease and is in charge of day to day operations of the plant. The village entrepreneur puts up 10% of the capital required for the plant (typically between USD 2-3000 after subsidies) and the lease is paid back by the local entrepreneurs over a fixed period (typically 5-6 years). The product on offer is thus the power plant itself, and a financial service in the form of a lease. Maintenance and operational support is also offered. Access to finance is the key value proposition offered to the local entrepreneur.

4.1.3 The BM (build, maintain) model

In this model, the plant is sold to a local entrepreneur and the ownership of power plant rests 100 % with this local village entrepreneur. The local entrepreneur finances the plant himself, typically by borrowing money from a local bank. HPS builds the plant for the local entrepreneur and provides advanced maintenance service. The village entrepreneur is in charge of making a return on his investment by performing day-to-day operations, selling electricity, follow up with customers and of making collections through staff that he employs. In this model the customer for HPS is the local entrepreneur that buys their power plant and the value offered is profit generation.

The three business models described above were launched sequentially by HPS, as shown in Table 2

	BOOM	BOM	BM	TOTAL
2007	2			2
2008	1			1
2009	7			7
2010	32	3	3 (PACS)	38
2011	7	17	1	25
2012		1	5	6
TOTAL	49	21	9	79

Table 2: Sequential deployment of power plants using the different business models

The first two power plants that HPS installed were installed before HPS was formally incorporated as a company in 2007 under the aegis of a trust. Following this, the installation of BOOM plants peaked in 2010 after which it has tapered off. BOM plants began to be installed in 2010 and their installation peaked in 2011. HPS have stopped installing any more

BOM plants. BM plants also began being installed in 2010. In the table we show three plants being installed in 2010. These were all purchased by Primary Agriculture Cooperative Societies (PACS) which is a membership based group of farmers typically comprised of land owning farmers from a group of four to five close-by villages. Being cooperatives, these groups have easier access to funds, both from membership fees and from government funds.

The configurations of the three business models, BOOM, BOM and BM and the order of their launch raises the question of why these particular configurations and why this order of launching the business models. We discuss this in the next section.

4.2 Rationale for business model configuration and sequence of launch

“... but the vision was never to set up 10 plants. The idea has always been to become a solution to a significant number of people worldwide. That “significant” word is what makes us do all these things.” (CEO and co-founder)

The vision at HPS has always been to become a company that has a huge impact. This vision is guiding factor in explaining the configuration and sequential launch of the business models at HPS. The founders of HPS always knew that in order to create the kind of impact that they wanted, they would have to have a business model akin to the BM model described above.

“...then we have BM model, build and maintain. So the idea is that once things are set up, and then have the BM model and then blast out.” (CEO and co-founder)

However, when they started operations, given the fact that they were bringing in an entirely new technology, there was ambiguity about both the technology and the business systems.

“... in the beginning we didn’t even have the plant technology. It was a new thing. Nobody had done it before. And we were not sure if this thing would work or not....setting up the plant itself was an experiment” (COO and co-founder)

In order to reduce this ambiguity, the entrepreneurs had to act. For this purpose they chose the BOOM model.

“Our first model we call BOOM. So we put out about 50 plants. That is not a scalable model at all. It cannot be. We put out 50 just to understand everything” (CEO and co-founder)

Despite the fact that the entrepreneurs aimed for, and had a vision that would imply a BM model, a different business model was launched initially.

4.2.1 Learning and impact in the BOOM model

The BOOM is a work intensive business model and not one that aligns with the vision of the founders. However, it allows HPS to be placed very close to the end consumers of the electricity. This enables HPS to fine-tune the technology and the business systems and to get a first-hand exposure to the market in which they operate.

“it is the only way to learn. Until you do it yourself, how would you know? You can’t teach other (sic) before you know yourself.” (CEO and co-founder)

Fine-tuning the technology and systems in the BOOM model, HPS was able to achieve multiple goals of organizational learning. One, it could test and improve its technology and ensure that they could deliver on their value proposition of reliable and cheap electricity. Two, they could test their operations and management systems and set it up so that local people could operate the systems.

“It [the power plant] had to be very simple, so that local villagers could operate and manage it. This way we were able to give employment to them. They were rent collectors, electricians, plant operators. This gives acceptability to our model.” (COO and co-founder)

Further, the BOOM model serves as an excellent demonstration, training and marketing medium for the company, also a pre-requisite for scaling up. Many of the local village entrepreneurs who (co-)own HPS power plants under the BOM or BM business model, had been to BOOM plants to see the plants in operation before deciding to invest their own capital in such a plant.

“Yes, I was doubtful and people here had been warning me that many such systems come and go and there are lots of failures, so I was doubtful. So, I went to their plant in Majhulia to see it in operation. It was important for me to see a plant up and running.” (Owner of a BM plant)

4.2.2 Learning and Impact in the BOM model

The second model introduced by HPS, BOM allows HPS to move one step further towards its vision by getting rid of the day to day operations. However, this is a very capital intensive model, as it effectively has HPS performing the role of a bank.

“BOM, you are still putting [power plants] on your balance sheet. Where are you going to get that much money? So if you are doing 2000 plants ... you can't do that.” (CEO and co-founder)

What is the rationale behind the BOM model? Having proven their technology and having established an operations system that can be managed by a local workforce, the next big challenge for HPS was to enable the sale of their power plants to local entrepreneurs. However, local village entrepreneurs in most cases do not have access to requisite finance, and banks are in general very conservative in lending to them, especially for a new technology.

“If you are going to start offering plants as BM, where are people going to get that money from? Villagers don't have that kind of money.” (CEO and co-founder)

“The problem is that local banks are too conservative. They just don't want to take the risk” (CEO and co-founder)

By running the BOM model HPS achieves two objectives. One, it tests and demonstrates the viability of the revenue model, for itself, for potential village entrepreneurs and for banks.

“BOM was a very point in time period kind of model. It was never meant to be a long term model. The idea was to demonstrate, especially to banks” (CEO and co-founder)

Two, it uses this to alter the channel for delivery of electricity, thereby attracting local entrepreneurs to buy their systems under the BM model.

“I bought it with my own cash... I had gone to some banks to ask for loan, but they said that we have to see such a project already up and running and then we will think about your loan application. The second plant that I want to install is even bigger than this one. That one I will get funded through a loan. I will go to the bank and say that give me a loan. And if you want to see an already running project, then I already have one up and running right here.” (Owner of a BM plant who is in the process of setting up a second BM plant)

4.2.3 Learning and impact in the BM model

The final business model introduced by HPS, BM is the business model that matches with its vision of creating significant impact.

“If you really want to blast out, if you really want impact...you have to involve local guys, and once you have a system like that [financing possibilities for local entrepreneurs], you just

put ads in the newspaper. Say you have 100 000 Rupees [approximately \$2000], you can have a business and sell electricity to people.” (CEO and co-founder)

The learning in and impact of the previous models enables HPS to develop the right capabilities and shape the conditions to scale up their business using their final model.

5. Discussion

HPS shares many characteristics with market driving firms. It is guided by vision rather than traditional market research; it delivers a leap in customer value by delivering a cheaper yet better quality electricity service; it has reconfigured channels by introducing local village entrepreneurs as electricity service providers, whom it educates and trains in how to benefit from their value proposition (Kumar et al., 2000). Through those activities, it is involved in shaping market structure and shaping market behavior (Jaworski et al., 2000).

The BOOM model serves to create new customer preferences (Jaworski et al., 2000). Our talks with customers revealed changed habits because of the availability of electricity. Some examples are changes in sleeping and eating habits, routine for children’s education which is linked to when the power plant starts every evening. It has also engaged in shaping customer behavior directly by introducing bespoke meters to prevent pilferage of electricity, a common problem in these areas. It also demonstrates to people that this technology works and serves to create word of mouth publicity and demand for their systems (Kumar et al., 2000).

In the BOM model, HPS needed to engage local village entrepreneurs who had some experience in managing businesses. In many cases, it opted to partner with diesel generator operators who already had a client base (typically in market areas) and experience of selling electricity. By offering them a better value proposition, it co-opted these potential competitors to support its own business model. The BOM model enables the participation of local villagers in the DRE market and creates the ground for large scale dissemination of their systems by convincing banks to change their behavior vis-à-vis these local village entrepreneurs.

We have shown how, the two first business models facilitate market driving activities. However, internal learning also takes place. For example, a rule (Morris et al., 2005) of how much minimum power demand in a certain area ensures financial viability of a plant of certain capacity, is established. This learning not only helps refine the initial business model BOOM, but the organization and its partners benefit from this in the implementation of the subsequent business models as well, demonstrating the path dependency of the business models (McGrath, 2010).

The experimentation to test the viability of, and refine the business model, is not limited to the BOOM model. It takes place in all three models. However, viability of these models are not being tested to select one or more business model, rather the different business models complement each other in the path to achieving the organization’s vision.

Our key proposition is that HPS uses its sequential business models as a tool to drive the market. That means that each business model has certain focus, and serves to drive the market to a certain extent. In order to drive the market further, a subsequent business model is implemented. The subsequent business model relies on the previous business model’s market driving efforts.

6. Conclusions

This research supports the findings of other studies that suggested that entrepreneurs’ business models evolve. We find that in the nascent market context, the business model and the market co-evolve and this evolution is mediated by the actions of the entrepreneur through

effectuation, experimentation and market driving. We also find that entrepreneurs may experiment with several business models, simultaneously and sequentially to reach their goals. In particular we find that the business model itself is a tool for driving markets and in the nascent market context entrepreneurs may use different configurations of business models to both learn about and drive markets to give their ventures a competitive advantage.

This suggests that the business model can be a useful tool to analyze entrepreneurial strategy in nascent markets. The addition of a market driving lens to the study of entrepreneurial business model development, especially under conditions of ambiguity may help explain how some entrepreneurs gain dominance in nascent markets. The fact that business models take time to evolve under these conditions may require patience from investors. This is especially relevant for the rural electricity market where a more patient approach to financing ventures may be required.

Although our research design is grounded in both theory and practice within academically disciplines, this study is not without limitations. This research project was in its initial stage inductive, in the sense that we had some overall assumptions about the research field, but no clear theoretical backed hypothesis. Thus we had to go out in the field observing actions and listening to stories, and then, go back to identifying theory that could back the phenomena observed on the ground. By collecting data two times over a period of one month, we were able to mature our understanding, and in the second round be more aware of both theory and empirical findings. As we rely on people's recollections of events past, this may suffer from a retrospective bias. We have taken this into account by triangulating information from several sources. Both practical and methodological constraints limited this study to a single case. In the future a cross-industry, cross case study may help shed more light on the topic.

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REGULATION COMPLIANCE IN SMALL FINNISH COMPANIES

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Regulation compliance in small Finnish companies

Abstract

This paper investigates the small business owner-managers' attitudes towards business regulation. The data was collected via mail survey in spring 2012. In this paper we examine differences in how owner-managers of small firms respond to the statutory business regulation. According to the results, there are significant differences between owner-managers' attitudes towards business regulation and how attitudes affect small firms businesses. These differences are identified with factor and cluster analyses methods.

Keywords: regulation, attitudes, small business, owner-manager

1 Introduction

There has been growing recognition amongst policy-maker of the importance of the competitiveness in small businesses. By improving and simplifying the business regulation governments try to boost business environments and the competitiveness of small firms, because prevailing legislation is a significant factor in the operating environment for the small firms (Harris 2002). The impact of government regulation on business is an important policy concern for economies worldwide (European Commission 2010), but regulation is not a homogenous phenomenon and does not have a uniform effect on all small businesses. Some regulations are either targeted at particular types of businesses or can be expected to vary in their impact across businesses. (Small Business Research Centre of the Kingston University 2003). The complexity of legislation may cause that owner-manager awareness of specific regulations has been found to be limited (Kitching 2006, Atkinson & Curtis 2004, Harris 2002). The effective regulation of small business is a policy challenge in all jurisdictions because the small firms (and their owner- managers) have a number of unique characteristics and what motivates small firms owner- managers is likely to be whole different than motivating the behaviour of managers in large firms.

The results of previous literature (Edwards 2004, Vickers et al. 2005) seem to indicate that there could be a gap between presumed effect and the real effect of regulation among owner-managers. The real effect of regulation appears as how owner-managers adapt their behaviour to the regulatory framework. Owner managers vary in their capacities to discover, interpret and adapt to regulation and pursue different strategic priorities. According to Small Business Research Centre of the Kingston University 2008 owner-managers who were conscious of regulations affecting their businesses tended to adapt more dynamically the best business practices. Research (e.g. Jorissen *et al.*, 2005; Smith, 2007) on family firms reveals that family firms differ from non-family firms in terms of ownership, control and management process. Owner managers of family firms may also differ in their capacities to discover, interpret and adapt the regulation.

According to our knowledge there is not an adequate understanding of the manner in which small firms make strategic choices that drive performance outcomes in highly regulated environment. In our paper we will create a framework for understanding owner-managers' attitudes towards business legislation which emphasises owner-managers varying characteristics

and motivational bases. In our previous study we were able to demonstrate that there are different typologies by which owner managers of small firms can be differentiated in terms of attitudes towards general business regulation. The purpose of this paper is to increase understanding how regulation affects small business in Finnish context and to explore the relationship between the capability to manage regulation and compliance with regulation.

2 Literature review

Because of the importance of the small business sector to the economy, in many countries the government has tried to facilitate its operational environment. Also researchers are increasingly attempting to model and measure how entrepreneurial activity is affected by different institutional factors (Stephen et al. 2005). A competitive business environment requires flexible corporate and business legislation, which should enhance the range of possibilities and therefore improve the business conditions for companies. The regulation of basic factors, like property rights and contracts are necessary for an advanced market economy. Stable legal environment offers to small firms' owner managers' possibilities to equally effective methods for contract enforcement that means also lower transaction costs. Regulation is necessary to stable trading conditions and to develop levels of business trust (Welter & Smallbone 2006).

Schön (2006) was concerned about the tendency in international research to ignore the legal perspective and replace it with a business-oriented approach. He presupposes that a purely business-oriented approach leans on the economic data of the company and is purely built on the management's business plans. That is dangerous because business plans ignore the existence and enforceability of the company's engagements. In his article, Schön also admits that a purely legal perspective does not ensure that the company can fund business operations in the future. Researches focusing on compliance costs and benefits should draw attention about the precise consequences in particular small business settings. It should also demonstrate the importance of regulation, relative to other factors, in generating particular levels of business performance (Small Business Research Centre of the Kingston University 2003).

Opponents of regulation argue that it constrains business entry, impedes growth and performance, and has an influence to business failure (Vickers 2006, Welter & Smallbone 2006). Nevertheless Kitching (2006) noted that competition and the economy were sited more frequently as an obstacle to success. In the majority of cases the regulatory burden on entrepreneurial and small firms is relatively high and small firms bear a higher cost burden about regulation than larger businesses (Chittenden et al. 2003, Levie & Autio 2011). For the small firms the burden of regulatory compliance is perceived to be too high given their limited resources (Kitching 2006). It is very important to find out why owner-managers are dissatisfied and report negative or positive opinions and which is most important; whether this cause owner-managers to adapt their behaviour in other ways. This may have consequences for business performance. When owner managers have positive opinion about regulation they are usually aware that regulation offers opportunities to develop more efficient ways of working (Small Business Research Centre of the Kingston University 2008).

Owner-manager awareness of specific regulations has been found to be limited (Kitching 2006, Atkinson & Curtis 2004, Harris 2002). As Edwards (2004) and Vickers et al. (2005) noted, many respondents reported negative effects of regulation, but they were not able to identify specific subjects of legislation that related to their business. The results seem to indicate that there could be gap between presumed effect and the real effect of regulation among owner-managers. Small business owner-managers lack the internal recourses (time, money and specialist

expertise) to cope with regulation. Owner-managers find it more costly and difficult to find out about regulations and how to apply or how to best to comply with regulations. (Small Business Research Centre of the Kingston University 2008). Hence, although owner-managers would have complete knowledge about regulation they do not necessarily comply with the rules. Researchers have found different attitudes to compliance, e.g. Vickers et al. (2005) found four-fold typology by which businesses can be differentiated in terms of attitudes towards regulation; Avoiders/Outsiders; Reactors, including the sub-categories of Minimalists and Positive responders; and Proactive learners. Whereas Arrowsmith et al. (2003) demonstrated three distinctive sets of responses: “implement”, “ignore” and “critical event”. Petts et al. (1999) found “vulnerable compliance”; many owner-managers lack a proper understanding of some regulations, they do not know whether they are meeting their obligations or not. Anyhow, this does not mean that owner-managers break rules; for instance engagements to standards of professional practice and desire to accurate business can influence owner-managers to act in accordance with regulatory requirements without complete knowledge (Corneliussen 2005, Vickers et al 2005).

Regulation might enable business owners to achieve their business aims but fact is that regulation has no effect at all unless owner-managers change their behaviour as a result of it. Usually owner-managers draw upon regulations to achieve their business objectives (Kitching 2006) and personal needs. And sometimes, if the regulatory change is minor, owner-managers might prefer to continue business as before because there are no intensives to reform owner-managers business practises (Arrowsmith et al. 2003).

Regulation does not have uniform consequences for small business owner-managers: everything depends on how owner-managers adapt to regulatory change (Kitching 2006). Previous research (Small Business Research Centre of the Kingston University 2008) discovered that owner-managers with greater resources (finance, equipment, management capability, workforce knowledge and skills) have better basis for dealing positively with regulation. Also the owner-managers’ attitudes towards regulation is in salient point when small firms adapt regulation (Vickers et al. 2005). For instance, female owner-managers are less likely to consider regulation as an obstacle (Small Business Research Centre, 2005). Several studies (Jorissen *et al.*, 2005; Smith, 2007) have established differences in behaviour between family and non-family firms. According to agency theory, family firms are different because they might demonstrate overlapping owner and manager relationships. The theory of transaction cost proposes that family firms have a higher level of trust, superior decision-making processes and lower monitoring costs than non-family firms. Therefore family firms behave differently (Tagiur and Davis, 1996).

A family management influence exists in how family representatives serve as board members, or through the direct influence of an owner-manager (Astrachan et al. 2002). According to the stewardship philosophy, there is a sense of psychological ownership that motivates the family to behave in the best interests of the firm (Corbetta and Salvato, 2004; Zahra, 2003).

Astrachan et al. (2002) pointed out that it is reasonable to assume “that owner-managers who regard their business as a family business are highly likely to be attentive to issues and opinions of family members, as well as meeting the needs of family members” (p. 50). In our sample, about 65% of respondents identify themselves as family firms and about 80% of all respondents answered that the owner-manager has over a 40% share of the company (about 60%

own over 50%)¹. According to the definition of the Finnish Family Firm Association (2010), 80% of all Finnish companies can be considered family firms. Astrachan et al. (2002) as well as Rößl, Fink and Kraus (2010) emphasize that the core of a family business must be within the family's major influence when it comes to control, decision-making, management, and equity. For this study, we follow this view and define a family firm as a company in which the majority of capital as well as the majority of top management power is held by one or more members of a family.

In this paper we concentrate the most essential areas of regulation (labour law, tax law, company law) which have an effect on small businesses in multiple industry settings. As we mentioned earlier, regulation is not a homogenous phenomenon. After all, some regulations are either targeted at particular types of businesses or can be expected to vary in their impact across businesses. Several studies (e.g. Klapper et al. 2006), have pointed out that regulation hamper activity of small firms. The early study (Djankov et al. 2002) linking regulation and entrepreneurship pointed out that employment legislation raised the operating costs of a small business and so made entrepreneurship less attractive. Michaelas et al. (1999) argued that taxes on small firms' profits were likely to lead to lower growth rates, because the retained profits are the most important source of funding for small firm investments. Previous studies (Davidsson & Henrekson 2002, Akinboade & Kinfack 2012) have argued that company law is one of the the primary regulation that have negative impact on small businesses. One reason is minimum capital requirements, which have been justified on the grounds of providing creditor protection. Whereas van Stel et al. (2007) found that the minimum capital requirement required starting a business didn't lower entrepreneurship rates.

3 Empirical analyses

3.1 The sampling and data collection

The empirical data were drawn from a mail survey conducted in spring 2012 by means of a structured questionnaire. We selected the most essential areas of regulation (labour law, tax law, company law) which have an effect on small businesses in multiple industry settings. In the mail survey also owner-managers'/firms' characteristics (type of firm founder, number of owned firms, family firm / non-family firm etc.) were identified.

The initial population consisted of small firms in southern and eastern Finland with a sales turnover between 0.5 and 5 million Euros. A total of 14,549 firms were identified from the financial statement database Voitto+, and a systematic random sample of 1,024 firms was drawn. The pre-tested survey questionnaire and an introductory cover letter were mailed to the respondents, who were assured of confidentiality and promised a summary of the results. A reminder was sent to those who had not responded within two weeks. Final responses were received from 151 companies, yielding a satisfactory effective response rate of 14.75% (151/1,024). Non-response bias was examined by comparing the early (first-round) responders with the late responders (second-round) on the assumption that there are no differences between

¹ For instance, Miller and Le Breton-Miller (2006) defined a family business according to La Porta *et al.* 2006 (p. 74): "by a family business we mean one that is partly owned by one or more family members who together control at least 20% of the total votes outstanding".

early and late responders (Armstrong and Overton 1977, Covin and Slevin 1989). No significant differences were found between these groups in the distributions of the key variables. Another test for the representativeness of our data was the comparison of responding and non-responding firms in terms of size. Using self-reported data from single informants may bear a risk of common method bias (Podsakoff et al. 2003). However, the owner-manager is considered to be the most knowledgeable person regarding the strategic vision and managerial practices, which would be very hard to measure without some degree of subjectivity. We were conscious of respondent bias e.g. a firm may provide inflated estimates of compliance costs, in the hope that politicians will consider regulatory relief (Chittenden et al. 2003). Furthermore, entrepreneurship researchers often use self-report and these have been shown to be reliable (Chaganti et al. 2002).

3.2 Measures and results

The factor solution consists of the statements which try to measure do owner-managers see business regulation as an opportunity for their businesses. The principal component analysis with Varimax rotation resulted in three factors explaining together 67.8% of the total variance, see Table 1. The first factor relates to the owner-managers opinion that regulation secures their position at existing markets and provides some cost benefits. The statements of the second factor implicates that some owner-managers even see that business regulation can provide them some competition advantages and new business opportunities. The third factor implicates that some owner-managers take business regulation as given and are not willing to take any cost or completion advantages from changing regulation.

The 11 attitude items towards business regulation as an opportunity are slightly based on Kitching's (2006) study. In our study statements are slightly adapted (some also added) for the Finnish context. After rotation, the factor analysis suggested the existence of three factors with eigenvalues greater than one. Factor 1 (explaining 44.00 % of variance) consists of five items all clearly linked to owner-managers' positive attitudes toward business regulation and they see that business regulation provides security and continuity for their businesses. This factor was named as *trustful orientation towards regulation*. Factor 2 explains 13.03 % of variance. It is called *competition advantage seeking orientation towards regulation*. This factor encompassed four items related to attitude that business regulation also provides some cost and completion advantages to some owner-managers' businesses. Factor 3 consists of two items explaining 10.75 % of variance. This factor was named as *minimal compliant orientation towards regulation*. The communalities of this factor solution varied from 0.53 to 0.79.

Table 1. Factor analysis results for owner-managers' attitudes towards business regulation as a business opportunity

Variables	<i>Factor 1</i> trustful orientation towards regulation	<i>Factor 2</i> competition advantage seeking orientation towards regulation	<i>Factor 3</i> minimal compliant orientation towards regulation
In our business we can adapt more quickly new regulation than our competitors		.811	
Regulations provide us with an opportunity to gain a competitive advantage over other firms		.857	
Regulations have resulted in our business being run more efficiently	.462	.700	
The introduction of new regulations is easy to adapt in our business	.554		
The introduction of new regulations has encouraged us to take action to ensure your business remains competitive	.555	.624	
Having to meet the minimum legal requirements is the only impact of regulations on our business			.773
There are costs to our business of meeting the minimum regulation requirements			.808
Regulations have increased the level of employee productivity in our business	.729		
Regulations provide new market opportunities for our business	.782		
Regulation increases the level of customer confidence in our business and its products and services	.830		
Regulations encourage businesses to enter the markets we operate in	.635		
Eigenvalue	4.840	1.433	1.182
% of variance	44.00	13.03	10.75
Cumulative % variance	44.00	57.03	67.78
KMO .624			

After the Factor solution we calculated sum variables from those statements that were loaded in the same factor. The companies from our sample clustered (Ward Method, Table 2) in two heterogenous groups which are internal homogenous. These two groups were named as follows; *less compliant* and *more compliant*.

Table 2. t-test, the differences of means of sum variables between clusters

cluster/ sum variable	cluster 1, less compliant n=69	cluster 2, more compliant n=66	t-value
<i>Trust</i> mean std	2.19 .67	3.09 .64	-8.01***
<i>Comp</i> mean std	1,86 .54	3.14 .51	-14.14***
<i>Mini</i> mean std	3.10 1.09	2.80 .68	1.90**

***p<0.01, **p<0.05, *p<0.1

The main descriptive statistics of clusters are presented in Table 3. As the previous literature (Kitching 2006) pointed out, it is very important to find out why owner-managers are dissatisfied and report negative or positive opinions and which is most important; whether this cause owner-managers to adapt their behaviour in other ways. This may have consequences for business performance. These two clusters seem to be very homogenous with sales, performance and number of employees. Small Business Research Centre of the Kingston University 2008 discovered that owner-managers with greater resources (finance, equipment, management capability, workforce knowledge and skills) have better basis for dealing positively with regulation. There are no statistically significant differences in education between these clusters either. This could imply that owners' experience of regulation (less or more compliant) have no impact to business success and owners' education does not have an influence how owners see regulation.

Table 3: Descriptive statistics of clusters

cluster/ descriptive statistics (means)	cluster 1, less compliant	cluster 2, more compliant
owners' education	3.74	3.95
sales	1 542 t€	1 841 t€
performance ranking	3.90	3.63
number of employees	12	10

performance ranking: 5=excellent, 4=good, 3=satisfactory, 2=sufficient, 1=poor

education: 1 primary school, 2 vocational school, 3 high school, 4 upper secondary school, 5

vocational high school , 6 university

Table 4: t-test, the differences of means of family involvement statements between clusters

cluster/ statement	cluster 1, less compliant mean (std)	cluster 2, more compliant mean (std)	t-value (Sig.)
The role of family members in our firms decision making is	3.88 (1.23)	4.19 (.90)	-1.26 (.19)
Shared goals of family in business are	3.86 (1.14)	4.19 (.87)	-1.46 (.15)
Shared values of family in business are	3.77 (1.23)	4.19 (.81)	-1.78 (.08)**
The role of non-family members on the company's board of directors is	1.19 (1.36)	2.24 (1.48)	-.96 (.34)
Keeping the firm family owned is	3.82 (1.15)	3.97 (1.15)	-.558 (.58)

***p<0.01, **p<0.05, *p<0.1

5=very important, 4=important, 3=quite important, 2=less important, 1=no important

Table 5: t-test, the differences of means of family involvement statements between clusters

cluster/ statement	cluster 1, less compliant mean (std)	cluster 2, more compliant mean (std)	t-value (Sig.)
Family members are ready to work more than average on account of firm's success.	3.98 (1.14)	4.51 (.69)	-2.44 (.017)**
We discuss about firm's business between family members.	4.04 (1.05)	4.41 (.79)	-1.78 (.080)*
Our family is loyal to our firm.	4.40 (0.73)	4.62 (.63)	-1.41 (.162)
It is important to us, that our firm is family-owned.	3.81 (1.04)	4.19 (1.10)	-1.61 (.111)
It is important to our firm's company image that it is profiled as family business.	3.14 (1.26)	3.79 (1.15)	-2.21 (.03)**
Family entrepreneurship effect on firm's success.	3.60 (1.19)	4.00 (.97)	-1.67 (.111)
Family members have shared opinion of firm's success.	3.80 (.83)	4.14 (.85)	-1.84 (.070)**
Family members have shared opinion of firm's future.	3.92 (.85)	4.16 (.86)	-1.30 (.197)

5=totally agree, 4=agree, 3=agree/disagree, 2=almost disagree, 1= disagree

The differences of means are not all statistically significant, but anyway in all cases the values are higher in cluster two than one. Our sample is unfortunately quite small; this may affected partly that differences were not statistically significant. We believe that our results indicate that for

entrepreneurs who see family involvement more important (and business goes from generation to another) also are more compliant toward business regulation. Instead, contrary what might be expected based on previous literature (Small Business Research Centre, 2005) we did not find any support that female owner-managers are less likely to consider regulation as an obstacle.

Conclusion / discussion

We did not find the regulation to be impediment or booster to the business performance. This would seem to indicate that the impact of regulation on small firms' performance is really difficult to prove. The research of Small Business Research Centre of the Kingston University (2008) yield the same results, one finding of the report was that small firms operating in the same regulatory context have different performance outcomes. Whereas many researches have found a lot of potential influences on growth, previous literature (Storey 1994, Delmar 1997, Davidsson et al. 2002) typically identify them as follows: firm characteristics (size, age and ownership), characteristics of owner managers (education, experience and gender), strategic choices, and external environment (market conditions, public policy and regulation). Hence, there are a wide range of influences not just the regulation itself. Also other studies (Arrowsmith et al. 2003, Edwards et al. 2004, Gilman et al. 2002, Ram et al. 2001, Sjögrén et al. 2011, 2009, Duvnäs et al.

2010) have come to the same conclusion; the regulation often exerts only a limited impact on owner-managers' decision-making. Several studies (e.g. Klapper et al. 2006) have shown that regulation has a negative effect on business entry. Yet, choice to start a business is determined by considerations of factors that influence the ability of individuals to generate and appropriate returns to their human, social and financial capital (Levie & Autio 2011), whereas the role of regulation is basically a matter of lesser importance.

Regulation as a burden literature often focus on costs and constraints of regulation but according to the alternative argument stable legal environment offers the legal security and foreseeability to the markets. That leads to the lower transaction costs. In the other words, some individual small business owners may see that the regulation has costly consequences but consequences at the macro level can be cost efficient.

The paper has illustrated that regulation does not really have direct effects on businesses of small firms. This finding is slightly contrary to the previous studies (e.g. Kitching 2006, Atkinson & Curtis 2004, Harris 2002). The reason for this could be the different legal heritage of countries. Finland belongs to the Nordic legal family that is positioned somewhere in between the Continental and Anglo-American legal families, with features typical to the both civil law and common law (Mähönen 2011). In addition to, policy in Finland is providing external support to small firms in form of information, training and financing new small firms.

In sum, we do not agree that regulation is too heavy burden to business in Finland, even though Finland is highly regulated country. Policy makers should find other motivations to encourage the business activity and growth than to reduce the regulatory burden.

One limitation to this study was that our survey data provided information only what business owners think about regulation, we were not able to show what they do about it. Also Kitching (2006) indicated that sometimes survey data rely too strongly on "sound-bite" responses. He for example noted that some owner managers who were reporting regulation as an obstacle to business success could not site any specific regulation as an obstacle.

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GROWTH ORIENTATION IN SOCIAL ENTERPRISES

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Growth orientation in social enterprises

Abstract

This study explores growth orientation in social entrepreneurship context by in-depth case studies in six Finnish social enterprises. Based on prior research on business growth and scaling up social enterprises and our data, we propose that willingness to grow is rather strong among social entrepreneurs. The willingness to grow seems to be strongly driven by social entrepreneurs' social missions. The social entrepreneurs are seeking growth with different strong strategies. For social entrepreneurs the growth orientation seems to be more dominant than willingness to keep their businesses just survival.

keywords: social entrepreneurship, growth orientation, scaling up, case study

1 Introduction

The prior social entrepreneurship research has so far mostly focused on definitional issues and on providing descriptions of various types of social enterprises (Dacin et al., 2011; Bacq & Janssen, 2011). Short et al. 2009 states that the explanations for the emergence and successful strategic management in the social entrepreneurship in context are still scarce. The definitions of social entrepreneurship have been developed in several different domains, e.g. not-for-profits, for-profits, the public sector, and combinations of all these fields (Short et al. 2009). According to Lepoutre et al. (2011) despite the unsettled definition debate there seem to be several characteristics that distinguish social entrepreneurs from traditional commercial entrepreneurs and also from traditional charities. Mair and Marti (2006) highlight that social entrepreneurs associate their top priority to the creation of social value. At the same time economic value creation is seen as a necessary condition to ensure financial viability. On the other words social entrepreneurs try to (and have to) seek optimal balance between social impact and market success in their business.

The literature underscores that the successful pursuit of social entrepreneurs' mission requires an innovative delivery of products and services (see e.g. Alvord et al. 2004; Chell et al. 2010; Mair and Marti 2006). Also commercial entrepreneurs may set similar targets to their business but Lepoutre et al. (2010) emphasized that especially social enterprises have to actively engage in provision of innovative solutions to complex social issues so that they do not fall outside the scope of social entrepreneurship.

The outcomes of social entrepreneurship are different in several ways for commercial entrepreneurship. Social entrepreneurs focus on achieving a social mission, however not neglecting their businesses. Because a social mission and business are inseparable for social entrepreneurs, their willingness for growth cannot be investigated separately. The growth of commercial companies is often viewed to be necessary for survival (Davidsson et al. 1991), but some findings have proved that there are entrepreneurs who do not pursue growth, survival is often enough for them (e.g. Gundry and Welsch 2001; Wiklund et al. 2003; Nummela et al. 2005). Social and business growth opportunities often support each other, but in some cases the social entrepreneurs may reject an opportunity to increase revenue if they see it as conflicting with the social mission.

In our study we are investigating have social entrepreneurs willingness to grow and how they indicate that. Furthermore analyzing the empirical data we try to find out what kind of possible growth and scaling strategies social entrepreneurs have. For the empirical analysis

we use six cases from Finland representing different types of social enterprises. The main outcomes of our study are presented as propositions due to the exploratory and qualitative nature of the study. This study contributes to the further development of business growth literature by bringing in new aspects (social entrepreneurship). We view an inclusion of these topics as fundamental as it makes it possible to have a more complete and balanced picture of growth activities in organizations.

2 Literature review

Growth orientation

The factors that determine the capacity and willingness of a small firm to grow are mentioned to be owner-manager's competence, entrepreneurial orientation, strategic planning skills, and capability to manage the resources available to business. Penrose (1959) was one of the first researchers to note the importance of owner-manager entrepreneurial orientation. She made the distinction between managerial competence focused on maintenance of the status quo, and entrepreneurial competence focused on risk taking and pursuit of growth opportunities. Behind these differences are entrepreneur's values which affect their strategy making, entrepreneurs can be different in terms of goals and attitudes. Previous research has found that small firm growth is strongly dependent on how strong is entrepreneurs' willingness to grow (Delmar et al. 2008). Entrepreneurs who are aiming to grow and measure their success by business size and growth uses the growth oriented strategy. According to empirical findings of Poutziouris et al. (1999) "growth oriented owner/directors" had aim to increase business size and become owners of larger and successful businesses. Poutziouris et al. (1999) discovered in the same research that growth oriented owner/directors were willing to use profits for expansion. If an entrepreneur would rather limit growth and is less interested in increasing profits or his own income level, the strategy of the firm was survival oriented. Free time and becoming owner of a successful business is not important for survival oriented entrepreneurs, instead they are interested to continue as they are at the present moment. Growth can be viewed also to be necessary for survival (Davidson et al. 1991). Some findings have proved that there are entrepreneurs who do not pursue growth, survival is often enough for them (Gundry et al. 2001, Nummela et al. 2005, Wiklund et al. 2003).

Although a number of empirical studies have examined the factors which influence the probability of firm's survival, the focus of these studies is on the structural features of the firm or on differences in the external environment (Cefis et al. 2006). The most essential factors for firm's survival are age, size, industry sector and location (Storey et al. 1996). Much has been concentrated on entry of new enterprises, because new firms are the most susceptible to risk of exit. It has also been recognized that while most small firms grow strongly after start up only a minority experience sustained growth through the full lifecycle and become large firms (Mazzarol et al. 2009). Empirical studies have established that the first 1-3 years is the most critical time for new firms as regards their survival and possibility to die is much bigger for small businesses than larger firms (Davidsson et al. 1991, Littunen 2000, Storey et al. 1996). The importance of entrepreneur's personality type and entrepreneur's strategic choices has been shown to be an important factor to surviving firms (Ciavarella et al. 2004, Littunen 2000, Storey et al. 1996).

Social entrepreneurship

Several researchers (e.g. Mair & Martí, 2006; Short, Moss, & Lumpkin, 2009; Zahra, Rawhouser, Bhawe, Neubaum, & Hayton, 2008; Zahra, Gedajlovic, Neubaum, & Shulman, 2009) have pointed out that social entrepreneurship has led to an emerging research stream of interest to academic researchers and scholars in management and entrepreneurship. In many developed and developing countries social entrepreneurship is recognized as important in boosting the economic, environmental and cultural wealth and also social change (Danko, Brunner, & Kraus, 2011, Estrin et al., 2013). Short et al. (2009) states that despite rapidly increased interest in social entrepreneurship, academic research has been challenging. The definitions of social entrepreneurship have been developed in several different domains, e.g. not-for-profits, for-profits, the public sector, and combinations of all these fields. The understanding of the concept of social entrepreneurship is not yet unified among scholars. Trexler (2008) states that social entrepreneurship is a simple term which have a complex range a meaning. Zahra et al. (2009) emphasized that lack of a unified understanding of the concept is one of the major barriers to the advancement of academic research of social entrepreneurship area. During the latest years entrepreneurship researchers have started to find common view about the concept of social entrepreneurship but there are still multiple definitions of the concept from scholars pertaining to other disciplines as for example accounting, economics or social science (Short et al. 2009). According to Lepoutre et al. (2011) despite the unsettled definition debate there seem to be several characteristics that distinguish social entrepreneurs from traditional commercial entrepreneurs and also from traditional charities. They stated that in particular three selection criteria seem to stand out from previous literature: 1) the predominance of a social mission, 2) the importance of innovation and 3) the role of earned income.

Mair and Marti (2006) define that the main difference with traditional commercial entrepreneurship is not that such entrepreneurship would be a-social, but that social entrepreneurs associate their top priority to the creation of social value. At the same time economic value creation is seen as a necessary condition to ensure financial viability. On the other words social entrepreneurs try to (and have to) seek optimal balance between social impact and market success in their businesses.

Lepoutre et al. (2011) defined that based on the previous literature the second criteria of social entrepreneurship is the importance of innovation. The literature underscores that the successful pursuit of social entrepreneurs' mission requires an innovative delivery of products and services (see e.g. Alvord et al. 2004; Chell et al. 2010; Mair and Marti 2006) Also traditional commercial entrepreneurs may set similar targets to their business but Lepoutre et al. (2010) emphasized that especially social enterprises have to actively engage in provision of innovative solutions to complex social issues. Otherwise social enterprises may fall outside the scope of social entrepreneurship.

Growth orientation in a social entrepreneurship context

According to Dees et al. (2004) social entrepreneurs mostly use term "scaling up" when social entrepreneurs refer to a more significant organizational growth. The term "replication" is used when social entrepreneurs refer to the diffusion and adoption of their social business model in different settings. In our study term "growth orientation" covers all business growth intentions and strategies in a social entrepreneurship context. Smith and Stevens (2010) emphasised that scholars have distinguished between two different forms of scaling that vary situations where scaling occurs, those are scaling up and scaling deep. Scaling up refers to the

growth of social value by expand one specific programme to other geographical locations. Scaling deep means focusing energies and resources on achieving greater impact in your own local community. (Taylor et al. 2002) Furthermore Amin et al. (2002) states that the activities of many social enterprises tend to be localised and small scale. Smith and Stevens (2010) noted that social entrepreneurs' ties to the local community may encourage them to scale their ventures deep rather than to scale up.

For many social enterprises it is challenging to find ways to scale up their impact beyond small successful projects (Dees, 2004). Lyon and Fernandez (2012) studied how social enterprises can increase their scale and expand their social impact. In their study they set out a framework for indentifying the different ways in which social enterprises can grow. Several studies (e.g. Paton, 2003, Nicholls, 2006, 2009, Doherty, 2009) have pointed out wide range of potential approaches to growth in social entrepreneurship context. These researchers have shown that growth can be achieved for example through internal changes that are aimed at maximising the social impact, like differentiation of services, diversification, increased market penetration, or growth through multiple sites. Scaling is possible also to achieve through external developments beyond the confines of the organisation, like alliances or social franchising (Sharir & Lerner, 2005)

In Dees et al. (2004) study identified three different approaching to scaling of social value in social entrepreneurship: dissemination, affiliation and branching. Furthermore Müller (2012) has listed five different scaling or replication strategies for social enterprises: 1) dissemination, 2) joint ventures, 3) licensing, 4) social franchising, and 5) branching. The dissemination of the principles means that the social entrepreneur spreads the world about his/her innovation and thus serves as catalyst as a role model or catalyst for others. Joint Venture means that two or more partners found a new company and possible bring things to the table, e.g. know-how of intangible resources. In a licensing licence holder makes agreement for example about to use of technical innovation, a program package or brand name of the company. A franchising contract means that social franchises use the idea and the logic of commercial franchises to achieve social goals. Branching means that the operative work is done on a branch level, and all branches built one legal entity.

Lyon & Fernandez (2012) see that the options for scaling up can seen as a continuum ranging from internal organic growth controlled within the organisation to wider dissemination of good practise. After analysing empirical data from the full day care nurseries sector they were able to identify scaling up strategies in three different groups: 1) growth within the organisation, 2) scaling through formalised relationships with other provides, and 3) open access sharing and disseminating good practice. The first group consists of five different scaling up strategies: 1) maximising social impact of existing provision, 2) diversification, 3) in-house growth of existing nurseries, 4) starting new nurseries, and 5) taking over existing nurseries. The second group consist of three different scaling up strategies: 1) spin out organisations, 2) social franchise, and 3) kite marks and quality standards. The last group consists of also from three strategies for scaling up social enterprise: 1) training and accredited courses, 2) networks established to share good practice, and 3) provision of open source material and encouraging learning. According to Lyon & Fernandez (2012) study in the first group, there is likely to be considerable control within the organisation, although some social enterprises have less hierarchical management systems and at the same time allow more democratic approaches that result within organisations. The second group consisted of more formalised relationships that can be backed by legally binding documents which allow a degree of control over others. The third approach to scaling up would entail an organisation relinquishing control and allowing others to take ideas and adapt them.

3 Research design and procedure

We chose a case study approach using multiple sources of evidence in gathering our data. Case selection was based theoretical criteria, trying to focus on cases which clearly satisfy the definitional characteristics of a social enterprise, while having different types of social missions. Table 1 presents a summary of participating social enterprises size, profile and the organizational role of interviewees. Our primary method of data collection was to conduct face-to-face semi-structured theme interviews with the key persons of these companies. A list of the themes (Appendix 1) was e-mailed to the interviewees in advance. The interviews lasted approximately 60-90 minutes, and they were tape-recorded and subsequently transcribed. All interviews were conducted in Finnish. In addition we asked the interviewees to fill in a questionnaire (Appendix 2) comprising 5 Likert -scaled growth and survival orientation items. Basic information was also collected from the web pages of the companies.

Table 1 Overview of companies studied

<i>Case companies</i>	<i>Sales (1000) Euros</i>	<i>Year founded</i>	<i>Number of owners</i>	<i>Interviewees</i>
<i>Case A</i> Business Design product manufacturing from recycled material and retail Social mission recycling and offer work opportunities people in Kenya	150	2009	2	2 owners (50:50)
<i>Case B</i> Business recycling Social mission promote effective recycling	-	2011	10	CEO + 2 owners
<i>Case C</i> Business bakery and retail Social mission Finance charity organization which helps poor children and families	80	2012	7	CEO / main owner
<i>Case D</i> Business transcription services Social mission Employ blind people	260	2010	1	CEO
<i>Case E</i> Business restaurant & catering services Social mission Finance four healthcare charity organizations	15 000	1994	4	CEO
<i>Case F</i> Business Consulting and training services for social entrepreneurs	-	2012	10 co-op.	founder member

4 Cross case analysis and results

Dees et al. (2004) states that beside the growth strategies of social enterprises organizational resources should be place. In social enterprises resources include for example capital, managerial experience and talent and local knowledge. When social entrepreneurs recognize market potential and/or social need they have to decide their approach to growth or scaling. And when social entrepreneurs have proofed their willingness to grow or scale, the question is how to reach scale arises.

We will focus on how social entrepreneurs manifest their wiliness to grow and what strategies are the most potential scaling strategies to growth their businesses and social impact. Our analysis begins by applying growth and survival orientation scale in our case companies. The results are shown in Table 3.

The growth and survival orientations (GO & SO) were measured on five Likert-scaled items (1=totally disagree, 5=totally agree), adapted from Nummela et al. (2005), Runyan et al. (2008). Growth orientation was defined as the degree to which the entrepreneurs intend to engage in specific strategies to grow and expand their business. Activities measured included adding a new product or service, expanding operations to new customer groups and aiming at growth without risking profitability. Survival orientation is the degree to which entrepreneurs are pursuing stability. The items included satisfaction with the present size of the firm and aim to keep operation of the firm sustainable. Table 2 shows the results of measures.

Table 2 Responses to GO and SO items

<i>Case companies</i>	<i>Case A</i>	<i>Case B</i>	<i>Case C</i>	<i>Case D</i>	<i>Case E</i>	<i>Case F</i>
Growth orientation (GO)	4.84	4.00	5.00	4.00	4.00	4.67
Survival orientation (SO)	2.50	1.83	2.50	3.50	3.00	3.50

The Case company C had GO (5.00) at the highest level and Case D had GO at the lowest level and having at the same time SO at the highest level. The lowest level of SO was measured in the Case company B. We continue the analysis in more depth by discussing the interview data in light of previous literature, and formulating propositions about the growth and survival orientations and in social enterprises.

Willingness to grow and scale

McKelvie and Wiklund (2010) states that one aspect has been brought forward and tested in the commercial company context is the impact of willingness to grow on the subsequent growth of the companies. The willingness to grow does not always lead to the absolute growth of business measured for example with sales. Some studies have also shown that

willingness to grow and subsequent behaviour of the firm varies different kind of companies (Cooper et al. 1994). At the same time it is good to keep in mind that the growth is not always an indicator of success as the goals of entrepreneurs may differ (Delmar & Wiklund, 2008). According to Kirzner (1973) opportunity awareness and recognition reflect commercial entrepreneurs' ability to detect when supply or demand for value-creating products or services exist. This ability is shared by commercial entrepreneurs and social entrepreneurs, but for social entrepreneurs opportunities bear also on general or specific social targets (e.g. Mair & Marty 2006). For commercial and social entrepreneurs taking advantage of opportunities is not the end of the process (Perrini, 2010). For the social entrepreneurs it is important to maximizing social change and for that target the scalability of the business model is crucial (Dees et al. 2004).

All six case companies provided evidence of willingness to grow their businesses and finding new ways to increase revenues and social impact.

"we are soon going to launch a completely new pastry, which is totally unique in the world, it's completely our own thing which we have developed" Case C, CEO

"...we have underlined that we want...develop our business and network larger.." Case B, CEO

"we are negotiating with a bigger charity organization, too. It's also for the children's benefit but it is not contrasting or competing with Organization H in any way, and we have their blessing. And if we go international some day, then we'd find a local charity like Organization H" Case C, CEO

"I have worked here 22 years, and established businesses here beside this association, for example this restaurant company that have businesses all over Finland. And right now we have won this big competitive bidding..." Case E, CEO

"... so far Finland has been our main market area, but in the future it will be Europe. We are attending in one business exhibitions in Berlin in the near future..." Case A, CEO

"...the growth itself is not vital, but by growing our business it is possible for us to create more work opportunities to the blind people, and that is the most important for us..." Case D CEO

"...the fact is that consulting markets for social enterprises are quite small. There is not so much money around. So it is essential for us to provide our services also to the commercial companies..." Case F, founder

Proposition 1: Due to the social mission, the entrepreneurs are willing to expand their businesses and are actively seeking new business opportunities and finding new ways to increase revenues and their social impact.

Growth and scaling strategies

The prior literature has recognised several different growth or scaling strategies for social enterprises. As earlier mentioned Müller (2012) has listed five different scaling or replication strategies for social enterprises: 1) dissemination, 2) joint ventures, 3) licensing, 4) social franchising, and 5) branching while according to Lyon & Fernandez (2012) the options for scaling up can be seen as a continuum ranging from internal organic growth controlled within the organisation to wider dissemination of good practice. The results of their study indicate that there are scaling up strategies for social enterprises in three different groups: 1) growth within the organisation, 2) scaling through formalised relationships with other providers, and 3) open access sharing and disseminating good practice.

All six case companies provided evidence of their growth and scaling strategies.

“we have several business ideas, and our system is designed to be scalable and replicable to many different fields” Case B, CEO

“Do you know this Dialog Social Enterprise...their business concept is very interesting and novel...we would like to establish something similar...” Case D, CEO

“And now we are starting this franchising business. My personal will is to keep franchising fees so low that it is possible for as many as possible to establish their own business and keep the risk-level as low as possible...” Case C, CEO

“We know that there will be a new competition bidding in another unit in the near future, and I have already contacted them and told them about our company...they see us as more interesting business partner because they can be sure that our profits doesn't disappear to the tax heavens...” Case E, CEO

“We and these working integrates are like a network of social enterprises, for all of us is important to create more work opportunities for poor young people in Kenya..” Case A, CEO

“...the most our members have taken this coaching training, so we have been thinking that it might be possible for us to implement this concept to Finland too...” Case F, founder

Our data provided clear evidence of different growth strategies in the case companies. Adapting Müller (2012) and Lyon & Fernandez (2012) studies we name these identified growth strategies as follows: 1) replication, 2) franchising, 3) branding, 4) networking, 5) conceptualisation. Table 3 summarises how these identified growth strategies are used within the case companies.

Table 3 The summary of the main growth strategies in the case companies

<i>Case companies/</i>	<i>Case A</i>	<i>Case B</i>	<i>Case C</i>	<i>Case D</i>	<i>Case E</i>	<i>Case F</i>
<i>Growth strategy</i>						
Replication		X		X		
Franchising			X			
Branding					X	
Networking	X					
Conceptualisation						X

Proposition 2: The entrepreneurs are seeking growth with the novel growth strategies at the same time keeping in mind their social mission that is central in all business operations.

Survival orientation and risk avoidance

The purpose of our study was also to look at how social entrepreneurs manifest about survival orientation if they have it. There is not so much research about the failure of social enterprises. Several studies about commercial companies (e.g. Birley and Weasthead, 1990) have found that the majority of companies start and remain small during their life spans. As also earlier mentioned furthermore number of empirical studies has examined the factors which influence the probability of firm's survival, but the focus of these studies has been on the structural features of the firm or on differences in the external environment (Cefis et al. 2006). The studies about commercial companies states also that the most essential factors for enterprises' survival are age, size, industry sector and location (Storey et al. 1996). Previous literature about commercial companies has also noted that much has been concentrated on entry of new enterprises, because new firms are the most susceptible to risk of exit. Furthermore the literature about commercial companies says that it has recognized that while most small firms grow strongly after start up only a minority experience sustained growth through the full lifecycle and become large firms (Mazzarol et al. 2009). Overall we suggest that more research is needed about the failure of social enterprises and how these companies manage the complex risks that may lead to the business failure.

Only three case companies provided some evidence of survival orientation and how they consider the risks that are related to their business.

"...of course I have a lot of new business ideas, but our board see that if we want to scale up our business it has to fit somehow to that business what we are doing right now." Case D, CEO

"...our business has a long term scope...so far our business has been very profitable and we don't use any external funding. We try to finance our investments with our own assets." Case E, CEO

"...if you want really and truly do something good, you have to think very carefully all your decisions, and control that all your operations are in line with your social mission, and that covers all our business partners too." Case C, CEO

Proposition 3: The growth orientation seems to be more dominant than survival orientation among social entrepreneurs.

5 Discussion and conclusions

This study helps in understanding the phenomenon of business growth in social entrepreneurship context. Compared to purely economically oriented firms, growth in social enterprises has to be evaluated from not only economic, but also social point of view. This has important implications for the appropriate measures of growth, and the time span along which growth should be examined. The important question is: how to measure the growth of social impact?

The empirical data of our study indicate clearly that social entrepreneurs have strong intentions to grow and scale their businesses and increase social value. The strongest motivation for growth and scaling up seems to be the social entrepreneurs' social missions. The willingness to grow and scale does not vary significantly between owner-managed companies and companies that are owned by non-profit organisation. In some cases, if social entrepreneurs see that the business growth might jeopardize the success of social impact then survival is enough for them.

The social entrepreneurs seem to build up their growth strategies in several ways (e. g. replication, franchising etc). The social mission driven willingness to grow seems to affect so that social entrepreneurs do not just concentrate to the survival of their business. Our study has also some limitations. The used data is rather small and gathered from a single country. The companies of our sample are mostly at the early stage, so it is quite natural that willingness to grow is more dominant than just concentrating how to keep business survival. The main reason for why companies are mainly at the early stage is that overall the social entrepreneurship phenomenon is rather new in our case country Finland. This fact offers us in the future fruitful "research laboratory" to investigate for example how the willingness to grow changes during the life cycle of social enterprises.

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Appendix 1. Interview themes

1 Background information

- age of SE
- size, sales and number of employees, voluntaries (working hours of voluntaries), number of beneficiaries/customers
- industry
- geographical involvement
 - local, regional, national, global
- stakeholders
 - external advisors, consultants, accountants
 - social enterprise associations
 - public sector
- ownership structure, governance, decision making (formal, informal)
- entrepreneur's/ entrepreneurial team's education and work experience
 - serial and/or portfolio entrepreneur?

2 Primary mission and business model

- Why the specific social mission was chosen
- How social mission is addressed?
- business idea, from where
 - business/social mission first
 - relationship between social and business mission
 - competitive advantages (from social mission or business idea)
 - cost efficiency through voluntary work, recycled materials etc.
 - enhanced value for customers
- targeted beneficiaries
- sources of revenue / funding
- main purpose
 - are (and how) you different from commercial companies?

3 Profit making and surplus distribution

- limitations of profit distribution
 - owners' income
- reinvestments
- charity, is it dependent of profit making

4 Growth strategy

- "social impact" growth, new beneficiaries, new social problems, new solutions?
- business/revenue growth, new products/services/markets, internationalization
- income from new/different sources (e.g. donors)
- business planning time span (1, 3, 5 years)

5 Operating policies and decisions

- How does chosen mission affect operating decisions?
 - Governance and legal form
 - why chosen certain legal status/form
 - property rights
 - decision making and legal form
 - founder
 - board
 - collective
 - other
 - Financing
 - banks, attitudes towards social mission
 - other sources
 - grants
 - Marketing
 - role of social mission
 - Supply chain
 - Employees (HR), voluntaries
- burdens of business

- financing
- regulation
- taxation
- Prejudices, customers, public servants etc.
- attitudes of commercial entrepreneurs

6 Outcomes/Results

- social
- financial
- other?
- measurement of outcomes
- social impact reporting

Appendix 2. Measurement items (1=totally disagree, 5=totally agree)

Survival orientation (SO):

Our company is optimum size as it is

Our main objective is to keep the business stable

Growth orientation (GO):

Growth is necessary to our company and it secures our future

We are going to expand our business to new customer segments

We are going to expand our product /service offerings

A KNOWLEDGE-BASED ANALYSIS OF NOVELTY IN A BUSINESS IDEA

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A Knowledge-Based Analysis of Novelty in a Business Idea

ABSTRACT. Novelty is a distinctive quality of entrepreneurial opportunities (i.e. new business ideas). However, our understanding of novelty in a given opportunity does not go beyond detecting its mere existence. This paper presents an analysis of novelty such that opportunities differ meaningfully in terms of it. The knowledge-based analysis depends on three key observations made in previous research. An opportunity is a knowledge proposition, suggests a new means-ends framework, and encapsulates a vision for a new firm organization. Novelty arises when the knowledge in that vision deviates from the means-ends frameworks of the incumbents. Once the means-ends framework of the incumbents is conceptualized as a knowledge-tree, the novelty can be located for a given opportunity. Novelty at the upper levels of the tree will imply novelty encompassing the lower levels. Therefore, opportunities that imply novelty at the upper levels of the knowledge tree will be perceived as more innovative and more uncertain than those that imply novelty only at the lower levels. Since opportunity is a central construct in entrepreneurship and novelty is its trademark element, the structured analysis of the novelty has implications for the entire entrepreneurial process.

1 Introduction

Novelty is a distinctive attribute of entrepreneurial opportunities (i.e. new business ideas). An (entrepreneurial) opportunity differs from “the larger set of all profit opportunities” because of newness (Shane and Venkataraman, 2000). While there is widespread agreement in the literature that novelty is central to entrepreneurship, it is usually treated as homogeneous except a few noteworthy studies. Nevertheless, it is reasonable to expect that opportunities differ meaningfully with respect to novelty (Samuelsson and Davidsson, 2009). Our understanding of novelty in a new business idea should go beyond its mere detection. Intuitively we know that opportunities are not novel in a single and homogeneous way. However, the formal analysis of novelty in the entrepreneurship literature does not capture that intuition fully.

The intuition that ideas vary in terms of newness is grounded in observations of entrepreneurial opportunities. For instance, several different types of new businesses were salient in video rental industry since it has been the stage for a plethora of opportunities in the last few decades. The dominant player in the industry since 1980s, Blockbuster offered franchise opportunities to prospective entrepreneurs. Another entrepreneur who saw an opportunity in the market founded a direct competitor, Hollywood Video. After several others, Reed Hastings started Netflix, yet another video rental company, which implemented mail-order delivery and a flat-fee payment system. Then, Redbox was founded on the premise that customers could use unmanned kiosks to rent movies. While all of these entrepreneurial opportunities served approximately the same customer groups with similar products, we recognize significant differences among them. The novelty presented in each idea is not the same as the others.

That variation among opportunities is a fundamental hypothesis for entrepreneurship research (Dahlqvist and Wiklund, 2012). The literature examines the entire entrepreneurial process from ideation to growth strategies and the opportunity construct is positioned to explain it partly. The logical conclusion of that premise is that opportunities should vary otherwise it loses its meaning as a central construct (Dimov, 2011). Opportunities that share

important characteristics are expected to share process and outcome attributes as well. A rich tradition of literature since the early twentieth century points to novelty as a crucial characteristic and we expect that opportunities that share important novelty characteristics would undergo similar processes. Hence, in this paper I attempt to enhance the understanding of novelty in a new business idea.

Most of the prior research on opportunities either treats novelty as a binary construct or assumes it away completely. The implicit premise seems to be that for an opportunity to be entrepreneurial it has to contain novelty. However, the research then moves on to other attributes. A few rare studies chose to stop and examine the novelty in more detail recently. Building on a Kirznerian interpretation of market newness, Dahlqvist and Wiklund (2012) developed a measurement scale that compared the entrepreneur's offering to similar offerings in the market. An examination of IPO prospects by Amason, Shrader, and Thompson (2006) showed that product offerings differed in the novelty they brought to the market. Another empirical study used a slightly different approach and distinguished among the new venture ideas in terms of novelty: imitative versus innovative (Samuelsson and Davidsson, 2009). Collectively, these studies show that opportunities indeed vary in terms of the magnitude of the novelty. They turn to the market for similar firm offerings as the comparison group to determine that magnitude.

These studies open a new avenue of research into the examination of the novelty. They compare the offering of the new business to the similar products of the direct competitors. However, a new business is more than a product offering. The focus on the product offering takes away from the *vision for a new firm organization* the entrepreneur constructs in his or her mind. Furthermore, the theoretical discussion of the novelty in these studies is limited to some sense of magnitude of novelty. That is the necessary first step to enrich our understanding of novelty as a simple binary construct. In this paper, I build on that understanding and propose a theoretical model for a structured analysis that offers meaningful discrimination of novelty beyond its magnitude. Entrepreneurship scholars and practitioners have an intuitive sense that the new businesses proposed by different opportunities vary not only in degree but also in kind; however, the literature is incomplete in its offering of the appropriate tools and vocabulary to delineate those differences. As an alternative, I build on the research in evolutionary economics, managerial and entrepreneurial cognition literatures to contribute a knowledge-based analysis of novelty.

2 Theory

The knowledge-based analysis of the novelty builds on three key observations made in previous research: (1) an opportunity is a **knowledge proposition** (Harper, 1996). An entrepreneur is said to have recognized an opportunity when she constructs the judgment that profits can be realized through a new way of organizing resources. (2) An opportunity suggests a new **means-ends framework** to make decisions (Langlois, 1982). The knowledge contained in an entrepreneurial proposition is a specific kind; it directs action. The entrepreneur intends to marshal resources in a certain way in order to achieve economic outcomes (Krueger Jr and Reilly, 2000). Short of that, however interesting an idea may be, we do not consider it an opportunity. (3) An opportunity encapsulates a **vision for a new firm organization**. An established firm does not have a "cognitive equivalent of a control room," back to which all knowledge can be traced (Tsoukas, 1996). However, in the case of a new business idea, the mind of the entrepreneur holds the vision for an entire firm. Next section

develops these three premises in detail and integrates them as the theoretical backdrop to view entrepreneurial opportunities with a new lens.

2.1 Theoretical background: the knowledge content of an opportunity

Novelty depends on the knowledge content of an opportunity. An opportunity is discovered or created when a prospective entrepreneur constructs the belief that others will pay more for a product offering than the relevant costs. Whether we can call that belief new knowledge is controversial: according to Kirzner (1997) it is not; according to Schumpeter (1934) it is. In either case, before the firm is founded the opportunity is only an idea and that idea is a knowledge proposition (Harper, 1996). The prospective entrepreneur proposes that the revenues from the sales of the firm's offerings will be larger than the costs of the firm establishment including the costs of production. This is a proposition, which can be tested empirically. Harper (1996) maintains that the establishment of the firm is the corresponding experiment to test the proposition's validity. A new business idea contains a knowledge proposition whose truth value is uncertain.

A detailed epistemological inquiry into the nature of the knowledge is beyond the scope of this literature. Nevertheless, a brief discussion about the properties of knowledge under investigation is necessary for consistent theory building. Knowledge in this context is defined as justified true belief that guides economic action (Nonaka and Takeuchi, 1995). The knowledge a person possesses is the means towards achieving a particular outcome (Hayek, 1945). In a firm, knowledge guides action by directing the members of an organization towards a productive goal (Nelson and Winter, 1982). The accumulation of routine activities allows a reliable means – ends hierarchy for rational decision making (Adaman and Devine, 2002). When the entrepreneur proposes a novel firm organization, the existing means – ends framework loses its usefulness partially. If the new venture idea is novel enough, there will not be meaningful past data to categorize and count for reliable probability estimates to guide action (Langlois, 1982). That interruption to rational decision making makes entrepreneurial opportunities distinctive and burdens the entrepreneur with the establishment of a means – end framework as part of the knowledge proposition.

The means – ends framework in an opportunity has the imprints of a new firm organization. This conception of the opportunity is in contrast to a common theme in the entrepreneurship and management literatures: the focus on the product innovation. The uniqueness of the product usually determines the novelty in these treatments (e.g. radical vs. incremental innovations). However, there is more to the novelty implied in an entrepreneurial opportunity than the newness of the product offering. The prospective entrepreneur imagines the product offering situated in the context of a new firm organization. That imaginary firm has to include knowledge elements that will help persuade the prospective entrepreneur of the new venture's feasibility. In the case of an established firm, we cannot locate a "cognitive equivalent of a control room" that centralizes all the knowledge contained in the firm (Tsoukas, 1996). On the other hand, in an entrepreneurial opportunity, which exists solely in the mind of the entrepreneur, the cognitive control room metaphor materializes. An opportunity embodies a vision for an entire firm organization. Product novelty is only the visible tip of that imagination and the knowledge proposition contained in the opportunity needs to be substantive enough to support it. The opportunity needs to delineate how the new firm will produce the offering to some acceptable detail.

In summary, an opportunity is a knowledge proposition that reflects a vision for a new firm organization as a means – ends framework. The knowledge content of the opportunity is contained in the way the entrepreneur imagines a firm. The entrepreneur's vision of the firm consists of propositions such that the knowledge in the firm will direct the actions of the employees to achieve economic ends. Novelty arises when parts of that vision deviates from the way the incumbent firms act. Hence, to identify the exact location of the novelty we have to compare the opportunity (the proposition) with the knowledge that already exists.

2.2 Hierarchy as a solution

The comparison with the existing knowledge requires a structured understanding of the existing business practices. If we can represent the existing knowledge in a given business domain in a concise manner, we may be able to identify the where the new idea is proposing a change. A similar, perhaps more daunting, representation and comparison task is attempted by cognitive scientists in the identification of novelty in scientific revolutions. Thagard (1992) imposes a hierarchical structure on the existing system of concepts in a given scientific discipline. The hierarchy of concepts captures then current understanding in that discipline and the changes in the hierarchy reflect the kind and degree of novelty of a particular scientific revolution. For example, in the Aristotelian hierarchy the natural bodies were divided into celestial and terrestrial categories. Newton erased that distinction and brought all bodies into the same hierarchy, subject to the same forces. After constructing the stories of several other scientific revolutions from this perspective, Thagard (1992) concludes that a hierarchical structure represents the existing knowledge structure in the most concise manner to identify the novelty in a new scientific paradigm.

The modeling of complex systems by a hierarchical structure is also suggested by Simon (1962). A hierarchy is a “system that is composed of interrelated subsystems, each of the latter being, in turn, hierarchic in structure until we reach some lowest level of elementary subsystem” (Simon, 1962 :468). This parts-within-parts structure is found in many complex social, biological, physical, and symbolic systems. Simon suggests that the hierarchical structure has evolutionary advantages in the intermediate stable forms. In a hierarchical structure, the linkages within a sub-structure are significantly more intense than the linkages across sub-structures. That organization brings about stability to the forms. He then concludes, “[e]mpirically, a large proportion of the complex systems we observe in nature exhibit hierarchic structure. On theoretical grounds we could expect complex systems to be hierarchies in a world in which complexity had to evolve from simplicity” (Simon, 1962 :481).

2.3 The theoretical model

Applying Thagard's and Simon's theories on the novelty puzzle produces the core impetus for the modeling in this paper. The novelty puzzle discussed above is the representation of the entrepreneurial knowledge proposition in conjunction with the existing business practices. The existing business practices in a given firm and industry are the objects of inquiry for the knowledge-based theory of the firm (Grant, 1996; Kogut and Zander, 1992). According to the knowledge-based theory, the firm exists to provide an efficient structure for integrating the specialized knowledge of individuals and teams. The firm is efficient in

coordinating specialized knowledge thanks to its common infrastructure based on a shared identity (Kogut and Zander, 1996). The knowledge stocks of the firm are collections of repeated activities that solve business problems and achieve productive goals. Some of that knowledge solves high level problems that impact a large span of activities while others are specific to a more limited boundary. As a complex system, the knowledge contained in business operations may be modeled meaningfully in a hierarchy.

An illustration with one of the firms invoked in the introduction may be helpful. Once the dominant firm in movie rental industry, Blockbuster's value proposition was built on the availability of physical copies of the movies to the customers who desired to rent them. In the upper level in Figure 1, Blockbuster's "knowledge proposition" is that the end goal – the satisfaction of the customer's rental need – can be achieved by the means of distributing the physical media in close proximity to the customer's home. When a new franchisee opens a new Blockbuster store in a neighborhood, that high level proposition is taken for granted. When Hollywood Video opens competing stores nearby, that high level proposition is also shared. In fact, the specific knowledge of a Blockbuster manager would prove very useful to a Hollywood Video store. Such relevance helps alleviate Knightian uncertainty as past data would improve decision making (Langlois, 1982).

Applying the hierarchical model (Simon, 1962; Thagard, 1992) allows us to identify the stable intermediate forms, the parts-within-parts. The topmost level in the hierarchy refers to a stable form that captures the highest level knowledge proposition. The business model construct captures similar knowledge content.

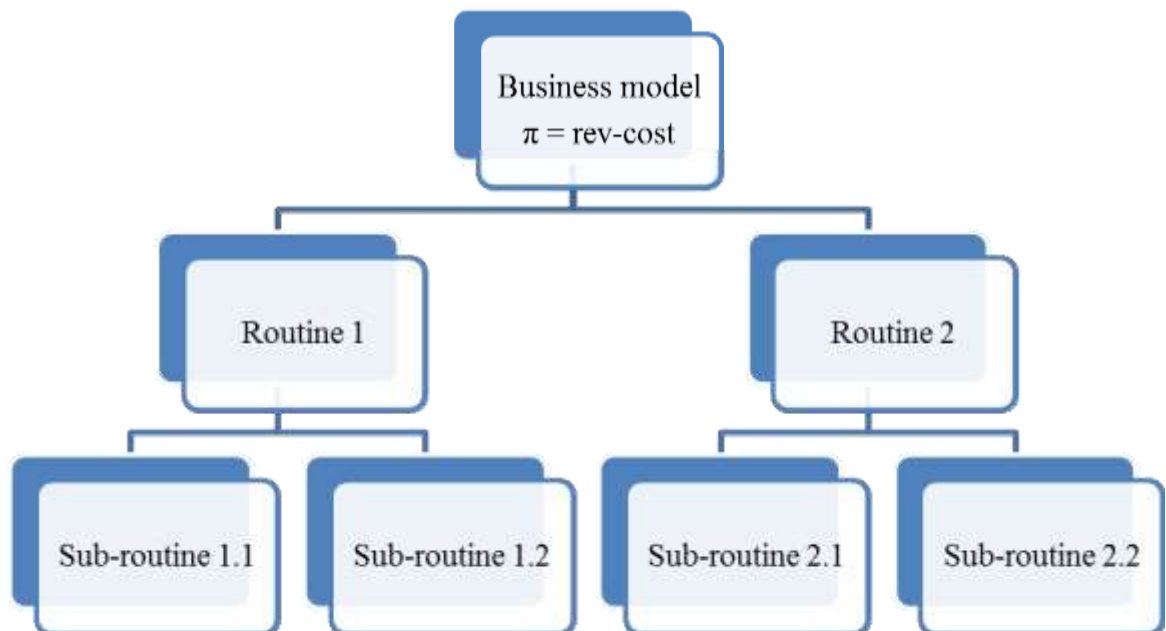


Figure 1. Hierarchical knowledge tree in an entrepreneurial proposition

2.3.1 *Business model*

Invariably, the vision for a new firm involves two fundamental components: the customer and the producer. The profitability of the new venture depends on the relationship between the customer's value and the producer's cost. In other words, customer-producer relationship is the ultimate means-ends framework under which a firm is organized. The business practices of the firm are the means to satisfy the ends, the customer needs. This high-level conception of the practices of a firm is usually referred to as the business model of the firm (Morris et al., 2005). At the business model level, existing business knowledge answers two questions that construct the fundamental "parts" of a business proposition: What is the source of revenue? What is the source of cost? When the entrepreneurial proposition includes novelty at this level, that implies a change in all the lower levels below.

2.3.2 *Routine*

Knowledge contained in the practices of the incumbent firms is complex and can be analyzed further into its parts a la Thagard (1992). When brought together, these knowledge components should constitute the high level value proposition of the firm. At the same time, they need to be distinct from each other in a meaningful manner. Their reproduction within the firm should be manageable such that they enjoy the advantages of intermediate stable forms Simon (1962) alludes. Out of a potentially large number of ways of identifying the boundaries of knowledge components in a business model, previous research in knowledge-based theory provides the most promising theoretical constructs. Knowledge that exists in incumbent firms and is directed towards producing a deliberate outcome is captured in the idea of the "routine" (Nelson & Winter, 1982). Routines are organizational knowledge, or the skills of a firm. Some routines of the firm are the means directed towards ends that are to generate and collect revenues, whereas others produce and incur costs. Figure 2 below depicts a simple model of the dominant knowledge in the movie rental industry. The topmost level business model proposition is comprised of the intermediate level routines. The routines are the means to achieve the end, the business model. An opportunity may imply novelty at this level. A routine-level novelty will share the business model of the incumbents but imply a change at one of the routines in second level of the hierarchy.

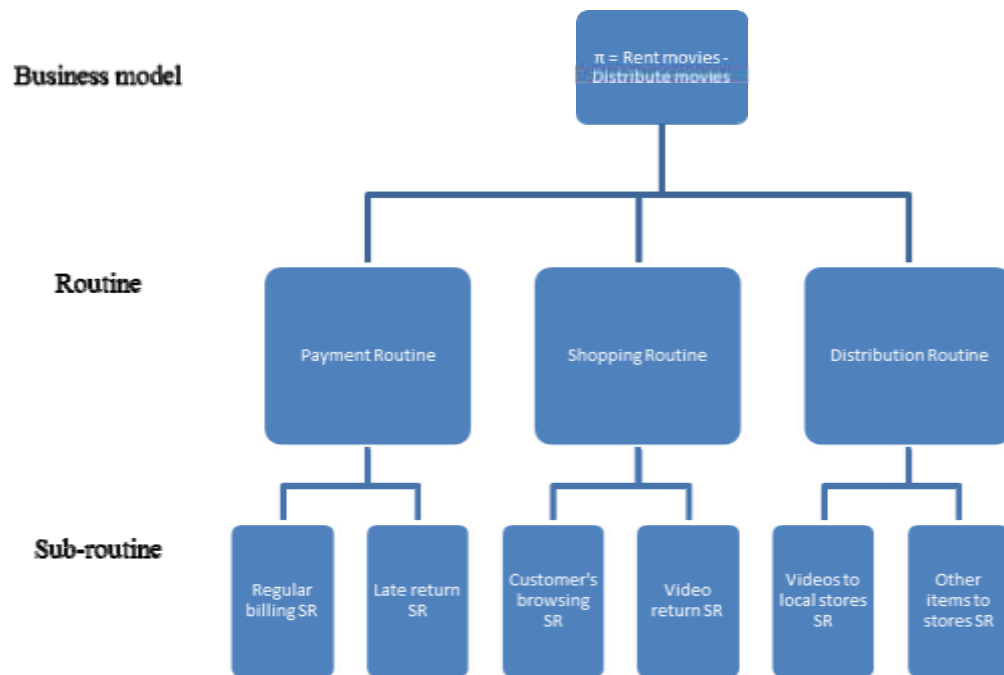


Figure 2. Hierarchical knowledge tree for the movie rental business

2.3.3 Sub-routine

As the routines get more specialized and sophisticated, their complexity increases. Given the limitations of bounded rationality, complex routines can be more accurately represented and manipulated as a collection of subroutines. The components, subroutines, connect and interact; and to the extent that the system is modular those interactions are less intense (Sanchez, 2001). Such loose coupling allows for the stability of the intermediate forms (Simon, 1962) and supports the building of the knowledge hierarchy further down. The lower level subroutines describe specifically how a particular routine is accomplished in an organization given a myriad of alternatives (Malone et al., 2003). At this level, the routines become the ends that are accomplished by the means of the subroutines. An opportunity may also imply novelty at this level.

Then the overarching proposition in this framework is the following; the novelty implied by the opportunity varies with respect to the level of the knowledge hierarchy. Business model novelty implies routine novelty, which in turn implies subroutine novelty. When a new franchisee opens a new Blockbuster store, the novelty can best be represented at the subroutine level due to the specifics of the location. The upper levels of the knowledge hierarchy remain unchanged, as they are replicated in the new proposition. The overall business model is the same and the specific routines of other stores are both relevant and useful to the new franchisee. In the case of Hollywood Video a similar opportunity was recognized by Mark Wattels. He imagined improvements in the subroutines, specifically on the locations of the stores and the availability of the movies. However, most of the existing knowledge hierarchy was preserved and the novelty was still at the subroutine level. In the

case of the Netflix opportunity, we can conjecture that the vision of the firm Reed Hastings imagined contained novelty at an upper level. The operations of Netflix did not replicate major routines of the Blockbuster model. Instead two major routines were replaced in the Netflix proposition: the flat-fee payment routine and the mail-order delivery routine. In a similar vein, the knowledge contained in the Redbox proposition implies novelty at the upper level. The business practice of operating unmanned kiosks is significantly different from the business practice of running brick-and-mortar neighborhood stores. The novelty at that level suggests that most other operations will also need to be novel.

3 Discussion

The conceptual model in this paper analyses the knowledge content and the associated novelty of an opportunity through the establishment of the knowledge hierarchy. The hierarchical structure is an implementation of the often mentioned but rarely explained principle of the means – ends framework from a knowledge-based perspective. Existing practices of the incumbent firms are modeled in a hierarchical structure and this gives rise to a structured understanding of novelty in the entrepreneurial proposition.

The proposed model has implications for entrepreneurship theory. Opportunities vary with respect to the level of the knowledge hierarchy novelty is found. If an opportunity contains novelty at the upper levels of the knowledge hierarchy, that will be associated with higher entrepreneurial uncertainty (Knight, 1921) as well. A business model novelty suggests that the opportunity modifies the fundamentals of a business. For such opportunities the newness would be radical and render the past data almost irrelevant (Lachmann, 1976). The lower level procedures and processes will lose their value because they are geared towards the existing means – ends framework of the incumbents. In contrast, for those opportunities with lower level novelty, the uncertainty will not be as severe. The correlation between novelty and uncertainty would imply that previous research on the effects of uncertainty would also apply to the opportunities with upper level novelty. For instance, the potential upside might be correspondingly higher for these opportunities.

As an implication of novelty, I expect that the upper level opportunities will face lower levels of direct competition. Since these new business ideas will suggest a change in the fundamental propositions of an industry, they are less likely to produce the same products as the incumbents. Additionally, the strategic response from the incumbents may take a longer time when the underlying routines are distinctive. On the other hand, and perhaps because of that reason alone, legal and other non-market challenges from the incumbents to the new ventures may be more prevalent in upper level novelty. The regulatory environment is most likely shaped around a given set of industry recipes (Spender, 1989). Novelty in upper levels is more likely to be disruptive to the existing relationships. On the other hand, challenges related to intellectual property and trade secrets may be more prevalent for the sub-routine level opportunities. Those ideas build on the incumbents' knowledge and the resemblance is likely to create related spin-offs and resentment by the incumbents.

As a knowledge-based model, the hierarchical analysis of novelty has also implications for entrepreneurial cognition. In addition to the implication of uncertainty discussed above, potential entrepreneurs will treat highly uncertain opportunities at the upper levels differently. For instance, I expect that when the novelty is at the upper levels, the new

business idea will be perceived as more risky than those at the lower levels. At the same time, as an extension of novelty, they will also be perceived as more innovative.

A robust finding in entrepreneurial cognition literature is the impact of prior knowledge on opportunity recognition (Shane, 2000). The experiences of the individuals in a given industry shape the opportunities they can recognize. Correspondingly, I expect individuals in different roles in an industry to accumulate different experiences and therefore recognize opportunities at different levels of the hierarchy. For instance, due to commitments to the dominant model in a given industry, upper level ideas are more likely to come from entrepreneurs of a different industry. Middle level ideas are best suited for the managers in incumbent firms or the dissatisfied customers of those firms.

The implications above are some preliminary considerations of how novelty is expected to influence the entrepreneurial process. If novelty is a distinctive attribute of entrepreneurial opportunities, the entire entrepreneurial process should lend itself to a structured analysis of novelty. That is what a central concept would mean for the field. As an integral part of the individual-opportunity nexus, the variation in the new business idea should be important for all stages of the entrepreneurial process. Opportunities with novelty in different levels of the hierarchy should manifest differently in several stages of the process.

The theoretical model developed in this paper suggests a conceptual dimension. It builds on the previously studied theoretical constructs such as the business model and the routines. They are chosen as the appropriate building blocks because they are good candidates as stable forms. A theoretical next step is to challenge that assumption and develop hierarchical representations of knowledge contained in an entrepreneurial proposition using different building blocks. The empirical next step to the current model is to develop a scale for measurement. If opportunities do vary as suggested in this model, it will be possible to measure the novelty accordingly as well.

4 Conclusion

All opportunities are not equal; new business ideas are not novel in the same way. Our intuitive sense of novelty relates to the change in the proposed firm organization. That change is identified by an implicit comparison with the existing firm organizations. The hierarchical analysis of the knowledge proposed in this paper captures that intuition. New business ideas are not equal because some suggest changes at the upper levels of the hierarchy whereas others modify middle layers and yet others will change only the lowest levels. Locating novelty at a tree structure discriminates among opportunities in a meaningful way. The hierarchical tree captures more than product innovation and represents the vision for the entire firm organization in the mind of the entrepreneur.

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SELF-EFFICACY SCALE TO PREDICT GROWTH- VS. INDEPENDENCE-ORIENTED ENTREPRENEURIAL INTENTIONS

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Self-Efficacy Scale to predict Growth- vs. Independence-oriented Entrepreneurial Intentions

Abstract

This paper develops a multidimensional entrepreneurial self-efficacy (ESE) scale to facilitate the prediction of growth-oriented entrepreneurial intentions as distinct from independence-oriented entrepreneurial intentions. Douglas (2013) showed that these separate intentions are related to difference in entrepreneurial attitudes, and that ESE was a significant determinant of only growth-oriented entrepreneurial intentions. We build upon Barbosa et al. (2007) and McGee et al.'s (2009) multidimensional ESE scales to derive an ESE scale consisting of 18 items that form 5 factors representing communication, financial management, innovation, risk management, and people management skills. We expect that these factors will differentially relate to growth- versus independence-oriented entrepreneurial intentions.

1. Introduction

Various authors, including Kolvereid (1996), Venkataraman (1997), Carter, Gartner, Shaver & Gatewood (2003) and Shane (2009), have examined the reasons for individuals undertaking entrepreneurship. Individuals start ventures with differing motivations and expectancies from the endeavour. Financial motives, independence and autonomy, self-realisation, recognition, are a few of the prominent motivations for self-employment (Manolova, Brush, Edelman, & Shaver, 2012). Depending on the outcome expectancies of aspiring entrepreneurs, and their attitudes to these expected outcomes, we can broadly classify them as (mainly) independence-oriented or (mainly) growth-oriented (Shane, 2009; Douglas, 2013). Entrepreneurship fosters economic growth in multiple ways such as increased employment rates. However, economic and employment growth are enabled by high-growth ventures rather than by independence-oriented ventures (Shane, 2009). Therefore, from a policy perspective, it is important to identify, target, and support growth-oriented entrepreneurs to contribute to the economic growth of nations.

In order to be able to identify future growth-oriented entrepreneurs based on their current intentions, Douglas (2013) developed growth-oriented intentions and independence-oriented intentions scales. He found that growth-oriented entrepreneurs and independence-oriented entrepreneurs differed significantly in their attitudes and the significance of their respective entrepreneurial self-efficacy beliefs. Douglas (2013) demonstrated that aspiring entrepreneurs might be either growth-oriented or independence-oriented, preferring different combinations of outcomes from entrepreneurship, and thus that a generalised construct of entrepreneurial intentions is too broad. We join this conversation to argue that the current conceptualisation of the entrepreneurial self-efficacy construct is too broad (Suddaby, 2010) and insufficiently distinguishes between aspiring entrepreneurs who are growth-oriented and those who are independence-oriented.

McGee, Peterson, Mueller & Sequeira (2009) argued that prior measures of ESE (e.g. Chen Greene & Crick, 1998; De Noble, Jung, & Ehrlich, 1999) although ostensibly having various sub-dimensions, have typically loaded onto a single factor and thus did not utilize the sub-dimensions of ESE to explain entrepreneurial intentions. In this paper we build upon the prior literature to propose and develop a new ESE scale that will distinguish between growth-oriented and independence-oriented nascent entrepreneurs, and which will, hopefully, help to explain the differing entrepreneurial intentions. Following the findings and inferences of Barbosa, Gerhardt, & Kickul (2007), McGee et al. (2009), and Douglas (2013), we argue for dimensions of the ESE scale that take into account the differing tasks contemplated by

differently-oriented entrepreneurs. This is based on our expectation that growth-oriented entrepreneurs will need higher ability to deal with risk, to raise capital, and to manage a growing number of employees, than would independence-oriented entrepreneurs in general. Conversely, we expect independence-oriented entrepreneurs to need greater ability to cultivate relationships with employees, customers and suppliers; and a lesser ability to deal with risks and ambiguity.

2. Literature Review

Bandura (1997: 307) defines perceived self-efficacy as “people’s belief in their capabilities to produce given attainments” and measures of self-efficacy have been shown to predict subsequent behaviour in pursuit of those attainments. Task-specific self-efficacy scales are more suitable than generalised measures for predicting specific behaviours. Studies have shown that entrepreneurial self-efficacy (ESE) predicts an individual’s entrepreneurial intentions (Boyd & Vozikis, 1994), which in turn predict entrepreneurial behaviour.

Many researchers have tried to develop entrepreneurial self-efficacy scales. The most common approach for the development has been the role-task approach. The different roles performed by an entrepreneur were enumerated and subsequently the entrepreneur’s confidence in performing the tasks related to each of these roles was used as an indicator to the entrepreneur’s self-efficacy.

Chen et al. (1998) measured ESE as an individual’s evaluation of their capability to perform various tasks for the roles of innovator, risk taker and risk bearer, executive manager, relationship builder, risk reducer, and goal achiever. De Noble et al. (1999) attempted to refine the ESE measure for tasks more specific to entrepreneurship namely opportunity recognition, formal planning, economic management, and human/conceptual competence. However, they collapsed the scores on the different entrepreneurial task groups into a single measure to use as a predictor of entrepreneurial behaviour. Barbosa et al. (2007), based on Chen et al. (1998) and De Noble et al. (1999) identified four main types of ESE, namely “Opportunity-Identification Self-Efficacy: the individual’s perceived self-efficacy concerning his/her capacities to identify and develop new product and market opportunities; Relationship Self-Efficacy: the individual’s perceived self-efficacy concerning his/her capacities to build relationships, especially with potential investors and people who are connected to capital sources; Managerial Self-Efficacy: the individual’s perceived self-efficacy concerning his/her managerial capacities, especially economic and financial management; and Tolerance Self-Efficacy: the individual’s perceived self-efficacy concerning his/her capacities to work productively under conditions of stress, pressure, conflict, and change” (Barbosa et al, 2007: 88). More recently, McGee, Peterson, Mueller & Sequeira (2009) developed an ESE scale to include separate measures for five specific stages of the entrepreneurial process and found that these were separately related to entrepreneurial intention.

Studies have shown that ESE levels differ between entrepreneurs and managers as well as among entrepreneurs depending on, for instance, the industry they are engaged in (Chen et al, 1998; Anna, Chandler, Jansen & Mero, 1999). Expectancy theory applied to entrepreneurship literature clearly showcases the differences in expectations from owning and running a venture (Manolova et al., 2012) as compared to managing a business that is owned by others. These expectations specific to entrepreneurship include autonomy, wealth, self-realisation, recognition, and authority. Kolvereid & Isaksen (2006) called for the development of better ESE measures that would predict specific entrepreneurial intentions and behaviours. Autio (2005) also called for determining how different ESE dimensions related to growth

expectations. The difference in expected outcomes is particularly significant in the light of Bandura's definition of perceived self-efficacy. The ESE scales developed so far have overlooked the fact that individuals undertake entrepreneurship for different reasons and in pursuit of different outcomes. In effect, such ESE scales are 'general' ESE scales, since they are presumed to apply to all individuals contemplating any of a variety of forms of entrepreneurial activity. That is, different intentions imply different courses of action and hence the tasks associated with each set of action would not be the same.

Viewing each of the two main types of entrepreneurship in the light of individuals' prior intentions for each role, it should be expected that the weighting given to each of the expected outcomes would differ across the two main types. The specific capabilities required for each entrepreneur are influenced by the type of entrepreneurship they elect to pursue, and it seems possible to construct a scale that will reflect these differences.

3. Scale Development

We began by following McGee et al (2009), who identified four main entrepreneurial task groups (namely searching, planning, marshalling, and implementation) associated with stages of the entrepreneurial process, and used these as the different sub-dimensions of their ESE scale. In a factor analysis of their 19 item scale, however, they found that the items intended to load on the 'implementing' factor instead loaded onto two separate factors which they identified as 'managing people' and 'managing finances'. In an attempt to replicate their findings we used the McGee et al. 19 item scale on a sample of 55 postgraduate business students in an Australian business school. We initially specified five factors, following McGee et al., but this resulted in excessive cross-loadings. After considering the eigenvalues, and McGee et al's initial expectation of only four factors, we then constrained the principal component analysis (PCA) to four factors, and all 19 items then loaded onto the four factors with loadings of 0.5 or better, with the exception of one with a loading of 0.4382, and the highest cross-loading was 0.3732. Six, six, four and three items loaded onto the four factors, respectively, and these factors were identified as 'managing people', 'opportunity recognition', 'managing finances' and 'interpersonal skills', respectively. The Cronbach's alphas were 0.70, 0.73, 0.76 and 0.69 respectively, indicating acceptable reliability levels (Hair, Black, Bain & Anderson, 2010: p125), and we note that the four factors explain almost 86% of the variance. The eigenvalues were 3.42, 2.42, 1.7 and 0.97 respectively, and the loadings of the items on each factor are shown in Table 1 (loadings less than 0.4 are suppressed).

[Table 1 near here]

Note that our result did not totally replicate McGee et al.'s findings. Whereas they found five factors, we found only four, two of which essentially agree with two of theirs, namely 'people management' and 'financial management'. But we found that the items in McGee et al.'s 'searching' (items 1, 10, 17) and 'planning' (items 2, 8, 11, 3) factors coalesced (except for item 11) and loaded together on our 'opportunity recognition' factor. We deleted item 10 due to its high loading on both our 'opportunity recognition' and 'interpersonal skills' factors. We found that the three items in McGee et al.'s 'marshalling' factor (items 7, 8 and 12) dispersed across three of our factors, being significant items within the interpersonal skills, opportunity recognition, and people management factors, respectively. As a final point of divergence we found that items 7 and 18, which McGee found to be part of marshalling, loaded on our 'interpersonal skills', as did item 19 which McGee et al. found loaded on

‘implementing’. Thus it would appear that the loading of these 19 items onto principal components is somewhat sample dependent, and/or that the scale requires refinement.

Accordingly we took the approach that some entrepreneurial tasks are likely to apply more to growth-oriented entrepreneurship than to independence-oriented entrepreneurship, or vice versa, and attempted to develop a new scale that offered sub-dimensions that one type of entrepreneur might be expected to have higher ESE towards, while the other type might be expected to have lower ESE towards that skill area. We suggest five separate sub-dimensions of ESE, which reflect roles (and tasks) relating to innovation; risk bearing; managing finances; managing people; and interpersonal skills. We now introduce these in turn.

Innovator: The significance of the role of innovator would differ in the case of growth- oriented and independence-oriented entrepreneurs. A growth-oriented entrepreneur is more likely to need to be more innovative in order to obtain higher returns. This implies introduction of new products, utilizing new technology, and using unconventional business models to ensure substantial returns. However, an independence-oriented entrepreneur is more likely to stick to more-conventional business models and offer products which are not highly differentiated from the ones already available.

Risk Bearer: Entrepreneurs typically take more risks than other managers, since they take decisions in more uncertain environments and are individually responsible for their decisions. Stewart & Roth (2001) in their meta-analysis found that the risk propensity of entrepreneurs was higher than that of other managers. Further, they also found that the risk propensity of growth-oriented entrepreneurs was higher than that of entrepreneurs who were focused on producing family income. Cassar (2007) found that among multiple career reasons, financial success was the only significant career reason for an entrepreneur with high growth preference. Further, financial success was significantly and positively related to entrepreneur’s risk-return preference (Cassar, 2007). A growing firm is also associated with higher risk (Verheul & van Mil, 2008). Entrepreneurs with a growth-orientation would be more eager to pursue various opportunities whereas entrepreneurs with an independence- orientation would opt for more certain returns. According to traditional investment theory, higher risk entails higher return and lower risk entails lower return. Further, the increasing need for security also negatively relates to sales (Anna et al, 1999). An independence oriented entrepreneur, therefore, is likely to prefer lower risk for more secure returns (Douglas, 2013).

Managing Finances: Managing finances is one of the most important aspects of survival in a new business venture (Chandler & Jansen, 1992) An independence-oriented entrepreneur is likely to have a smaller firm and hence the complexity of financial management is likely to be of a lesser degree than a firm owned by a growth-oriented entrepreneur who seeks to expand the business with new products and new markets. Expansion also implies the need to seek more financial resources to enable the same. Therefore, apart from monitoring cash flows on a continual basis, high-growth enterprises also need to go for multiple rounds of funding to finance their expansion plans, implying that growth-oriented entrepreneurs will require greater financial management skills.

Managing People: According to Chandler & Jansen (1992), managing finances and managing people are the two primary competencies required for the survival and growth of the firm. The skills required by entrepreneurs include recruitment of employees, sharing of vision, motivation, etc. An independence-oriented entrepreneur is more likely to have to deal with a smaller workforce than a growth-oriented entrepreneur. Therefore, the former requires

the skill to be able to operate independently whereas the latter has to manage a growing workforce, supervise them as well as mentor them.

Interacting with stakeholders: For a smaller firm, it is important to build and maintain close relationships with customers and suppliers. However, for a growth-oriented venture it is imperative to network with more people in order to scout for and exploit new opportunities for the expansion of the firm. Therefore, interactions with stakeholders will be different for the growth-oriented and independence-oriented entrepreneurs.

Using these dimensions, brainstorming exercises led to the development of 5 items per dimension as shown in Table 2. These items were then randomly ordered and the survey was tested for its reliability.

[Table 2 near here]

4. Sample and Method

Our sample comprised 154 MBA students at one of the top-tier management schools in India. An online version of the survey was completed by these post-graduate students. The students were asked to rate their confidence in performing each particular task on a five-point Likert scale ranging from “Very Little” to “Very Much”. The questions were presented in a random order. A total of 87 first year and 67 second year MBA students responded to the survey. 29% of the respondents were female. The average age was 24.84 years among the 150 students who chose to reveal their age. The entire sample was of Indian origin. Post-graduate students in management form a relevant sample for the study as they are at the critical stage of making a choice of employment or self-employment (Shepherd & De Tienne, 2005).

The responses to the 25 questions were subjected to exploratory principal component analysis using both the SPSS and STATA software packages, with the number of factors constrained to five. The loadings on these five factors are indicated in Table 2 (STATA output using orthogonal rotation is reported). It can be seen that items 4, 6, 14, and 17 cross-loaded on several items such that no single loading exceeded the chosen cut-off level of 0.4. These variables were subsequently deleted from the analysis. Principal component analysis (PCA) was again run with several iterations to attain an outcome where all remaining items loaded on only one factor with 0.4 or above. Items 7, 21, 22, and 25 were deleted in this process. The final outcome is shown in Table 3. Note that the reliability of these factors is generally very good, with Cronbach alphas exceeding the conventional cut-off of 0.7 (Nunnally, 1970) in all but one case, which is the 0.6836 value for risk management. It can be argued that this value is acceptably close for this situation of a relatively small sample, relatively few items in the factor, and the novelty of this study (Hair, et al., 2010).

[Table 3 near here]

The next phase of the scale development is to test the scale on a different sample of individuals representing those who might wish to start their own new venture. At time of writing the questionnaire has been sent to post-graduate students at a top-tier management institute in India.

5. Discussion

Building upon earlier work by various scholars, we have developed a new entrepreneurial self-efficacy scale with five dimensions reflecting important main tasks associated with entrepreneurial action. The usefulness of this new scale will hopefully lie in its ability to

improve the prediction of growth-oriented entrepreneurial intentions (GOEI) in contrast to independence-oriented entrepreneurial intentions (IOEI). We will now argue that ESE for some of these tasks would typically need to be higher for growth-oriented entrepreneurs and some would typically be lower for independence-oriented entrepreneurs. When forming their intentions to engage in one form of entrepreneurial activity or the other, we expect individuals to form an expectation about how much skill (in each ESE area) is likely to be required for each of these two types of entrepreneurial activity. Before acting, we might reasonably expect individuals to pause and contemplate whether or not they have the skills necessary for the type of entrepreneurial activity they are considering. Self-determination theory (Deci & Ryan, 1985) argues that individuals have an innate need for competency, and therefore choose to undertake activities that they expect they will be 'good at' while avoiding activities or tasks where they might fail. Similarly, person-environment (P-E) fit theory (see, e.g. Edwards & Rothbard, 1999) argues that individuals will gravitate towards work environments that best suit their preferences for workplace outcomes.

Accordingly, and as shown in Table 4, we expect that growth-oriented entrepreneurship will typically be foreseen (by the intending entrepreneur) as requiring relatively high competence in innovation and creativity, risk management, and financial management, while independence-oriented entrepreneurship will typically be foreseen as requiring relatively low competence in these areas. Conversely, we expect that growth-oriented entrepreneurship will typically be foreseen as requiring relatively low competence in people management and communication skills, because the growth-oriented entrepreneur is likely to be surrounded by a top management team to whom these tasks can be delegated to some large extent, whereas the independence-oriented entrepreneur is likely to not employ many, if any, senior managers and must take care of these tasks largely unassisted.

[Table 4 near here]

Next, we note that Fitzsimmons & Douglas (2011) found negative interaction effects between perceived desirability and perceived feasibility when explaining the drivers of entrepreneurial intentions. They argued that the individual's attitude to ownership of the firm is a suitable measure of perceived desirability of self-employment, and used Chen et al.'s (1998) ESE scale as a measure of perceived feasibility. They found the interaction term between these variables to be negative, and argued, following Brockner, Higgins, & Low (2004), that preventative self-regulation causes the intending entrepreneur to adopt a more cautionary stance the higher are his/her attitudes to ownership and ESE. Accordingly, in Table 5 we speculate that there may well be interaction effects between some of the ESE dimensions and some of the attitudes that underlie perceived desirability. In particular, we consider it likely that the risk intolerant attitude of the independence-oriented nascent entrepreneur (Douglas, 2013) is likely to interact negatively with that individual's (relatively low) ESE-risk dimension – that is, the intention to be an independence-oriented entrepreneur will be weaker the lower are both the tolerance for risk and the perceived self-efficacy for risk management.

[Table 5 near here]

6. Conclusion and Implications

In this paper we have developed a new multi-dimensional scale to measure the perceived self-efficacy of individuals for entrepreneurial activity. This new scale is intended to be a significant determinant of both growth-oriented entrepreneurial intentions (GOEI) and independence-oriented entrepreneurial intentions (IOEI). We note that Douglas (2013) found,

using De Noble et al.'s (1999) 23-item scale to assess respondents' ESE, that ESE was a significant positive determinant of GOEI but was insignificantly related to IOEI. Following the lead of McGee et al. (2009) we developed five sub-dimensions of ESE representing major task groups in which the individual would need to be competent if choosing to act entrepreneurially. We expect GOEI to be positively and strongly related to three of these sub-dimensions (namely innovation management, financial management, and risk management) and potentially less strongly positively related (or insignificantly negatively related) to people management and communication skills. Conversely, we expect IOEI to be negatively or insignificantly related to innovation management, financial management, and risk management, while being potentially positively related to people management and communication skills.

This paper offers the following main contributions to the entrepreneurship literature. First, we have developed and tested a new multi-dimensional ESE scale that appears to offer more stable and more reliable dimensions than the McGee et al. (2009) scale. Second, this scale is developed with an eye to also serving as a significant determinant of independence-oriented entrepreneurial intentions (IOEI), in contrast to the De Noble et al. (1999) scale which was found to be insignificantly related to IOEI by Douglas (2013).

Of course this paper also has its limitations. The use of postgraduate business students to represent those contemplating starting their own business is certainly not representative of all those who contemplate and subsequently start their own businesses. Our sample is certainly more highly educated than the typical nascent or intending entrepreneur and is probably also younger on average. But many postgraduate business students do indeed start their own businesses or manage new and growing businesses and are thus representative of an important source of new entrepreneurs. Further, the sample is entirely Indian by nationality, and may not be representative of intending entrepreneurs in other cultural contexts. But since India is a fast-rising major economy with many high-growth new ventures emanating from its ranks, this sample nonetheless provides an interesting and relevant context (Johns, 2006) in which to study the drivers of entrepreneurial intentions.

There are many implications of this paper for further research. The scale introduced here must be validated, replicated, and improved by application to other samples in other cultural contexts. It may prove useful in the explanation of the motivation to undertake social entrepreneurship, or to buy a franchise, for example. The authors plan to utilize this new ESE scale in a large-sample multi-country study to separately explain both GOEI and IOEI, and others may also wish to use this scale to predict the preferences of individuals for high-growth ventures versus the relatively small independence-oriented new ventures that comprise the majority of new ventures and small and medium enterprises (Shane, 2009).

In addition there are implications for entrepreneurial education. If we can determine that there is a 'growth mind-set' encompassing both attitudes and self-efficacies, we ought to be able to devise educational programs that nurture and build GOEI for socially beneficial outcomes in later decades. Finally there are implications for public policy. If we can determine that growth-oriented entrepreneurs have a typical self-efficacy profile then public funds earmarked for the support of new venture establishment might be channelled to those who are more likely to build high-growth firms rather than to those seeking an independence-oriented or lifestyle business to avoid corporate employment (Kolvereid, 1996; Shane, 2009).

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Table 1: Items and loadings on the McGee et al. (2009) ESE scale

Item “ How confident are you that you could successfully:	Managing people & problems	Opportunity recognition	Managing financial resources	Interpersonal skills
1. Brainstorm (come up with) a new idea for a product or service?		0.6252		
2. Estimate customer demand for a new product or service?		0.6218		
3. Design an effective marketing and advertising campaign for a new product or service?		0.5176		
4. Recruit and hire employees?	0.7483			
5. Manage the financial assets of my business?			0.8396	
6. Supervise employees?	0.6305			
7. Get others to identify with and believe in my vision and plans for a new business?				0.5122
8. Determine a competitive price for a new product or service?		0.4557		
9. Read and interpret financial statements?			0.6467	
10.Design a product or service that will satisfy customer needs and wants?*				
11. Estimate the amount of start-up funds and working capital necessary to start my business?			0.6229	
12. Clearly and concisely explain verbally, and in writing, my business idea in everyday terms?	0.4102			
13. Train employees?	0.7262			
14. Organize and maintain the financial records of my business?			0.6568	
15. Delegate tasks and responsibility-ies to employees in my business?	0.6099			
16. Deal effectively with day-to-day problems and crises?	0.5203			
17. Identify the need for a new product or service?		0.5076		
18. Network – i.e. make contact and exchange information with others?				0.6915
19. Inspire, encourage and motivate my employees?				0.7153
Cronbach’s Alpha	0.7861	0.6623	0.7629	0.6847

- Item 10 was deleted due to cross loadings.

Table 2: Initial Items for new Entrepreneurial Self-efficacy Scale

No.	How confident are you that you could successfully:	People Management	Innovation & creativity	Financial Management	Risk Management	Inter-personal skills
1	Introduce to the market an entirely new product unlike any previous product in that market	0.1699	0.5968	0.1994	0.1670	0.2431
2	Introduce to the market an entirely new product unlike any previous product in that market	0.2655	<u>0.6762</u>	0.1526	0.1729	0.0384
3	Develop new products & services on continually to keep ahead of substitutes and copycat rivals	0.1408	<u>0.4330</u>	0.1039	0.2923	0.1765
4	Creatively develop new solutions to production and operating problems to achieve breakthrough reductions in costs	0.2913	0.2092	0.3000	0.3795	0.1100
5	Creatively design marketing and promotion campaigns that capture the imagination of new customers	0.2932	<u>0.4631</u>	-0.0886	0.0371	0.2427
6	Undertake projects that are quite risky and may result in total loss of your investment	0.0064	0.3639	0.1707	0.3855	0.0287
7	Pursue new product opportunities despite that they may fail to be adopted strongly by the market	0.0656	<u>0.5147</u>	0.1170	0.2971	-0.0540
8	Deal with high stress associated with working very hard while solving personnel and other problems	0.3189	0.2786	0.0448	<u>0.4051</u>	0.1370
9	Handle the emotions associated with the risk of failure that is attached to being an entrepreneur	0.1436	0.1681	0.0315	<u>0.7145</u>	0.1009
10	Rebuild your wealth again if you were to lose it all in an attempt to be a successful entrepreneur	-0.0728	0.2171	0.2948	<u>0.5564</u>	0.1709
11	Manage the complex financial details of a high-growth new business venture	-0.0495	0.3977	<u>0.6535</u>	-0.0468	0.1232
12	Read and interpret financial statements that indicate the health (or not) of a business venture	0.0480	0.0009	<u>0.7444</u>	0.0182	0.0535
13	Raise investment funding from external investors, perhaps in multiple rounds of financing	0.0421	0.2095	<u>0.4470</u>	0.2450	0.3778
14	Manage the working capital needs of a new business venture by ensuring that customers pay for their purchases in a timely manner	0.1526	0.1763	0.2357	0.2616	0.1857
15	Monitor cash balances continually to ensure that the business has a	0.1778	0.0255	<u>0.6763</u>	0.0843	-0.0146

	sufficient safety margin in case of sales fluctuations					
16	Recruit, hire and train new people to be productive and effective employees	0.3869	-0.0300	0.0553	0.1209	<u>0.6117</u>
17	Supervise employees to ensure that they work hard and productively in the business	0.3402	0.0799	0.0297	0.1506	0.0906
18	Delegate tasks and responsibilities to employees in your new business venture	0.1355	0.1140	0.2118	-0.0754	<u>0.5380</u>
19	Inspire, encourage and motivate my employees to work as a team to fulfil the objectives of the firm	<u>0.5277</u>	0.2481	0.0562	-0.0487	0.2306
20	Mentor junior managers so they may ascend to higher positions of responsibility in the firm	0.2911	0.2103	0.0435	0.2235	<u>0.6335</u>
21	Get others to identify with and believe in my vision and plans for a new business	<u>0.5020</u>	0.1358	0.0960	0.2591	0.3736
22	Clearly and concisely explain verbally, and in writing, my business idea in everyday terms	<u>0.4306</u>	0.0841	0.1333	0.0323	0.0142
23	Engage in networking activities to make contact with and exchange information with others	<u>0.6476</u>	0.2746	0.0399	0.0483	0.1950
24	Communicate with customers and suppliers to ensure they are happy in their relationship with the firm	<u>0.6718</u>	0.1546	0.0376	0.0698	0.2174
25	Entertain potential investors, suppliers and customers such that they are pleased to do business with you	<u>0.4816</u>	-0.1012	0.1996	0.3379	0.1732

Table 3: Items Retained in the Survey for the Second Test

ITEM	Inter-personal skills	Financial management	Innovation and creativity	Risk management	People management
1.Introduce to the market an entirely new product unlike any previous product in that market	0.2101	0.2191	<u>0.5709</u>	0.1932	0.2319
2. Introduce an innovative new business model that serves the market in a quite different way to existing firms in the same industry	0.2892	0.1840	<u>0.6362</u>	0.2001	-0.0217
3. Develop new products & services on continually to keep ahead of substitutes and copycat rivals	0.0597	0.0837	<u>0.5777</u>	0.2276	0.1733
5. Creatively design marketing and promotion campaigns that capture the imagination of new customers	0.3257	-0.0609	<u>0.4686</u>	0.0473	0.2229
6.Undertake projects that are quite risky and may result in total loss of your investment	0.0510	0.2005	0.2525	<u>0.4423</u>	0.0011
8. Deal with high levels of stress associated with working very hard while solving personnel and other problems	0.3916	0.0697	0.1683	<u>0.4586</u>	0.891
9.Handle the emotions associated with the risk of failure that is attached to being an entrepreneur	0.1180	-0.0339	0.1900	<u>0.6731</u>	0.0837
10. Rebuild your wealth again if you were to lose it all in an attempt to be a successful entrepreneur	-0.0020	0.2923	0.1387	<u>0.5916</u>	0.1407
11.Manage the complex financial details of a high-growth new business venture	0.0138	<u>0.6728</u>	0.3320	0.0975	0.0878
12. Read and interpret financial statements that indicate the health (or not) of a business venture	0.0419	<u>0.7352</u>	-0.0170	0.0282	0.0389
13. Raise investment funding from external investors, perhaps in multiple rounds of financing	0.0604	<u>0.4371</u>	0.2153	0.2670	0.3641
15. Monitor cash balances on a continual basis to ensure that the business has a sufficient safety margin in case of sales fluctuations	0.1162	<u>0.6475</u>	0.0437	0.0657	0.0042
16. Recruit, hire and train new people to be productive and effective employees	0.2741	0.0297	0.1021	0.0440	<u>0.6609</u>
18.Delegate tasks and responsibilities to employees in your new business venture	0.2121	0.2485	0.0332	0.0297	<u>0.4600</u>
19. Inspire, encourage and motivate my employees to work as a team to	<u>0.6199</u>	0.0905	0.1190	0.0401	0.1689

fulfil the objectives of the firm					
20. Mentor junior managers such that they may ascend to higher positions of responsibility in the firm	0.3401	0.0714	0.1837	0.2425	<u>0.5598</u>
23. Engage in networking activities to make contact with and exchange information with others	<u>0.7235</u>	0.0612	0.1642	0.0995	0.1587
24. Communicate with customers and suppliers to ensure that they are happy in their relationship with the firm	<u>0.6274</u>	0.0287	0.1587	0.0653	0.2583
Cronbach's alpha	0.7482	0.7064	0.7552	0.6836	0.7605

Table 4: Expected relationship between ESE factors and Entrepreneurial Intentions

Factors (Skill groups)	Growth-oriented Entrepreneurship	Independence-oriented Entrepreneurship
Innovation & Creativity	Relatively high need – growth is associated with disruptive innovation	Relatively low need – this type of activity is typically more conventional
Risk Management	Relatively high need – this type of entrepreneurship is typically more risky	Relatively low need – this type of entrepreneurship is typically less risky
Financial Management	Relatively high need – the entrepreneur must carefully monitor the financial position	Relatively low need – financial systems will be relatively simple and can be outsourced.
People Management	Relatively low need – can be delegated to senior managers	Relatively high need – entrepreneur must handle this
Communication Skills	Relatively low need – can be delegated to senior managers	Relatively high need – entrepreneur must communicate directly with stakeholders

Table 5: Potential Interaction effects between Attitudes and ESE Factors on EI

Interaction	Growth-oriented EI	Independence-oriented EI
Attitude to income x ESE-risk	Positive	Positive
Attitude to autonomy x ESE-Innovation & Creativity	Positive	Positive
Attitude to work enjoyment x ESE-People management skills	Positive	Positive
Tolerance for risk x ESE-Risk	Positive	Negative
Tolerance for conflict x ESE-communication skills	Positive	Negative

SOCIAL ENTREPRENEURSHIP AS AN EMOTIONAL PHENOMENON

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Social Entrepreneurship as an Emotional Phenomenon

The ‘complex social’ nature of the problems tackled in social entrepreneurship, coupled to low financial returns requires investigating the role of emotions in the entrepreneurship process. We first offer a novel theoretical development of the role of emotions in the context of social entrepreneurship, and test it empirically by way of the content analysis of the profiles of 1,960 social entrepreneurs. Our results confirm the pregnant role played by emotions in the process: while negative emotions trigger social problem identification and commitment to solve it, positive emotions support the individual’s entrepreneurial action as a solution to the problem.

INTRODUCTION

Social entrepreneurship (SE) distinguishes itself by its innovativeness, aiming at serving a social purpose, and “encompass[ing] the activities and processes undertaken to discover, define, and exploit opportunities in order to enhance social wealth by creating new ventures or managing existing organizations in an innovative manner” (Zahra, Gedajlovic, Neubaum, and Shulman, 2009: 519). It targets “complex” or “wicked” social problems characterized by their circular causality and complex interdependencies that make them very difficult to solve (Dorado and Ventresca, 2013). Additionally, they operate in the context of higher social and institutional barriers (Robinson, 2006). It is therefore not surprising to read that social entrepreneurs present specific personality traits, strong beliefs, as well as particular familial and professional life stories marked by significant experiences (Sharir and Lerner, 2006 ; Barensen and Gardner, 2004) accompanied by a certain set of strong emotions. This calls for further investigations regarding the role of emotions in entrepreneurial action, focusing on the particular case of social entrepreneurship.

Emotions and affect, which can be viewed as “semantically similar terms for the general constellation of individuals’ feeling responses” (Barsade & Gibson, 1998: 82), influence entrepreneurial alertness through various channels. Building on Goss (2005a and b), we argue that entrepreneurship is an emotional experience. Departing from the “normal” emotions underpinning the socially accepted order triggers “deviant” choices and actions, potentially triggering a social sanction in the form of loss of deference, that is counterbalanced by the overall positive dispositional affect of the entrepreneur. Our quest is first the identification of the emotions that will prompt the recognition of the flaws of a given routine (problem recognition). We argue that experiences inducing strong negative emotions prompt the individual to feel destabilized by a certain routine and identify its flaws (social problem recognition), the unease experienced encourages the individual to want to depart from this routine. This, combined with a general positive dispositional affect stimulates entrepreneurial action.

We first review, contrast and compare the existing literature on emotions and entrepreneurship, as well as the role of emotions in the social opportunity identification and development. Using Sonpar and Golden-Biddle (2008: 811) research protocol; we then propose to test our model by way of a “content analysis [that] is well suited to the elaboration of adolescent theories”. To this end, we proceed to the content analysis of a large multi-dimensional textual database containing the profile of 1,960 social entrepreneurs. We conclude with the possible generalizability of our findings, their limitations, and the potential for future research and entrepreneurial implications.

THEORY AND HYPOTHESES DEVELOPMENT

Social entrepreneurship opportunities

While there seems to be a form of consensus regarding the general definition of social entrepreneurship as “an ability to leverage resources that address social problems”, the literature focuses on different aspects such as social entrepreneurs’ characteristics, their activity sectors, how they operate, as well as their mission (Dacin, Dacin and Matear, 2010:

38). For these authors, social entrepreneurship distinguishes itself in terms of its context rather than representing a certain type of entrepreneurship.

Austin, Stevenson, and Wei-Skillern (2006: 6-7) distinguish social entrepreneurs in terms of the type of opportunities pursued: while commercial entrepreneurs focus on new needs, large or growing market size in a structurally attractive industry, social entrepreneurs concentrate on serving basic and long-standing needs. For Corner and Ho (2010), the nature of social enterprises’ opportunities is distinctive in two respects. Firstly, SE attempts to solve social issues (Dorado, 2006), secondly, SE emerges in a context characterized by social and institutional barriers (Robinson, 2006). Dorado and Ventresca (2013: 69) indeed purport that social entrepreneurship tackles “complex social problems” or even “wicked problems”, i.e.

“problems which are defined by their circular causality, persistence, absence of well-structured alternative solutions, relative lack of room for trial and error learning, constitutive of ‘contradictory certitudes,’ and harboring redistributive implications for entrenched interests (Rayner, 2006)”. This definition of social entrepreneurship opportunities reflects particularly well the nature of social problems and their embeddedness in a difficult social and institutional environment. As a result of the social nature of opportunities and difficult context, SE “benefits accrue primarily to targeted beneficiaries, as opposed to owners (Alvord et al., 2004; Austin et al., 2006; Mair & Marti, 2006)” (Miller, Grimm, Mc Mullen & Vogus, 2012: 618).

Because of the complex nature of social issues at stake, the a priori hostile context in which they are situated, and the returns mechanisms and incentives in place, one can confidently propose that the study of OI&D in SE is therefore likely to represent a distinctive realm within the broader field of entrepreneurship. In particular, those characteristics point in the direction of entrepreneurial trigger mechanisms that do not follow the classical economic rationality.

Emotions and entrepreneurial action

Building on Goss (2005a and b), we use the view that emotions underpin macro-social phenomena, which then translate into individuals’ emotions micro-phenomena, to support the idea that entrepreneurship is an emotional experience. According to Schumpeter (1934), the entrepreneur distinguishes herself by her deviant decisions and implementation of these, defying social order. Collins (1990) supports the idea that the social order (values, norms, power) is a macro-phenomenon underpinned by emotions. In terms of long-term emotions, routine is the reassuring feeling of security that lowers anxiety, while innovation triggers emotional distress in that it departs from the routine and triggers a social response. The social response, channeled through the communicated evaluation of choices and actions, can be positive or negative. In Sheff’s (1990) deference-emotion system, an increase in deference – i.e. the communication of evaluation by society, triggers pride and pleasure, while a loss of deference triggers shame and discontent.

Departing from the “normal” emotions underpinning the socially accepted order will trigger a deviant making and implementing of choice in the form of entrepreneurial action, triggering a social sanction in the form of loss of deference. Counterbalancing this are the motives of the entrepreneur who, additionally to the joy and pride associated to the creation of a venture,

dreams of founding a personal kingdom, and a desire to conquer, with the attached power it confers, increasing social deference.

Our quest is first the identification of the emotions that will prompt the recognition of the flaws of a given routine (problem recognition). These will then be followed by the emotions attached to the entrepreneurial motives, and associated to the making and implementation of the choice to disrupt the social routine (transforming the problem into an opportunity) in spite of the risk of losing social deference.

We argue that experiences inducing strong negative emotions prompt the individual to feel destabilized by a certain routine and identify its flaws (social problem recognition), the unease experienced encourages the individual to want to depart from this routine. This, combined with a general positive dispositional affect stimulates entrepreneurial action.

Emotions and opportunity identification and development in social entrepreneurship

Asking for a better understanding of the “thinking-feeling-doing connections” in entrepreneurship (Cardon, Foo, Shepherd & Wiklund, 2012: 7), scholars recognize the entrepreneurial process as an emotional one (Baron, 2008) and appeal for theoretical development and empirical examination. Affect in entrepreneurial context (Baron, 2008) or entrepreneurial emotion refers to subjective emotions “that are antecedent to, concurrent with, and/or a consequence of the entrepreneurial process, meaning the recognition/creation, evaluation, reformulation, and/or the exploitation of a possible opportunity” (Cardon et al., 2012: 3). Moreover, “the feelings and moods individuals experience (i.e., their affect) influence many aspects of cognition and behavior” (Baron, 2008: 328).

Affect can be more precisely defined as an “umbrella term encompassing a broad range of feelings that individuals experience, including momentary states elicited by short-term affective experiences (i.e., emotions) and affect-oriented traits, which are more stable tendencies to feel and act in certain ways (Watson & Clark 1984)” (Drnovsek et al., 2009:

192). Baron (2008) similarly distinguishes short-lived event-generated affect and dispositional long-term affect-oriented traits, which can both be either positive or negative.

Positive emotions exert strong effects on entrepreneurial alertness via creative cognition facilitating the birth of new ideas, and the broadening of individuals’ perceptual fields that increase the capacity to notice external events. In terms of active search, positive affect acts as “activator” or “energizer” of behavior. It also exerts an effect on persuasion, decision-making and formation of productive working relationships with others. Negative emotions would tend to reduce entrepreneurial alertness, active search, and entrepreneurial action. Other authors show however that negative affect could induce a greater attention to detail, more accurate memory, lower vulnerability to deception, and greater scepticism leading to creativity and increased cognition (Forgas & Eich, 2011; Storbeck & Clore, 2008).

The weight of negative experiences in the background of social entrepreneurs noted earlier however calls for a nuancing of these assumptions. Noticeably, Miller, Grimes, McMullen, and Vogus (2012) demonstrate theoretically how compassion encourages individuals to engage in social entrepreneurship. They define compassion “by its other orientation and emotional connection linking an individual to a suffering community (Goetz, Keltner, & Simon-Thomas, 2010; Lazarus, 1991; Nussbaum, 1996, 2001)” (p. 617).

Hypotheses

We go further and propose that negative emotions can be generated by events within their background – including social network (strong ties such as family, friends and work colleagues, as well as weak ties such as casual encounters (Ardichvili et al., 2003)), prior knowledge (knowledge of the world acquired through educational, work, and life experience), and personality traits (“stable patterns of cross-situational behavior” (Hampson, 2013:615)).

These deeply affect the individual directly or indirectly, bringing a social issue to his/her attention (social problem identification), and insuring that he/she will perceive the issue as something that matters and needs to be solved (commitment). Social problem identification and commitment, i.e. social alertness, combined with social entrepreneurial alertness, i.e. considering entrepreneurship as a mean to solve the social issue, transforms the latter into an entrepreneurial opportunity. Entrepreneurial alertness and action (opportunity development), requires in turn a strong background in terms of positive dispositional affect.

The model can be decomposed into three testable hypotheses:

H1: The individual's long-standing background shapes her/his positive dispositional affect, while specific events will trigger negative emotions.

H2: Negative emotions trigger social problem identification and commitment to its resolution.

H3: Social problem identification and commitment resulting from negative emotional experience, combined with positive traits-emotions results in social entrepreneurial alertness and OI&D, i.e. the use of entrepreneurship as a solution to the problem spotted.

DATA

Large organizations such as the Ashoka, the Skoll or the Schwab Foundations are internationally recognized as representative of the SE movement, and to date, provide the only reliable and extensive data source on social entrepreneurs. With over 2,000 fellows elected between 1982 and 2012 (against 190 for Schwab starting in 1998, and 163 for Skoll starting in 1999), Ashoka present the largest and oldest pool of social entrepreneurs. These represent a large sample from a large number of countries and activity areas, while benefiting from the relative homogeneity of participants going through a consistent selection process. The data is multi-dimensional in that it covers 100% of the 1,960 fellows elected over a 28-year period (1982-2009) and 67 developed as well as developing countries. Such a systematic data collection on social entrepreneurs is extremely valuable as it is rarely carried out at the national and international levels.

Ashoka select their Fellows among social entrepreneurs and provide them with a small investment, a connection to its vast network. From nomination to election, selection consists in an intensive multi-round process (Meyskens, Robb-Post, Stamp, Carsrud, & Reynolds, 2010) including visit and evaluation in their work environment, extensive series of in-depth interviews about practical implementation as well as personal background, values, motivations and aspirations, a six-person judging panel of social entrepreneurs peers, and a final executive board vote. Five criteria anchor the selection process: (1) The Knockout Test: A New Idea (*i.e.* innovative solution or approach to a social problem with a lasting change); (2) Creativity (*i.e.*, visionaries capable of engineering their visions into reality); (3) Entrepreneurial Quality (*i.e.* leaders who see opportunities for change and innovation and devote themselves entirely to it); (4) Social Impact of the Idea (*i.e.* broad local, national or international system change); (5) Ethical Fiber (*i.e.* coming across as totally trustworthy).

Data was collected from the Ashoka website (<http://www.ashoka.org>) where members of staff write and publish Fellows' personal profiles from the standardized interview framework and transformation procedure, including an "introduction" to the project, "the new idea" depicting the innovativeness of the project, "the problem" it is attempting to solve, "the strategy" adopted, and "the person". For the purpose of this paper, we only use "the person" part of the profiles, which is based on answers to the following question: "Why is the nominee personally dedicated to the issue? Please share relevant background on the person, including: her or his history of entrepreneurship (including childhood years) and the life experiences and/or insights that led to the current path. In your view, does this person have the skill and

desire to realize the vision at a large scale?”¹. The personal profiles therefore cover the personal motivations of the social entrepreneur, his/her personal life story leading to social entrepreneurship, as well as his/her future prospects. As the process of OI&D represents the encounter and interaction of the entrepreneur with her environment, personal profiles represent a suitable source of information for the study of such a process. They are durable, representative of real phenomena, and re-analyzable (Krippendorff, 1980).

We acknowledge that this sample presents a built-in selection bias towards successful social entrepreneurs. This however serves the purpose of our study, as we need to be able to observe both opportunity identification and development. We interpret our results accordingly.

We gather 1,960 written texts (from 800 to 2,500 words each) in the narrative form, created by authors who are neither the research subjects nor the researchers. Scholars agree that existing data sets are “both economical and ethical” in terms of “saving public money” and avoiding “overburdening participants with too many research enquiries (...) especially if people’s identities are not masked” (Seale, 2010: 351). The public availability of the data also allows for replication and variations of the present study by any members of the research community. While the data has been collected neither by officials nor by researchers but by Ashoka staff members, the transparency of the organization in terms of the selection process and information publication allows having a sufficient confidence in the data collection process and possible transformation procedures applied.

It is eventually possible that such data reflect more socially acceptable descriptions of social entrepreneurs rather than their true motives and characteristics. This is also likely to be the case no matter who interviews the social entrepreneurs. As soon as an individual identifies him/herself as a social entrepreneur, he/she will be inclined to stick to the socially acceptable definition of social entrepreneurship, and recording his/her life stories is likely to be subject to this recurrent bias. Firstly however, what is published as his/her life story, though partial, is very likely to reflect what the social entrepreneur would like to tell about himself/herself. Atkinson (2001: 136) reminds us that “people cannot be, and don’t need to be, under oath when telling their life stories. Realistically, life story interviewers should remember that it is possible that what they are getting from those they interview is not the whole truth. They can be pretty sure, however, that what they are getting are the stories respondents want to tell. That in itself tells us a good deal about what we really want to know. Second, the resulting analysis is interesting because it will inform us about the characteristics of such accounts, which represent social entrepreneurship as a social construct, the result of the conversations between different economic, politic and social institutions including the entrepreneurs themselves, and the reflection of the entrepreneurs’ identity (Downing, 2005).

METHODOLOGY

Vaughan (1992) underlines that theory elaboration is “the process of refining a theory, model or concept through qualitative data analysis in order to specify more carefully the circumstances in which it does or does not offer potential for explanation” (p. 175). We follow Sonpar and Golden-Biddle (2008) content analysis protocol to test our infant theory of the role of emotions in OI&D in the context of social entrepreneurship.

We identify concepts inductively by deriving them from the data, using a readily available dictionary so as to ensure consistency in criteria to analyze textual data, and using a computerized package (Tropes) so as to ensure reliability and systematic treatment for the analysis (scientific robustness). Identification of meaningful relationships between concepts is done through frequency counts as well as keywords and key categories put in context via the presentation of verbatim examples (relationship identification). The third element involves

¹ Questionnaire used to submit fellows’ nomination, <http://www.tfaforms.com/198579%20> retrieved on July, 22nd 2013

“establishing trends and differences across levels of analysis” (Sonpar & Golden-Biddle, 2008: 807), which we achieve by using data on a large number of different organizations observed at different points in time and across a large variety of countries (boundaries identification). Content analysis allows tapping into unobservables, property that is highly valuable when it comes to explore a theory involving cognition and emotions that are two variables or concepts of interest that are generally difficult to observe directly.

It requires a qualitative semantic research software performing text analysis – the Tropes software², providing numerous advantages such as the possibility to see a text unit in its context, strengthen the validity of the inferences that are being made from the data (Stemler, 2001), define categories maximizing mutual exclusivity and exhaustiveness, search for a priori unknown relationships and linkages within textual material with an unbiased representation (Weber, 1990), obtain a better scoring for entire large database, and have higher reliability, precision and speed than human coding (Neuendorf, 2002).

Our methodology comprises four main steps: (1) textual data presentation, (2) identification of main themes from the data, isolating the theme of interest, i.e. emotions, background, and social problems/entrepreneurial opportunities, (3) exploration of the theme covering emotions, and (4) identification and qualification of the relationships to be tested (H1, H2 and H3). The first three steps allow preparing the material for step four.

RESULTS

Data fitness for purpose: Life stories, background and social entrepreneurship opportunities

We first study the form of the general textual data presentation, and analyze text style and frequent word categories. Using Tropes, we obtain a representation of the context and structure of the texts studied. We confirm the narrative dimension of our data, where “verbal acts consist[s] of someone telling someone else that something happened” (Smith, 1981). Profiles originate from life stories, are psychosocially constructed, based on objective (71.4%), rather than subjective elements (18.2%) (McAdams, 1996), although not told by the actant (81.3% of He/She), and written for third-party readers. Factive verbs (59.5%) such as “be, work, become, begin, do, help, take, create and start” produce a dynamic staging reinforcing the narrative style. These profiles are structured with dates (time: 35.4%) and places (place: 15.4%), while insisting on manner (21.2%) and intensity (17.5%), underlining the personal and professional resume nature of the texts.

We then extract the main themes (reference fields) emerging from our textual.³ We obtain 167 themes characterizing the main topics of our data. In descending order of frequency, the top 4 themes are *education*, *social group*, *family*, and *time*. This, coupled with the resume structure of the profiles, allows us to confirm our data as a collection of life stories, which are supposed “to originate within the family, to involve growth and expansion in the early years, to locate later problems in early dynamics, to incorporate ‘turning point’ moments or ‘epiphanies’ that leave their mark on subsequent events” (McAdams, 1996: 308).

Secondly, our data offer a large quantity of information which helps identify the themes that are likely to illustrate the entrepreneurs’ background, and the social issues/opportunities at stake. The identification of these themes constitutes a prerequisite for the identification of relations between background, emotions, social alertness, and social entrepreneurial alertness. The main themes that relate to the entrepreneur’s background as composed by prior knowledge, social networks, and personality traits are *education*, *family*, *social groups*, as well as *behavior*. The main theme of *education*, clearly qualify prior knowledge, while the

² Tropes software was developed by Pierre Molette and Agnès Landré on the basis of the work of Rodolphe Ghiglione (<http://www.semantic-knowledge.com>)

³ Exhaustive results not reported here but available upon request.

themes *social groups* and *family* depicts the social network of the entrepreneur, and his/her personality appear in the theme *behavior*.

Personality traits depict the usual pattern of behavior of the entrepreneur in certain situations, and stems from her/his experiences which are often influenced by the behavior of others. The social networks refer both to the entrepreneur's experience with and within peer groups at work, to others from which the entrepreneur learns, and to communities the entrepreneur wishes to help. It however also relates to learning experiences, and the existence of role models in the family, with numerous references to the entrepreneur's parents, as well as their spouse and offspring. Prior knowledge includes parental education, schooling and training, as well as work, employment and labor that provide experience.

Four main social entrepreneurship activity sectors also stand out as primary themes: *education*, *health*, *politics* and *environment*, with respective ranks of 1st, 5th, 14th and 33th. While three of them perfectly fit with the Ashoka's sectors classification ("Learning and Education", "Health" and "Environment"), *politics* include both "Human Rights" and "Civic Engagement", and no particular emerging theme represent the sector of "Economic Development" homogeneously. We choose to illustrate this activity sector with selected related themes, without being exhaustive.

Emotions as a main emerging theme

We consider the computerized unconstrained emergence of the top 16th theme *feeling* as a solid result that validates the quantitative and qualitative significance and relevance of emotions as a central theme in the profiles of social entrepreneurs, supporting our proposition that emotions play a major role in OI&D. We propose a more detailed analysis of the theme *feelings* using the Tropes concept scenario and present the results in Table 1.

[Insert Table 1 about here]

Feelings are classified into "positive" (15 sub-categories and 1 691 occ.), "negative" (18 sub-categories and 664 occ.) and "a priori undetermined feelings" (5 sub-categories and 422 occ.). Interestingly, the number of occurrences for positive feelings outweighs the number of occurrences for the negative feelings, and supports the view that these are predominant in social entrepreneurs' profiles. *Friendship* comes in first position (with 641 occ.), and entrepreneurs are depicted as important actors in their friends circle; consequently, they are supported by their friends who become natural business partners or, inversely, business partners are taking an important place and are easily qualified as friends.

They show *love and affection*, as well as *admiration and liking*, *sympathy and compassion*, or *sensitivity and perceptivity* towards their close circle of family and friends. Fuelled by personal experience or heightened emotional intelligence, entrepreneurs demonstrate great empathy which provide them with *hope and optimism*, *desires*, *joy and happiness*, *enthusiasms*, *passion*, *pleasures*, and *envies*. These positive feelings lead them to *fearlessness*, *gratitude*, and *pride*, which serve as stepping stones, allowing them to learn, grow, and share their experience with others.

Noticeably however, harmful experiences, mistakes, or more generally negative feelings, directly or indirectly experienced, are also a pathway to growth and achievement. *Discontentments*, *pains*, or the *difficulty* they feel create an acute awareness of a specific situation. The first reaction to a negative event can take various forms from *despair and resignation* to *culpabilities*, through a range of different emotions. Some react with *fears and apprehensions*, *astonishments and surprise*, *anger and indignation*, *hates*, *dislikes*, and *nervousness*, while others seem temporarily felled with *melancholy and sadness*, *expectations*, *embarrassments*, *skepticisms*, *solitariness*, and *unpleasantness*. Profiles refer to witnessed or

experienced events as having played a major recurring role in their life. Some entrepreneurs expressed a relation between a precise moment in their lifetime, a specific event they consider as very important, as the turning point at which they have changed perspective. Moreover, entrepreneurs seem to be affected similarly by direct or indirect negative experiences, i.e. personal experiences as well as family, friends, or community experiences.

The category of “a priori undetermined feelings” expresses the same main idea with the five similar and rather neutral terms: *feel*, *feeling*, *emotionalities*, *emotions*, and *sentiments*. It refers to the entrepreneurs’ past direct or indirect experiences of deep emotions as illustrated by the verbatims in the Table 1.

Background and emotions

The next step of our empirical analysis entails determining the themes that are closely linked to feelings, as well as identifying the nature of those links. We identify relations between the different themes via the co-occurrence frequency existing between the various themes, i.e. the number of times two themes are associated, i.e. found in the same proposition, in the textual data, using the Tropes software. The sense of causality as well as the nature of relations will have to be confirmed by way verbatims’ analysis. To insure both sufficient coverage as well as tractability of the analysis, we choose to systematically include the first 20 themes bearing relations with a given central theme.

The first hypothesis stemming from our model is that the individual’s long-standing background shapes her/his positive dispositional affect, while specific events will trigger negative emotions. We identify the relations between the theme *feeling* and other themes, ranked by frequency level. We find that that background components, added or taken separately (*behavior*, *social group* and *family*, *education and learning*, *employment and work*), bear the strongest relations with feelings. Consequently, we identified a significant link between background and emotions. Furthermore, the long-standing background, as a source of continuity enrolled in the duration, implements the initial conditions for developing positive dispositional emotions; a contrario, the experience or the witnessing of an event, as a shorter-term situation or action, strongly affect the individual negatively, as a trauma stored in his/her memory. This is further confirmed and refined when analyzing verbatims extracted from the data. According to our model, we present an analysis declined into positive and negative feelings expressed by the social entrepreneurs (Table 2).

[Insert Table 2 about here]

First focusing on positive feelings, we show that the relation initiated by the individual’s background and the benevolent behavior of others, through the cognitive process, results in positive dispositional affect. What is particularly evident is that the relationship between the individual and members of his benevolent background is generally recurrent, medium- or long-term, to give rise to positive personality-traits related emotions.

Turning now to negative feelings provides another perspective. While the process follows a similar path, the individual’s background and behavior combined with the behavior of others trigger negative emotions via the cognition process. We recurrently observe that those negative emotions are triggered either by punctual events that the individual directly experiences, or by recurrent witnessing of a particular issue.

Negative emotions and social alertness

Our second hypothesis is that negative emotions trigger social problem identification and commitment to its resolution. We now identify the emerging relations between the themes depicting the social issues spotted by entrepreneurs (education, health, politics, economic

development, and environment), and other themes. We explore the relations of each of these issues with other themes ranked from the highest to the lowest co-occurrences, taking the theme *transports* as an illustration for “economic development” which does not itself appear as a homogeneous theme in the data.

From the analysis it stands out that background themes such as *education*, *family*, *social group*, *organization*, *location*, and *behavior* all bear a significant relationship with each type of social problems identified, strengthening the relevance of our proposed model. Additionally, the theme of *feelings* also stands out as an important co-occurrence of the different types of social problems spotted. Combining our previous results showing the relationship between the background and feelings with those new observations allows us to say that there exists an evident and significant relationship between the background, the emotions and social alertness.

So as to be able to qualify and detail this relationship, we proceed to the analysis of verbatims extracted from these relations. We present this in Table 3.

[Insert Table 3 about here]

The stories extracted show clearly that negative events, or transitory (recurrent or not) life episodes in the background of entrepreneurs triggered negative emotions, whether this is expressed explicitly or implicitly.

In turn, confirming our hypothesis H2, those negative emotions spark the social problem recognition, and often give rise to an open statement about the entrepreneurs commitment to solve it.

Social alertness, positive emotions, social entrepreneurial alertness and OI&D

Our third hypothesis proposes that social alertness, combined with positive traits-emotions results in social entrepreneurial alertness and OI&D, i.e. the use of entrepreneurship as a solution to the problem spotted. We already gathered that emotions displayed strong relations with the themes depicting the activity sectors, suggesting a relationship between emotions and social alertness, but also between emotions and social entrepreneurial alertness and OI&D. We now choose verbatims identified through those relations to analyse the qualitative relations, and display these in Table 4.

[Insert Table 4 about here]

We still patently observe that negative emotional events sparked social alertness, and are now able to add that positive emotions clearly lead entrepreneurs to change a given situation, their own life trajectory, and implement their own values.

Validating our third hypothesis, we observe that social entrepreneurs show commitment and provide a concrete entrepreneurial solution to the social problem identified as an opportunity to develop.

DISCUSSION

The rapidly developing literature on social entrepreneurship presents the phenomenon as integral part of and, sharing numerous characteristics with regular entrepreneurship, while underlining the specific nature of social entrepreneurship opportunities that represent “wicked” problems, embedded in contexts of high institutional and social barriers, and which resolution translate into benefits mostly accruing to beneficiaries rather than the entrepreneur herself. In parallel, social entrepreneurs are depicted as individuals with specific personality traits and beliefs, who have followed special life paths tainted by deeply marking experiences.

To date however, we know very little about the process through which individuals spot and commit to solving complex social issues through entrepreneurship for generally little financial returns. These recent developments call for further investigation regarding the process of opportunity recognition and development in the context of social entrepreneurship.

Building on Goss (2005a and b), we argue that entrepreneurship is an emotional experience. Departing from the “normal” emotions underpinning the socially accepted order triggers “deviant” choices and actions, potentially triggering a social sanction in the form of loss of deference, that is counterbalanced by the overall positive dispositional affect of the entrepreneur. Our quest is first the identification of the emotions that will prompt the recognition of the flaws of a given routine (problem recognition). We argue that experiences inducing strong negative emotions prompt the individual to feel destabilized by a certain routine and identify its flaws (social problem recognition), the unease experienced encourages the individual to want to depart from this routine. This, combined with a general positive dispositional affect stimulates entrepreneurial action.

We suggest first that an individual’s background and context will trigger both negative and positive emotions. Second, significant negative emotions will lead to the social problem identification and commitment (social alertness). Third, the combination of social alertness with strong positive traits-related emotions will trigger entrepreneurial alertness and action (OI&D) to solve the problem.

Building on this, we test our model by way of a computerized content analysis of textual data composed of the personal profiles of a large sample of successful social entrepreneurs. By definition, our data encapsulate the background of the entrepreneur, while making reference to the social problem spotted and entrepreneurial opportunity developed. The computerized content analysis using a standard English thesaurus allows main themes to emerge without imposing a specific scenario. As a first strong result validating the pregnant presence of emotions in the entrepreneur’s background, *feelings* emerge in the top 20 themes with 1,552 occurrences appearing in our 1,960 profiles. Beyond the numeric importance of emotional accounts in the entrepreneurs’ profiles, the detail of the results shows the richness and the variety of emotions at play in the entrepreneurial process. Positive emotions clearly dominate, with, in particular, a strong emphasis on *friendships*, *hope & optimism*, and *desires*. Negative emotions represent a large minority, characterized in particular by *discontentments*, *pains*, and *difficulties*. Our second important result resides in the identification of the different sources for positive and negative emotions. It appears that the positive feelings expressed in the profiles stem mostly from the long-standing background of the entrepreneur, while negative feelings relate to direct event-specific experiences or recurrent indirect exposures to “wicked” problems. Thirdly, we are able to show that social problem identification and commitment to its resolution occurs via the negative emotions triggered in such a context. Finally, we show that in turn, positive dispositional emotions are the key to the identification and use of entrepreneurship as a tool to solve the spotted problem, leading to entrepreneurial action.

Our study contributes to the literature in several respects. We first contribute to the social entrepreneurship literature by demonstrating its specificity in terms of the entrepreneurial process: it is a process led first by negative emotions that underpin the problem recognition process, then by positive emotions that gear the individual toward recognizing entrepreneurship as a solution to the social problem. Second, we contribute to the general entrepreneurship literature and show the central role of emotions in the process, while refining our understanding of the potential effect of negative emotions. Indeed, while the context of social entrepreneurship allows us to present a showcase of the effect of negative emotions in the entrepreneurial process because of the nature of the opportunities, context, and motivations, our results can be transposed to other entrepreneurship contexts such as hostile

contexts in developing, transition, or recession economies, and combined with the increasing evidence of non-financial motivations that lead to entrepreneurship.

The strength of our methodology rests on the computerized analysis of one of the largest textual database containing the profile of social entrepreneurs, combined with the qualitative analysis of verbatims used for sense-making. We acknowledge however that the use secondary data could bias our results and reflect socially acceptable accounts of social entrepreneurs' profiles. As we still know very little about the role of emotions in entrepreneurship in general, and more particularly in the context of social entrepreneurship, our study represents an interesting first step towards the understanding of the complex interplay of positive and negative emotions in entrepreneurship, and calls for further research and fieldwork in this area.

For social entrepreneurs, one of the implications is the co-incidence of mission and deep-rooted affect as insurance for long-term commitment and success, because this co-incidence transforms into motivation and good knowledge of the problem to solve. This is particularly important when dealing with complex social problems.

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TABLES

Table 1: Feeling theme: Categories, Sub-Categories, Occurrences and Verbatims

FEELING	
Total of Occurrences	Ranking of occurrences
Reference Fields (1 552)	<i>Category 'Positive feelings': 15 sub-categories (1 691 occurrences)</i>
	Friendships (641) Hope & optimism (291) Desires (266) Love & affection (132) Joy & happiness (86) Admiration & liking (61) Enthusiasms (60) Sympathy & compassion (54) Passions (46) Pleasures (22) Sensitivity & perceptivity (21) Envy (4) Fearlessness (3) Gratitude (3) Pride (1)
	<i>Category 'Negative feelings': 18 sub-categories (664 occurrences)</i>
	Discontentments (137) Pains (123) Difficulty (102) Despair & resignation (66) Melancholy & sadness (66) Fears & apprehensions (38) Astonishments & surprise (29) Anger & indignation (23) Expectations (20) Embarrassments (14) Hates (13) Skepticisms (13) Dislikes (10) Solitariness (3) Unpleasantness (3) Nervousness (2) Culpabilities (1) Ingratitude (1)
Concept Scenario (2 777)	<i>Category 'A priori undetermined feelings': 5 sub-categories (422 occurrences)</i>
	Feel (319) Feeling (44) Emotionalities (39) Emotions (14) Sentiments (6)
Verbatims	<p><i>"The victims were all neighbours, all his friends' parents"; "Her interest in adolescent sexuality developed as she witnessed friends suffering because of teenage pregnancy, abortions"; "Gradually, Phantip overcame a sense of low self-esteem and, with the support of her friends and family, developed into a community leader"; "Prima and some friends set up the Tourism and Environment Study Group"; "I always felt myself an entrepreneur"; "He bore the emotional scars of a long, hard war"; "A prostitute herself at the age of seventeen, Claudia knows firsthand the physical and emotional trauma of this activity"; "He has a strong sense of empathy with both the joys and hardships of living on the street"; "Hyronimus was encouraged by both his grandfather, a traditional healer, and his father, a paramedic, to find ways to help others, a mission he never forgot"; "Andy has an almost visceral desire to alleviate needless suffering, an understanding of nature as both our guide and our responsibility"; "As a young woman, Diva's activism in Catholic youth groups and community work led to a passionate interest in human rights issues, especially where these involved women, blacks and the labor movement"; "Drawn by a love for discovery, creative learning and children, Jonny left his career in academic sociology to teach at a local township school"; "Frustration at the limitations inherent in the Secretariat's methodology resulted in his forming the Ubuntu Institute"; "Her indignation and frankness in dealing with what she encountered led Mirian to start down the path she is on today"; "His anger and need for revenge intensified after he was incarcerated"; "Because of her family background, she also experienced the pain and destructive force of prejudice and discrimination"; "The consequent shock of his blindness left Setya in a state of despair, unsure of himself and his future"; "With a right-wing government coming to power, Teesta grew disturbed by the discourse of violence and terror"; "The horrors he witnessed at this facility convinced him there was a desperate need to address disability rights as a human rights issue".</i></p>

Table 2: Verbatims illustrating the relations between background and feelings

POSITIVE FEELINGS			
Background	Benevolent behavior of self or of others	Cognitive process	Positive dispositional affect
<i>a remarkable change in Winnie's personality and self-confidence</i>	<i>a remarkable change in Winnie's personality and self-confidence</i>	<i>John witnessed (...) which, in turn, generated</i>	<i>his own enthusiasm for the project</i>
<i>for a number of years he was in charge of this political party's television spots</i>	<i>belonging to a progressive opposition political party</i>	<i>He hoped</i>	<i>At that time, [Carlos] hoped that [this] would help him fulfill his goals</i>
<i>As [Itamar] describes, living in the favela in those days</i>		<i>did not mean (...) but instead instilled</i>	<i>did not mean an end to one's happiness, but instead instilled a strong sense of</i>

			belonging.
When he was growing up in Madaripur (...) Fazlul's father, a religious man of principle active in both the law and local public life (...). A bachelor veterinarian deeply interested in public issues and an admirer of the leaders of the struggle for independence from Britain (...) And a childless, refined Hindu lady	several unusual people helped start him on his course (...), set an example and gave him, (...) spent hours and hours talking with him, (...) took him into her home almost as a member of the family without a mention that he was a Muslim.		his strong self-confidence
a monk counselor at the monastery	helped Ashok	accept his identity	encouraged him to help other homosexuals
NEGATIVE FEELINGS			
Background	Negative behavior of self or of others	Cognitive process	Negative event-generated emotions
"[Charlie] left the music field to work more directly on creating bridges between disenfranchised sectors of society.	the despair and alienation he saw among young people	Troubled by the despair and alienation he saw among young people	Troubled by
As a child [Cristina] made constant trips with her family to Bolivia's undeveloped countryside (...). This was an unusual vacation habit.	The racism (...) towards indigenous people	she learned to respect and admire She saw [racism towards indigenous person]	left her indignant and anxious
	classmates murdered during violent political clashes on campus	He watched (...) and saw how much	disturbing incidents affected the learning atmosphere and morale of other students
Since [Maher] was 12, he contributed to his family's income as an agricultural worker.	(...) not being covered or protected by labor laws (...). (...) the miserable aftermath of accidental death, causing families to be grief-stricken and shattered economically with no legal and health protection to help them rebound.	He came to know (...) He saw (...) He witnessed (...)	He (...) came to know well the injustices (...)
From the earliest years of his life	Carlos suffered from violence and abuse both in his household and the world around him.	He turned to violence because he thought it could solve his problems.	His anger and need for revenge (...)

Table 3: Verbatims illustrating semantic relations between negative feelings and social alertness

Opportunity	Negative emotions	Cognitive process	Social recognition problem	Commitment to social problem
EDUCATION	This experience gave Saïdou a poignant understanding	Understanding of	the fundamental unfairness of inhibiting the natural desire for learning in anyone, female or male.	Saïdou's dedication to improving education access for girls
HEALTH	Magdaleno was profoundly influenced by the death of his younger sister, who was taken from her family as a teenager by the state, institutionalized, and went on to become a drug addict.	profoundly influenced	his younger sister, who was taken from her family as a teenager by the state, institutionalized, and went on to become a drug addict	He became determined to prevent this fate from befalling other troubled youths.
POLITICS	During his detention, he was tortured with everything from electric shock to choking to assault with wooden and iron sticks	This inspired him	In jail he met many prisoners with similar cases (...) This inspired him to study law	and challenge these arbitrary actions in the courts.
ECONOMIC DEVELOPMENT	His mother was a housewife who ran her own small clothing business from the home. Her contributions to maintaining the family through the earnings generated from her own microenterprise awakened Salomon to the significance of home-based economic activities. When business started to go bad as a result of the devaluation of Venezuelan currency, he decided	awakened Salomon to the significance He saw again the importance	He saw again the importance that credit had within these indigenous communities	Salomón formed the nonprofit organization Fundefir to test his Bankomunal concept in small, indigenous Venezuelan towns.

	<i>to study the situation of indigenous groups living in petroleum-producing areas.</i>			
ENVIRONMENT	<i>Honza still remembers how angry and powerless he felt vis-a-vis the incomprehension and arrogance of the people who managed to push through (...) From such emotions, after much struggle</i>	<i>he came to the conclusion that</i>	<i>From such emotions, after much struggle, he came to the conclusion that the harmony and beauty of the countryside where he grew up does not have to be the source of nostalgia and sadness</i>	<i>the harmony and beauty of the countryside where he grew up does not have to be the source of nostalgia and sadness... His determination stems from his refusal to accept the present inconsiderate and unsustainable levels of consumption, his refusal to believe that people will not change their attitudes.</i>

Table 4: Verbatims illustrating semantic relations between social alertness, positive feelings, social entrepreneurial alertness and OI&D

Opportunity	Social alertness via negative emotions	Positive emotions	Cognitive process	Social entrepreneurial alertness and social OI&D
EDUCATION	<i>Gerardo lived in an urban neighborhood surrounded by a difficult environment. He witnessed directly the destructive conditions of urban poverty and its consequences.</i>	<i>His interest in children</i>	<i>He witnessed directly (...) He began to work to change these social conditions.</i>	<i>He established his own organization to implement the next generation of ideas he had gradually created and sharpened in his mind.</i>
HEALTH	<i>Born in the village Padampur of Siraha district, Nepal, Renu felt at an early age a need to help the poor and diseased that she saw in her village. She felt that the national health services are not only insufficient but also inappropriate for rural communities [and that] there was a need for efficient health education programs (...)</i>	<i>She was admitted to the Institute of Medicine (...) and (...) went to the Moscow Medical Institute in Russia to follow her dream.</i>	<i>She has interacted (...) and has increasingly felt (...) She decided (...) to overcome (...). She placed a high priority (...).</i>	<i>Guided by this philosophy, Renu established the Women's Rehabilitation Center in June 1991, and has since provided leadership to this service-oriented, citizen organization in her capacity as executive director.</i>
POLITICS	<i>(...) abhorrence for colonialism and injustice (...)</i>	<i>(...) his cultural pride (...)</i>	<i>Brendan brings (...)</i>	<i>Brendan brings (...) to his work in defense of indigenous rights in the Peruvian Amazon.</i>
ECONOMIC DEVELOPMENT	<i>While Atumasa had come from a poor family (...) During one of the conferences, Atumasa grew so frustrated (...)</i>	<i>Schooling, determination, and talent propelled him to the top of his field.</i>	<i>Atumasa saw (...) This endeavor engaged him (...) His work (...) showed him</i>	<i>He founded MicroManos, a company designed to create dignified work opportunities for the Latinos (...) helplessly hoping for work. MFIC was thus born in 2004.</i>
ENVIRONMENT	<i>However, he was not satisfied with the faculty's single focus on how to get better poultry, stronger milking cows, more protein-strengthened beef, etc.</i>	<i>Suryo's love for nature and its animals (...) He successfully sustained his interest in wildlife (...)</i>	<i>He learned (...)</i>	<i>In 1985, he returned to East Java to start environmental education and to launch his vision of a model approach to educating Indonesians to their environmental situation.</i>

FACTORS AFFECTING LIKELIHOOD OF MICRO FAMILY BUSINESS SUCCESSION WITH HIGH POST-TRANSITION PERFORMANCE

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Factors Affecting Likelihood of Micro Family Business Succession with High Post-Transition Performance

Abstract

In this study, we seek to investigate family and identify factors affecting business succession with high post-transition performance. The case of micro family businesses in Thailand was used as a unit of analysis. A conceptual framework was developed from the literature and the succession process drawn from in-depth case studies. The determinants of family business succession are successor related factors, relationship factors, and knowledge transmission. The study provides qualitative and quantitative assessment of the proposed framework using four case studies of family business succession and forty eight family business responses collected from two business clubs. The results indicate support for the proposed framework. Successor-related factors and relationship factors are important factors affecting micro family business succession. Of these factors, external preparation through working experience has strong relationship with business succession towards high post-transition performance.

Introduction

It is clear that succession or leadership transition process in family businesses is a long-term process. In the process, there are many factors preventing family business succession such as individual factors, relation factors, context factors, financial factors, and process factors (Massis, Chau & Chrisman, 2008). Even though comprehensive concept models of succession process have been developed, it still requires empirical testing (Sharma, 2004). Especially for micro family businesses, family business research lack of empirical studies due to their vulnerability and perceived as traditional and conservative. It is important to note that while micro businesses account for 80-90% of total number of business enterprises or more in most of countries in the world, 30% can survive to the second generation and more than 10% to the third generation.

This exploratory study aims to identify and investigate factors affecting likelihood of micro family business succession towards high post-transition performance. In this research, a micro family business is characterized by family's involvement in the business, number of employees less than 10 people, and informal management style of the owner(s). We offer an answer to the central research question: *What make a family succeeds in passing down to the next generations towards high post-transition performance?*

Literature Review

Family business succession is generally defined as the passing of leadership baton from the founder-owner (incumbent) to a successor, who will either be a family member or a non-family member. The succession is not limited to whether the successor has been designated as a president, business continuity, quality of life, and family dynamics are also critical to the success of succession process. The outcome after transition is called as "post-transition performance", which can be measured by the financial outcome after transition (Morris et. al., 1997). The success of succession process in this study is considered by two aspects, the fully transfer of managerial control from the incumbent to successor and the post-transition performance which is measured by financial performance indicator such as sale growth (Covin & Slevin, 1990).

In the process of succession, the actions, events, and developments affect the transfer of managerial control from one family member to another (Sharma et al., 2001). Typically, successors do not assume leadership of a family business at a particular moment in time. It requires process of preparation and transition which takes time over years and often decades (Handler, 1990). It is considered as a multi-stage process that involves an increasing participation of the successor and a decreasing involvement of the incumbent until real transfer takes place (Longenecker et al., 2009).

The key variables or constructs in the literature that are predicted to result in superior succession performance can be categorized into three broad categories: (1) the successor related factors; (2) relationship factors; (3) knowledge transmission factors. Figure 1 presents a conceptual framework of factors affecting family business succession with high-post transition performance. Successor related factors consist of preparation level of successors, successor's willingness to take over, and successor's commitment to family business (Morris et al., 1997). Relationship factors consist of relationship between successor and incumbent, relationship between successors and family members, and relationship between successors and other stakeholders. Knowledge transmission is an ability to create, share and transfer knowledge across generation.

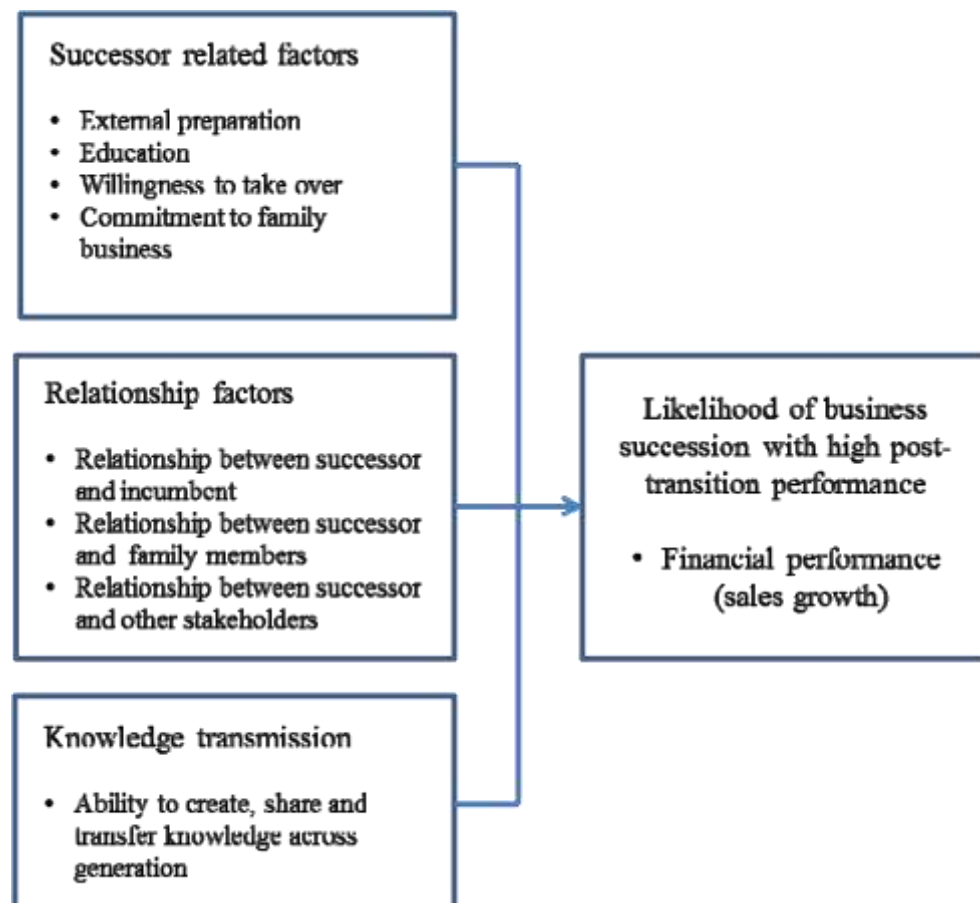


Figure 1: A proposed conceptual framework

Successor Related Factors

Preparation Level of Successors

Preparation of successors is crucial for family businesses. The more the educational level is high, the more the post-transition performance is high (Morris et al., 1997). The successor should have a formal education, regularly attended business related-courses and seminars, so they would probably be more competent and ready to increase the revenue and profit of the family business and ensure its continued successful performance. Similarly, if successors worked elsewhere before joining his/her family businesses, he or she is likely to gain self-confidence and credibility regarding his/her abilities, and generally earn respect and support from non-family employee.

Successor's Willingness to take over

The successor's interest and willingness to take over the family business play an important role to the success of succession process. The three factors that have a positive relationship with successor's willingness to take over are the rewards from business, the personal need alignment, and the incumbent's trust in successor's ability (Dumas et al., 1995; Stavrou, 1999).

The compensation successors will gain from involvement in the business both monetary such as financial security and nonmonetary such as the enjoyment, personal satisfaction is the factors that induce them to join family business (Fox et al., 1996). The next generation family member will have a positive succession experience if the following three needs have been satisfied, namely, career interest needs, psychosocial needs, and life stage needs.

Stavrou (1999) indicated that there is a positive correlation between business size and intentions of successor to join the family business. The successors whose parents owned larger businesses tended to be more inclined to join business. It can be suggested that the alignment of career interests of successor with opportunities available in business has more positive influence on successor's willingness to take over business.

The reluctant of incumbent to let go business is another obstacle for succession. This may be underpinned by feelings of doubt about the successor's ability, willingness and desire to take control. The study of Sharma (1997) confirms that a positive relationship emerged between trust that the founder had in successor's capabilities and the propensity of the successor to take over the business.

Successor's Commitment to Family Business

Although successors' commitment toward family business has been identified as the most important successor's attribute (Chrisman et al., 1998), commitment has been treated as uni-dimensional construct in family business research. On the other hand, the construct of commitment has received significant research attention in the organizational behavior literature. Drawing on the organizational commitment literature, Sharma and Irving (2005) seek to understand the attitudes that compel next-generation members of family business to pursue careers in their family business. They proposed four mind sets of successor commitment to family firm.

The first type of mindset is “desire.” Successor will display affective commitment when they are based on a strong identification and emotional attachment with the business, combined with desire and ability to contribute. They perceive that career values are aligned with family business opportunities. Affective commitment has the strongest positive relationship to discretionary behaviors on the part of successors that lead to effective functioning of family business.

The second type is mindset of obligation or normative commitment. Successors will have a sense of ought or they have been socialized to follow such career. Although they are not convinced that joining family business was the good decision, they felt “need” or “unable to let the family down.” This normative commitment has a strong positive relationship to discretionary behaviors that lead to effective functioning of family business.

The third is mindset of “have to.” Successors will display calculative commitment to pursuing a career within the family business when they perceive significant accumulated investments in their family business or potential for high emotional costs of not pursuing a career in family business.

The last type of mindset is “need to.” Successors will display imperative commitment to carry on family business when their reason for pursuing a career family business is based on their self-doubt and uncertainty of their ability to successfully work outside business. When decision to pursue career of family business is motivated by mind sets of calculative or imperative commitment, successors are likely to devote minimal efforts to business which negatively related to discretionary behaviors that lead to the effective functioning of the family business.

Relationship Factors

Relationship between successor and incumbent

Quality of relationship between incumbent and successor is a critical determinant of the success of succession process (Chrisman et al., 1998; Brockhaus, 2004). Successors who have positive working relationship with their incumbents indicated desirable effects on their experience in the family business including enrichment, growth, and further strengthening of the relationship (Handler, 1991). A high quality relationship is characterized by a high level of trust, mutual support, open and earnest communication, and willingness to acknowledge each other’s achievements (Harvey and Evans, 1995). Similar to the study of Morris et al. (1997), the most critical issues in relationship are trust and affability. Trust is characterized by openness and honesty among family members, as well as confidence in family member’s reliability and integrity. It can be associated with such quality as consistency, competence, fairness, responsibility, helpfulness and benevolence. Affability is concerned with mutual respect between incumbent and successor.

Relationship between successors and family members

Handler (1991) studied intra-generation relationship and indicated that an individual’s relationship with siblings and other relatives involved in business can impact on their quality of experience in family business. These relationships were experience positively to the extent that there was sibling accommodation which is defined as agreement on relative positions of responsibility and power in the family business. However, working together with other

siblings gave the impression of a team and was some degree of sibling rivalry. The more siblings can accommodate rather than conflict with one another in family business, the more likely it is that the individual will have a positive succession experience. In other words, when family members support themselves mutually and work together in coherent way, they are more likely to transfer the business to the following generation in more effective way (Venter et al., 2005).

Relationship between successors and other stakeholders

In addition to relationships with the family members, the relationship with the stakeholders such as customers, suppliers, bankers, and associations are also important. The successor which is accepted by the firm's stakeholders is likely to get legitimacy due to the development of strong ties between them and bring to the success of the transmission. In this perspective, with strong ties with the family project's stakeholders, he may obtain their help, collaboration, knowledge and resources that allow him to acquire tacit knowledge relating to the family project and to learn the required skills necessary to ensure his new role. Relationships between the successor and stakeholders that are characterized by respect and mutual understanding improve communication flows and ensure that important information and resources are shared between them.

Knowledge Transmission

A major challenge facing the family firm is the succession process. One reason for this challenge might involve successor's ability to acquire the incumbent's key knowledge and skills adequately to maintain and improve the organizational performance of the firm. Louise research (Louise, 2007), affirmed that knowledge transfer is the most incumbent's concern in small and medium sized family businesses. Family firms can create well performance over time when the second generation is integrated into the family business and the transfer of knowledge from the previous generation to the next takes place (Cabrera-Suarez et al., 2001). The second generation has to add new knowledge and offer new perspectives in family business. In this respect, family firm's specific knowledge, as well as the ability to create and transfer it, is considered a key strategic asset that may be positively associated with higher level of performance (Kellermans et al., 2004).

Methodology

To answer the research question, the case of micro family businesses in Thailand is used to provide insights and investigations using both qualitative and quantitative assessment. The insights from the case studies of successful family business transition and the literature provide in-depth understanding of each proposed factors affecting family business succession. The case studies were selected by purposive and snowball method. Four successors who are actively involved in the business and fully own management control were interviewed. It provides a foundation for developing investigative questions and measurement scales in the questionnaire.

We tested the questionnaire through pilot interviews with 10 micro business successors and conducted a survey with 100 micro business owners/successors who are members of two entrepreneurial business clubs in Thailand. We received responses from 50 firms, a 50 percent response rate, and followed up with telephone interviews to clarify the managerial role of successors in making decisions in the family businesses. For the analyses, we included

only firms that undergone succession from incumbent to successor in the three years prior to the survey. Based on this criterion, 48 firms were chosen in this study.

Case Studies of micro family business succession

We interviewed incumbents and successors of four selected micro family businesses with successful leadership transition longer than two years. We examined the succession experience of four selected micro family businesses to identify factors that strongly affected the succession process and post-transition performance. The cases include VS Solid Tire, Varaporn Sompong Food, Poon Suchon, and Thai Silp Factory. All case studies have succeeded the transition to the next generation, but only three cases achieved high post-transition performance except Thai Silp Factory.

Case 1: VS Solid tire

VS Solid Tire, a forklift tire manufacturer, is a successful case of micro businesses. The company was founded in 2000 by a school teacher who turned himself to be a production manager of a solid tire factory. After several years of experience, he quit the job and decided to start his own small solid tire business. In the first five years of business, the founder faced many problems in quality of production and financial management. To move the business forward, the successor decided to quit his job and started working in the family business. The reason he joined the family business is a belief in career potentials and financial returns rather than an obligation in doing so. With an education background in industrial engineering and two years of experience as a production manager in a large solid tire factory, he could turn around his father's business by improving the quality of products and solving many manufacturing problems in the production line.

The successor admitted that he rarely consulted the problems with his father due to the fact that he perceived his father's knowledge in production operations are not sufficient. With his dedication in doing business, the business performance has tremendously improved from the outset. In his opinion, the most important thing that brings a high growth in his business is capability to use of his technical and business knowledge and experiences gained from outside to continuously improve the production process and quality of products. The sales volume increased from 10 million baht per year with 10 workers prior to his engagement to 134 million baht with almost 100 workers at present. The father appointed the successor to become Managing Director and reduced his role in making decisions in the business.

Case 2: Varaporn Sompong Food

Varaporn Sompong Food Co., Ltd. was found by Mrs. Varaporn Suthanya who started making steamed buns and family's recipe for her own kids. Later on it turned out to a small family business selling steamed buns. Prior to participation of her successors, the business run only one shop located at the first floor of her small commercial building, with only three unskilled employees. The successor who is the eldest son of the family, took over the business after 6 months experience in automobile sales executive. He quit the job and decided to help his mother running the family business. He believes that working for his family business will allow him much more time to take care his wife and children. He had strong determination to grow the business. Although having some disagreement with his mother, it was only about the business issues. From the close relationship within the family, they always communicate everything with each other.

The second branch was opened five years later after he joined the business. He believed that the success of his family business resulted from his willingness to change. Despite the financial constraint, he decided to launch the second branch as a prototype. He wanted to test his hypothesis. If it went well, he will expand the business by this model. Within five years, the business expanded from 2 to 40 branches operating in 2012 with 1,000 percent sales growth. The factory was relocated from a small commercial building to a larger place with 100 workers. Currently, three family members are participating in the family business (including the successor). The successor has undertaken full management control with supports from his two brothers. His mother had stepped down from the business.

Case 3: Poon Suchon

Poon Suchon founded in 2000 as a small curtain making shop run by the founder and four sewers. Most of the customers are retail customers and from word of mouth. The business earned only 100,000 baht in sales per month. The eldest daughter of the family took over the business without hesitation after graduation. She realized that it was her responsibility for taking care of the family. She did not expect high remuneration from the business, but she committed herself to the business. Her parents strongly supported her and handed over management control within a short period of time and welcomed her new initiatives. They always encourage and allow her to explore a new way of doing things.

What the successor learned from helping her parents in the business since childhood contributes to her business perspective. She realized that if she followed the same process of doing business, she needed to spend her weekend measuring the curtain at customers' places. So they reinvented the business model from made-to-order to ready-made products, "Roman curtain," which the concept was new to the market at that time. Instead of selling at the shop, she proposed the new product to large hypermarkets. The first ready-made roman curtain was placed in the retail markets through all hypermarkets and department stores in Thailand. Currently, she has her own factory employing 70 workers and generating 70 million baht of total sales annually.

The successor believes that her commitment to the business is the most important factor that leads to high growth performance. Good relationship between her family and the biggest wholesale fabric supplier supports her new venture when credit terms are needed. Good relationship with employees supports her product quality and production capability. Also, her education background in economics helps her in making decision.

Case 4: Thai Silp Factory Co., Ltd.

Thai Silp is a small jewelry manufacturer founded by a Chinese family. The founder has strong intention to transfer the business to his eldest daughter. After graduation in Business English from the university, the eldest daughter took over the business from her father. Even though she has been familiar with the family business since her childhood, she has not directly involved in the family business or gained any working experience outside. Her father did not transfer knowledge in doing the business to her. Indeed, her relationship with the incumbent is not smooth, and she never asked any supports from her father. However, her relatives who involve in business become her advisors.

A key issue is that the business serves only one customer for 30 years. Profitability of the business has declined for more than 10 years after her succession. Her role in the business is

to manage skilled workers to deliver products on time. Senior staffs do not trust her decision because she lack of work experience and education background in the business. She attended many courses such as jewelry design and mini business administration program, but it is difficult for her to apply knowledge to the business. As a leader of the family, she starts worry about the future of the business. She is wondering that it might be better for her if she should start other things she loves to do. Currently, she has received more orders from a new customer, but she still feels uncertain in pursuing the family business.

Results and Implications

The results from four case studies assert that successors of micro family business who have high external preparation and relevant education are likely to create a successful transition with high post-transition performance if they are able to apply knowledge and experiences to the family business. Successors who decide to take over micro family businesses with willingness and affective or normative commitment are more patient and generally have the spirit of entrepreneurship to achieve business goals. Relationship between incumbents, family members and successors influence successful transition, but it depends more on successors' competence and business vision to create high post-transition performance. Ability to innovate and formulate business strategies are more important than the ability to create, share, and transfer knowledge across generation.

For all variables used, cronbach's alpha reliability coefficient shows a high value of 0.856. It indicates very good internal consistency of items in the scale. Table 1 shows ten common themes or constructs revealed by factor analysis. The constructs consist of relationship between successor and family members, willingness and education, external preparation and work experiences, responsibility in family business, affective or normative commitment, relationships between successors, incumbents and stakeholders, and cooperation with incumbent used as the factors affecting family business succession of micro family businesses in this research. Internal reliability of each construct is at the level for identifying the factors.

Regression analysis was applied to investigate the relationship between all ten constructs as independent variables and sales growth obtained from the questionnaire survey as dependent variable toward high post-transition performance. The results of regression analysis were obtained by controlling years of management and types of business. Table 2 shows that sales growth is positively influenced by only 'work experience' at 95 percent confident level or $p < 0.05$.

Conclusions

Business succession in family business depends on prior knowledge and experience of successors, relationships with incumbents, family and stakeholders in the businesses, and transfer of knowledge and skills for running the business. The case of micro family business succession in Thailand was investigated and focused on high post-transition performance. The results show that family business transition in micro family business is influenced by successor related factor and relationship factor. Ten constructs are revealed from the results of analysis. To achieve high post-transition performance, successors require external preparation in order to increase innovative capabilities and apply managerial experiences to the businesses. Small number of samples from the data collection is a weakness of the analysis. The next step is to expand the sample size to verify the analysis of the results.

Table 1: Factor analysis

Rotated Component Matrix ^a										
	Components									
	Family Members Relationship	Willing and Educated	Work Experience	Psychological Ownership	Responsibility	Normative Commitment	Calculative and Imperative Commitment	Supporter	Incumbent and Stakeholder Relationship	Cooperation with Incumbent
RelaFM2	.956									
RelaFM4	.951									
RelaFM1	.931									
RelaFM3	.912									
Trust1	.879									
Will4		.852		.241					-.212	
Will3		.781			.282			.207		
Prep3		.762	.270							
Will1		.664				.410				
Will5		.660						.238		.204
Educ2		.636	.351						.314	
Educ1	-.213	.596	.244					-.366		
Will2		.570	.242	.276	.250			.236		
Prep5			.893							
Prep6			.835							
Prep1		.379	.798							
PsychoOwn1		.315		.869						
PsychoOwn2	.310			.785				.221		
AffCom4				.692		.241			.204	.276
AffCom3				.527	.769					
NorCom1					.706	.285			-.285	
Prep4		.369	.270		.681				.224	
NorCom2						.846				.269
NorCom3					.265	.752	.355			
ImpCom1				-.237			.827			
CalCom1		.285		.231			.792			
Employ1				.205		-.225	.249	.787		
Prep2	.238	.258				.360		.619		
RelaStake2					.391		-.335	.599		
RelaInc1									.890	
RelaStake1	.243	.297			-.233	-.353			.558	
RelaInc2										.924

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 a. Rotation converged in 9 iterations.

Table 2: Results of Regression Analysis

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	-71.648	61.201		-1.171	.250
YrsOfManagementAuthority	57.494	19.355	.440	2.971	.005
Family Members Relationship	-12.007	19.849	-.087	-.605	.549
Willing and Educated	14.339	18.087	.104	.793	.433
Work Experience	48.949	18.997	.356	2.577	.014
Psychological Ownership	-3.784	17.933	-.028	-.211	.834
Responsibility	32.409	18.457	.236	1.756	.088
Normative Commitment	-10.928	18.062	-.080	-.605	.549
Calculative and Imperative Commitment	-23.221	18.525	-.169	-1.254	.218
Supporter	25.245	18.552	.184	1.361	.182
Incumbent and Stakeholder Relationship	-23.577	18.189	-.172	-1.296	.203
Coperation with Incumbent	-28.977	18.406	-.211	-1.574	.124
BusType	28.654	23.960	.184	1.196	.240

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INNOVATION PERFORMANCE: A MULTIDISCIPLINARY APPROACH

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Innovation Performance: A Multidisciplinary Approach

Abstract

Innovation is increasingly being promoted as a basis for organisation success, although previous studies aimed at exploring this concept remain fragmented. Indeed, a recent meta-analysis by Crossan and Apaydin's (2010: p. 1164) goes so far as to suggest that "*no overarching framework of innovation determinants*" exists. Based on bibliometric analysis (by citation impact) of *innovation performance* literature over the last 13 years, this paper consolidates the state of academic research on four prominent constructs that have been previously linked to innovation performance outcomes; (1) ambidextrous innovation strategy; (2) open innovation; (3) interactive performance measurement and; (4) management support for innovation. To better explain their effect on innovation performance outcomes, five hypotheses have been theoretically developed, with a focus on indirect/complementary effects between these constructs. This approach to theory-development begins to address the criticisms noted by prominent researchers in the area. Accordingly, due to the numerous constructs in the innovation literature, this paper seeks to encourage more refined (performance-grounded) criteria for comparing their validity and relevance. It is also argued that an increased emphasis on complementary interactions between dissimilar organisational practices is necessary to the advancement of the field.

Introduction

Evidence shows that over the long-term, organisations that are not involved in innovative activity have made an unintentional decision not to stay in business for long (Schwab et al., 2012). Despite the positive outcomes observed in practice however, literature on innovation practices and innovation management suffers from disciplinary fragmentation and a lack of concerted theoretical efforts to assimilate and explain the varying factors that are responsible for performance (Crossan and Apaydin, 2010). Innovation typologies have abounded within the extant literature, with innovation being conceptualised across a range of different types including 'radical, incremental, evolutionary, disruptive, discontinuous, explorative, technical' (Garcia and Calantone, 2002). These various typologies have, however, failed to sufficiently differentiate from one another, possibly as a result of the numerous and dissimilar discourses, bringing perspectives across various units and levels of analysis (Danneels and Kleinschmidt, 2001). Seemingly separate theoretical foundations have resulted in ambiguities in causal relationships. Innovation-relevant aspects have been framed as independent variables, dependent variables, mediators and moderators. The varied labels, typologies and taxonomies have generated considerable incongruity in empirical results and obscurity in their interpretation (Rosenbusch et al., 2011). For inclusive purposes, innovation has been defined broadly here as the "*production or adoption, assimilation and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome*" (Crossan and Apaydin, 2010, p. 1155).

Aims and Purpose

Crossan and Apaydin's (2010) recent analysis of 525 reviews and meta-analyses, highly cited papers, and recent papers on innovation found that innovation research was largely fragmented, *lacked interconnectedness* and was poorly grounded theoretically. The impetus for this research stems from the disconnected nature of innovation literature and the demand for a more holistic

viewpoint on innovation. In an attempt to encourage the evolution of a more integrative and organised innovation literature, a number of innovation researchers have expressed the need for more cross-level and multi-construct - structural equation modeling - theory development and testing. Referring to sets of business practices as ‘capabilities’, O’Cass and Ngo (2011, p. 1326) argue that “...*capability–capability combinations are vital factors influencing marketplace performance.*” The complementarities or interactions between various innovation practices have the potential to explain performance better than any single innovation practice (Widener, 2007). It is also generally well-accepted that innovation constructs are inter-dependent (Goodale et al., 2011); however, for the large part, it is unclear whether these different constructs are substitutable or complementary.

This is problematic because the resulting frameworks and theory development are in large driven by innovation constructs which may indeed have been demonstrated to have an influence on some type of organisational outcome but may not be significant enough to influence innovation *performance*. In other words, the dependent variable used in these studies had not been linked with performance outcomes (Kianto et al., 2010). Goodale et al. (2011) tested five previously established determinants of ‘intrapreneurship’ against innovation performance, and found that only two of the five determinants actually had effects on innovation performance (and only moderate effects). Although the other three determinants (work discretion/autonomy, rewards/reinforcements and time availability) had been the source of multiple frameworks and literature this study demonstrated that their effect was not significant enough to influence innovation performance. The advantage of testing innovation constructs against performance outcomes resides within the fact that these outcomes demand more effective innovation practices than would otherwise be accepted by the literature.

The theoretical imperative for this research thus resides in the theoretical linkages or interrelations between key innovation-related constructs and innovation performance. Subsequent research into complementary effects that are empirically grounded in performance outcomes should offer opportunities for overarching and holistic frameworks of innovation to develop. Adopting this research path begins to address the criticisms noted by Crossan and Apaydin (2010) and others. Of foremost importance, this may positively contribute to the fragmented and disconnected nature of contemporary innovation theory by helping compare and consolidate the empirical work of multiple innovation authors. The structure of this paper begins with a discussion on the methodology adopted, before proceeding to a synthesis and review of each construct selected as part of the theoretical development. This is followed by the development of an extended modeling of these relationships accounting for the complementary effects between these constructs. Five key hypotheses are developed to guide future research on the comprehensive modeling of direct and complementary relationships between these constructs and innovation performance. The study concludes with a discussion about the relevance of this research and future research directions.

Methodology

A comprehensive search using bibliometric analysis (based on citation impact) was conducted across four innovation-relevant disciplines, namely innovation management, corporate entrepreneurship, management accounting and open innovation. Through bibliometric analysis citations can be counted as measures of the usage and impact of the cited work (Moed, 2005; Garfield, 1988). For two main reasons, the threshold chosen for research here narrows the list of constructs to only those with over 300 citations. The first reason for this number concerns the fact that there are numerous innovation constructs emerging daily, of which only a very few are

cited more than two hundred times (Fagerberg et al., 2012). The second reason relates to the fact that literature on innovation is still in its infancy and constructs that have been cited over 300 times can be argued to hold some degree of importance within the literature. Accordingly, based on the rationale outlined in the introduction, three new criteria were employed; (1) constructs had to be empirically related to performance outcomes (firm and innovation performance) in a previous study (as determinants); (2) constructs had to represent different innovation practices and; (3) constructs had to be at the firm-level (as opposed to individual or project-level). Sources were limited to peer-reviewed journals because these can be considered validated knowledge and are likely to have the highest impact in the field (Podsakoff et al., 2005). EBSCOHost, Wiley, Emerald and ScienceDirect were the chosen databases offering some of the most comprehensive sources of peer-reviewed journals in the social sciences. For added relevance to the contemporary environment, the search for constructs was limited to the time-frame: 2000 - 2013. The search comprised the phrase “innovation performance” and was searched for across all fields. In summary thus, the constructs selected had to be; (1) performance-linked (2000-2013); (2) dissimilar across practices; (3) firm-level and; (4) cited over 300 times. The results of the initial search yielded the results noted in table one.

Table 1 - Search for "Innovation AND Performance"; 2005-2013

Database	Source Results
EBSCOHost	1127
Wiley	823
ScienceDirect	1456
Emerald	868
Total	4274

From this list, the number of quantitative and mixed-methodology studies in which innovation or innovation performance is the outcome variable was 438. This number appears small in comparison to total sources but is explained by the fact that some articles appear across all four databases, while other articles are based in exploratory and theoretical methodologies. From this narrowed list of 438 articles, four constructs - ambidextrous innovation strategy, open innovation, interactive performance measurement and management support for innovation – were identified as meeting the remaining three criteria.

Theoretical development and hypothesis formulation

Building from the selection of these constructs, additional searches were conducted on the origins and research behind each. With the focus on performance linkages, a synopsis of previous research on each construct has been compiled. The four constructs covered in this section, include: (1) ambidextrous innovation strategy (Atuahene-Gima, 2005); (2) open innovation (Laursen and Salter, 2006); (3) interactive performance measurement (Henri, 2006b) and; (4) management support for innovation (Goodale et al., 2011). Starting with ambidextrous innovation strategy, the constructs are reviewed sequentially with the intent of providing an overview of the construct and empirical evidence supporting its relationship with performance.

Ambidextrous Innovation Strategy

Innovation strategy relates to the specific activities organisations adopt in order to generate new products or services, adapt existing offerings, and search for new markets - in pursuit of competitive advantage (Morgan and Berthon, 2008). Extensive literature also demonstrates a clear distinction in innovation strategy, between ‘explorative’ and ‘exploitative’ type strategies (Morgan and Berthon, 2008). Bercovitz and Feldman (2007, p. 932) describe exploitative

innovation as “*represent[ing] the refinement, extension, and intelligent use of existing competencies*”. Exploratory innovation, on the other hand, refers to developing new products or services and technologies, which may have the capacity to make existing offerings non-competitive or obsolete (Hernandez-Espallardo et al., 2011).

An emerging area of recent academic scholarship, however, concerns the capacity of organisations to simultaneously adopt and balance both types of innovation strategy, through an ambidextrous approach involving both explorative and exploitative innovation activities. This approach, on the one hand, allows some organisational units to pursue new markets or customers through developing new products and services (exploratory innovation). Concurrently, other organisational units can utilise existing knowledge to develop the current offering of products or services for their existing customers (exploitative innovation) (Jansen et al., 2006).

Ambidextrous innovation strategy has been demonstrated to consistently have positive effects on both innovation performance and firm performance. He and Wong’s (2004) landmark study of CEOs operating in the manufacturing industry, confirmed the ambidexterity hypothesis. Their results showed that there is a positive interaction effect between explorative and exploitative innovation strategies on firm performance, and that the relative imbalance between explorative and exploitative innovation strategies is negatively related to firm performance. In a large-scale survey of 227 Chinese electronics organisations, Atuahene-Gima (2005) further revealed that ambidexterity is positively associated with radical innovation performance.

Open Innovation

Henry originally phrased the expression “open innovation” to explain innovation processes in which businesses interact comprehensively with their environment, resulting in above average external knowledge exploration and exploitation. Chesbrough (2003) recommends an open innovation paradigm where organisations commercialise external and internal knowledge by establishing outside (as well as inside) roads to the market. Open innovation has most recently been explained from a process perspective and defined as “*systematically performing knowledge exploration, retention, and exploitation inside and outside an organisation’s boundaries throughout the innovation process*” (Lichtenthaler, 2011, p. 77).

With regards to performance outcomes, there is significant evidence showing that organisations involved in technology alliances perform better than those that do not initiate or participate in collaboration - in terms of innovation performance (for an overview of this research, see Laursen and Salter, 2006). Most recently, Parida *et al.* (2012) empirically tested four aspects of ‘inbound’ open innovation. These include scouting, sourcing, horizontal collaboration and vertical collaboration. Using a sample of 252 Swedish technology based SME’s, they further demonstrated that each of these aspects is related to some form of innovation – either radical or incremental, with scouting and sourcing significantly related to both. These findings mirror earlier findings by Laursen and Salter (2006) who revealed that inbound open innovation activities are significantly related with innovation performance.

Interactive Use of Performance Measurement

Interestingly, the relevance of ‘control’ to innovation was highlighted almost 40 years ago. Greiner (1972) offered a model of company growth that has become a classic (Greiner, 1998) where growth combines long periods of evolution with short periods of crisis and revolution. The first of these crises happens early on in the life of a company; during its startup stage. This ‘crisis of leadership’ stems from the breakdown of clan/personnel control and the need for management control systems. Building from this idea, Peters and Waterman (1982) asserted that the best-performing companies had simultaneous “*loose-tight*” properties, where the firm is “*rigidly*

controlled, yet at the same time autonomy, entrepreneurship and innovation from the rank and file is encouraged" (p. 318).

In the pursuit of these 'loose-tight' properties, Simons (1995) earlier empirical work led to the development of the Levers of Control (LOC) model. This model created a paradigm shift when it identified one particular control system - *interactive control systems* (ICS) – as a tool to engage the organisation in the exploration of strategic uncertainties; thus, developing a concept in the management control literature whose purpose was to create (rather than eliminate) the strategic variation required for innovation. Management control systems (MCS) are defined broadly as - "*formalised information-based routines and procedures that managers use to maintain or alter patterns in organisational activity*" (Simons, 1995, p.5). It is worth noting here that the focus in this paper is narrowed to one particular management control system – namely performance measurement. Ramos and Hidalgo (2003) studied the effects of interactive use of performance measurement on strategy and behaviour, inside a Spanish ceramic tile manufacturing company. Interviews with management revealed that the use of performance indicators as an interactive control instrument resulted in positive behavioural effects in nearly all the areas, and that the criteria on which their growth was based had changed to more accurately reflect the strategy, as well as identify strategic uncertainties.

Management Support for Innovation

A significant number of studies have documented that senior management is responsible for around 5–20 per cent of variance in firm profitability (Crossland and Hambrick, 2007). Mumford and Licuanan (2004) point to the importance of management in not only supporting and directing activities that promote innovative initiatives, facilitating effective interactions between team members (West, 2002), but also cultivating conditions for the subsequent implementation and commercialisation of innovation. Empirical support is not in short supply when examining previous studies. Antoncic and Hisrich (2001), for example, revealed that management support for innovation was significantly and positively associated with intrapreneurship, which was in turn positively related to firm growth in the U.S. and Slovenia. Holt et al. (2007), on the other hand, found that among 11 different constructs covering individual, contextual and process levels of analysis, management support had the most significant relationship with three innovation-relevant capabilities - innovativeness, proactiveness and risk-taking. Most recently, Goodale et al. (2011) conducted a quantitative study of the manufacturing industry and found a significant relationship between management support for innovation and innovation performance, bridging the important gap in the literature between innovation-relevant capabilities (proactiveness, innovativeness, risk-taking, self-renewal, new business venturing) and innovation performance.

Hypotheses Development

The Complementary Role of Interactive Performance Measurement

Henri (2006a) surveyed 383 Canadian firms operating in the manufacturing industry. Henri (2006a) revealed that in a culture that is supportive of innovative initiatives, performance measurement was more likely to be used interactively. In his study of 383 Canadian firms in the manufacturing industry, Henri first classified firms into a dichotomy of; (a) flexibility-dominant type and; (b) control-dominant type, according to their organisational values/culture. A flexibility-dominant type culture was defined broadly as representing cultures that promote flexibility values such as spontaneity, change, openness, adaptability, readiness to attain growth, innovation, creativity and responsiveness – all of which are tapped into by the management support for innovation construct (Goodale et al., 2011).

Henri (2006a) next revealed that top management teams of firms reflecting a flexibility-dominant type tend to use performance measurement for focusing attention and strategic decision-making to a greater extent than firms reflecting a control-dominant type. Finally, he revealed that attention-focusing and strategic decision-making use of performance measurement are associated with greater diversity of measurement (e.g., measurement of non-financial indicators as well), thereby concluding that firms with a flexibility-dominant type culture tend to be associated with interactive use and greater diversity of measurement, than firms with a control-dominant type culture. Based on these findings it is argued that in a culture supportive of innovation, performance measurement is more likely to be used interactively, and to be used far more frequently in an interactive manner. A focus on innovation has the potential to remove the emphasis from diagnostic uses and shift it to more organic, adaptive and interactive uses.

H1a (direct effect): the more management support for innovation is provided, the more performance measurement is used interactively.

Consequently, the more that performance measures are used interactively, the stronger the relationship between interactive PM and innovation performance is expected to be. Management support for innovation may also contribute to the design and on-going evolution of the performance measurement system through increasing emphasis (by management) on innovation-relevant performance indicators and subsequent methods for better managing the progress of innovation projects (Henri, 2006a). As management offers additional support for innovation, the focus shifts from other strategic directions such as cost efficiency and product exploitation to innovation-related directions such as differentiation and exploration (Simons, 1990, 1991, 1992). This shift in strategic direction is likely to be reflected in the performance indicators designed for the performance measurement system. Accordingly, indicators related to innovation are more likely to generate innovation outputs from employees than indicators related to strategic directions which are not concerned with innovation (Simons, 1990, 1991; Henri 2006b). Furthermore, Henri (2006b) has provided empirical evidence of a significant relationship between interactive performance measurement and innovation-relevant capabilities, while Goodale *et al.* (2011) has offered empirical evidence of a significant relationship between management support for innovation and innovation performance. It is thus proposed that interactive performance measurement will complement and improve the relationship between management support for innovation and innovation performance.

H1b (indirect effect): there is a positive indirect relationship between management support for innovation and innovation performance acting through interactive performance measurement.

In extending Henri's (2006a) argument, an organisation managing its resources in a way that ensures a sustainable balance between exploration and exploitation is likely to be more organic than an organisation that rigidly follows either one or the other. In Morgan and Berthon's (2008) study of 160 bioscience firms, market orientation was found to relate to exploitative innovation strategy, which forms part of ambidextrous innovation strategy. This means that increasing emphasis on ambidextrous innovation strategy can strengthen the firm's connection with their target market, which is then expected to lead to changes in the performance measurement system and the way it is used. Initial changes would see an increase in non-financial performance indicators, which would reflect the firm's improved connection with their target market.

Examples of such indicators include customer response time, number of customer complaints and market share (Henri, 2006a). On the other side of ambidextrous innovation strategy, as the firm becomes more responsive to their customers, indicators reflecting exploration are also likely to shift to innovation-relevant indicators such as number of new product launches, time-to-market for new products and employee satisfaction (Henri, 2006a). Such changes, as resulting from the pursuit of ambidextrous innovation strategy will demand increased management attention and increased dialogue between management and employees with regards to the achievement of these additional indicators. An ambidextrous firm is thus more likely to reflect what Henri (2006a) would refer to as an 'organic structure', which according to his study is empirically related to an increase in the interactive use of performance measurement.

H2a (direct effect): the more emphasis that is placed on ambidextrous strategy, the more performance measurement is used interactively.

Performance measurement, whether diagnostic or interactive, is most commonly used by organisations as a management control system. MCS align the efforts of diverse organisational actors and reduce coordination and information processing costs, through the explicit negotiation of local aims, helping amalgamate and propel strategic action (Simons, 1990, 1991, 1992). Performance measurement is therefore used to maintain control over employees' behaviour so as to ensure that their behaviour aligns with the strategy of the firm. For example, in a longitudinal study Kober et al. (2007, p. 448) revealed that "*MCS mechanisms used in an interactive manner help to facilitate a change in strategy and, when a change in strategy occurs, the MCS mechanisms change to match. Taken together, these results show the two-way relationship between MCS and strategy. That is, the MCS both shapes, and is shaped by, strategy.*"

Decades of research on strategy have confirmed that the greater the alignment between employees' behaviour and firm strategy, the greater the performance of the firm (e.g., Bisbe and Otley, 2004; Simons, 1991; Widener, 2007). Taken together, these findings indicate that whichever strategy the firm may adopt, performance measurement has the potential to positively influence performance by aligning employee behaviour with strategy. However, it is worth highlighting that with the addition of interactive use, performance measurement further allows management to "*focus attention on strategic issues*" (Simons, 1992, p.45). Interactive use opens up dialogue between lower-level employees and management in the process of setting and adapting performance indicators. This dialogue can often have the potential to shift the strategic focus in a way that better aligns with the external environment (Henri 2006a, b); through tapping into knowledge of employees who are closer to the end consumer. Combining the improved strategic focus with the increased alignment between employee behaviour and strategy, it is expected that the pursuit of ambidextrous innovation strategy will be more successful. In other words, simultaneously balancing exploitative and explorative strategies is expected to contribute more to performance when performance measurement is used interactively.

Based on this argument and the fact that ambidextrous innovation strategy and interactive use of performance measurement have significant and positive influences on innovation performance (Tushman et al., 2004) it is expected that an interactive use of performance measurement will complement and improve the relationship between ambidextrous innovation strategy and innovation performance.

H2b (indirect effect): there is a positive indirect relationship between ambidextrous innovation strategy and innovation performance acting through interactive performance measurement.

Empirical support has been provided for the notion that the more open a firm is to outside knowledge and technology, the more knowledge about the external environment is absorbed by the firm (Parida et al., 2012). The amount that is absorbed may depend on the firm's absorptive capacity (Lane et al., 2006) but arguably, at least a *little* knowledge is absorbed. The absorbed knowledge, particularly surrounding the marketplace, the competitive environment and trends, can all form part of the evolving interactive performance measurement system. When the performance measurement system is indeed being utilised in an interactive manner, new information about the changing external environment is absorbed by the firm and incorporated into the evolving performance measurement system (Henri 2006a). This means that old indicators and objectives of performance are replaced by new ones, to reflect the changing strategy - which is being adapted to the newly absorbed information about the external environment. In this way, the firm utilises new knowledge obtained from open innovation activities in order to adapt to the changing external environment and remain competitive. By the same rationale in H2a, increases in open innovation activities and subsequent knowledge are thus likely to result in proportional improvements in the performance measurement system - as the system becomes better adapted to the external environment (through increased knowledge about that environment). These improvements in the performance measurement system are expected to comprise of an increase in interactive use or a complete shift from diagnostic use to interactive.

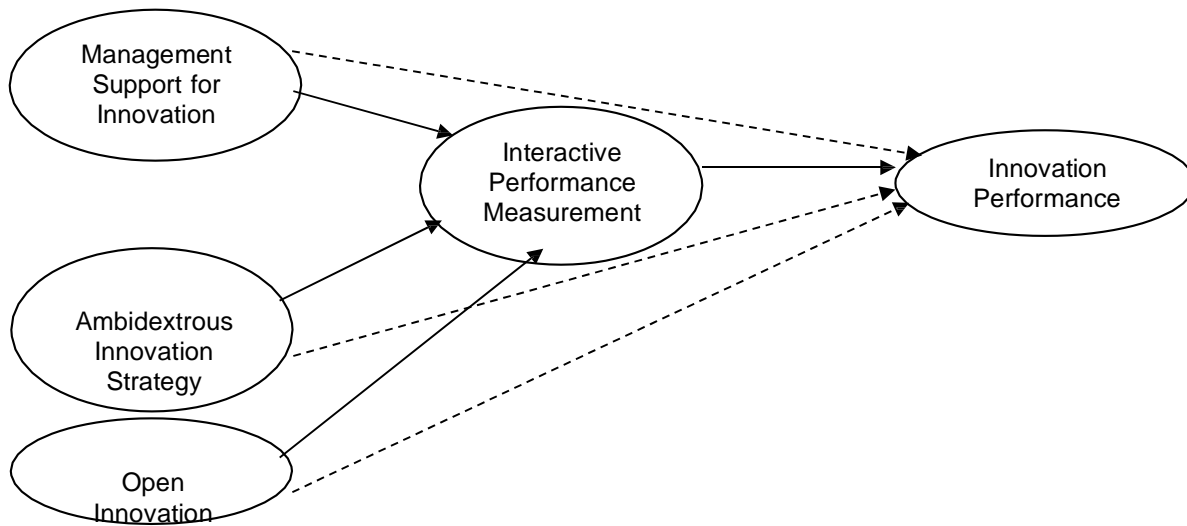
H3a (direct effect): the more open a firm is to new knowledge and technology, the more performance measurement is used interactively.

In addition to positively influencing behaviour and providing increased access to important information (Bruining et al., 2004), interactive performance measurement systems are renowned for their aid in shifting strategic direction (Osborn, 1998), facilitating emergent strategies (Abernethy and Brownell, 1999; Osborn, 1998), identifying strategic uncertainties (Ramos and Hidalgo, 2003; Widener, 2007) and focusing potential (Vaivio, 1999; Widener, 2007). With greater knowledge of the external environment - via open innovation - focusing potential and shifting strategic direction to match the external environment is expected to be easier. The more knowledge that is absorbed by the firm from external sources via inbound open innovation, the more adaptable to the external environment the firm becomes – so long as the firm uses that information to adapt the strategy accordingly (Simons, 1990, 1991, 1995, Bisbe and Otley, 2004). Interactive use of performance measurement ensures successful strategic adaptation (Widener, 2007), meaning that its effect on innovation performance is expected to increase, when more knowledge is absorbed from the external environment - via inbound open innovation. Based on this argument, and the findings that both interactive use of performance measurement and open innovation have a positive and significant effect on innovation performance (Parida et al., 2012) it is expected that interactive performance measurement will complement and improve the relationship between open innovation and innovation performance.

H3b (indirect effect): there is a positive indirect relationship between open innovation and innovation performance acting through interactive performance measurement.

The dashed lines in Figures 1 and 2 represent direct relationships that have previously been observed in the empirical literature. The bold lines represent indirect relationships to be tested by the hypotheses proposed. It is expected that the indirect relationships (bold lines) moving through ‘interactive performance measurement’ will be stronger than the direct relationships (dashed lines) between each of the constructs and innovation performance.

Figure 1: Hypotheses 1 - 3



The Complementary Role of Management Support for Innovation

Culture contributes to innovation performance by helping to manage knowledge effectively (Crossan and Apaydin, 2010) and open innovation contributes to innovation performance by increasing that knowledge base (Laursen and Salter, 2006). By logical extension they are expected to be interrelated in their effects on innovation performance. To elaborate, it has been demonstrated firms that pursue open innovation activities broaden their opportunities (Laursen and Salter, 2006). As the number of network partners increases, opportunities in other industries, locations and markets open up (Parida et al., 2012). With greater opportunities, management may be inclined to follow-up on one or many of them. In comparison to firms who remain relatively closed, if management chooses to pursue one or a few of these opportunities, avenues for increasing innovation performance are likely to open up (Laursen and Salter, 2006).

Additionally, when management is taking proactive and innovative steps like this, their own perceptions of experimentation, risk-taking and innovation is likely to improve (Lumpkin and Dess, 2001). These positive perceptions are expected to translate into increased support for innovation, thereby contributing to the relationship between open innovation and innovation performance. To offer an example, studies of 252 Swedish high-technology firms (Parida et al., 2012) and 2707 manufacturing firms (Laursen and Salter, 2006) have provided empirical evidence of relationships between open innovation and innovation performance. Innovation performance requires management orientation toward and support for innovation, meaning that firm openness should also have a positive effect on management orientation and innovation.

H4a (direct effect): the more open a firm is to new knowledge and technology, the more support for innovation is provided by management.

As management perceptions of and support for innovation increases, resources are allocated more strategically, experimentation is encouraged, innovative ideas are championed and innovative activity is institutionalised within the firm's systems and processes (Goodale et al., 2011). Consequently, increases in support for innovation are likely to improve the relationship between open innovation and innovation performance (Laursen and Salter, 2006). Furthermore, management support for innovation and open innovation have both been shown to have demonstrable effects on innovation performance (Parida et al., 2012). Based on these arguments, it is expected that management support for innovation will complement and improve the relationship between open innovation and innovation performance.

H4b (indirect effect): there is a positive indirect relationship between open innovation and innovation performance acting through management support for innovation.

Pursuit of ambidextrous strategy involves a focus on both exploratory and exploitative activities (He and Wong, 2004). Nonetheless, firms pursuing innovation are typically concerned with only exploratory strategy or only exploitative strategy (Van Looy et al., 2005). Those with an ambidextrous strategy however recognise the importance of both, through an awareness of their contribution to firm processes and performance. It is argued here that an awareness of the importance of pursuing ambidextrous strategies, places greater pressure upon management to support innovation, wherever it may emerge within the firm. This pressure for increased support is argued to emerge from the irreconcilable nature of 'flexibility' needed for exploration and 'commitment' needed for exploitation (Ghemawat, 1991).

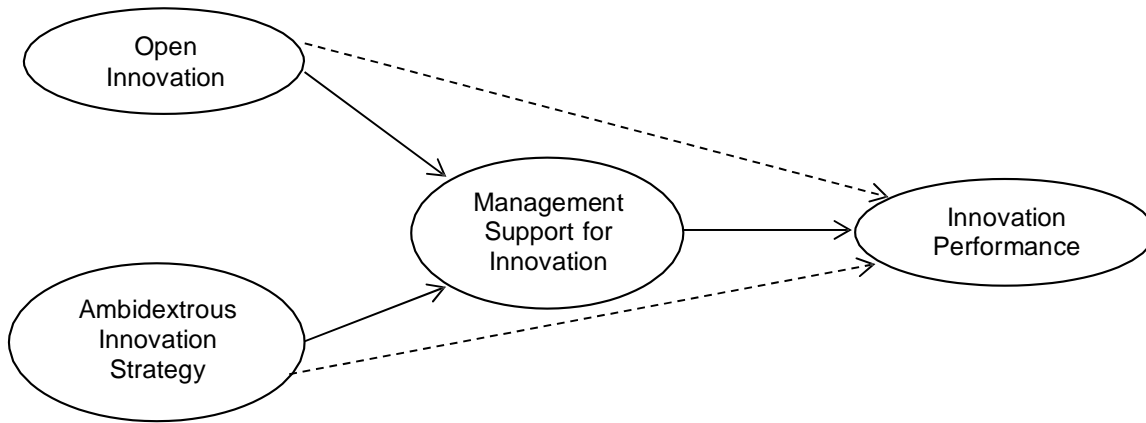
Using a game-theoretic viewpoint, Ghemawat (1991) highlights that so long as exploration is a priority a firm needs to remain flexible as to the objectives being pursued. Once committed (e.g., a firm has assumed a planned exploitation trajectory), flexibility is immediately in conflict with the dominant mode of management required for exploitative purposes. Ghemawat concludes that this paradoxical intersection of 'flexibility' versus 'commitment' is exceptionally difficult to manage and to sustain simultaneously within a firm. Furthermore, the notion of semi-structures or ambidextrous firms is diametrically opposed to the concept of internal consistency that has overshadowed the literature on organisational design for decades (Mintzberg, 1979). Given such influences and inclinations toward internal consistency, ambidextrous firms imply higher levels of managerial and organisational complexity (Van Looy et al., 2005). This requirement for increased complexity in the management of ambidextrous strategies may otherwise be viewed as increased 'pressure' on management to support innovation in all of its aspects (in order to facilitate flexibility). On the other hand, such pressure is expected to be less likely in firms which only pursue one of the two strategies. Consequently, such firms are also likely to have less management support for innovation.

H5a (direct effect): the more emphasis that is placed on ambidextrous strategy, the more managerial support that is provided for innovation.

Based on this argument and the fact that management support for innovation and ambidextrous innovation strategy have both shown to have positive and significant influences on innovation performance (Tushman et al., 2004) it is expected that management support for innovation will complement and improve the relationship between ambidextrous innovation strategy and innovation performance.

H5b (indirect effect): there is a positive indirect relationship between ambidextrous innovation strategy and innovation performance acting through management support for innovation.

Figure 2 – Hypotheses Four and Five



Discussion and Conclusion

This research has sought to contribute towards extending the theoretical basis for explaining innovation performance, opening the door for multiple lines of inquiry within and between the reviewed constructs. Furthermore, this paper unites previously fragmented literatures surrounding innovation performance. These include: *management accounting* – interactive performance measurement - (Henri, 2006b); *corporate entrepreneurship* – management support for innovation - (Goodale et al., 2011); *innovation management* – innovation strategy (Morgan and Berthon, 2008) and *open innovation* (Parida et al., 2012). Each of these disciplines is largely distinct in themselves but they all share a goal, in their attempts to explain innovation performance and consequently firm performance. In this light, their explanations may collectively be viewed as individual angles of the whole that is innovation performance, and their explanations are logically assumed to be interrelated. A concerted effort to uncover the interrelations can contribute to theory across all of the disciplines. A multi-disciplinary approach as such has the potential to bring together the core determinants of innovation and alleviate the lack of interconnectedness observed in the literature (Crossan and Apaydin, 2010).

Future Research Directions

The state of research on innovation (Crossan and Apaydin, 2010) is pointing at the imperative for authors to increasingly consider multi-disciplinary explanations. On this front, first and foremost, additional research needs to be conducted on the way in which management accounting systems such as formal control systems (Chenhall et al., 2011) and levers of control (Widener, 2007) are implicated in the relationship between innovation constructs and innovation outcomes. The strategy, structure and culture of a firm are highly amiable to adjustment, particularly by the way in which MCS are utilised (Simons, 1992). With the right configurations, management could potentially maintain control and direction of highly organic and difficult to control determinants of innovation (refer to hypotheses one, two, three). These propositions were inspired by the fact that there is a highly noticeable and rapidly emerging demand for the study of control system's influence on innovation within the management literature (Hoskisson et al., 2011), as well as the management accounting literature (Bisbe and Otley, 2004). This has been further prompted by special issues in leading journals such as the European Accounting Review (Davila and Oyon,

2007) and Management Accounting Research (Moll and O'Leary, 2012). Both of these journals are calling for papers on the *control of innovation* - from the perspective of control systems research. Management accounting's contribution to innovation is thus recently emerging as an important line of inquiry.

Management support for innovation (refer to hypotheses four and five) at first glance appears to be a construct that is solely concerned with the behaviour of management. However, the conceptualisation of management support for innovation views it as being representative of firm culture (Goodale et al., 2011). For example, it encapsulates elements such as risk-propensity, which are not only expected of management, but of the whole firm. The assumption being that, if management supports and fosters risk-propensity (as opposed to risk-aversion), the employees and the culture is also likely to reflect this. This assumption has been empirically confirmed (Hornsby et al., 2002). Consequently, management support for innovation should not be viewed as a construct with a narrow focus, but rather, as a construct that has a very broad focus; a focus that ultimately captures the innovation culture of a firm. With this broader focus in mind, it is logical to assume that management support for innovation can connect with many other innovation constructs, yet such interrelations have not been examined. In particular, future research should aim to better understand the relationships between increasing knowledge (via open innovation) and innovation culture (management support for innovation). This may reveal important processes behind the formation and evolution of organisational culture; processes which may then be optimally controlled through MCS. Accordingly, it is argued that the study of combined effects merits greater promise. Theory development resulting from a narrowed focus on individual disciplines means that important relationships across disciplines are ignored. To better understand high-performing firms, research needs to adopt the same innovative posture exhibited by such firms. This involves continuously pursuing the improvement of one's ideas via the search for complementary ideas, either across industries (as with organisations) or scientific disciplines.

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DESIGNING ENTREPRENEURIAL SOCIAL ENTERPRISES: STRUCTURES AND PRACTICES FOR CONTINUOUS INNOVATION

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Designing entrepreneurial social enterprises: Structures and practices for continuous innovation

ABSTRACT. Social enterprises face uncertain environments and complex problems at the intersection of groups with very different logics. To succeed, social enterprises must often work with their stakeholders and be continuously innovative in the face of changing conditions. Yet the issue of how to scale up innovative behavior so that it persists and pervades, has not been addressed. We argue that to be continuously innovative, an organization must develop a set of structures and practices that enable many members of the organization to act entrepreneurially, yet in a controlled and coordinated fashion. We studied a continuously innovative social enterprise, the Seikatsu Club, to identify a set of structures and practices that contribute to continuous innovation in changing environments. We found that social enterprises must balance distributed innovation with community control. We identify structures and practices supporting these mechanisms, which can potentially become design elements for organizations to stay entrepreneurial.

INTRODUCTION

In today's turbulent world, organizations have to adapt quickly to changing environmental conditions, and be continuously innovative to nimbly turn threats into opportunities and take advantage of them. This is especially important for social enterprises, which often attempt to create value by solving complex problems, which affect multiple stakeholders with complex interdependencies. There is often significant uncertainty and disagreement regarding the nature of complex problems and the effectiveness of potential solutions for them (Baer, Dirks & Nickerson, 2012; Nickerson, Silverman & Zenger, 2007). Operating within such a complex and ambiguous environment, social enterprises need to be able to adapt to the constantly changing external environment while addressing multiple stakeholders' interests as they grow. Staying continuously innovative becomes extremely important for social enterprises to be successful in delivering desired outcomes.

While social enterprises may be highly entrepreneurial during venture creation and early growth, many organizations lose their entrepreneurial quality as they grow, and as they develop systems, processes, controls and structures that help to manage the organization and exploit the organization's knowledge (Greiner, 1972; March, 1991; Wolcott & Lippitz, 2010). March (1991: 71) has argued that exploration, which involves "experimentation, play, flexibility, discovery [and] innovation", tends to get driven out of organizations as they grow, in favor of exploitation, which involves "refinement, choice, production, efficiency, selection, implementation [and] execution". Exploitation provides surer returns in the short run, while exploration involves risk taking – yet balancing exploration and exploitation over time is critical for the survival and prosperity of the organization (March, 1991).

Social enterprises that address complex problems are likely to require a greater emphasis on exploration rather than exploitation. Social enterprises, by their nature, attempt to change the sociodynamics affecting the problem they are trying to address. Any change to one part of the problem, however, is likely to create reactions from interconnected stakeholders, which the social enterprise must then adapt to as well. The complex problems which social enterprises try to address often evolve dynamically over

time, and social enterprises must both closely monitor environmental changes, and adapt with them over time. Rather than a top-down, strategy-driven innovation process, social enterprises are likely to benefit from innovation that occurs at the organization's interfaces with the environment, so that those who are monitoring changes in the environment can act on such changes quickly.

Evolutionary processes for environmental adaptation include *variation*, to generate new innovation, *selection* to choose those variations that are beneficial to the organization and the problems it is facing, and *retention*, to replicate and diffuse successful variations which have been selected (Aldrich & Ruef, 2006). These evolutionary processes allow for variation to take place at multiple sites within organizations. Variations may be selected externally (by the market or social environment), or internally, for example, by hurdle criteria or managers' approvals for innovation projects (Aldrich & Ruef, 2006). Yet, internal selection processes may be ineffective (Aldrich, 1999), reflecting too much of an emphasis on the past, similar to March's (1991) arguments about the tendency for exploitation of past knowledge to drive out exploration. And yet, without effective internal selection processes, organizations can lose their focus, opportunistically chasing every opportunity that seems promising without considering its overall fit with the organization's strategy or mission. Furthermore, without effective coordination, selected variations that prove successful may never be replicated or diffused to other areas of the organization.

The tension facing social enterprises seeking to remain continuously innovative is thus to find a balance between ensuring that variation is occurring, especially among those who span organizational boundaries, and ensuring effective coordination such that the variation selected by the organization fits with the organization's strategy or mission, and that selected variations become diffused. In this way, innovation which is distributed throughout the organization can be coordinated so the organization doesn't become chaotic, and so that successful innovations can be replicated.

Effective organizational design, focused on building structures and processes that enable distributed innovation together with coordinated selection and effective retention, shows promise in managing these tensions, and helping to maintain continuous innovation over time (Wolcott & Lippitz, 2010). Yet, little is known about designing an organization to enable continuous, and coordinated, innovation. What are the structures and processes by which organizations ensure that entrepreneurial behaviour is distributed among multiple members, and yet it remains controlled, so that it fits the organization's mission, and coordinated so that successful innovations can be diffused and replicated?

We learned about designing continuously innovative organizations from a surprising source: a social enterprise of Japanese housewives called the Seikatsu Club, a highly successful social enterprises in Japan with over 300,000 members, 17,000 workers in 600 workers' collectives, and sales of around 1 billion US dollars in 2008.¹ The affiliated Seikatsusha Network, one of the most successful grass-roots political groups in Japan, has placed close to 150 representatives (all women) in local assemblies. The organization continuously innovates to respond to the changing needs of Japanese society. The Seikatsu Club was given the Right Livelihood Award ("the alternative

¹ Quantitative data presented here on the Seikatsu Club has been collected from documentation at the Policy Research Institute within the Seikatsu Club Consumer Cooperative Group, and from the website of the Right Livelihood Award.

Nobel Prize”) in 1989, and one of 50 Community Awards in honor of the 50th Anniversary of the UN, in 1995. Despite its size, the Seikatsu Club has managed to find many new and innovative ways to achieve its broad aspirations for social change, through both bottom-up and top-down effectual processes.

The Seikatsu Club’s success can be attributed in part to its design: an integrated set of structures and practices that together support continuously innovative behavior by contributing to two key principles: distributed innovation and community control and coordination. We share some of the structures and practices adopted in this organization that can potentially become design elements for social enterprises to stay entrepreneurial.

We first review recent work on social enterprises, identifying that we know little about the structures and practices that make them successful, and especially, entrepreneurial as they grow. We then review ideas from the network and effectuation literatures to identify what they can tell us about the structures and practices of continuous innovation. We then take a closer look at the Seikatsu Club and its design, and draw some general principles that we believe can help make social enterprises more nimble and entrepreneurial as they grow.

LITERATURE REVIEW

The Organizational Challenges of Social Enterprise

Social entrepreneurship has grown substantially in the last decade as a form of organization designed to address social problems. Research on social enterprise remains in a pre-paradigmatic state (Nicholls, 2010), and definitions of the concept vary (Peredo & McLean, 2006). There is an emerging consensus that a social enterprise merges both social and economic missions, yet few studies have examined the institutional and organizational factors that influence social enterprises (Dacin, Dacin & Matear, 2010; Gras, Mosakowski & Lumpkin, 2011; Hill, Kothari & Shea, 2010). Social enterprises are likely to fail if they are unable to find the balance between their social and economic missions (Battilana & Dorado, 2010; Tracey, Phillips & Jarvis, 2011).

Westley and Antadze (2010), citing Mulgan et al., (2007), discuss the issue of scaling up social enterprises and point to three different modes of growth: *high control*, where the organization grows organically through cloning or tightly controlled projects, *directed diffusion*, where the organization grows through a federation or by franchising, and *low control* (uncontrolled diffusion) where innovation “spreads like weeds”, driven by advocacy, persuasion and a sense of movement. In complex environments requiring regular adaptation to a changing context, highly controlled “recipes” for growth are unlikely to be of value (Westley et al., 2006). Organizations must continuously adapt and respond entrepreneurially to changes in their environment. In such situations, structures and practices that enable distributed variation and coordinated and controlled selection and retention, are likely to be more effective than highly structured standard operating procedures for selection and retention that overweight the exploitation of past knowledge.

Two literatures have focused on the structures and processes for innovation: network literature (structures), and effectuation literature (processes). While each is incomplete, in addressing the concerns of variation, selection and retention at the organizational level, each can provide some additional insight.

Structures for Innovation: Networks

One way to examine organizational structure is to examine the character of the network within organizations. Network relationships act as pipes for the diffusion of

resources and practices, and prisms to help actors develop shared understandings (Podolny, 2001). Researchers have identified a network structure that provides innovation benefits: a small world network. A small world network features numerous cliques with a small number of members with strong ties, and short path lengths of weaker ties bridging between cliques (Watts, 1999). The strong ties among clique members foster trust, norms of reciprocity and social control (Provan & Sebastian, 1998; Uzzi, 1997), and when cliques work together on innovation projects, they can be very generative (Obstfeld, 2005). The weaker, bridging ties between cliques help resources, practices and innovative ideas to flow quickly between cliques, enabling fast diffusion and replication, and providing non-redundant information which can become the seeds of new innovation projects (Baldassari & Diani, 2007; Kogut & Walker, 2001; Uzzi & Spiro, 2005). As a whole network, small worlds enable fast innovation cycles: weak bridging ties deliver diverse information, enabling variation, strong clique ties provide communities that can develop innovation projects together, and then weak bridging ties provide the ability to replicate and diffuse projects contributing to retention. However, Gulati, Sytch and Tatarynowicz (2012) argued that small worlds may decay over time as cliques become more interconnected in pursuit of innovation opportunities, and these dry up as bridging ties fail to deliver new information. Thus, new sources of non-redundant information may also be required over time. In addition, the small world network structure manages variation and retention well, but does not provide a clear mechanism for selection.

Effectuation Processes

Sarasvathy (2001, 2008), based on her study of 37 successful entrepreneurs who have built some of the Fortune 500 companies, proposed effectuation as a cognitive process expert entrepreneurs adopt in dealing with uncertainty while retaining control, through continuous innovation. Effectual entrepreneurs co-create the future (rather than trying to predict it) by working with self-selected partners co-create new markets or new opportunities. (Sarasvathy, 2001). To deal with high uncertainty, they frequently take tentative steps, risking only what they can afford to lose, but leverage their investments with help from partners who may have a different set of resources to draw upon. As effectuators begin to get feedback from the market on their initial moves, they regularly adapt in response to emerging information and other changes in the environment. In doing so, they are more likely to be involved in developing highly innovative products and services rather than merely replicating or incrementally extending what already exists. Effectual processes have been found to lead to positive performance outcomes for firms in an analysis of nearly 10,000 new ventures (Read, Song & Smit, 2009).

Social enterprises could benefit significantly from using effectuation principles, since they often depend to an even greater extent than firms on the active cooperation of stakeholders. Dacin, Dacin and Matear (2010) felt that effectuation may be a good lens for studying social enterprises. Yet the principles of effectuation have been developed primarily at the level of the founding entrepreneur. As the organization grows, the effectuating entrepreneur may become more and more distant from day to day operations and may even leave the organization. Without active attempts to maintain its entrepreneurial nature, the organization is likely to slide into the causal way of thinking that maintains its strategic trajectory at the expense of its entrepreneurial flexibility, with negative implications for variation, and a tendency for selection and retention to become more exploitative rather than explorative, again overweighting the past.

In summary, we know little about how to design an organization that can be continuously innovative over time, and yet maintain controlled focus on the organization's mission or strategy. Design principles must simultaneously foster distributed variation, effective selection processes which attend to changes in the social and market environment, and retention processes which allow the replication and diffusion of the best innovations. In other words, how can a social enterprise meet the paradoxical objectives of being continuously innovative and adaptive to the environment, while maintaining control? We turn to our study of the Seikatsu Club.

METHODOLOGY

We conducted a historical case analysis of the practices and structures of the Seikatsu Club during the initial two decades of its formation and evolution.

Sources of data. The Policy Research Institute for the Civil Sector, a research agency under the Seikatsu Club umbrella, provided generous access to its archives for this study, including the Club's newsletters, members' reflections on their Seikatsu Club experience, journals and notes kept by the neighbourhood units for collective buying, called the *hans*, and special reports prepared for the Seikatsu Club's anniversary, all in Japanese. The second author of this paper also conducted 90-120 minute interviews in Japanese with 12 Club officers/veterans in 2009, and both authors conducted follow up group interviews with five club officers in 2012. The interviews provided important references and insight for the collection and comprehension of archival data, and enabled us to triangulate the archival data with the interviewees' first-hand experience. Secondary sources included a memoir written by one of the founders (Iwane, 1979), collections of essays about the Club (Sato, 1988; 1996; Nishikito, 2008), and a doctoral dissertation (Kutsazawa, 1999). Secondary sources provided rich data on the Club's emergence and growth, as they featured numerous member reflections, quotations from interviews, and summaries of survey data. All primary data, and most of the secondary data on the Seikatsu Club was in Japanese, and was translated into English by the second author, who is fluent in the language. A native Japanese graduate research assistant with high English proficiency verified the translations.

Data analysis. To situate our understanding of the context of the data, we first developed a chronology of key events to organize the historical data, capturing the emergence and elaboration of the SCCC in its first two decades (Table 1). We then coded the documents for evidence of practices and structures used by the Seikatsu Club to organize its operations and resources, inductively travelling back and forth between data, literature and emerging theory (Langley, 1999; Locke, 2001). When a practice or structure was abandoned in favor of a preferred practice, we eliminated the abandoned practice from our data set and replaced it with the new practice. With a complete list of practices and structures used to manage operations extracted, we developed higher level categories that grouped like practices and structures into more abstract sets. We compared these with the principles of effectuation and with our knowledge of entrepreneurial practices and structures in general to assess the contribution of each practice and structure to creating a healthy, continuously innovative organization. In identifying the effects of the practices, we noted two primary outcomes that the practices facilitated: *distributed innovation* and *community control*. We aggregated the practices and structures to a further level of abstraction into a theoretical framework (Figure 1), showing the contribution of each to distributed innovation and community control, which

we argue are necessary to manage a successful continuously innovative organization.

Insert Table 1 and Figure 1 about here

CONTINUOUSLY INNOVATIVE BY DESIGN - THE SEIKATSU CLUB

The Seikatsu Club Consumers' Cooperatives in Japan is "a unique organization of its kind, combining formidable business and professional skills with strict social and ecological principles and a vision of a community- and people-centered economy" (Right Livelihood Award web page). Originated in 1965, the Seikatsu Club has evolved into a social enterprise anchored in women's initiatives and values to improve the quality of life, build a better community, and change unhealthy social trends. The Club has grown into one of the most successful social enterprises in Japan.

A large part of the Seikatsu Club's success can be attributed to its design: a set of structures and practices that support continuously innovative behavior, involving continuous learning and flexible innovation. While these structures and practices have emerged over time, often in a non-deliberate way, we believe it is possible for entrepreneurial firms to deliberately mimic these design elements. In doing so, firms may create the conditions to elicit continuously innovative behavior from their employees, as the firm grows, while avoiding chaos. We articulate the Seikatsu Club's structures and practices to illuminate how organizations can build entrepreneurial elements by design. First, however, a little of the club's history will help to set the context of the organization. **Historical Development of the Seikatsu Club Structures and Practices**

In 1965, Japan, having evolved out of the ashes of World War II, was busy constructing its "economic miracle". At the government's direction and with significant societal support, Japanese companies and employees worked hard to raise Japan's economic standing. For Japanese middle-class men, life included long commutes into the city to spend many hours on the job working themselves to death, sometimes literally. Japanese middle-class women, on the other hand, though well educated, were virtually excluded from the labor force once married. They were charged with caring for the home and family alone as "ryosai-kenbo", or "good wives, wise mothers", a respected, but very limited, role. Japanese consumers were encouraged to buy new products to stimulate the economy, and these new products were produced in large scale, in ways which often compromised the environment and sometimes human health.

The Seikatsu Club was formed by a young socialist couple, Kuniyo and Shizuko Iwane, who had the broad aspiration to "change the way we live". Concerned about the ill effects of industrialization, the Iwanes attempted to gain political support for their socialist campaign by knocking on doors. Kuniyo was unsuccessful in getting elected, but Shizuko found the housewives who opened the door were sympathetic, made donations, and even asked her advice. From this experience, the Iwanes understood the importance of connecting with the community, and capitalizing on the underutilized energy of the housewives whose role was centered on improving the quality of life of their families.

Determining that they needed regular contact with the housewives, the Iwanes launched a collective buying organization, which enabled housewives to get better quality products (beginning with milk), at better prices, delivered to their door. Consumers had become sensitized to health concerns with their food since the media had exposed the presence of arsenic in milk produced by one supplier. The price of milk had also gone up

quite substantially at the time. As a result, the club had a strong appeal to housewives.

Club members pre-ordered their milk, and gradually, other products, eliminating inventory costs. As the organization grew beyond the bounds of the Iwanas' (with one other youth as volunteer) capability of managing the administration and delivery, the club was organized into *hans*, groups of around 6-10 members in a neighborhood who ordered together, then grouped their orders within local districts, which were part of branches of larger geographical areas. Products delivered were distributed to the districts, and then re-distributed to *hans*, and through them to their members. As members self-managed the administration of orders and delivery, central administration costs were kept low.

When *hans* wanted to expand their product line, their members had to convince other *hans* in the district to participate, and to recruit new members to the club, since a minimum number of orders was required to arrange a deal with a new supplier. Once sufficient interest was generated, *hans* and districts were encouraged to conduct study trips, meeting with potential suppliers to learn more about their products and how they were made, and to determine if they met the standards of the Seikatsu Club. Supplier partners were sometimes convinced by the Seikatsu Club members' regular, guaranteed orders, to produce goods that were healthier or more environmentally friendly.

Occasionally over its history, club members identified a problem that they felt required political action. For example, upon discovering that the detergent sold through the club created both human health and environmental problems, club members attempted first to convince the supplier to change its processes, and when that failed, to convince the government to change regulations and encourage the production of soap. When that, too, failed, the club formed a grass roots political network which elected representatives into the municipal government, who then convinced the city council to permit the development of a soap factory. The soap factory was formed as a *workers' collective*², funded and staffed by club members, with its products sold through the club. Over time, club members formed many workers' collectives, creating (close to home) jobs for women, who were often excluded from the mainstream labor force. Through the production of needed products and services in communities they lived in, they also fulfilled the club's broad aspiration to improve the way of life for Japanese families.

As the club grew, multiple innovations emerged in products and services and organizational forms. Despite the withdrawal of the Iwanas from day-to-day operations, the club remains continuously innovative, but organized enough to prevent chaos. From an effectuation perspective, we can see that the principles of effectuation (affordable loss, partnerships and leveraging contingencies, all guided by a broad aspiration) played a strong role in the organization. The housewives were customers, marketers (to recruit new members), researchers (on study trips), administrators (from *han* to branch to central level, as volunteers), investors (as members of the Seikatsu Club Consumers' Cooperatives) and owner-workers (in the workers' collectives). This multiplicity of roles helped to ensure that all were committed to the broad aspiration of making a better life for Japanese families. The housewives' voluntary efforts kept costs low for the club and kept member engagement high. The joint investment by club members in the formation

² It is essentially a cooperative form with member ownerships, though in Japan the legal form of cooperatives does not include workers' collectives as a category, hence an alternative term is adopted. There has been an on-going campaign by the Seikatsu Club and its affiliated organizations to get workers' collectives to be included as one form of cooperatives.

of the consumers' cooperatives and workers' collectives also kept the risks low and affordable for any given member and for the club as a whole.

In the next section, we describe in more detail how the structures and practices of the Seikatsu Club contributed to the two aims of distributed innovation and community control, ensuring that the Seikatsu Club maintained its entrepreneurial character as it scaled up as a social enterprise.

Structures and Practices of the Seikatsu Club

An integrated set of structures and practices worked to keep the organization continuously innovative. Each also contributed to one or both of the two aims of distributed innovation and community control.

Small World Network Structure Enabled by Communication and Interaction Practices. The Seikatsu Club's organizational structure and its communication/interaction practices formed a small world network, contributing to both distributed innovation and coordinated control. The structure consisted of *hans* of 6-10 members, organized into districts of consumers' cooperatives, all in close neighborhood proximity. The districts reported to branches, which reported to a small overall Club headquarters. When *hans* and districts recruited new members, they were split on neighborhood lines to maintain the numbers at the 6-10 at the *han* level and 1000-5000 at the district level, respectively. The branches were organized by political geographies in Japan.

For the structure to achieve its highest value, communication and interaction practices to connect the *hans*, branches and districts were needed, to enable learning and the sharing of ideas, to build support among larger groups for larger projects, and to diffuse successful innovations. Five main communication and interaction practices were in place to connect the members. First, all *han* members met regularly in the normal business of *han* administration. The *hans* also came to serve as a platform for the housewives to share information, discuss common concerns, and collectively find solutions to problems they faced. These discussions helped to socialize new members and build commitment to the club's aspirations and values. Second, branches held study trips and community seminars which served to educate and socialize the community and provide a forum for them to discuss common concerns and potential solutions. Support could be built at these study trips and seminars which could launch new projects. Third, branch leaders met at district level to discuss district administration and share innovations and results. Fourth, annual meetings were held at the level of the club as a whole, and again, common concerns and potential solutions were raised. It was at these annual meetings that innovative ideas developed at the *han*, branch and district level could be diffused to other parts of the organization. In addition, at these meetings, projects which required substantial investment and club-wide participation were raised. For example, the development of old-age homes required political involvement to gain government support, as well as the investment of many members. Projects like this were voted on at the annual meeting, providing another level of community selection. Finally, the Seikatsu Club headquarters produced member communications, including newsletters and other publications. While the founders used them to communicate values and priorities to members, members were also encouraged to contribute content to those publications so that their experiences could be shared.

Figure 2 shows Seikatsu Club's structure which, when combined with the communication and interaction structures described above, fits of the pattern of what

network theorists call “small world networks”. The hans were the cliques, and the bridging ties occurred through study trips and seminars, member communications, branch and district meetings, and annual meetings at the club level. The Club’s small world network structure enabled variation, as the diversity within the overall network kept new ideas and environmental information coming, facilitated by the study trips and seminars, which brought in information from suppliers. The hans themselves allowed for fast and effective pursuit of innovation projects within the hans, and the need for the hans to prove the concept at a small-scale illustrates both an effectuation principle (affordable loss), as well as an external selection mechanism – projects had to be shown to be successful at low levels before they were escalated to internal selection at higher levels. Community control came from branch, district and annual meetings, where innovations would be voted on for adoption by the club as a whole, and then diffused and replicated for retention, or merely tried out by other hans, who might adapt them again until they were considered sufficiently successful to diffuse within the club as a whole. The structured communications between cliques diffused innovations quickly and provided feedback, and the dense interconnections within the clusters provide the trust and social fabric to enable members to agree on implementing innovations (Baldassari & Diani, 2007).

Insert Figure 2 about here

Distributed Autonomy and Distributed Responsibility. The *hans* and branches were quite autonomous. If they wanted to add new products or form a new workers’ cooperative, or produce another type of innovation, they were free to do so, providing they could gain sufficient support to launch their projects. When district members participated in study trips to better understand their suppliers’ products and production processes, for example, they could work with local suppliers to identify new products to add to the club’s roster, and they could negotiate with the suppliers to innovate in response to local conditions. Because autonomy was enabled at the lowest possible level, the organization as a whole was quite responsive to local contingencies, and it produced many innovations at the local level which could later be diffused more broadly if other branches, districts or hans saw the value, contributing to distributed innovation. The hans, districts and branches were also responsible at the local level for the success of their innovations, and they could share their success and failure experiences with other hans, districts and branches as well, contributing to community control.

The example of the introduction of fresh pork into the Seikatsu Club product line is instructive. On a study trip to a farmer, a group of members talked to the farmer about what it meant to produce a healthy pig for consumption, and asked about purchasing pork. The farmer indicated that it would be important for the club to purchase the whole pig, because otherwise, there were less desirable parts that he could not dispose of. The women asked the club about buying a whole pig, but were told the club had no refrigeration facilities, and so was unable to inventory raw meat. The women saw a challenge, and decided to buy a pig themselves to experiment. They developed recipes for the less desirable parts of the pig, and developed an allocation model that would see a the parts of a pig fairly distributed among a group of purchasers over time. They tested the model, and identified that they had a ready market for all of the pig parts. This process was completed within a single month. They then presented their innovation

project to the club as a whole, other *hans* were excited and the club adopted pork purchasing, launching its entry into other refrigerated products.

Member Recruitment and Shared Aspirations. The practice of recruitment by members and splitting of existing groups for growth ensured the culture, values and aspirations of members remained aligned. Housewives recruited other housewives like themselves, who all shared a common role in a relatively homogeneous society. Because neighbours infiltrated neighbourhoods, there was rarely an influx of members so great at any one time that existing members couldn't socialize them through the *hans* to respect the general aspirations of the club: to change the way of life for the better in Japanese society. Members could see the benefits of recruiting new members, as it increased the range of products they could order, and *hans* and branches had targets for member recruitment each year, ensuring the ongoing growth of the club. The practice of member recruitment, with its effect on shared aspirations, supported the objective of community control, as members were socialized to focus their attention on the shared aspirations. Shared aspirations provide a control mechanism – they keep members pulling in the same direction. They are particularly motivating when they provide some inspiration and value creation beyond the economic. However, they may have a tendency to curtail innovation if culture becomes too strong; organizations whose culture is too strong lack the diversity that is necessary for innovation, and small world networks can lose their innovative potential if too much becomes shared across cliques. The Seikatsu Club maintained the diversity by making entry very easy and attractive, by incentivizing members to recruit new members continuously, and by enabling autonomy at the lowest possible level. Thus member recruitment also contributed to innovation, since new members were regularly being absorbed into the club, and although they were socialized into the club's aspirations, their own views of how to enact those aspirations would differ somewhat depending on their background and their needs.

Community Selection and Diffusion of Innovations. Seikatsu Club members had to invest their own money and effort, first to join the Seikatsu Club Consumers' Cooperative, and then to join together to participate in launching new projects that required investment, such as workers' collectives. Even for simple product extensions, members had to invest their time to recruit new members and learn about suppliers. They would be unlikely to invest in something they didn't firmly believe in. They had to see a need for the project in order to support it, creating an organic selection mechanism for new innovations. Since for each member, the investment was low (an affordable potential loss), the bar was not so high that it prevented innovation. Yet, this characteristic ensured that all members involved had "skin in the game", and they were incentivized to put their efforts into making the project work. In effectuation terms, members became partners who together created their opportunities (and often, with the involvement of suppliers, which kept innovations feasible). The simplest innovations, product extensions, involved no risk at all: a market was created before any investment was made. More complex innovations, such as eldercare services or school lunch workers' collectives, also involved close connections to their markets before investments were made. At the branch and Club headquarters annual meetings, innovations at lower levels were shared, and members voted on whether an innovation should be diffused more broadly, helping to leverage the distributed innovation which had occurred. For the most part, members were launching new products and services that solved their own

problems within their own communities, and if enough of them had the problem to enable the project to go forward, the market was already proven to exist.

DISCUSSION

We believe that there are some key insights embedded in the Seikatsu Club story that promise benefits for social enterprises seeking to remain continuously innovative as they scale up. Social enterprises often have to deal with multiple stakeholder partnerships, and thus they can benefit from effectual processes involving co-creation with partners. Furthermore, social enterprises often face highly uncertain, and fast-changing environments, and thus they benefit from being located in networks that continuously bring in new information, allowing for variation. However, they must also attend to effective selection (including internal and external selection) processes, and to effectively exploit their knowledge, they need retention mechanisms that enable fast and faithful replication and diffusion of selected innovations.. Research to date has not identified the structures and practices by which social enterprises can remain continuously innovative as they grow.

We inductively analyzed the Seikatsu Club, a continuously innovative organization. We identified structures and practices that contributed to two aims that seem to be critical to embedding continuously innovative behavior into a growing organization: distributed innovation and community control. These two aims act as balancing mechanisms that help an organization to innovate broadly and effectually, being responsive to local and distributed contingencies, while working in a coordinated way toward shared aspirations. The structures and practices that foster distributed innovation with coordinated control also enable the diffusion of successful innovations and the selecting out of innovations that fail to live up to targets. Table 2 outlines the elements that support distributed innovation and community control.

Our findings contribute in two ways to the extant literature. First, the existing literature on social entrepreneurship, as noted by several authors, is at an early stage, and much of the work has focused on defining the essence of social enterprise (cf., Dacin et al., 2010; Peredo & McLean, 2006), and identifying some of the problems associated with managing its hybrid logics (Battilana & Dorado, 2010; Tracey, Phillips & Jarvis, 2011). While these issues are important, we take a pragmatic approach in this paper to focus on the identification of practices and structures that contribute to the ability of a social enterprise to remain continuously innovative as it grows. As such, we contribute to an understanding of the factors that help make social enterprises work, an area that is underdeveloped in the literature (Dacin, Dacin & Matear, 2010; Gras, Mosakowski & Lumpkin, 2011; Hill, Kothari & Shea, 2010). Our findings have significant practical implications for those who manage and fund social enterprises, particularly as these organizations grow to a larger scale. The structures and practices we identified support effectual processes which enable social enterprises to be responsive to contingencies and to co-construct opportunities with stakeholder partnerships.

Secondly, our findings contribute to the effectuation literature by identifying some key mechanisms, supported by structures and practices, which may enable organizations to continue to be effectual as they scale up, even after the founder has withdrawn from the organization, or after it has grown beyond the founder's direct control. Understanding the factors that enable an organization to be continuously innovative as it grows is beneficial not just for social enterprise, but also for businesses, though future

research is needed to determine how applicable these findings are for businesses.

Our findings, based as they are on a single case study, have limitations. It is not clear whether the success of the mechanisms, structures and practices we found rely on the relative homogeneity of the population of Seikatsu Club members: middle class housewives in Japan's highly conformist society. While we believe the mechanisms of distributed innovation and community control have broad applicability, it is less likely that the specific practices and structures of the Seikatsu Club will work everywhere for everyone. Future research is required to determine the limits of our results.

CONCLUSIONS

We have argued that continuously innovative organizations are able to remain innovative and responsive to their environments, in a controlled and coordinated way. In a turbulent world where uncertainty and interdependence abound, continuously innovative organizations are an attractive model to emulate to ensure a social enterprise can adapt and create new opportunities into the future. By examining the Seikatsu Club, a continuously innovative social enterprise in Japan, we have identified some design elements that we believe can be replicated by other social enterprises to increase their own ability to stay entrepreneurial.

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Figure 1: Structures and Practices Leading to Continuous Innovation

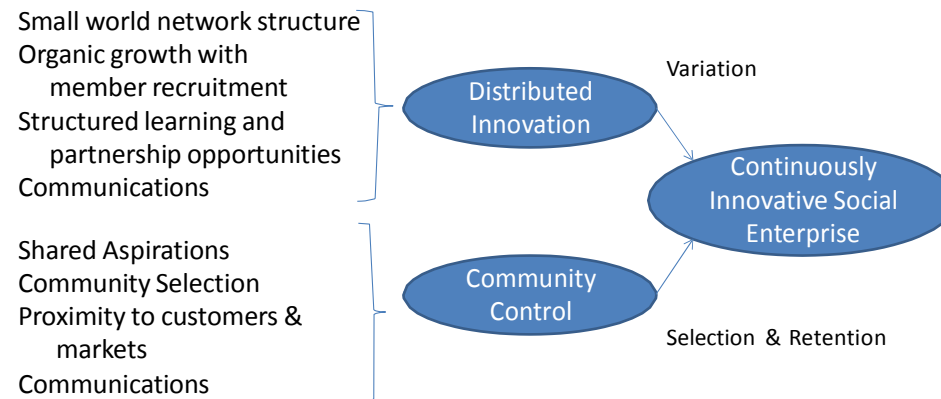


Figure 2: Seikatsu Club Structure

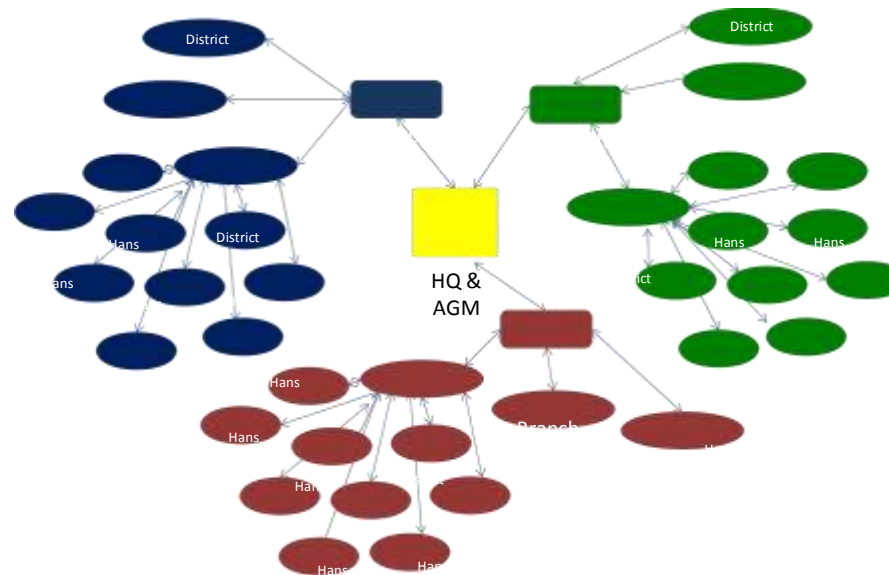


Table 1: Key Events in Seikatsu Club

1965	The Seikatsu Club formed, collective purchase of milk begins
1968	The Seikatsu Club Co-operative Established. Pre-ordering collective purchase in “ <i>han</i> ” (small groups) begins
1972	Development of the first consumer material, miso (soybean paste) according to SC independent standards
1978	Political “Group Seikatsusha” (now Seikatsusha Network) formed in Tokyo
1982	First workers’ collective “Ninjin” established
1986	SC Mutual Assistance System “Ecolo Mutual Assistance” founded
1989	Honorary recipient of the Right Livelihood Award, the alternative Nobel Prize
1990	Establishment of the Seikatsu Club Consumers’ Co-operative Union

Table 2: Structures and Practices Supporting Distributed Innovation and Community Control

Distributed Innovation	Community Control
Small world network	Communication and interaction practices
Distributed autonomy	Distributed responsibility
Member recruitment	Shared aspirations
Community diffusion of innovations	Community selection of innovations

**THE ROLE OF THE ETHNIC ENCLAVE IN FACILITATING IMMIGRANT
BUSINESS PERFORMANCE AND SOCIAL INTEGRATION.**

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The role of the ethnic enclave in facilitating immigrant business performance and social integration.

ARC Grant Part C – Project Description

Project title:

The role of the ethnic enclave in facilitating immigrant business performance and social integration.

AIMS AND BACKGROUND

Chinese immigrant entrepreneurs, known the world over for their successful business practices (Kee, 1994), tend to start businesses within their ethnic enclave. But in a move away from multiculturalism, host countries increasingly fear that immigration and asylum pose a threat to social integration resulting in a lack of social cohesion and a plethora of government programs (Cheong, Edwards, Goulbourne & Solomos, 2007).

For many immigrant entrepreneurs, the EE is an integral part of their social and cultural context and the location where ethnic resources reside (Logan, Alba & Stults, 2003). Immigrant entrepreneurs can harness the networks for labor and customers through various ties in their EE (Portes and Zhou, 1996). Yang, Ho and Chang (2010) illustrate in their paper that the Chinese immigrant entrepreneurs (IE) were able to utilize ethnic network resources as their social capital in order to reduce transaction costs and thus enhance business performance. Tilly (1990) explains that immigrants' reliance on such networks for business or other information minimizes the socioeconomic hardships they would experience in host countries (Raijman & Tienda, 2000). Acquiring jobs in ethnic businesses and establishing businesses within an EE may facilitate migrants' social integration into the host country (Tian & Shan, 1999).

Although an EE has distinct economic advantages for immigrant entrepreneurs, Sequeira and Rasheed (2006: 367) argue that 'Exclusive reliance on strong ties within the immigrant enclave has a negative effect on growth outside the enclave community.' Similarly, Drori, Honig and Ginsberg (2010: 20) also propose that 'The greater the reliance of transnational entrepreneurs on ethnic (versus societal) embedded resources and network structure, the narrower their possibilities of expanding the scope of their business.'

This research asks, 'What is the role of the ethnic enclave in facilitating immigrant business growth and social integration?'

This project has the following important aims:

- A1 To better understand the role of IE, in particular Chinese IE in the Australian economy
- A2 To investigate the role of the EE in facilitating or inhibiting immigrant business performance
- A3 To understand how locating their firm inside or outside of the EE will affect the IE's embeddedness in co-ethnic and nonco-ethnic networks and social integration
- A4 To understand how an IE's social network affects business performance and social integration

RESEARCH PROJECT

This research addresses two national goals of:

1. FRONTIER TECHNOLOGIES FOR BUILDING AND TRANSFORMING AUSTRALIAN INDUSTRIES #5: Promoting an innovation culture and economy recognises the need for research that maximises Australia's creative capability by

understanding the factors conducive to innovation and its acceptance. Our research does this by understanding a very important group of entrepreneurs who introduce new businesses and products into our economy and engage in international trade.

2. **SAFEGUARDING AUSTRALIA #2.** Understanding our region and the world, which recognizes the importance of research enhancing Australia's capacity to interpret and engage with its regional and global environment through a greater understanding of languages, societies, politics and cultures. Our research does this by increasing our understanding of a very important group that links Australia to our region and the rest of the world, immigrant entrepreneurs.

Significance and Innovation

This project is significant in 5 major areas:

1. The project contributes to knowledge of social capital development in EE.

This research clarifies the differential effects of embeddedness in co-ethnic and nonco-ethnic social networks; and the location inside or outside EEs on the businesses performance and social integration of IE.

We use a social capital perspective (Burt, 1992), to investigate. The 'embeddedness' theory defines social capital as capital that can be exchanged (Rutten & Boekema, 2007), through ties such as in co-ethnic (i.e. Chinese) and nonco-ethnic networks. The stronger the cohesiveness of this social network (this web of social relations) the stronger the network ties, the more mobilized the social capital, the larger the effect on human behavior and on economic activities (Rutten & Boekema, 2007). Hence IEs within the EE would likely have stronger ties in their co-ethnic network, which would give them better access to resources to start and run their businesses. McGlinn (1995) found that embeddedness assisted small Chinese immigrant enterprises in Pennsylvania, particularly those within an ethnic enclave, to grow and be successful, although McGlinn did not test the relationships between co-ethnic and non-coethnic embeddedness and business growth. In contrast, Burt's concept of structural holes (1992) proposes that connecting agents, who have weak ties between groups, such as ethnic businesses are more likely to have with non-coethnic ties, can gather more varied information, or contact more people, thus creating a knowledge advantage compared to those embedded in relationships with strong ties, i.e. ethnic businesses in co-ethnic networks. This would suggest that immigrant businesses near but outside the EE would have more varied contacts, which could assist growth, more so than those inside the EE. In spite of these theories, we know relatively little about how an organization's social capital and its utilization evolve over time, and what implications a business's social capital has on business growth (Adler & Kwon, 2002), especially in immigrant businesses. We suspect that these effects may differ over time, such that early embeddedness in the EE may facilitate business start-up and early growth but weaker connections with the non-co-ethnic network outside the EE may enable greater long term growth of the mature business. In this line of thinking the EE plays a role in facilitating an IE's development of ethnic resources, but it is these resources that predicted the survival and development of the business. This research therefore clarifies the relationship between embeddedness in EE, the development of the co-ethnic and non-coethnic networks, and the business performance. *The research will therefore examine the relative effects over time of strong and weak ties in co-ethnic and nonco-ethnic networks inside and outside the EE on business performance and social integration.*

2. The project contributes to knowledge of IE.

There are over 200 million immigrants worldwide, which is about 3% of the world population (United Nations Department of Economic and Social Affairs, 2008). There has

been drastic growth in international migration in the last few decades, from 82 million in 1970 to 190 million in 2005. This growth has been fuelled by the economic boom in emerging economies, like China and India (Enderwick, Tung & Chung, 2011). Until now the literature on immigrant business communities has fallen into two categories. The first examines why immigrants are over-represented in the self-employed sector, emphasizing the availability of opportunities in the host society for ethnic entrepreneurs (Raijman & Tienda, 2000). The second category examines variations in success among immigrant groups (Hammarstedt, 2004; Teixeira, 1998). This research indicates that immigrant business communities have a high level of self-employment driven by labor market disadvantage within them (Ram & Smallbone, 2003). By starting their own businesses, immigrant entrepreneurs may circumvent some of the barriers and disadvantages encountered in looking for a job (Sequeira & Rasheed, 2006). It has been accepted that self-employment is often considered by migrants as a favorite recourse to overcoming the difficulties of unemployment (Waldinger, Ward, Aldrich & Standfield, 1990), although Zolin and Schlosser (In press) also found that immigrant entrepreneurs are over-represented in starting International New Ventures. Market disadvantages and ethnic resources are central to understanding the development of immigrant entrepreneurship (Aldrich, Waldinger & Ward, 1990). Immigrants face a variety of market disadvantages, such as exclusion from job opportunities in the general labor market (Aldrich & Waldinger, 1990); unemployment and underemployment (Iyer & Shapiro, 1999); and lack of host country language skills, education and specific career-related skills (Barrett, Jones & McEvoy, 1996). These disadvantages create greater group cohesion (Aldrich & Waldinger, 1990) and ethnic solidarity (Light, 1984) among immigrant groups. This sense of ethnic solidarity enables a prospective immigrant entrepreneur to draw from the pool of resources that exist within the immigrant community. Most of the research concludes that immigrant self-employment is an adaptive strategy, rather than a free choice. With this large and growing population of immigrants and consequently IE, little is known about IE and the advantages and disadvantages of their tendency to operate in EE. *This research will therefore examine the tendency for IE to locate in EE and seek to understand if that provides advantages in terms of early compared or disadvantages in terms of longer term business growth.*

3. The project advances our knowledge of the contributions of IE in Australia.

Approximately 299,900 people around the world migrate to Australia each year (ABS, 2010), increasing our population of almost 23,000,000 by approximately 1% per year. In 2010, 27% of the population was foreign-born (6 million people) and Australia is considered an immigrant country (ABS, 2001). Successful IE integrate into the economy, creating jobs, providing products and services for members of their own ethnic community as well as society as a whole, and introducing new products and services that expand consumers' choices (Rath & Kloosterman, 2000). Research has also shown that immigrants have many of the personal characteristics and social capital factors that facilitate the development of international new ventures (INV) or Born Global enterprises (Schlosser & Zolin, In Press). Yet, although immigrant entrepreneurship is doubly beneficial, first for employing the valuable skills of immigrant entrepreneurs and secondly for generating international trade and foreign direct investment, little is known about the effect of IE on employment, international trade or foreign direct investment. *This research studies the impact of IE on employment, international trade and foreign direct investment.*

4. The project contributes to knowledge of Chinese IE.

China will play an increasingly important role in the future of Australia as explained in the recent report *Australia in the Asian Century* (2012). Chinese immigrants represent 4.9% of

the entire immigrant population of Australia (ABS, 2001). In 2005–06, China, Taiwan and Hong Kong were among the main sources of migration to Australia (ABS, 2007). Wu and Choi (2004) observe that Chinese immigrant entrepreneurs organize economic activities based on trust embedded in social networks. Nee and Nee (2000) observe that San Francisco's Chinatown has a strong Chinese entrepreneurial group based on its social capital mobilization ability. This group regulates the business and social life of the Chinese community, and also guarantees and ensures access to resources for Chinese entrepreneurs (Amankwah, 2004). Chinese culture tends to encourage such embeddedness as it generates more commitment and trust among individuals and groups than other less embedded social networks (Chai & Rhee, 2009). Although recent studies have recognized the success of Chinese immigrants in Western nations such as Australia (Kee, 1994), little has been done to study how Chinese IE's tendency to form EE could contribute to their business success in host countries. *This research studies the role of EE in Chinese business performance.*

5. The project contributes to knowledge of the role of EE in social integration of immigrants.

Host countries like the USA, Canada and Australia welcome qualified immigrants from around the world, who are screened for their valuable skills, family connections and financial contributions. After arriving in the host country many migrants find it difficult to gain employment in their professions for which they were selected, and so they look for business opportunities (Ram & Smallbone, 2003). But lack of understanding of IE and EE could lead governments to develop less than optimal policies for issues related to immigrants, such as immigration and refugee resettlement, to name just a few. Policies that not only encourage, but actually demand migrant locations outside ethnic communities may cause more personal difficulties and economic harm than social good. *This research studies the role of EE in social integration of immigrants.*

Innovations

Innovations in the proposed research include:

1. Developing a new model of EE success using the social capital perspective (see Figure 2 below). Compared to the current understanding in the literature in Figure 1, this new perspective offers new methodology and measurement to study EE success. In this new approach will understand:
 - The comparative benefits of strong versus weak ties on business growth and social integration
 - The comparative benefits of co-ethnic and nonco-ethnic networks on business growth and social integration
2. The study of more than one industry
3. Distinguishing the impacts of social network connections and location in the EE
4. An international comparison between Australia and the USA
5. A survey methodology that builds upon a national panel study to investigate a smaller segment of the population.
6. Comparison of the Chinese IE with other IEs in general and with local entrepreneurs using CAUSEE study as the baseline data
7. The establishment of a IE Facebook community for communicating with participants and collecting network and qualitative data

Conceptual Framework

This research draws on the theoretical frameworks of social capital and social networking to investigate behaviors of immigrant entrepreneurs in and out of EEs. As shown in Figure 1

previous literature proposes that location in the EE positively affects Business growth at a young business age but negatively affects firm growth at an older age.

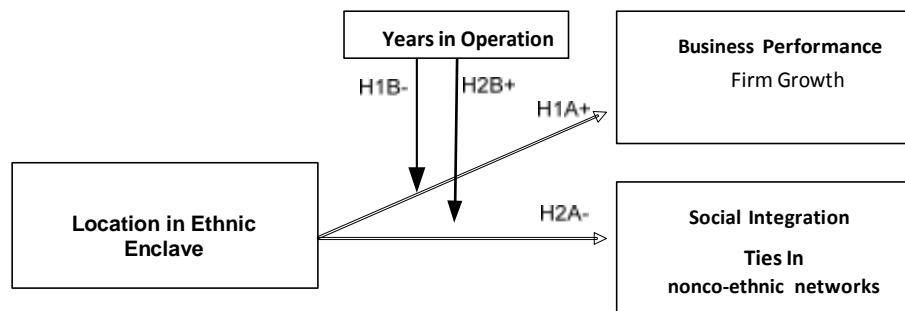


Figure 1 Current Understanding in the Literature for a Theoretical model of Business Performance of Immigrant Entrepreneur: EE has a direct affect on Business Performance and Social Integration

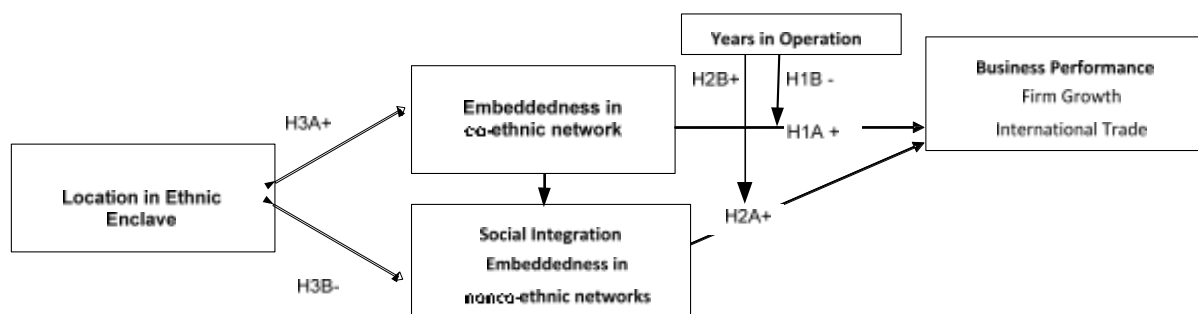


Figure 2 Our Proposed New Theoretical model of Business Performance of Immigrant Entrepreneur based on the embeddedness theory and the social capital perspective: EE affects development of ties.

In contrast, based on social capital and social network theory, we propose that location in an EE increases the IE's embeddedness in co-ethnic networks (H3A), as shown in Figure 2. We then propose that embeddedness in co-ethnic networks will have a positive effect on business performance (H1A) and social integration (H2a), which is defined as embeddedness in nonco-ethnic networks. Our logic for a positive connection between co-ethnic embeddedness and nonco-ethnic embeddedness is because good networkers in co-ethnic networks are likely to be good networkers in nonco-ethnic networks. But more importantly, a business located in the EE with a rich co-ethnic network is better capable to reach out to make connections in nonco-ethnic networks. For example, if an IE needs to hire a tradesperson not available in the network, one of their co-ethnic ties are likely to have a nonco-ethnic tie with the required trade, but also more likely to have good cross-cultural communication skills. Hence embeddedness in a co-ethnic network, rather than reducing nonco-ethnic ties required for social integration, may actually increase non-coethnic ties and over time enhance social integration.

Approach and Methodology

The population we wish to study is Chinese immigrant entrepreneurs in all types of businesses in Australia and the USA. We propose to use a mixed methods approach. We propose to deliver the research objectives using a two phase design.

Phase I is a Longitudinal Panel Study modeled closely on the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE, DP0666616, Davidsson, Steffens, Gordon and Reynolds, 2008; QUT). The CAUSEE project used a two-stage procedure to collect panel data over the course of four years. A random sample of 15000 Australian residents

were first selected through a random digital dialing of household numbers. An initial screening question was posed to determine the eligibility of the individual called, and valid cases were immediately directed to a long initial interview. A follow up questionnaire was then mailed to the respondents to reduce the initial interview time and increase the variation of data collection formats for different types of questions/response scales. The eligible sample was then contacted for follow-up phone interviews every 6-12 months. Importantly for our study, this methodology allows for the random capture of active nascent and young ventures, thus gaining a more representative sample than most other survey methods. In the CAUSEE database, young firms with immigrant founders represented 26% of the sample, closely reflecting the 25% first generation immigrants in the Australian population.

The CAUSEE study established the baseline data for venture activities in Australia. However, only 25% (748) of the participants in CAUSEE were Immigrants, and 4% (117) were Asian (even less Chinese). Thus to better understand the economic activities of IE we propose a comparative panel study sampling a larger number of Asian Immigrants. This telephone survey study will use similar random digital dialing method as CAUSEE, however, the sampling frame will be restricted to those residential household with a Chinese surname. A two-stage data collection method will also be followed, collecting the same baseline information such as demographic variables (e.g. gender, education, experiences) and economic activities (e.g. entrepreneurial intentions, entrepreneurial team versus sole trader, number of businesses started, number of businesses currently owned, opportunity versus necessity motivations, business performance and networking activity). We expect similar response rate as CAUSEE, and we aim to randomly dial 6000 household with Chinese surnames in known Ethnic Enclaves Australia, and we expect a total sample of 2000 Chinese participants willing to answer the first set of simple questions about social networks and integration and 500 of these Chinese participants to be either currently running or in the process of starting their own businesses.

The mail out survey will be sent to IE only (N=500) collects information pertaining to the specific ethnic resources and social networks utilized by individuals to start and maintain their venture activities. The survey also identifies the location of the business thus reflecting the positioning of the business inside, outside, or near the Chinese EE.

For those Chinese Immigrants who are NOT running or starting their own businesses, the telephone survey will also ask them questions about their current and past employment history (within or outside the co-ethnic network) to ascertain their level of social integration professionally into the host society. All participants will also be asked in the phone interview about their social networks (co-ethnic and non-coethnic) to assess their level of integration socially into the host society.

At the end of the interview, all participants will be asked to visit the community facebook group created to support Chinese Immigrant businesses, this provides the participants a forum to exchange and share resources and the researchers a portal for communicating with all participants, they will grow the sample by referrals, and to collect additional network information and stories of Chinese Immigrant Businesses. We anticipate the IE to be interested in the network and marketing opportunities provided on the website, and Facebook is a popular platform among Chinese immigrants for communicating with relatives and friends overseas.

Phase II of this project involves qualitative analyses of the data collected via this website, and a sub-sample of 64 case studies drawn from Phase I based on their representativeness of the theoretical variables studied in this project. Table X below illustrates the theoretical sampling for Phase II of this project. There were 4 theoretical variables of interest, thus

creating 16 possible combinations of IE characteristics. We aim to collect 4 cases (from retail, restaurant, e-business, import/export) of each type of business, resulting in a total sample of 64 cases. For each case study we will combine the longitudinal survey results with indepth interviews and possibly further data collected via the community website.

Location	Embeddedness in the co-ethnic network	Integration into the non-coethnic network	Growth Strategy
Inside the EE	High	High	Yes
Outside the EE	Low	Low	No

Timeline

This will be a three year project with two phases:

1. Phase 1
 - The Asian telephone survey study
 - The IE mail out survey
2. Phase 2
 - Qualitative analysis of Facebook Chinese IE stories

Measures and Analysis

In addition to the measures currently used in the CAUSEE study, this project includes measurements of **embeddedness in co-ethnic and nonco-ethnic networks**. The study proposes embeddedness to be the frequency of contact (times per year), number of contacts (number of co-ethnic and non co-ethnic contacts) and common acquaintances (eg. mutual friends, social groups, family members) (Chung & Whalen, 2006; Hoang & Antonicic, 2003). We measured the Chinese immigrant entrepreneur's embeddedness in both co-ethnic and non-co-ethnic networks in the same manner. We equate embeddedness in nonco-ethnic networks with **Social Integration**. *Embeddedness* is calculated by multiplying the entrepreneur's number of contacts (number of co-ethnic and non-co-ethnic contacts) by frequency of contact (times per year), by number of common acquaintances (e.g., mutual friends, social groups, family members). This operationalisation of embeddedness allows us to capture both the size and the density of the network in a single composite measure. This was done for both the formal and informal networks (Chung & Whalen, 2006; Hoang & Antonicic, 2003). The formal and informal networks are then summed for the overall embeddedness.

Feasibility and Timeline

The research team has work together in the past. They have supervised a master student project together in this topic area. The student completed the project successfully and they have published the work together with the student in leading journals for Chinese research (see the publication list in section E). This project is an extended from the research team's prior project, *Impact of Embeddedness in Co-ethnic & Non Co-ethnic Networks on Business Performance: Evidence from Chinese Immigrant Entrepreneurs in Australia*. The two CIs have also supervised another master student to completion and are currently supervising a PhD student together investigating Chinese family business in Indonesia. Dr Chan g demonstrated through her publication records her methodological expertise on a wide range of analysis techniques, including qualitative case study, quantitative survey analyses, structure equation modeling, group level analyses, and network analyses.

This research models closely on the CAUSEE project which has demonstrated the feasibility

of the methodology. The research team has access to CAUSEE data the expertise as described in the research environment section.

Timeline

1. October 2012 - February 2013: Design, pre-testing & development of Community Website
2. February - August 2013: Screening interviews, initial phone interview & mail follow-up
3. April - August 2014: 6 month phone follow-up & interviews of the subsample
4. April - August 2015: 18 month phone/mail follow-up and interviews

ID	Task Name	Start	Finish	Duration												
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Community Website	10/02/12	28/02/2013	1'00'												
2	Phone interviews	10/02/13	30/08/2013	1'50'												
3	Interviews of the subsample	10/02/14	29/08/2014	1'00'												
4	Interviews of the subsample	10/02/15	28/08/2015	1'00'												

Figure 3 Project Timeline

Social and Economic Benefits from this project

This project has important social and economic benefits relating to its aims and national goals:

A1: Immigrant entrepreneurs represent 25% of all firms in Australia. These are mainly small and medium sized enterprises, which provide a large percentage of the employment in the economy. IE are also more likely to start international new ventures than native entrepreneurs (Zolin & Schlosser, In Press). Hence, improving the growth of businesses run by IE will increase employment and international trade including exports.

A2 & A3: The international trend away from multiculturalism towards greater concern for social integration of migrants programs (Cheong, Edwards, Goulbourne & Solomos, 2007) means the role of EE will likely be questioned by policy makers hoping to shore up concerns over threats to National Identity and social cohesiveness. This research will help explain the effects of EE in business development and social integration.

A4: All businesses operate within social networks, which determine their access to resources, which will affect their business performance and social integration. Social integration can be an important deterrent to the excessive stress associated with self-employment and business management. Hence this research will help us to better understand how IEs can build business and resilience.

RESEARCH ENVIRONMENT

The research project will be well supported by the QUT Business School (School of Management) and the University of San Francisco (School of Management). Both CIs and the PI were located in QUT's Business School's largest Faculty, until 2009 when the PI moved to USF. PI Yang, located in the University of San Francisco, is Project coordinator, China General Chamber of Commerce-USA study on Chinese enterprises in the U.S. This research project has already benefitted from a generous \$4,000 School of Management grant to extend our literature review and collect additional data building on the early work done by a higher degree student advised by the CIs and PI. quality research environment in the QUT School of Business is build through generous support provided to academic researchers.,

including:

- Full funding of attendance at one international conference per year per faculty member, which will be used to disseminate the findings of this research at entrepreneurship conferences such as *Babson College Entrepreneurship Research Conference* (BCERC)
- Editing assistance with journal publications (which will expedite the submission of publications generated through the research);
- Financial support for international and national visitors to deliver capacity-building seminars in their field of expertise during the course of the project.
- A senior research advisor employed by QUT School of Business whose primary role is to provide high level methods and statistical advice to HDR students and academic staff and whose skills we will utilise in the survey design and analysis of process data for this project.

Entrepreneurship research is a strength of QUT with Professor Per Davidsson leading the Australian Centre for Entrepreneurship (ACE), where the CAUSEE (The Comprehensive Australian Study of Entrepreneurial Emergence research project, Australia's largest nascent entrepreneurship research project.) and Global Economic Monitor, Australia are conducted. ACE provides QUT faculty members with benefits such as:

- The ACE Annual "Paper Development Bootcamp" which provides entrepreneurship scholars with friendly reviews from colleagues and an exceptionally strong panel of invited, international experts. For example this year we have Dean Shepherd, Dev Jennings and Jennifer Jennings.
- Regular networking Coffee Club
- Visiting internationally known scholars
- The Australian Centre for Entrepreneurship Research Exchange (ACERE)
- Support to attend additional international entrepreneurship conferences, such as the BCERC.

Both CIs will continue to fully utilise these Faculty and ACE provisions.

ROLE OF PERSONNEL

CI Zolin will be the project leader, guiding the overall project, managing administrative (e.g. budget) and scholarly (e.g. methodology) issues. She will supervise the research associate and assistants, guide their fieldwork and lead the analysis of quantitative and network data and, the triangulation of multiple data sets. Her experience in leading research grants and knowledge of social capital, social networks, Chinese family business and immigrant entrepreneurship will be crucial to the project. She will provide a non-Chinese perspective to the project.

CI Chang will lead the analysis of the qualitative data and support the quantitative analyses. Artemis is a first generation immigrant herself and is currently living in the EE. Her specific expertise in quantitative and qualitative analysis, Chinese language skills and knowledge of immigrant entrepreneurship and Chinese family business is critical.

PI Zang will contribute to the theoretical development of the project, organize the corresponding study in the USA and contribute to the analysis. Her knowledge of international entrepreneurship, immigrant entrepreneurship, Chinese language and culture is critical to the project. She also has valuable editorial experience, which will be critical to the dissemination of the results.

The PhD student will coordinate and conduct the field work and with the support of the CIs,

prepare the surveys and interview schedules, work with the CIs on the survey analysis and work closely with the CIs in developing publications and in dissemination activities. Chinese language skills will be one of the selection criteria.

The **research assistants** will make calls, collect the phone survey data and assist with organizing interviews, literature searches and data management and entry. In this project we propose to call, screen and interview the participants ourselves rather than outsourcing it to a marketing company. This is because we need to call and screen only Chinese residence and the RA needs to speak English, Mandarin and Cantonese. Thus the role of these research assistance are crucial to the success of the project.

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ETHNIC ENCLAVE LIFECYCLE: A CASE STUDY OF CHINESE RESTAURANTS IN SOUTH EAST QUEENSLAND

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ABSTRACT

Immigrant entrepreneurs tend to start businesses within their ethnic enclave (EE), as it is an integral part of their social and cultural context and the location where ethnic resources reside (Logan, Alba, & Stults, 2003). Ethnic enclaves can be seen as a form of geographic cluster, China Towns are exemplar EEs, easily identified by the clustering of Chinese restaurants and other ethnic businesses in one central location. Studies on EE thus far have neglected the life cycles stages of EE and its impact on the business experiences of the entrepreneurs. In this paper, we track the formation, growth and decline of a EE. We argue that EE is a special industrial cluster and as such it follows the growth conditions proposed by the cluster life cycle theory (Menzel & Fornahl, 2009). We report a mixed method study of Chinese Restaurants in South East Queensland. Based on multiple sources of data, we concluded that changes in government policies leading to a sharp increase of immigrant numbers from a distinctive culture group can lead to the initiation and growth of the EE. Continuous incoming of new immigrants and increase competition within the cluster mark the mature stage of the EE, making the growth condition more favourable “inside” the cluster. A decline in new immigrants from the same ethnic group and the increased competition within the EE may eventually lead to the decline of such an industrial cluster, thus providing more favorable condition for growth of business outside the cluster.

KEYWORDS: Immigrant Entrepreneurship, Ethnic Entrepreneurship, Industrial Cluster, Cluster Life Cycle

INTRODUCTION

Immigrant entrepreneurs tend to start businesses within their ethnic enclave (EE), as it is an integral part of their social and cultural context and the location where ethnic resources reside (Logan, Alba, & Stults, 2003). Portes (1981: 291) formally defines ethnic enclaves as “immigrant groups which concentrate in a distinct spatial location and organize a variety of enterprises serving their own ethnic market and/or the general population. The basic characteristic of an ethnic enclave is that a significant proportion of the immigrant workforce works in enterprises owned by other minorities.” This conceptualization of geographic location populated by ethnic people and business has been widely adopted by scholars (e.g., Funkhouser, 2000; Logan et al., 2003). Light (1972) has proposed that the ethnic enclave can be viewed as a “protected market” wherein niche conditions within an ethnic community actually foster successful ethnic entrepreneurship. We argue that this protected market makes EE a special industrial cluster of ethnic products and services. In this study we focus on Chinese restaurants in South East Queensland as a special industry, treating the Chinese restaurants inside the EE as members of this special cluster, and those outside as members of the industry outside the special cluster.

An ethnic enclave is an interdependent network of social and business relationships that are geographically concentrated with its coethnic people (Portes & Bach, 1985). Chinese entrepreneurs are known for their successful business practices and their enclave activities (Drori, Honig, & Ginsberg, 2010). In a recent study, Selvarajah and Masli (2011) portrayed the development of the second Chinatown in Melbourne Australia, and identified not only the prevalence of this “clustering” of ethnic entrepreneurial businesses in the hosting country such as Australia, but also the important role of these ethnic enclaves as conduits for ethnic

economic, social and political activities.

Yang, Ho and Chang (2012) suggest in their theory paper that the Chinese immigrant entrepreneurs tend to utilize ethnic network resources in order to reduce transaction costs and thus enhance business performance. Tilly (1990) explains that immigrants' reliance on such networks for business or other information minimizes the socioeconomic hardships they would experience in host countries (Raijman & Tienda, 2000).

Although an ethnic enclave has distinct economic advantages for immigrant entrepreneurs, others propose that "to enable the growth of a business, a strategic "breakout" into the mainstream markets is needed" (Altinay, 2008). Ndofor and Priem (2011) report that immigrant entrepreneurs can be successful with either of the two alternative business strategies: (a) a dominant market strategy with high economic resources, human capital and weak ties outside the ethnic enclave or (b) an enclave strategy with high social capital, and strong ties within the ethnic community. They showed that the fit between the strategy and the venture capital determines the performance of the business. We argue that the reason for these two successful strategies is due to different stages in the EE lifecycle.

Ndofor and Priem (2011) define immigrant business as ventures "pursuing an enclave strategy when its product/market scope involves a value chain dominated by coethnics—in essence, when it fully participates in an enclave economy by serving an ethnic community" (p.793). This overlaps, but is to be differentiated from the "geographically clustered" ethnic businesses leading to the formation of the location based ethnic enclaves. Pe'er and Keil (2013) find that startups are affected by local cluster conditions such as skilled labor, suppliers, buyers and competition. Thus, it is important to understand what effects cluster conditions within the ethnic enclave location have on the performance of immigrant entrepreneurs' businesses.

These mixed recommendations in the literature may be a result of not understanding the lifecycle of an EE. In this paper we ask two research questions: How do EE form, grow and decline? How do the local cluster conditions differ at different stage of the enclave lifecycle? To investigate these questions we use a mixed-method research design including interviews with immigrant entrepreneurs, quantitative survey data and secondary data tracking the location of Chinese restaurants in Southeast Queensland.

Cluster Life Cycle Theory and Its Application on EE

We argue that Chinese Restaurants in South East Queensland can be viewed as a special industry, and the EEs can be viewed as special industrial clusters. Thus to understand the life cycle of the industrial cluster and its impact on cluster members, we applied the Menzen and Fornahl's (2010) theorization of cluster life cycles and cluster evolution to explain the expected changes in market condition at various stages of the EE life cycle.

Menzel and Fornahl (2009) argued that clusters by definition contains not only companies but institutions, and companies within the thematic and spatial boundary are interconnected (Porter, 1989). Clusters are described to progress through phases of development, expansion, maturation and transitions (Van Klink & De Langen, 2001). Menzel and Fornahl (2010) proposed that "the movement of the cluster through the lifecycle depends on the increase and decrease of heterogeneity among the cluster's companies and organizations; and that the way firms exploit this heterogeneity distinguishes clustered from non-clustered companies" (p.206).

Cluster Growth and Development

It is argued that in the emerging phase of an industry, companies are scattered and there is no clear geographical clustering. Furthermore, there is no clear performance difference between the few agglomerations of companies in the new industry compared to the rest. Menzel and Fornahl (2010) argued that during this phase the foundation for the later cluster is laid, which facilitates the growth of the industry accompanied by “the increasing preeminence of one or more clusters and a better performance of clustered companies that results in an increasing concentration of the industry.” Applying this principal, we expected no clear geographic clustering of Chinese restaurant in South East Queensland in the emerging stage of the Chinese Restaurant industry (H1). As the industry grew over time, we expected to see increasing numbers of clustering of Chinese restaurants South East Queensland (H2). Furthermore, we expected the performance of restaurants inside the EE to be superior than those outside during the growth phase (H3). Porter (1989) suggested “being part of a cluster allows companies to operate more productive in sourcing inputs, accessing information, technology and needed institutions, coordinating with related companies and measuring and motivating improvement” (p.81). During the growth phase of the EE, Chinese restaurants inside the cluster will benefit from the established institutions such as availability of free local news papers and health services provided in Chinese language, and easy access to suppliers (Chinese Grocery stores) and skilled labours (coethnic employees). Physical proximity among the restaurants also made it easier to access information and stimulate innovation.

H1: During the Emerging stage of the Chinese restaurant industry, there is no clear geographical clustering of restaurants.

H2: An increase number of EE, characterised by geographic clustering of Chinese restaurants mark the growth stage of the industry.

H3: During the growth phase, Chinese restaurants inside the EEs will report superior performance than those outside.

Maturity and Transition (or Decline)

Menzel and Fornahl (2010) argued that as the industry mature, the cluster dynamics only work positively between two points in time. “The first point is after the cluster’s emergence, when there are a sufficient number of companies to reach a critical mass and cluster dynamics start to show an effect. The second point is when the cluster dynamics stop working or have a negative effect on the companies in the cluster, which results in a relative decline.” (p.207). It is argued that strong similarity of companies within a cluster can result in a negative “lock-in” thus reducing the competitiveness of the companies within the cluster by not being about to produce more radical innovation especially when facing significant changes in the industry. Thus in the decline phase of the cluster, it is expected that companies outside the cluster will outperform those inside the cluster (H4).

H4: During the decline phase of the EE, Chinese restaurants outside the EE are expected to outperform those inside.

In order to assess whether the cluster condition is still working positively or not, we need to first discuss dimensions of cluster conditions relevant to this particular industry.

Ethnic Enclave Cluster Conditions

Prior research finds that new venture performance differs, based upon the degree of industry agglomeration in the business' location (Pe'er & Keil, 2012). Cluster theory argues that businesses located within an industry cluster share a relatively higher level of: (1) local factor conditions (such as access to skilled labour), (2) local demand conditions, (3) access to competitive suppliers and supporting industries and (4) local competition and industry structure. For ethnic-related industries these conditions will differ markedly inside compared to outside the ethnic enclave.

METHOD

We conduct a case study of Chinese Restaurants in South East Queensland based on multiple sources of data. ABS and Business Directories as well as oral history data are used to describe the clustering of the businesses over time and the historical events surrounding this clustering. Interview data with eight restaurant owners and self reported survey data from 110 restaurants were used to triangulated our findings and offer further insight into the business decisions of restaurant owners at different stage of the cluster lifecycle .

Data Collection and Measures

English and Chinese Yellow Pages. The number of Chinese restaurants in different locations (postcode) are calculated using the listings in the English and Chinese Yellow Pages each year.

ABS Data. The total number of settlers from China, Hong Kong and Taiwan into Queensland every year from all the available census data; this does not include the large number of overseas students also residing in the state.

Geographic Distribution Imagine. Google map is used to show the geographic clustering of the businesses.

Qualitative Data. Eight semi-structured interviews were conducted with the restaurant owners theoretically sampled to represent business experiences at the emergent, growth, and decline stage of the cluster for owners with both growth and non-growth business goals (Table 1).

Insert Table 1 About Here

Quantitative Data. As part of a larger study, self reported business growth data were collected from owners of "all" Chinese restaurants in Brisbane we were able to locate using both the business directory and snow ball sampling. In total, 110 restaurants participated in this survey study, data was collected via face to face interviews. Business growth was measured with a three item measure: (Item 1) Whether last year's business sales were (1) lower, (2) the same (3) 0.5 times better (4) 1 times better...to (7) 2.5 times better than (a) the start of the business. (Item 2) Whether the growth was (1) lower, (2) the same, (3) better by 1-5%, (4) better than 6-10% ...(7) 21% and better than their major competitors. (Item 3) How was the employment growth for the last financial year compared to since the business started (1) extremely lower.. (4) the same..(7) extremely higher. These three items followed the convention in international business literature to ask respondents to evaluate their business growth including sales and employment growth, market growth and overall business performance since the business started (Kogut & Zander, 1992). Reliability of the business growth scale was .87 and it loaded on one factor.

Years in Operation. The years the business was in operation (or the age of the business) were measured using an ordinal scale measuring the number of years a restaurant has been run by the current owner/s. Table 2 reports the distribution of operational years for our sample. As there was only one restaurant in the first age category, it was combined with the age 2-3 category to form the age 1-3 category. Thus, age was measured using four age categories (see Table 1). **Location of the Business.** Restaurants located inside the enclave (Using the postcode) are coded as 1. Those located outside the enclave are coded as -1. The Ethnic Enclave was identified by location of the target ethnic population based upon census data.

Control variables include length of stay in Australia, English skills, and previous hospitality experience. English skills are measured by a categorical variable representing (1) very poor, (2) poor, (3) = moderate, 4 = fluent, and 5 = very fluent.

Oral History. The first author migrated to Australia in 1989 and has witnessed the growth of the enclave over the last three decades. A research assistant who worked as a Journalist for the local Chinese radio was hired to support to collection of historical data. Based on the shared memory between the first author and the research assistant, information about significant historical events were verified via old news papers and government legislations. These historical events were included in the context description to describe the extraneous and exogenous factors facilitating the phase transitions of the cluster.

RESULTS

Ethnic Enclave Lifecycle – Evidence of cluster formation, growth, development and decline

Secondary Data. Figure 1 illustrated the number of Chinese restaurants over time in Brisbane and the Sunnybank area (the new EE). Hypotheses 1 and 2 were supported. The emergence of the industry (Chinese Restaurants in South East Queensland) and Cluster (EE) is evident in Figure 1 with a clear sudden increase in the number of restaurants both inside and outside the enclave in 1999. After this growth period we can clearly see the formation of this cluster of Chinese restaurants inside the EE. Figure 1 showed the cluster reaching a “critical mass” to create favourable condition within the enclave. It also indicated that the EE reached a stable size and ceased growing; however, the industry seem to continue to grow.

Hypotheses 4 was also supported. Figure 2 plotted the growth of restaurants by age and location using a two- way ANOVA, both the main effects of age and location and the interaction effect are significant. Note that the age of business is in the reverse order of the “life-cycle” stages of the EE. At the time of the survey, restaurants less than 3 years old (category 1) were established in the decline phase of the EE. Restaurants aged between 3-5 (Category 2) were established in the growth phase of the EE. Restaurants aged 5 years and older (category 3&4) were established in the emergent and early growth phase of the EE. Results of the analysis showed that growth was significantly higher for outside the enclave compared to inside at the declined phase of the EE. However, there is less clear evidence supporting hypothesis 3. While restaurants inside the EE showed slightly higher growth than those outside at the growth stage, the difference is small and statistically non-significant.

Historical Events. South East Queensland was chosen because it boasts the growth of a young (and second) enclave outside the CBD area. There was an older and much smaller Chinatown inside the Brisbane CBD area established by earlier settlers from Canton and the later Hong Kong migrants. The growth of Brisbane city after the Expo in 1988 coincided with Australia’s humanitarian policies to allow students to settle in Australia permanently after the Tiananmen Square protests of 1989. Since then, large numbers of immigrants from Taiwan and Mainland China have settled in Australia every year (see Figure 3). During the

1990s, we see a slow growth of the number of restaurants inside the enclave area (Figure 1). Between 1993 and 1995 we see sharp increase in Chinese migrants to Queensland, and early formation of the enclave, including a small number of restaurants in the enclave area. Between 1995 to 1998 a significant decline in the number of restaurants outside the enclave area contrasted with a large proportional increase of restaurants inside the enclave area.

The story of development of the new enclave, Sunnybank outside CBD, was similar to that reported by Selvarajah and Masli (2011) for the Melbourne second Chinatown outside the CBD area. There was also a large percentage of residents of other ethnicity in the area as well. New institutions were established for these new arrivals and old ones (e.g. Australian Taiwanese Chamber of Commerce & Australian China Business Council); Chinese language newspapers were once again published. During this period, four large Chinese grocery stores were established in the ethnic business centre in Sunnybank and Chinese restaurants and other ethnic businesses flourished in the surrounding area following the establishment of these grocery stores. Thus, the ethnic enclave in Sunnybank, Queensland was gradually formed in the 1990s, and slowly reached a level of sustainable maturity in the early 2000s.

Interviewee Recollection

EE Emergence Stage. Restaurant owners A,B and C commented on the absence of the Enclave when they set up their businesses. All three owners set up the business because they already had relatives in the area, there was no clear reason for choosing their business location other than that is where their families are.

A: We were the only Chinese restaurant back then, the rest of this area is aussie [Australian] businesses. This location was a convenient store, we bought it thinking we can turn it into a restaurant as it is close to the grocery store next door.

B: “There was no sunnybank back then”.

C: “ That is just where our family has set up the businss for us. We didn’t think too much about being in a location closer to other Chinese people.”

This pattern of results supported the above proposition that during the emerging phase of the industry, there is no clear geographic concentration of businesses. Owner B provided a detailed account of the “historical event” that facilitated the growth of this industry. Brisbane was a quiet place before the world expo in 1988, shops were closed at night and dining out was not common. Owner B set up a small takeaway corner shop outside the enclave in 1986, she commented:

“in 1988.. People started going out at night time.. We had the world Expo in Brisbane, they are opened until 9 o'clock. We are close to the city, people like to catch the bus. Because we are close to the city, and since that time, people likes to go out at night, and they have relatives from interstate, then they like to catch the bus to go to the expo. Because it was a very big event, it goes for half a year. The event lasted for 6 months, In Southbank... People start like to going out for dinner or get take away. So we found out that the business was growing, so we expanded. Put a few more tables, people will like to come in.”

This owner also discussed other exogenous factors such as deregulation of trading hours and establishment of larger shopping complex in the area as key driving factors for her to expand

her business.

EE Growth Stage. Restaurant owner D who currently operate two of the most profitable Hong Kong Style restaurants (one inside and one outside the EE), reflected that they to started their first restaurant outside the enclave because they did not know the trade “we were not chiefs back home”. They operated various profitable and nonprofitable restaurants outside the enclave and made the decision to move into the EE at the point of the significant growth. “We were ready then, by then we know how to run the restaurant business. We already had one very established restaurant outside, and we have perfected the cooking to be able to do well inside the Sunnyban area”. Owner D also commented on the differences in his business strategies for his restaurant inside and outside the enclave: “Inside the enclave it is a price war. There is a constant supply of ethnic customers, but the owners are crying inside when they have to sell their meals below cost. Outside the enclave we are more creative with our strategy, business is going well and our branding is the key to our success”. This reflection reflected the increase heterogeneity which distinguishes clustered from non-clustered companies. Price was the main innovation within the EE while restaurants outside the EE needs to come up with more innovative marketing strategies.

EE Transition/Decline. At the point of our interview, the EE seem to have reached a transition or decline phase for those restaurants that are not adjusting to the new changes (see the discussion below for the condition change). Owner A who spoke for both the first and second generation owner of the first Taiwanese style restaurant inside the EE stated “many of the old migrants went back to Taiwan, and large proportion of our customers is now from China, many of them are overseas students. So we have a seasonal effect, when the students go home for holidays, it is very quiet here”. This indicated the change in customer demand inside the EE, together with the increase competition and the price war mentioned by Owner D, and other issues such as “limited parking” made the business condition tough inside the EE.

On the other hand, Owner F, whose family operated another successful restaurant inside the enclave, explained her decision to open the new restaurant outside the enclave. “When we decided to open our own restaurant (independent from our parents), we did not have as much capital and the rent is very expensive inside Sunnybank. So we decide to open our restaurant outside... It was easier to serve Aussies. They don’t have preconceived idea about what a particular dish is supposed to taste like... Whereas Chinese customers often argue with you if your cooking is different from their mother’s, and outside the enclave I can price my meals at a higher price...if I were to open another restaurant, I will still choose a location outside the Sunnybank area.”

To summarize, the growth, development, transition and potential decline of the EE follow the pattern described by Menzel and Fornahl (2009). Analysis of the quantitative, qualitative and historical data supported the patterns of growth and performance of the industry and cluster.

Restaurants started to cluster inside the EE as the industry emerge after the arrival of new Chinese migrants and the world expo in 1988. Firms inside the EE experienced better market condition that attracts more ethnic firms to move into the cluster at this point. However, as the market condition change (see below), the cluster face a transition point, business owners reported more difficulty operating inside the EE and better growth outside the EE.

As reported above, changes to cluster conditions in terms of demands and

competitions inside the enclave were further demonstrated when analyzing the wave of settlers arriving in Queensland in Figure 3. There was a decline of migrants from Hong Kong after 1997, and a sharp increase of Taiwanese settlers after 1997 in Queensland. Earlier settlers from Hong Kong were more geographically dispersed, and there was an older Chinatown inside the Brisbane CBD area. The new arrival of Taiwanese settlers took advantage of the small but growing ethnic community in Sunnybank and developed it into a second Chinatown with a much larger proportion of Taiwanese cuisine and groceries. We interviewed the second generation owner of the first Taiwanese restaurant in the area (Owner A). She recalled that the restaurant was the first to establish itself in the shopping complex among a small number of “Aussie” (slang for Australian) shops, many of which were in fact migrant businesses set up by earlier settlers from other European countries. The reason for setting up her first restaurant was simply “to offer a place of gathering among friends, and at that point of time there was no Taiwanese style restaurants in Queensland”. This “early settler” advantage made the business sustainable in the early years.

Figure 1 illustrates that the first restaurant was established inside the enclave in 1988 after the Brisbane’s World Expo ‘88. The number of restaurants grew over time between 1988 and 2000. After that, the growth in the restaurant population in the ethnic enclave plateaued, possibly due to the limited number of shop spaces in this area. Figure 1 also highlights the sharp increase in the number of Chinese restaurants in the larger Brisbane area after 1989, which reflects the large number of new settlers from Hong Kong and Taiwan prior to the handover of Hong Kong to the Mainland China in 1997². From 2002, we observe a change in the source of immigrants in the area: immigrants from Taiwan and Hong Kong declined significantly while new settlers from China increased dramatically. This means the total number of new settlers stayed similar over time but the expectations of the customers changed over time. As earlier restaurants inside the enclave served predominantly Cantonese or Taiwanese style cuisines, these restaurants faced changes in their ethnic clientele; the settlers from China were more accustomed to different Chinese style of cuisines.

Owner D observed that “many of the new migrants from China opened a restaurant because they need the business to apply for residency. These owners don’t care if they lose 2 million dollars on a business as long as they get their citizenship. How do you compete with that?” Owner D’s observation reflects not only changes in market demands, but also the level of competition inside the enclave after the new settlers arrive from China.

Despite the change in clientele, older restaurants inside the enclave continued to grow due to the steady increase of new settlers from China. The percentage of Chinese resident population in this area was 19% in the 2006 census and 25% in the 2011 census (Australian Bureau of Statistics, 2007, 2010, 2011). From 2000–01 and 2005–06, the number of skilled migrants coming to Australia from China more than tripled, from 3,800 to 12,500 people, and a large percentage of them lived and operated business either directly in the enclave or in the nearby suburbs. We believe this “cluster condition” is the reason behind the continuous growth of the restaurants inside the enclave. There was no need to break out of the ethnic market because the ethnic market was still growing during the early developmental stage of the enclave. However, restaurant owners inside the EE must cater for the need of the new arrivals who have a different preference in the style of cuisines compared to the early migrants. Figure 2 showed that restaurants established after 2007 (younger than 3 years)

² After the British government handed over Hong Kong to the Mainland Chinese government in 1997 there was a flight of Hong Kong residents to different part of the world, with many migrating to Australia, the U.S. and Canada, for fear of losing businesses, properties and individual freedom..

report much higher growth outside the enclave compared to their counterparts inside the enclave. Restaurant Owner A observed that “we have reached a point where it is not enough to just do business with the Chinese customers, because you can eat Chinese food in any suburb now. There are many other restaurants serving similar cuisine. If you are not very unique, it is difficult to keep the customers... the new migrants may just eat in their nearby suburbs. Even if they visit, it is just occasionally... whereas before, because they could not have this kind of food near them, they came really regularly.” This reflection summarizes the need to “break out” when the enclave reaches maturity and competition within becomes fierce.

Gleaning from the above insights, we believe that the reason younger businesses grew more outside the ethnic enclave than inside has to do with the maturity of the ethnic enclave. When businesses are established in a young and growing ethnic enclave they receive the advantage of better access to resources and customers. But once the ethnic enclave becomes mature, internal competition is tough and disadvantages new and young businesses, but not for older, stronger, established businesses.

DISCUSSION

Immigrant entrepreneurship has been studied in various contexts, yet our understanding of how an immigrant entrepreneur survives or succeeds is limited. Our study is an effort to explore the effect the ethnic enclave has on the growth of an immigrant entrepreneur business in a host country where numerous barriers and disadvantages may face them.

This study makes a contribution to cluster theory, EE theory and theories of immigrant entrepreneurs.

This study has practical implications for immigration policies. If a host country wants its new immigrants to contribute to the society in a productive way, its immigrant policies should be developed to encourage new immigrants to develop new businesses in newer ethnic enclaves.

The findings of this study are relevant to not only future immigrant business owners, but also ethnic community leaders trying to better understand how to promote healthy and sustainable economic communities.

While this study advances the literature by addressing Chinese the development of EE and their impact on immigrant entrepreneur business performance in Australia and other host countries,

This research is not without some limitations. Although qualitative, our study has a strong sampling strategy in the representativeness of our small and homogeneous sample. This enables identification of focal effects while controlling for other potential confounding factors. Our qualitative, economic and census data contextualize our interpretation and highlight the importance of taking into account the contextual environment when studying the growth of ethnic businesses. Another limitation of the study is the focus on Chinese immigrant entrepreneurs. Entrepreneurs in other immigrant business communities may vary in the types of social capital, size of social network and their embeddedness within their ethnic community. Although this study surveyed the whole population of Chinese restaurants, focusing only on the restaurant industry might cover up the sector differences and the findings are therefore may not generalize to other sectors. Future research should consider including more industries and possibly including more than one immigrant community to ascertain variation among different immigrant groups.

CONCLUSION

Immigrant entrepreneurship is being recognized as a driver of economic growth, making their tendency to locate in ethnic enclaves very important. Ethnic enclaves can be seen as a form of geographic cluster. We ask: How do EE form, growth and decline? And how do the local conditions differ at different stage of the enclave lifecycle ? We conducted in-depth face-to-face interviews with eight restaurant owners and triangulated our findings with census and other publicly available data. We found that ethnic enclave are initiated, grow and develop following an changes in the number of immigrants from a distinctive cultural group and that EE maturity is characterized by greater competition, potentially leading to decline. More research is needed to test this Ethnic Enclave Cluster Theory.

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Table 1

	Inside EE		Outside EE	
Developmental Stages of the Enclave	Growth	Non-Growth	Growth	Non-Growth
Before the Enclave Before 1990	-	A (first Owner) S:50	B S:150	C S:100
Sustainable Enclave 1990 - 2005	D S:80	E (first owner) S:135	D S:150	-
Furious Competition inside the Enclave 2005 to present	GS:80	F S:35 E (second owner) A (second generation owner) S:50	H: S:120	F S:42

Note: S = Number of Seats in the Restaurant, a proxy for business size

Table 2. Descriptive statistics for the sample of Chinese restaurants by age of business under current owners and location inside and outside the ethnic enclave.

2. Restaurants					
1. Age of Business	Surveyed		3. Growth		
	Inside	Outside	Inside	Outside	Outside
1. Less than 1 year	1 (3.1%)	0 (0%)	1.00	-	
2. More than 1 year but less than 3 years	5(15.6%)	5(6.4%)	2.80	3.73	B
3. More than 3 year but less than 5 years	8(25%)	10(12.8%)	2.95	2.74	D
4. More than 5 year but less than 7 years	8(25%)	25(32.1%)	3.42	3.53	F
5. 7 years or more	10(31.3%)	38(48.7%)	4.30	4.48	G

Note: For strength of ties, the restaurant less than 1 year old is included in the less than 3 category.

Figure 1 The Number of Chinese Restaurants in Brisbane and Sunnybank (Ethninc Enclave)

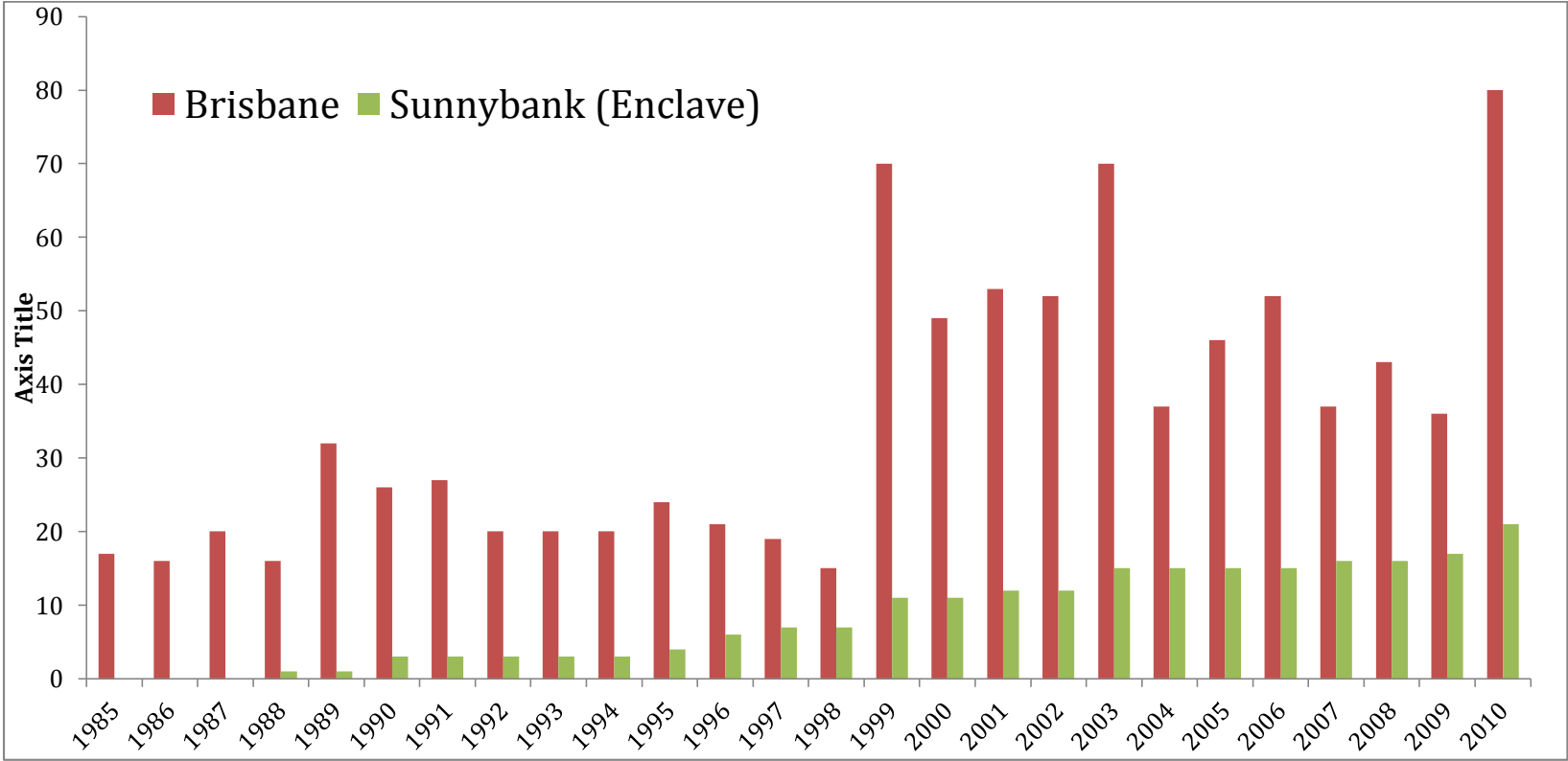


Figure 2 Business Growths by Location and Enclave Lifecycle Stage.

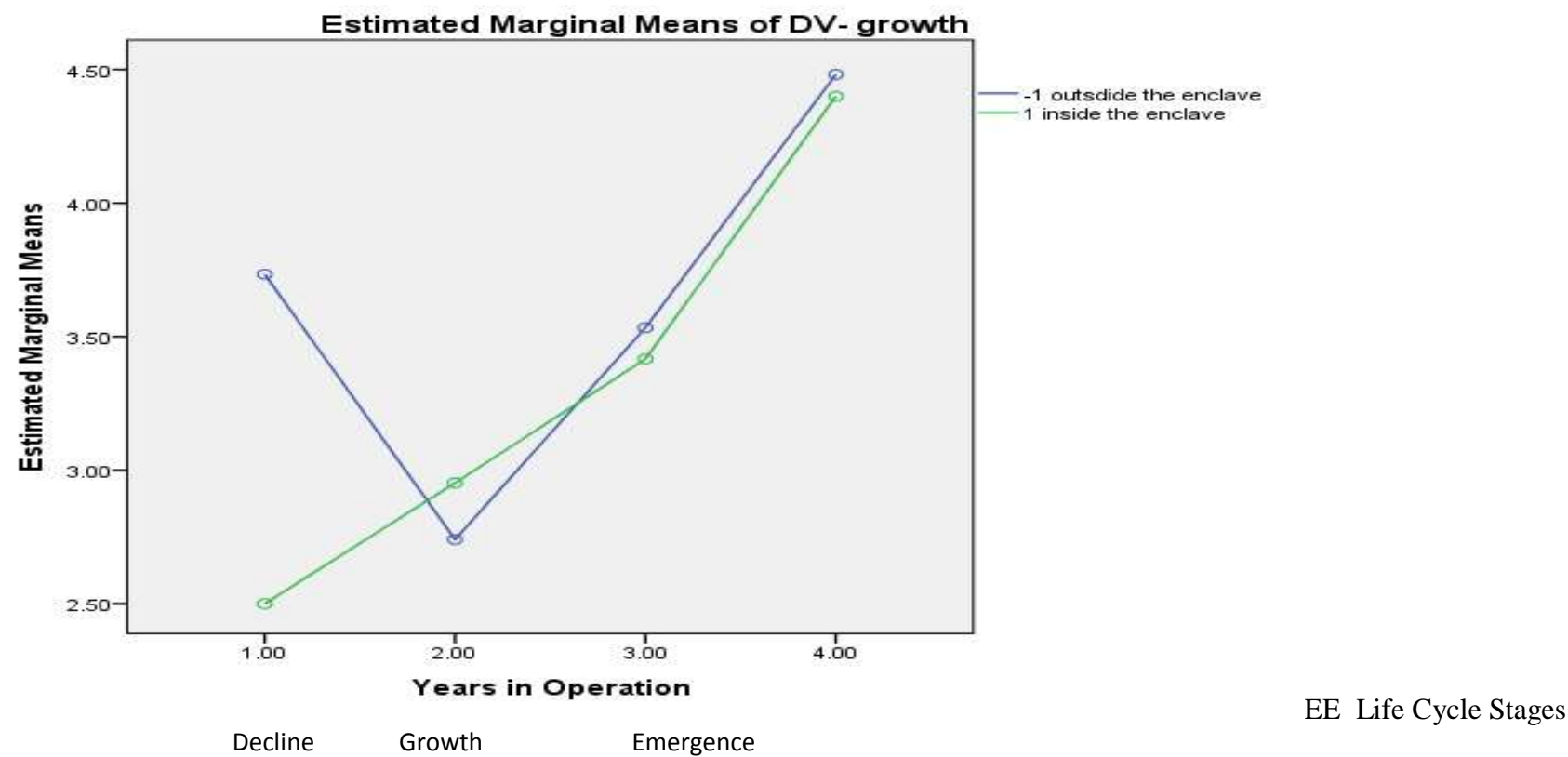


Figure 3 The Number of New Arrivals from Hong Kong, Taiwan, and China

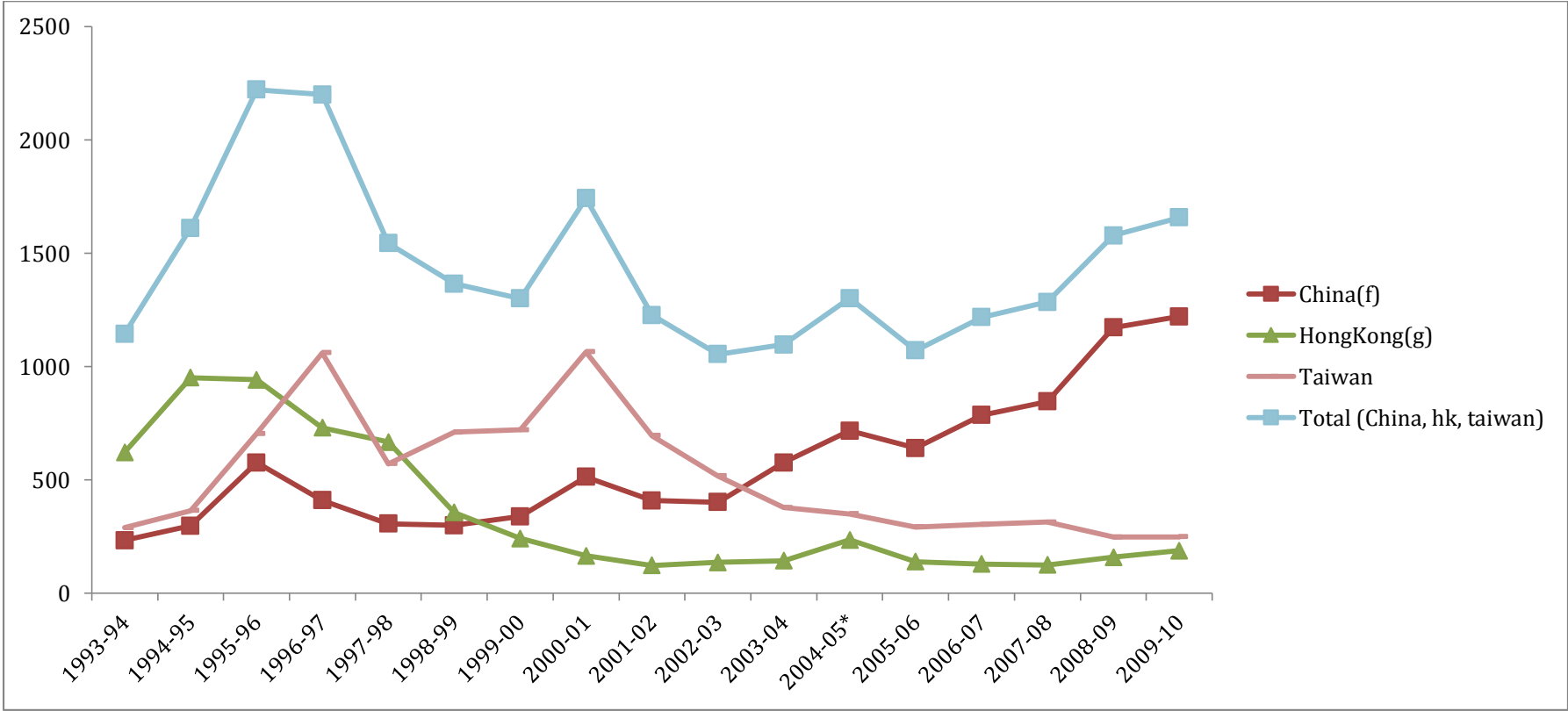
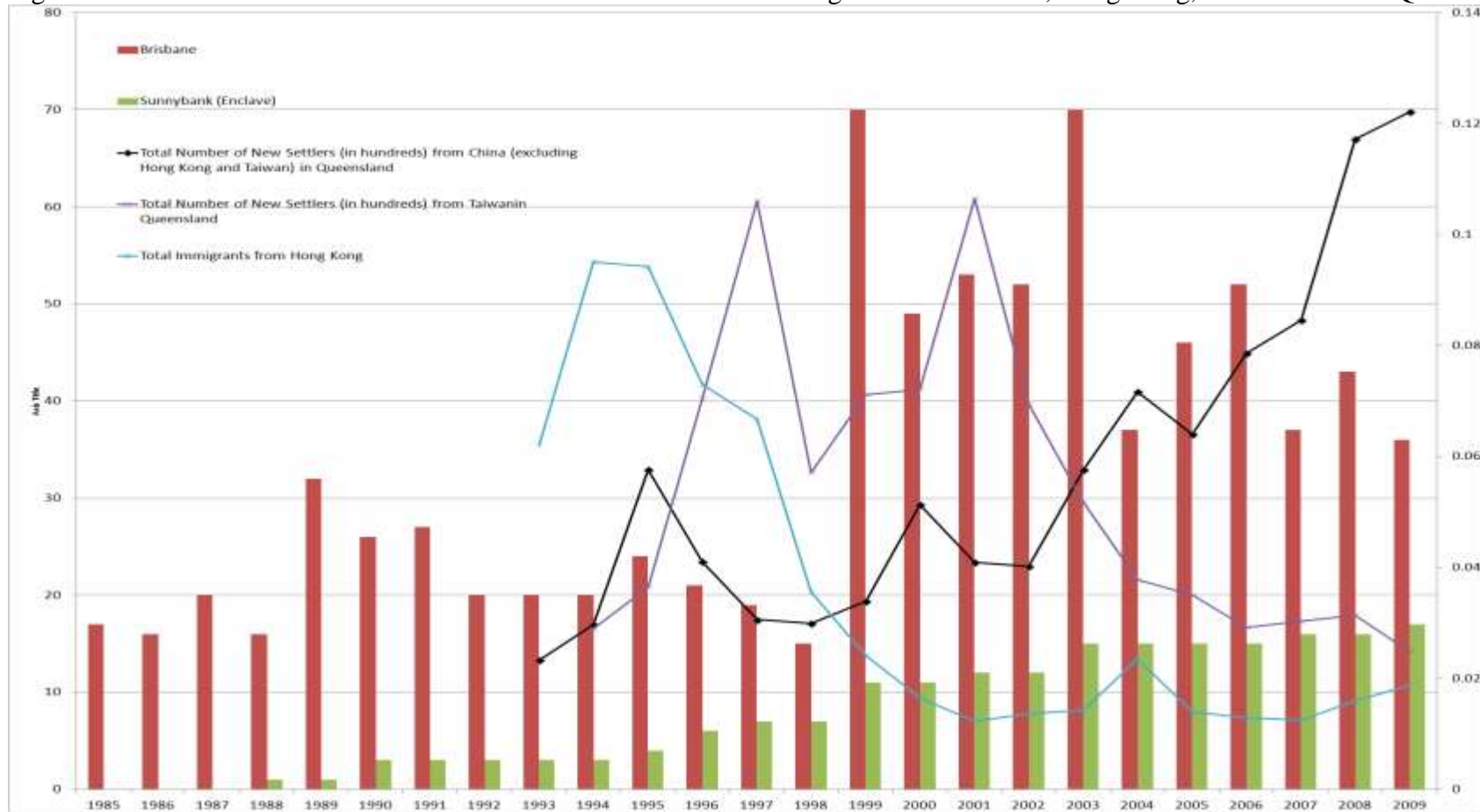


Figure 3. Number of Restaurants Inside and Outside the Enclave and Migration from China, Hong Kong, and Taiwan into Queensland per Year.



Note. Number of settlers based on ABS statistics, Number of restaurants based on counts of the advertisements in Chinese Yellow pages.