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BEHAVIORS AND FORMATION OF
ENTREPRENEURSHIP IN VIETNAM**

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Abstract

Entrepreneurship is widely recognized as an important factor shaping the economic performance of an economy. By adopting the definition of entrepreneurship as a process of discovering and exploiting entrepreneurial opportunities, this thesis aims to explore various aspects of entrepreneurship in the context of a transition country, Vietnam. The individual-level study investigates the determinants of successful entrepreneurship in terms of human capital, social capital, and their interaction. Indeed, human capital with respect to education, experience, and learning significantly stimulates entrepreneurial performance; the effect of social capital itself is limited, but positively complementary to human capital. Next, the firm-level research explores how product diversification as a strategic act of corporate entrepreneurship impacts on entrepreneurial performance. The finding indicates a positive and non-linear effect of diversification strategy on firm profitability: the positive effect is increasing as entrepreneurial expertise is exploited at a greater scope to an optimum point and falling off as product scope moves away from resource and governance scope. Finally, the regional-level study sets up an analytical integrated framework on the dynamic relationships among entrepreneurship, new firm entry and incumbent firms to support the statement that the growth of incumbent firms stimulates new entries in a region. These three empirical studies are based on unique micro datasets of the Vietnamese economy from different sources and adopt advanced econometric methodologies to test hypothesized relationships.

Keywords

Entrepreneurial opportunity; entrepreneurial performance; strategic behavior; firm entry; Vietnam

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Introduction

This dissertation is concerned with entrepreneurship in Vietnam. As a transition country, its entrepreneurial force is still young and growing up. The number of private firms (excluding collective and household establishments) increased from nearly zero in the late 1980s to some hundred thousand in 2006. They contributed 9.4% of GDP of the same year (GSO, 2007). The peculiar thing of Vietnamese private entrepreneurs is that they grow up under one-party Communist political system and weak market institutions. They face many constraints such as complex and frequently changing administrative regulations, corruption, bureaucracy, insufficient support from business development services, and lack of an established system of entrepreneurial finance. This distinctive context raises many issues of entrepreneurship which requires us to investigate.

Three topics will be examined in this dissertation: the role of human capital and social capital in successful entrepreneurship; strategic behavior of corporate entrepreneurship and firm performance; and the relationship between the growth of incumbent firms and new firm entry with respect to entrepreneurial opportunities. They will be presented in three distinct chapters. However, to make the dissertation easier to be followed, two review chapters are included. The thesis therefore has a structure as follows.

Chapter 2 starts with a selective review of literature on entrepreneurship. Its aim is to give a broad overview of research done in the field of entrepreneurship on these issues.

Chapter 3 provides an overview of entrepreneurship in Vietnam. It examines changes in business environments and development progress of Vietnamese entrepreneurship, general features of Vietnamese private enterprises and their contribution to Vietnam's economic performance since the country started its transition.

Chapter 4 aims to investigate the effects of human capital and social capital, as well as their interaction on the entrepreneurial performance of 2,120 Vietnamese start-up

SMEs in 2005. Human capital is captured by individual-level professional education, start-up experience, and learning. Social capital is operationalized as benefits obtained from personal strong-tie and weak-tie networks. Key findings are three-fold: (i) human capital strongly predicts firm success; (ii) benefits from weak ties outweigh those from strong ties though their economic effect is not strong; (iii) interaction of human capital and social capital has a positive effect on venture performance. Operating profit and growth of revenue per employee are used as success measures.

Chapter 5 examines the non-linear relationship between product diversification and firm performance in Vietnamese firms. Corporate entrepreneurship is considered as the process that covers product diversification strategy. After showing that the determinants of corporate entrepreneurial performance - entrepreneurial expertise and organizational form - are also the determinants of diversification performance and that the extension of diversification has a detrimental effect on both diversification performance and subsequent corporate entrepreneurial performance, I draw two empirical propositions in the Vietnamese context: (i) product diversification of private Vietnamese firms has a positive relationship with firm performance; and (ii) positive effects of diversification will reduce gradually as Vietnamese firms increase their diversification scope. These two empirical propositions are then tested by using the dataset of Vietnamese firms in Binh Duong, a province in the South of Vietnam, from 2003 to 2006.

Chapter 6 aims to set up the relationship between the performance of incumbent firms and the entry of new firms via the fundamental element of the modern theory of entrepreneurship: entrepreneurial opportunity. It shows that new knowledge and ideas un-commercialized by the creating organization are an important source of new entrepreneurial opportunities for nascent firms. A fixed-effects regression model is developed to test the research hypothesis that strong growth of incumbent firms in a region will stimulate start-up activities by creating abundant new profit opportunities for potential entrepreneurs. Vietnam's regional micro-data from 2000 to 2006 is used for this test. Four controlling indicators – entrepreneurial climate, entrepreneurial demand, market structure, and market innovativeness – are found to have statistical significant stimulating effect on new entries.

The last chapter concludes the dissertation.

A Selective Review of Entrepreneurship

2.1 Introduction

In Webster Dictionary, the entrepreneur is defined as “a person who organizes or manages any enterprise, especially a business, usually with considerable boldness and risk”. From this common conception one might imagine that the entrepreneur as well as his function, entrepreneurship, would have a well-built position in the economic science. Nevertheless, entrepreneurship was nearly ignored in modern economic textbooks. By that time, a generation of scholars had a faith that “the large-scale establishment or unit of control has come to be the most powerful engine of progress and in particular of the long-run expansion of output...” (Schumpeter, 1942: 106). Entrepreneurship has been reappraised only for some recent decades as it has come to be perceived as an engine of economic development throughout the world, especially since the emergence of information and telecommunication technologies (Acs and Audretsch, 2001).

One reason that prevents the development of a research discipline on entrepreneurship is its definition. Although entrepreneurship had been intermittently examined since the early history of economics like R. Cantillon, Jean-Baptiste Say, Alfred Marshall, Ludwig Mises, Frank Knight, and Joseph Schumpeter, there was no consensus on what entrepreneurship is. These economists indeed used the same word for different things. Entrepreneurship has not gained momentum as a scientific discipline until recently, when Israel Kirzner introduced a precise definition on entrepreneurship. According to Kirzner, entrepreneurship is a process of discovery and exploitation of profit opportunities (Kirzner, 1973). From this starting point, the theoretical and empirical entrepreneurship literature has started to grow rapidly at accelerating rates. A distinctive research domain is established, which aims to investigate “why, when and how entrepreneurial opportunities exist; the sources of those opportunities and the forms that they take; the processes of opportunity discovery and evaluation; the act of opportunity exploitation; why, when and how some individuals and not others discover,

evaluate, gather resources for and exploit opportunities; the strategies used to pursue opportunities; and the organizing efforts to exploit them” (Shane, 2003:5).

As entrepreneurship is still a young research field that incorporates scholarship and research in a variety of academic disciplines, including but not limited to economics, I do not intend to conduct a wide review that covers the whole research field. Rather, my purpose is minimally to specify the most important conceptual issues and debates on entrepreneurship to serve as the background for the next chapters.

This chapter provides a short review of the literature on entrepreneurship. The next section attempts to outline the nature of entrepreneurship from synthesizing both classical views and modern views. Section 2.3 elaborates the concept of corporate entrepreneurship. Section 2.4 examines the measurements of entrepreneurship and entrepreneurial performance. Section 2.5 explores the determinants of entrepreneurial performance. Section 2.6 investigates the role of entrepreneurship in economic growth. Finally, section 2.7 presents the place of entrepreneurship in developing and transition economies.

2.2 The Nature of Entrepreneurship

Entrepreneurship is a concept that is not well defined. It has been given different meanings by different authors. Shane and Venkataraman (2000) argue, “Perhaps the largest obstacle in creating a conceptual framework for the entrepreneurship field has been its definition” (: 218). The purpose of this section therefore is to identify the nature of entrepreneurship through a variety of literatures. Classical views will be discussed briefly to understand various aspects of entrepreneurship as well as the difficulty of identifying the nature of entrepreneurship. The section on modern views will be discussed more extensively to derive a definition of entrepreneurship that will be used throughout my dissertation.

2.2.1 Classical Views

In entrepreneurship research, Richard Cantillon (1680-1734) is often given credit as the first economist who introduced the concept of entrepreneurship into the literature of economic science. In his work *Essai sur la Nature du Commerce en Général* published in 1755, Cantillon saw the entrepreneur as responsible for all exchange and circulation in the economy. As opposed to wage workers and land owners who both receive a

certain/fixed income or rent, the entrepreneur earns an uncertain profit from buying products at a fixed price and then selling them at an unpredictable, uncertain price (see Hebert and Link, 1988). Cantillon therefore is the first person who sketched the essential characteristics of an entrepreneur as foresight and willingness to bear risk.

Unfortunately, entrepreneurship was paid very little attention by classical economists, from Adam Smith (1723-1790) even to John Stuart Mill (1806-1873). This trend was however broken by Jean-Baptiste Say (1767-1832). In his work, *Traité d'économie politique* (1803), Say defined entrepreneurship as the combining process of means of production into an organism; therefore, the entrepreneur plays the role as a “broker” who organizes and combines means of production with the aim of producing goods. The efforts of these entrepreneurs are not random – they are directed at creating value by moving resources out of less productive areas and into more productive ones.

While these early contributions all added dimensions to the picture of the entrepreneur, none of them developed a comprehensive theory of entrepreneurship. This task had been delayed until the early 20th century for few prominent economists, including Frank Knight, Joseph Schumpeter, and two Austrian economists, Ludwig von Mises and F.A. Hayek.

The key difference between these economists and antecedent economists is that they pointed out that there exists some distinct force in the economy, which is attributed to entrepreneurship, and without it, the economy cannot work progressively. In his work “*Risk, Uncertainty and Profit*” (1921), Knight shows that there exist two types of future outcomes in economic activities. The first one is insurable, which corresponds to risky situations. And the second one is uninsurable, which corresponds to uncertain situations. In the first type, the probability distribution of future outcomes is known, while in the second type, it is unknown. According to Knight, the main function of the entrepreneur is associated with uncertain situations. Entrepreneur’s income is the residual, may be positive or negative, after excluding all production costs as well as the amounts subject to risk insurances. It is the reward to his judgment ability and willingness to bear uncertainty. In Knight’s words: “the entrepreneur's income is not determined at all; it is what is left after the others are determined” (Knight, 1921:280).

Joseph Schumpeter, in “*The Theory of Economic Development*” published in 1911, shows that economic growth in the long-term does not result from capital accumulation,

but from innovations or “new combinations”. His point of departure is that equilibrium is predominant in the economic system. Without innovations, the economic system will operate as a closed circular flow. Innovations in the form of new products, methods of production, markets, investment goods, or organization of industrial units will break the state of equilibrium of the economy. But innovation has to be implemented by someone. This ability to break the established practice is assigned by Schumpeter to entrepreneurs. The entrepreneurial task is thus to “identify” new combinations and react to these by exercising the leadership to profit from them. Entrepreneurs are motivated by their desires for power and independence, the will to succeed, and the satisfaction of getting things done. As their role is to break the state of equilibrium, entrepreneurship is labeled by Schumpeter as the force of “creative destruction” where existing methods and products become obsolete by successfully introducing innovations.

Unlike Schumpeter, who views entrepreneurship as a disequilibrating force, Austrian economists, particularly Mises and Hayek, conceptualize entrepreneurship as an equilibrating one. A point of departure is provided by Mises’s notion of the evenly rotating economy where “economic agents behave like mechanical devices, with no choices to make and no purpose to proceed with” (Mises, 1949:249). Economic change sets in as soon as choices need to be made. According to Mises, entrepreneurship belongs to the core features of economic processes which are time-consuming and uncertain. Mises then presented a concept of entrepreneurship that is attributable to all economic agents who participate in equilibrating processes. “Entrepreneur means acting man in regard to the changes occurring in the data of the market” (Mises, 1949:255). Meanwhile, Hayek proposes the idea that market competition is a discovery procedure where economic agents use their local knowledge to discover changes introduced by other agents in order to satisfy untapped preferences to reap profits. The consequence of this discovery process is that the economy is coordinated and equilibrated (Hayek, 1945; Hayek 1978). Although Hayek did not explicitly assign the discovery function to entrepreneurship, he provided an important ingredient to Kirzner’s contribution in developing the first modern theory of entrepreneurship as presented below.

In short, the main contribution of classical economists into the field of entrepreneurship research is that they recognize the existence of an essential force, called entrepreneurship, without which the economy cannot work progressively.

Besides, they characterize some main attributes of the entrepreneur such as uncertainty bearing, innovation, and coordination/equilibration.

2.2.2 Modern Views

Israel Kirzner is given credit as the first person who introduces a modern theory of entrepreneurship, from which entrepreneurship has a precise meaning. As a student of the two famous Austrian economics, Ludwig von Mises and Friedrich von Hayek, Kirzner's conceptualization of entrepreneurship combines both Mises's and Hayek's insights. According to Kirzner (1973), entrepreneurship is the "alertness" to new profit opportunities which are unknown to anyone in the market. The word "new" here implies the 'change' function of an entrepreneur as Mises proposed. A new profit opportunity means it is not the one which emerges from the existing means-ends framework of the acting man. Here a means-ends framework should be understood as a way of thinking about the relationship between actions and outcomes. As entrepreneurship corresponds to new opportunities, it requires the acting man actively to create a new means-ends framework rather than just optimize within an old framework. The word "alertness" in Kirzner's definition implies the entrepreneur has to 'discover' new opportunities from his existing stock of knowledge – a Hayekian insight. It also implies that the opportunities the entrepreneur acts upon are "already out there". They are the product of the market process. Existing market participants cannot recognize them from their existing means-ends framework, and therefore, they are the opportunities waiting for other people, who use their own local knowledge, to discover through creating new means-ends frameworks.

After the landmark of Kirzner's work on entrepreneurship, scholars put many attempts to operationalize his concept. Casson (1982) is the classic attempt to operationalize the concept of entrepreneurship that is capable of rationalizing the success and explaining the failure of entrepreneurs. He defines an entrepreneur as "someone who specializes in taking judgmental decisions about the coordination of scarce resources." Like Kirzner, the most important concept for Casson's theory is coordination. The entrepreneur judges a situation (coupled with his role as intermediary) and determines where, when, and how coordination occurs. Further, Casson's theory of entrepreneurship enables us to link entrepreneur with firm. The entrepreneur operates in a market economy through the firm, of which the entrepreneur is the founder or owner-manager.

To overcome obstacles of trading, market-making activities are required, which involve information access and incur transaction costs. These transaction costs can be reduced by market internalization. The entrepreneur can internalize the exploitation of commercial information upon which his superior judgment is based by establishing a firm.

Based on the works of Kirzner and Casson, Venkataraman (1997) synthesizes and defines the domain of the research field of entrepreneurship as the one that studies the “sources of opportunities; the processes of discovery, evaluation and exploitation of opportunities; and the set of *individuals* who discover, evaluate, and exploit them” (Shane and Venkataraman, 2000: 218). It is the definition which is widely accepted nowadays.

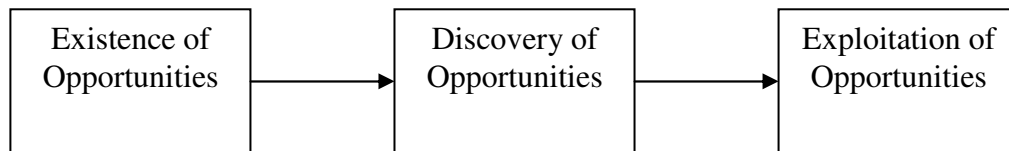


Figure 2.1 The direction of Entrepreneurial process (Shane and Venkataraman, 2000)

As Figure 2.1 indicates, this perspective suggests that entrepreneurship involves a sequential process even though this process may have feedback loops and may be non-linear. Opportunities exist prior to their discovery and opportunities are discovered before they are exploited. Shane and Eckhardt (2003:165) argue “the opposite direction is not possible because opportunities cannot be exploited before they exist”.

Entrepreneurial opportunities

It is necessary to distinguish between entrepreneurial opportunities and other profit opportunities. Shane (2003) defines an entrepreneurial opportunity as “a situation in which a person can create a new means-ends framework for recombining resources that the entrepreneur *believes* will yield a profit” (:18). As Shane notes “the main difference between an entrepreneurial opportunity and many other situations in which people seek profit is that an entrepreneurial opportunity requires the creation of a new means-ends framework rather than just optimizing within an old framework” (ibid.). In the same manner, Sarasvathy et al. (2003: 142) explain that “an entrepreneurial opportunity

consists of a set of ideas, beliefs and actions that enable the creation of future goods and services in the absence of current markets for them”.

It is also worth to distinguish between Kirzner’s view and Schumpeter’s view on the source of entrepreneurial opportunities. According to Kirzner, the existence of entrepreneurial opportunities requires only differential perceptions about existing products, raw materials, markets, production or organizing methods. As people have different perception frameworks about the efficient use of resources they can commit errors at various degrees in their decisions. However, people can recognize their own as well as others’ errors and act to correct them in order to gain additional profit. In this sense, entrepreneurship is the “alertness” to new opportunities; and following the discovery of such an opportunity, it is the sequence of innovative actions which require some changes in means-ends framework (Kirzner, 1973; Shane, 2003). On the other hand, the Schumpeterian perspective requires some innovative changes in products, raw materials, markets, production or organizing methods (Schumpeter, 1934). Thus, entrepreneurial opportunities come from the effort of people to break away from existing knowledge. Further, since new products and/or new markets always require complementary products and services (Holcombe, 2003) and since investments in new knowledge involve knowledge spillovers (Audretsch et al., 2005), the act of a Schumpeterian entrepreneur not only generates and seizes the opportunities for himself but also creates new opportunities for others.

Indeed, the Schumpeterian perspective could be viewed as a narrow one (subset) of the Kirznerian perspective. According to Kirzner (1997), an entrepreneur can create new opportunities for himself. However, any opportunity that he creates must be embedded and compatible to external environments. Thus, this process could be reasonably termed as ‘discovery’ even when the entrepreneur exercises his creativity. We are therefore possible to combine both Schumpeterian and Kirznerian sources of entrepreneurial profits into a single framework. Both Kirznerian and Schumpeterian sources come from the errors generated by the activities of other entrepreneurs, even though the Schumpeterian sources accompany with the entrepreneur’s intention of introducing new knowledge into the existing system.

The emergence of a new means-ends framework can result from the formulation of new means, new ends, or new means-ends relationships about products, raw materials,

markets, or production and organizing methods (Shane, 2003: 40). In other words, a means-ends framework is just a way of thinking about the relationship between actions and outcomes. In the economic literature, the neoclassical approach does not provide us such kind of knowledge. It is well known that in the neoclassical theoretical world, all economic actors are assumed to make decisions by optimizing within *known* means-ends framework, i.e. sets of goods, technologies, players, and preferences are given and known to all relevant parties. Profit opportunities open to economic actors merely come from the optimization of information contained in prices or from their positions in the market structure (such as monopolistic or oligopolistic position), rather than from changes in means-ends frameworks.

Discovery of entrepreneurial opportunities

Whatever the source of an entrepreneurial opportunity is, either a genuine creativity which fits in the existing system or an alert to other's errors, entrepreneurship involves in the process of recognition and pursuit of opportunities. The recognition or discovery of opportunities requires access to relevant information of a potential profit opportunity and being "alert" to this information. Alertness has been described as individual receptiveness and ability to create new means-ends frameworks from pieces of information (Kirzner, 1997). It is an individual act and cannot be a collective act. As Shane (2003) summarizes from many studies, the tendency to discover entrepreneurial opportunities depends on both psychological and non-psychological characteristics of people.¹ The next step – the pursuit or exploitation of opportunities requires the decision to capture profits possibly generated from these opportunities and the organization of means to exploit them.

The decision to exploit entrepreneurial opportunities depends on several factors, including the attributes of both entrepreneurs and the opportunities that they pursue. Venkataraman (1997) indicates that attributes of opportunities are themselves important

¹ Regarding non-psychological characteristics, some people are more likely than others to discover opportunities because they have information that other people lack. Prior life experience, social network relations, and active search for information are considered as the main factors of this information asymmetry. Regarding psychological characteristics, the ability to realize opportunities from information depends on absorptive capacity and cognitive processes. Prior knowledge about markets and technologies might enhance the ability to formulate new means-ends frameworks in response to new information (Cohen and Levinthal, 1990; Shane, 2000). And obviously, people's cognitive processes characterized by their intelligence, perceptive ability, creativity, and risk aversion influence their likelihood of opportunity discovery (Gaglio and Katz, 2001; Sarasvathy et al., 1998; Schumpeter, 1934; and Knight, 1921; in Shane, 2003).

to the exploitation process because of significant asymmetric information existing among entrepreneurs as well as between entrepreneurs and resource providers. Perceived value is the most important attribute of entrepreneurial opportunities that influences the exploitation decision. Empirical research has shown that opportunities will be more likely to be exploited when markets are larger (Schumpeter, 1934), profit margins are higher (Dunne et al., 1988), levels of competition are lower (Hannan and Freeman, 1984), and capital is cheaper (Shane, 1996). Entrepreneurs' attributes determining the exploitation of opportunities include: (i) access to financial capital, i.e. people with greater financial capital are more likely to exploit opportunities than people with lesser financial capital (Evans and Leighton, 1989); (ii) contracting solutions, i.e. the allocation of ownership rights between entrepreneurs and resource providers (Gompers and Lerner, 1999); (iii) social capital, or social ties, which provides a way to gather information quickly and cheaply, thereby reducing the information asymmetry itself (Aldrich and Zimmer, 1986; Gulati and Gargiulo, 1999); and (iv) motivational and psychological characteristics, which have been found by various empirical studies to influence entrepreneurs' decisions to exploit opportunities. For example, researchers argue that individuals being high in need for achievement (McClelland, 1961), in internal locus of control (Rotter, 1966; Spector, 1992), in risk taking propensity (Khilstrom and Laffont, 1979; Knight, 1921), in tolerance for ambiguity (Miller and Drodge, 1986), and in self-efficacy (Chen et al., 1998) are more likely to exploit entrepreneurial opportunities.

Exploitation of entrepreneurial opportunities

The exploitation process of entrepreneurial opportunities requires the entrepreneur to establish the organization or market mechanism to appropriate the returns from his discovery. This process involves in "creating routines and structures that will be used to recombine resources into the product or service sold to customers, and to create the entity that will undertake the re-combinatory activity" (Shane, 2003:220). Entrepreneurial opportunities can be pursued through market mechanisms like franchising or licensing, through established firms, or through new firms. Market mechanisms are highly selected if entrepreneurs face with capital constraints, the life span of the opportunity is short, or information conditions are less asymmetric. Other factors such as the codification of opportunity, the effectiveness of intellectual property protection regime, and the common knowledge on the value of opportunities also

influence the use of market mechanisms (Shane and Eckhardt, 2003:182-3). If firms are selected, then the choice between established ones or new ones is considered.²

2.3 Corporate Entrepreneurship and Strategic Behavior of the Firm

Corporate entrepreneurship (CE) is an evolving area of research. Although various terms for corporate entrepreneurship are used by scholars such as intrapreneurship (Kuratko et al., 1990), internal corporate entrepreneurship (Schollhammer, 1982), corporate ventures (Ellis and Taylor, 1987; McMillan et al., 1986), venture management (Veciana, 1996), new ventures (Roberts, 1980), and internal corporate venturing (Burgelman, 1984), they all imply entrepreneurial activities within established firms, i.e. the identification and exploitation of innovation-based profit opportunities in corporations. In comparison with startups or small enterprises, corporations have possession of rich human capital and a large pool of resources and capabilities to handle risks. Nevertheless, the process of exploiting new opportunities in corporations still cope with the same risks as those facing start ups and smaller enterprises.

The scope of CE activities is wide. In general, they belong to two distinct but related domains (Guth and Ginsberg, 1990; Phan et al., 2009). The first one is innovation and corporate venturing (CV) activities. Narayanan et al. (2009) state that CV focuses on the various steps and processes associated with creating new businesses and integrating them into the firm's overall business portfolio. According to Sharma and Chrisman (1999), CV can be divided into internal and external CV. Internal CV involves the creation of new businesses that generally reside within the corporate structure although they may be located outside the firm as semi-autonomous entities, such as spin-offs. Pre-existing internal organization structures may accommodate these new ventures or newly created organizational entities may be created within the corporate structure (Kuratko,

² According to Shane and Eckhardt (2003), this selection indeed depends on three sets of factors: industry characteristics, opportunity characteristics, and firm characteristics. Regarding industry characteristics, new firms are preferred in the following cases: (i) industries have more capital available for start-up activities; (ii) industries do not have high economies of scale or powerful first mover advantages; (iii) industries require less complementary assets to exploit opportunities; and (iv) industries are new. Regarding opportunity characteristics, new firms are preferred if (i) opportunities are radical; (ii) opportunities require low capital; and (iii) there exists an effective regime of intellectual property protection as means of preventing competition. And regarding firm characteristics, new firms are preferred if (i) the organizational structure of established firms is less flexible to incorporate new business activities, (ii) the existing firms have no strong reputation, (iii) the established firms are strongly relied on some existing customers, and (iv) the incentive structure of the existing firms do not provide their members sufficient returns or ownership (Shane and Eckhardt, 2003:183).

2007). External CV involves the investment in young, early growth state businesses created by external parties through corporate venture capital, licensing, acquisitions and joint ventures.

The second domain of CE embodies renewal activities that enhance a corporation's ability to compete and take risks, which may or may not involve the addition of new businesses to a corporation. It may involve strategic renewal, sustained regeneration, domain redefinition, and business model reconstruction (Covin and Miles, 1999). Some authors like Morris et al. (2008) and Kuratko and Audretsch (2009) call this aspect of CE as strategic entrepreneurship – the process of identification and exploitation of opportunities that contributes to the creation and maintenance of the corporation's competitive advantages.

Recent research on corporate entrepreneurship has focused on the organizational structures and routines that are necessary for promoting CE. Three issues are examined in this relationship. The first issue is the structural trade-off in CE. Zahra et al. (2009) suggest that boards of directors and absorptive capacity may complement or substitute for each other in enhancing CE in threshold firms which are at an intermediate stage between start-ups and established companies. Boards of directors represent the apex of the firm's governance system, defined as the organizational arrangements used to ensure the accountability of managers to shareholders with respect to both protecting shareholders wealth and creating new wealth (p. 249). Absorptive capacity, on the other hand, denotes a firm's ability to identify, accumulate, process and use the new knowledge gained from external sources (ibid.). When accountability is low, entrepreneurial activities will decline and firms' ability to create value or to grow declines as well. When low accountability is coupled with high absorptive capacity, absorptive capacity can compensate for relatively ineffective boards, and thus, entrepreneurial activities will be moderate. When accountability is high and absorptive capacity is low, effective boards likely replace managers with low absorptive capacity, resulting in moderate levels of entrepreneurship. Finally, positive complementarities will be evident between effective boards and high absorptive capacity, which significantly promote CE.

The second issue is the role of managers at different levels of the organization in supporting entrepreneurial activities. Dess et al. (2003) emphasize the role of top

management leadership in shaping the internal organization of CE. However, Kelley et al. (2009) have recently shown that organizational members from all managerial levels and divisions necessarily cooperate in a close manner in order to ascertain for the effectiveness of innovation-based CE.

And the final issue is the importance of organizational and managerial capabilities required to effectively engage in CE. Particularly, Burgers et al. (2009) emphasize on the capabilities that are necessary to balance differentiation and integration; Maula et al. (2009) imply that managers must develop a capability to understand and act upon the tradeoffs involved in corporate venture capital investments; and Zahra et al. (2009) suggest that CE activities can be enriched by effectively managing the complementarities (and substitutions) between a firm's board and directors and absorptive capacity.

CE has recently integrated with strategic management as they have similar characteristics (Covin and Kuratko, 2008). Strategic management calls for firms to establish and exploit competitive advantages within a particular environmental context, while corporate entrepreneurship promotes the search for competitive advantages through product, process, and market innovations. A new venture is typically created to pursue the marketplace promise from innovations (Amit et al., 2000). Since corporate entrepreneurship is more than a mindset that provides a theme or direction to a company's entire operations, it can serve as an integral component of a firm's strategy and, in some instances, serve as the core or defining component of corporate strategy (Kuratko et al., 2001). A strategy, at its essence, attempts to capture where the firm wants to go and how it plans to get there. When corporate entrepreneurship is introduced to strategy, the possibilities regarding where the firm can go, how fast, and how it gets there are greatly enhanced.

2.4 Measurement of Entrepreneurship and Entrepreneurial Performance

The definition of entrepreneurship as a process of discovery and exploitation of new opportunities is useful for conceptualization. However, the operationalization of this concept is difficult in empirical research. Opportunity is something unobservable. Its discovery and exploitation are unobservable, too. We are therefore difficult to measure entrepreneurial activities at each stage of the entrepreneurial process. What we can do is to find indicators that reflect as many as possible the distinctive outcomes/ effects of the

entrepreneurial process such as innovations, risk-taking, or economic changes. As a consequence, while there are many differences in the conceptual frameworks on entrepreneurship among theorists, there is somewhat no difference in the use of indicators of entrepreneurship among empirical researchers. There is a range of indicators for measuring entrepreneurship which researchers can choose one or some of them to serve their empirical studies, no matter which their theoretical framework is, Schumpeterian, Kirznerian, Knightian or so on.

In empirical research, the concept of entrepreneurial performance is commonly used. Generally, entrepreneurial performance reflects the effort to implement the entrepreneurial process (Shane, 2003: 5). In this sense, entrepreneurial performance is the outcome of the entrepreneurial process. As a consequence, its measurement could be served as the proxy for entrepreneurship. However, there are some indicators which are used merely for entrepreneurship but not for entrepreneurial performance since they indicate only the emergence of entrepreneurial activities rather than entrepreneurial efforts. For instance, self-employment and new firm entry are two typical measures which are used to reflect entrepreneurship. Meanwhile, survival, growth, profitability, and initial public offering are often adopted to measure entrepreneurial performance. Simultaneously, they may also be used to measure entrepreneurship. We examine them in details now.

2.4.1 Measurement of Entrepreneurship

Iversen et al. (2005) divide indicators of entrepreneurship into two groups according to the unit of analysis: (i) indicators at the individual level derived from individual characteristics such as self-employment or business ownership, and (ii) indicators at the business level based on firm statistics such as business entry and exit rates.

Individual-level measures

The first individual measure of entrepreneurship is the rate of self-employment, defined as the number of self-employed relative to the labor force. This measure has been used to compare entrepreneurship across countries (Blanchflower, 2000; OECD, 1998, 2000). The extensive use of self-employment rate is partly motivated by the similarity of definitions across countries (Audretsch, 2002).

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The primary advantage of using self-employment as an indicator of entrepreneurship is that it captures, at least in part, the number of people who have done the first entrepreneurial activity by making an occupational choice to work on their own. However, there are several disadvantages associated with using self-employment rates as an indicator of entrepreneurship. First, self-employment rates can be driven by other factors that influence people to move from paid employment to self-employment, for instance, self-employment due to the lack of other opportunities (unemployed). Second, there are statistical problems with self-employment rates, which are highly influenced by the industrial structure and demographic composition of each jurisdiction (Glaeser, 2007).

An alternative group of indicators are based on changes in self-employment, i.e. transition measures. The most basic measures are the entry and exit rates into and out of self-employment as used in OECD (2000). Another indicator which reflects the dynamic approach to entrepreneurship is the Total Entrepreneurial Activity (TEA) index computed by the Global Entrepreneurship Monitor (GEM). The measure is determined by the share of the adult population engaged in creating an enterprise within a given time period. Compared to the entry rates from self-employment, an advantage of the GEM surveys is that the issue of owner-managers of incorporated businesses may be minimized as the surveys focus on all individuals engaged in the start-up phase.

Other measures of entrepreneurial activities focus merely on the criterion of growth, such as revenue growth, profit, or employment growth. Lundstrom and Stevenson (2001) followed the GEM study (Reynolds et al., 2000) by defining and measuring entrepreneurship as “mainly people in the pre-startup, startup and early phases of business”. This definition has a tilt toward incipient entrepreneurs and startups because “these are the targets for entrepreneurship policy measures”. However, there is a considerable amount of change and innovation contributed by incumbent enterprises of all size, or what is sometimes referred to as intrapreneurship.

Business-level measures

An advantage of using business-level measures instead of individual-level measures is that they include not only sole proprietors but also incorporated businesses. Birth and death rates or the sum (turnover) and difference (net birth) are common business level indicators. They reflect the process of starting a new enterprise. The major advantage of

birth rate as an indicator of entrepreneurship is that it represents the primary way in which people bring ideas to the market. Put differently, the creation of a new business represents a mechanism by which entrepreneurs can gather resources and combine them to commercialize their ideas. The primary disadvantage of using business creation as a measure of entrepreneurship is that the most appropriate firm size to measure is unknown. On the other hand, when turning to empirical work, a number of problems emerge. For instance, it is difficult to find out whether an entry is in fact a new firm or the result of a merger; or firm entry is only one of entrepreneurial tasks, which need not imply equal degrees of innovation among different countries.

Business ownership, which measures the number or rate of employer-owned businesses, is often used as an alternative for self-employment. Similar to self-employment rate, this indicator is designed to measure the number of people who have left wage-based employment and taken the risk of starting their own businesses³. The expectation when this indicator is used is that a higher level of business ownership indicates a more entrepreneurial region in which people are more alert to various entrepreneurial opportunities. After reviewing a number of measures of entrepreneurship, Gartner and Shane (1995) conclude that business ownership is an ideal measure because it removes the need to measure firms by size. Audretsch et al. (2002)

³ It is worth to make a distinction between self-employment and business ownership. They are two different conceptions with some intersection. Self-employment is defined as performing work for personal profit rather than for wages paid by others; self-employed person is working for one's self rather than for another person or company (Shane, 2003: 5). Meanwhile, business ownership refers to how a business is legally set up. A business owner is not required to be hands-on with the day-to-day operation of his or her company, while a self-employed person has to utilize a very hands-on approach in order to survive. As a result, studies on self-employment can include situations in which the self employed person incorporates a business and employs others, as well as situations in which these things do not occur; while studies on business ownership covers a range from usually small self-employer owned businesses (sole proprietorship) to various larger legally-registered forms of business ownership such as partnership, cooperative, corporation. However, empirically, these two concepts are interchangeably used as the measure of entrepreneurship. For instance, Evans and Leighton (1989), Evans and Jovanovic (1989), Blanchflower and Oswald (1998), among others, focus on self-employment; whereas Cagetti and De Nardi (2006), Hurst and Lusardi (2004) and others define entrepreneurs as business owners. Quadrini (1999) and Akyol and Athreya (2007) consider both of these concepts in their definition. The distinction across these two groups does not seem to be critical in advanced countries, while empirical analysis shows that business owners and self-employed in developing countries differ in important ways. Velez and Parga (2008) show for the case of Columbia that self-employment is more prevalent than business ownership in informal sectors, and business ownership is associated with entrepreneurship whereas self-employment is basically a subsistence activity. In this thesis, since the dataset for empirical evidences of chapter 4 is individual-level data extracted from the DANIDA enterprise survey which also covered entrepreneurial activities at micro and informal unregistered households, it is more plausible to define entrepreneurs as self-employed who work only for themselves. However, chapter 5 and chapter 6 use the enterprise database from General Statistics Office (GSO) which includes only officially-registered firms, and hence, entrepreneurship should be understood as business ownership instead.

and Carree et al. (2002) also use this measure to reflect the degree of entrepreneurial activity. Storey (1991) proposes that this measure is a useful proxy for entrepreneurial activity when making comparison across countries and over time. However, it is unclear how different ownership structures and arrangements would be measured. When interpreting this measure, it lumps together all types of heterogeneous activities across a broad spectrum of sectors and contexts into a solitary measure. This measure treats all businesses as the same, both high-tech and low-tech. Thus, it is not weighted for the magnitude or impact of different industries. On the other hand, it measures the stock of businesses and not the startup of new ones.

Growth and survival of new firms are also common measures of entrepreneurship. The ratio of new growth businesses to the total number of businesses in the economy has been used to characterize entrepreneurship (Birch, 1999); the survival rate has been used by Eurostat (2004). However, the theoretical foundation of these measures is rather limited. It is uncertain whether a large survival rate is an indicator of more or less entrepreneurship. It is true that a longer survival rate could be an indication of a more innovative entrepreneur, but a low survival rate could also reflect a highly entrepreneurial economy.

Other measures of entrepreneurship focus more on change that corresponds to innovative activities of an industry. Such measures include indicators of R&D activity, the numbers of patented inventions, and new product innovations introduced into the market (Audretsch, 1995). These measures have the advantage of including only firms that actually generate innovative changes at the industry level that is at a level beyond the firm itself. However, such measures must always be qualified by their failure to incorporate significant types of innovative activity and change not reflected by such measures (Griliches, 1990).

2.4.2 Measurement of Entrepreneurial Performance

The improvement of entrepreneurial performance is one of the core purposes of both entrepreneurship and strategic management theory and research (Venkataraman and Ramanujam, 1986; Eisenhardt and Zbaracki, 1992). Accurate entrepreneurial performance measurement is thus critical to understanding new venture and small business success and failure. However, there seems to be no consensus regarding the best, or even sufficient, measures of entrepreneurial performance. After reviewing

different dimensions of performance considered in the various entrepreneurship studies from 1987 to 1993, Murphy et al. (1996) reveal that a majority of performance measures are related to one of eight performance dimensions, of which efficiency, growth, and profit are the most commonly considered.

Scholars use many measures of entrepreneurial performance in their research. For example, Shane (2003) uses four performance measures – survival, growth, profitability, and initial public offering. According to him, survival reflects the persistent continuation of the entrepreneurial effort since very few new businesses survive during the initial period in operation; growth in employment and sales is an important dimension of the entrepreneurial performance because almost all new ventures start at very small-scale and few of them ever grow on any dimension; profit, defined as the surplus of revenues over costs, is a valuable measure of entrepreneurial performance because it captures the concept of entrepreneurial profit discussed in the theoretical literature; and finally, the achievement of initial public offering, defined as the sale of stock to the public, captures the outcome of Schumpeterian types of entrepreneurial efforts.

It should be noted before ending this section that the relationship between a given independent variable and the entrepreneurial performance is likely to depend upon the particular performance measure used. It is quite possible for an independent variable to be positively related to one performance measure and negatively related to another. Thus, research findings supporting for an effect on one performance measure cannot justify the assumption that the effect is similar across other measures of performance.

2.5 The Determinants of Entrepreneurial Performance

So far we have examined the nature of entrepreneurship as well as how it is measured. In this section, we review the literature that explains how and why some entrepreneurs succeed in discovering and exploiting entrepreneurial opportunities and others fail. From the economic point of view, there are three groups of determinants of entrepreneurial performance: human capital, social capital, and financial capital (Bosma et al., 2000; Van Praag, 2005; Parker and Van Praag, 2006, etc.). Human capital is usually conceived as an economic actor's attributes, skills, or experience brought to the labor market; while social capital is considered as his/her ability to create and exploit actual or potential values and benefits resulting from his/her own social interactions and

networks.⁴ Financial capital is conceived as the entrepreneurial ability to mobilize production resources to realize entrepreneurial opportunities.

2.5.1 Human Capital

In general, human capital theory argues that human capital leads to success (Becker, 1964). Of all resources available to firms, human resources are perhaps the most important. Human capital increases the owners' capacity of performing generic entrepreneurial tasks of discovering and exploiting business opportunities (Shane and Venkataraman, 2000). Human capital helps owners to plan for future goals (Frese et al., 2006), to acquire other resources such as financial and physical capital (Brush et al., 2001), and to facilitate the acquisition of new knowledge and skills (Cohen and Levinthal, 1990). Organizations have increasingly invested in the human capital of their key decision-makers (Barney, 1995). Recently, human capital has been argued to play an even larger role in the future because of increasing knowledge intensive activities, rapid change and new requirements in the work place (Honig, 2001; Pennings et al., 1998; Bosma et al., 2004; Sonnentag and Frese, 2002). Taken together, start-up entrepreneurs with higher human capital should be more efficient in running their business than those with lower human capital.

However, while many studies show that human capital is related to success (e.g. Rauch and Frese, 2000), there have been conflicting empirical findings and the magnitude of the human capital–entrepreneurial success relationship is still unknown. To obtain a conclusive answer on whether human capital has a positive relationship with entrepreneurial performance, scholars take into account the effect of each of its sub-

⁴ It should be noted that, in this review, human capital does not include personality factors. Literature in psychology has studied personality characteristics as a contribution to rapid economic development and successful entrepreneurs: the need for achievement (McClelland, 1961), locus of control (Schiller and Crewson, 1997), risk-taking (Van Praag et al., 2002; Norton and Moore, 2002; Xu and Ruef, 2004), personality attributes such as tenacity, passion for work and pro-activity (Baum and Locke, 2004). However, many of these studies focus on “successful entrepreneurs” to determine personality attributes, without analytical comparisons of “potential entrepreneurs” who were not successful. Also, the attributes of a ‘successful entrepreneur’ are applicable to other occupations and are not unique to entrepreneurs (Amit et al., 1993; Kaufman and Dant, 1998). With respect to empirical literature, numerous studies show differing results on the relationship between personality factors and business success (Frank et al., 2007; Sandberg and Hofer, 1987). Overall, these studies indicate that the assessment of the role of personality factors is meaningful only if additional influencing factors in the founder’s environment, resources and processes are considered as well. It is not possible to predict the long-term success of a business by evaluating the personality factors of the business founders in early stages of start-up process. Therefore, in this research, I will exclude personality attributes - a subcomponent of the category ‘human capital’ - as potential determinants of successful entrepreneurship.

components on the overall firm-level performance, particularly, education (referred to as prior knowledge), experience, and learning.

Education, as prior knowledge, increases a person's stock of information and skills useful for the pursuit of an entrepreneurial opportunity and improves entrepreneurial judgment (Shane, 2000: 94). Prior knowledge increases business owners' entrepreneurial alertness (Westhead et al., 2005), prepares them to discover specific opportunities that are not apparent to others (Shane, 2000; Venkataraman, 1997). Pickles and O'Farrell (1987) find that Irish entrepreneurs are more highly educated than non-entrepreneurs, but that people with the highest levels of education are less likely to become entrepreneurs. Storey (1994) shows the result found in many empirical studies that educational attainment of the entrepreneur is an important positive determinant of the growth of his firm. Recently, Van der Sluis et al. (2003) perform a comprehensive meta-analysis of 94 studies that estimates the relationship between schooling and entrepreneurial entry and performance. They conclude that schooling, irrespective of how it is measured, significantly and positively affects entrepreneurial performance. The similar result is also found for the case of Dutch entrepreneurs from Bosma et al. (2004) and Parker and van Praag (2006), who argue that schooling also has an indirect effect on entrepreneurship by easing the capital constraints faced by new ventures. Hamilton (2000) finds that earnings are lower among self-employed who are high school drop-outs, and higher among college graduates.

In considering the effects of experience on entrepreneurial performance, it is helpful to distinguish between four distinct types of experience: labor force experience, industry experience, occupational experience and entrepreneurial experience. The effects of labor force experience on venture performance are generally weak. There is little evidence to suggest that general labor force experience has a meaningful impact on new venture performance (Hamilton, 2000; Bosma et al.; 2004). In contrast, the effects of industry experience on entrepreneurship are strong. It is argued that entrepreneurs will do better if they have pre-existing knowledge of buyers and suppliers, and understand operational issues, etc. in their industry. Much empirical research shows that industry experience has a positive effect on various measures of firm-level performance (Bruderl and Preisendorfer, 1998; Bruderl et al., 1992; Reynolds, 1993; Bates and Servon, 2000; Lerner and Almor, 2002; Bosma et al., 2004). Regarding occupational experience, scholars often consider managerial experience to have the greatest relevance. They

suggest that managerial experience should improve entrepreneurial performance because entrepreneurship plays a core organizing function (Say, 1971, in Van Praag, 2005). However, the experience may be more relevant in less hierarchical corporations. If entrepreneurs have some degree of autonomy and control, as in the case of many small firms, they can transform such managerial experience to entrepreneurial skills. In contrast, in very large and hierarchical firms most of entrepreneurs perform routinized tasks. The empirical evidences support the argument that the effect of managerial experience upon entrepreneurship is mixed (Bosma et al., 2004; Gimeno et al., 1997). Finally, the effects of prior entrepreneurial experience (self-employment experience) on entrepreneurship are positive. While some of the information and skills necessary to exploit an opportunity can be learned through education or through managerial and industry experience, much of important information and knowledge about exploiting opportunities can only be learned by doing (Jovanovic, 1982; Hebert and Link, 1988). Empirical studies generally support this positive relationship (Gimeno et al., 1997; Bosma et al., 2004; Holmes and Schmitz, 1996; Taylor, 1999; Reynolds, 1993; Lerner et al., 1995; Evans and Leighton, 1989; Schiller and Crewson, 1997; Beckman and Burton, 2005).

The third component of human capital – learning – is receiving growing attention, both on the part of academics and practitioners (Harrison and Leitch, 2005; Reuber and Fisher, 1994; Shane, 2000, Sonnentag and Frese, 2002). Learning is the continuous process that generates knowledge, which is categorized into vicarious learning (learning by observing) and experiential learning (learning by doing). Shane (2000) emphasizes on the importance of vicarious learning to the extent that much of the information and skills necessary for the exploitation of entrepreneurial opportunity can be learned through observation of others. In general, learning and knowledge are central for small businesses and their success (Levinthal and March, 1993; Zahra and George, 2002). From a resource-based view, learning and the ability to change are among the most important capabilities that firms can possess (Barney et al., 2001). It is therefore surprising that research on learning in entrepreneurship is still in its early stage (Ravasi and Turati, 2005). In particular, empirical studies on how business owners learn and accumulate relevant knowledge are still scarce.

Many researchers such as Kirzner (1997), Schumpeter (1934), Minniti and Bygrave (2001), Shane and Venkataraman (2000) agree on the importance of learning throughout

the entrepreneurial processes of exploring, discovering and pursuing new business opportunities. Knowledge from learning affects the owner's capacity to recognize (Shane, 2000) and evaluate valuable business opportunities, and to develop the initial idea into a new product or service (Ravasi and Turati, 2005). After the discovery of a potential opportunity, relevant knowledge accumulated enables business owners to make better decisions and take more knowledgeable actions when faced with ambiguity and uncertainty (Minniti and Bygrave, 2001; Reuber and Fisher, 1999). The process from the initial intuition to the launch of a new product incorporates a learning process in which the owner plays the key role. In summary, continuous learning appears to be of particular importance for successful task-accomplishments in entrepreneurship. Entrepreneurs need to engage in continuous learning, from incremental process innovation to product improvement to new product introduction, to be able to adapt to changing environments and to reduce uncertainty and ambiguity throughout the pursuit of new opportunities.

2.5.2 Social Capital

The notion of social capital hints human actions that are shaped by societal factors. According to Putnam (1993), social networks provided by extended family or community-based relationships are likely to amplify the effects of education, experience, and financial capital. It is therefore expected that social networks induce benefits to entrepreneurs at start-up (Aldrich and Zimmer, 1986, Johannisson, 1988).

In general, the role of social capital upon entrepreneurial performance is reflected on four aspects. *First*, social networks give entrepreneurs access to a variety of scarce resources (Zimmer and Aldrich, 1987; Bates, 1997; and Light, 1984). *Second*, social networks give entrepreneurs access to intangible resources (Bruderl and Preisendorfer, 1998; Bosma et al., 2004). *Third*, since entrepreneurs are limited in their ability to assemble and absorb information for their decision-making process, they have to rely on frequent external contacts, especially from distributors, suppliers, competitors, and customer organizations, to obtain necessary information and advices (Peters and Brush, 1996; Birley, 1985; Smeltzer et al., 1991; Brown and Butler, 1995). And *finally*, social networks have reputational and signaling effects. Positive perceptions of a firm's network participation may lead to subsequent profitable business exchanges (Stuart et al., 1999; Calabrese et al., 2000).

In addition, a number of studies emphasize on the governance and structure of social networks to explain entrepreneurial performance. In general, characteristics of the networks that entrepreneurs are embedded in (such as network size, density, diversity, centrality, etc.) are studied to establish the relationship with their business performance (for a review, see Hoang and Antoncic, 2003). However, according to Aldrich and Zimmer (1986), these general properties could evaluate the ability and potentiality of a personal network to provide resources to entrepreneurs, but could not give a sound measurement of how much support entrepreneurs receive from their social interactions, which is the theoretical interest of researchers on entrepreneurship.

Many previous empirical studies have not consistently found positive network effects. For example, Bates (1994) challenges the validity of explaining success in self-employment among Asian immigrant-owned small businesses by observing their use of social capital. For the case of Korean immigrant businesses in Chicago, Yoon (1991) finds that ethnic resources as social capital benefits are important at the initial stage of business, but turn out to be irrelevant or insufficient at latter stages where human capital become dominant. Aldrich and Reese (1993) also argue that networks involved in business start-up have no effect on subsequent business performance. Littunen (2000) investigates the effect of cooperation among 129 start-ups in Finland on their survival beyond the critical operational phase (4 to 6 years) as the criterion for success. He finds no significant correlations between networking and start-up success. According to Bruderl and Preisendorfer (1998), these unexpected negative effects are due to the fact that social capital was used to compensate shortfalls of other types of capital (human and financial capital) in these studies. They propose that "...entrepreneurs resorting to social support start with businesses that do not have good prospects because of other critical dimensions (human capital of the founder and start-up capital of the firm). Only after controlling for these critical variables, should positive influences of social support be observed" (p. 216). On the other hand, Witt (2004: 391) argues that the major shortcomings of existing network studies are "the neglect of different starting conditions" and claims that future empirical studies need to take into consideration start-up's size, industry, as well as, for example, the gender of the founders.

The "network success hypothesis" which assumes a positive relation between networking activities of entrepreneurs and their start-up success is initiated and supported by Bruderl and Preisendorfer (1998: 213) in a study of 1,700 new business

ventures in Germany. One of the initial findings that support positive network effects is Jarillo's (1989) which finds that firms exploiting intensively network resources grow significantly stronger than firms using only internal resources over a 10-year period. Zhao and Aram (1995), in a sample of Chinese entrepreneurs, suggest that the importance of range and intensity of networking is not merely limited to the earliest stage of firm development, and networking may differentiate levels of firm success at each stage of venture development. Ostgaard and Birley (1996) explore the effectiveness of personal networks of managers in England and confirm the importance of networks for company performance and development. Particularly, the size, diversity, and intensity of managers' social and professional networks, as well as their effort to maintain networks are positively related to profit, employment size, and employment growth of their firms. Defining social capital as the connectedness of firm members and potential clients, Pennings et al. (1998) show that firm-level social capital could be the important source of its competitive advantage, especially when the capital is specific and unique. The importance of social capital is further affirmed in recent studies with proxy as business network participation (Davidsson and Honig, 2003; Bosma et al., 2004), as emotional support from spouse and the way they gather information (Bosma et al., 2004), as interaction effects of structural holes in networks (Batjargal, 2007).

2.5.3 Financial Capital

Finance is always considered as a crucial factor for a new enterprise. Rujoub et al. (1995) point out that inadequacy in financial resources is often a primary reason for the failure of emerging businesses. It is easy to imagine that firms with greater financial resources can invest more in product/service development and have a larger financial cushion to handle market downturns or managerial mistakes. However, the question here is the relationship between access to capital and investment decisions of entrepreneurs. If capital markets are assumed to be perfect, external funds provide a perfect substitute for internal capital. Financial conditions of the entrepreneur are irrelevant to his investment, and therefore to his entrepreneurial performance (Schumpeter, 1934; Kirzner, 1973). But, if capital markets are assumed to be less perfect, say, due to the existence of imperfect and asymmetric information, then it is very costly and sometimes even impossible for providers of external finance to evaluate the quality and feasibility of an entrepreneur's investment opportunities (Say, 1803; Marshall, 1961).

Recent empirical research supports the second view. Literature measuring the effect of financial constraints on the self-selection of individuals into entrepreneurial positions (Evans and Jovanovic, 1989; Evans and Leighton, 1989; Dunn and Holtz-Eakin, 2000) draws the general conclusion that financial constraints bind, i.e. a significant proportion of individuals willing to enter the entrepreneurial population is hampered by a lack of sufficient capital. Blanchflower and Oswald (1998) in their study provide the evidence that lack of capital is a significant impediment to entrepreneurship in 50 percent of their cases.

However, the simple prescription that “the more financial capital, the better” is inadequate to guide firm founders at start-up (Carter and Van Auken, 1990). Initial capital plays a crucial role on the success of entrepreneurship in the establishment stage (O’Neill and Duker, 1986, Cooper et al., 1994). Research on SMEs in Nairobi (McCormick and Pederson, 1996) shows that superior than any other firm-level variables, initial capital explains the size of the garment business. Pennings et al. (1998) propose two reasons for a positive association between ownership share and the relative contribution of capital to firm performance. First, owners are residual claimants and therefore have a stronger incentive to use their human capital to the benefit of the firm. Second, the rents associated with investments in general assets completely accrue to the firm in case of an owner, while this is less so in case of a fixed claimant with outside options. Another reason is that commitment of own capital generates a positive signal to banks.

The importance of finance for the subsequent growth and performance of small firms has been more controversial. Some recent studies have argued that financial constraints are either unimportant or much less important than other factors (Bratkowski et al., 2000; Johnson et al., 2002). However, managers in Pissarides et al.’s (2000) samples report the lack of external finance to be a serious constraint. This disagreement derives from diverse views on the role of credit. One argument is that an adequate and timely support of credit has a positive impact upon performance whereas the other view argues adversely. The negative view contends that financial support leads instead to wastage of scarce resources and hence has no positive impact upon efficiency (Kar, 2002). Despite this, much research still devotes to measuring the correlation between access to capital and entrepreneurship performance once the stage of startup has been successfully completed (Evans and Jovanovic, 1989; Bates 1990, Cooper et al. 1994; Van Praag,

2003). Financial capital constraints might inhibit entrepreneurs from the pursuit of more capital-intensive strategies. However, as capital and ability are complementary resources for entrepreneurs (Evans and Jovanovic, 1989; De Meza and Webb, 2000), the more able entrepreneurs with less capital might be more successful than the less able with more capital.

2.6 Entrepreneurship and Economic Growth

So far I have reviewed the nature of entrepreneurship and the determinants of entrepreneurial performance. In this section, the consequences of entrepreneurship is examined, particularly the link between entrepreneurship and economic growth. Although the role of entrepreneurship in economic development was recognized by many prominent economists such as Schumpeter, Knight, and Mises, entrepreneurship has only in the last few years been systematically proposed as an additional factor in explaining economic growth. Various scholars have recently put forward entrepreneurship as a fourth component of a new “new growth theory”, so-called ‘entrepreneurship capital’, beside traditional physical capital, labor and knowledge at regional-level research (Audretsch and Keilbach, 2004; Acs et al., 2005; Henrekson, 2005; Audretsch et al., 2006). Entrepreneurship capital is defined as the ability of an economy to generate entrepreneurial activities (Audretsch and Keilbach, 2004; Audretsch, 2007). It reflects a broad range of different legal, institutional, and social factors. The relevant spatial unit for measuring entrepreneurship capital has generally been considered to be a country, a city or a region. Although measurement of entrepreneurship capital is multifaceted and heterogeneous, it manifests itself in a singular way – the start-up of new enterprises.

There are three channels through which entrepreneurship may positively affect economic growth (Audretsch and Thurik, 2004; Audretsch and Keilbach, 2004; and Carree and Thurik, 2006): increasing innovation and knowledge spillovers, increasing competition, and increasing diversity in sectors and firms.

In the first channel, entrepreneurship is an important mechanism that “permeates the knowledge filter, facilitating the spillover of new knowledge and ultimately generating economic growth” (Audretsch, 2007: 65). Audretsch et al. (2008) propose that new knowledge has a direct positive effect on regional economic performance and an indirect positive effect via entrepreneurial behaviors. As parts of the new knowledge will be

taken on by entrepreneurs, entrepreneurship will increase the exploitation of new knowledge and as such have a positive impact on regional economic performance. However, the capacity of an economy to generate productive entrepreneurial behaviors is shaped by the extent of its underlying entrepreneurship capital (Audretsch, 2007). Entrepreneurial behaviors involving the start-up and growth of new enterprises serve as a mechanism for the spill-over of knowledge from the source of origin. The knowledge spillover theory of entrepreneurship posits that entrepreneurship is the result of opportunities created through knowledge investments made in one organization, but commercialized through innovative activity in a new venture (Agarwal et al., 2007). In other words, new firms develop the capacity to adapt new technology and ideas developed by other firms (Cohen and Levinthal, 1989); by agents with endowments of new economic knowledge (Audretsch, 1995); by university research (Audretsch and Feldman, 1996; Acs et al., 1994).

In the second channel, entrepreneurship increases competition for new ideas embodied in economic agents, which facilitates the entry of new firms specializing in some particular new product niche in a region/city. This in turn enhances the growth performance of that city (Feldman and Audretsch, 1999; Glaeser et al., 1992). Finally, entrepreneurship increases diversity of the regional environment with the knowledge exchange of a variety of industries and firms that promotes knowledge externalities and ultimately innovative activity and economic growth (Jacobs, 1969; Glaeser et al., 1992; Feldman and Audretsch, 1999).

There are various strands in the empirical literature showing the effect of entrepreneurship on economic growth. Carree and Thurik (2003: 457) review four strands of empirical research: (i) the effect of turbulence on economic growth; (ii) the effect of changes in the size-distribution in regions on subsequent economic growth; (iii) the effect of the number of market participants in an industry on economic growth (competition); and (iv) the effect of the number of self-employed on subsequent growth.

- The effect of turbulence on subsequent economic growth is mixed and inconclusive. At the industry level, Caves (1998) concludes that entry-exit turnover only has significant impact on an industry's productivity growth in the long run. Bosma and Nieuwenhuijsen (2000) claim that turbulence positively affects total factor productivity growth in the service sector but not so in

manufacturing. At the regional level, relevant studies have tried to link various measures of entrepreneurial activity, most typically startup rates, to economic growth, commonly in terms of employment growth. While Reynolds (1999), Acs and Armington (2002) find some evidences of positive effect of turbulence on regional growth rate for the United States, Audretsch and Fritsch (1996) and Fritsch (1997) indicate the opposite for the case of Germany during the 1980s.

- The effect of changes in the size distribution of firms on subsequent growth performance appears clear-cut. The majority of studies posit that the share of small firms at both industry and regional level has a positive effect on the output growth in subsequent years (Carree and Thurik, 1998; Thurik, 1996; Robbins et al., 2000; Carree, 2002).
- The increase of entrepreneurial activities, measured by increased number of competitors (market participants), has a positive effect on the rate of total factor productivity growth (Nickell, 1996; Nickell et al., 1997; Lever and Nieuwenhuijsen, 1999).
- The effect of self-employment on growth is not clear. Blanchflower (2000) finds no evidence for a panel of OECD countries due to the lack in comparability across countries and over time, whereas Carree et al. (2002) indicate that a shortage of self-employed is likely to diminish competition with detrimental effects for static efficiency and competitiveness of the national economy. Their estimation results for data of the G7-countries show that a deviation of the actual number of business owners from the “equilibrium” rate has a significantly negative impact on economic growth.

In short, there are many recent studies concerning the impact of entrepreneurship on economic development. However, the results are mixed, depending on which measures are used for measuring economic development (GDP per capita, employment or productivity growth) and entrepreneurship (self-employment rates or different indices of new firm formation). As Acs and Storey (2004: 874) write: “there is evidence in some countries of a link between increase in new firm formation and subsequent economic development. However, this link does not emerge in all studies. Then non-appearance of a link may reflect measurement errors on key variables. It could also reflect omitted

variables bias. But it may also be because of real differences between countries or periods studied. The knowledge base, therefore, remains incomplete”.

2.7 Entrepreneurship in Developing and Transition Economies

Entrepreneurship in developing countries in general and transition countries in particular relates to unique context and associated challenges, which provides unique opportunities for entrepreneurial activities. For example, in developing countries, there are few incentives for entrepreneurs to participate in the formal sector, i.e. having registration status and paying taxes, particularly if they operate on a small scale. Entering the formal sector can be a deliberate decision based on the tradeoff between regulatory disadvantages (the burden of taxes, social security contributions, and official regulations) and formalization advantages such as better access to export markets (Schneider and Enste, 2000). Meanwhile, in transition economies, entrepreneurship proceeds in an environment characterized by dramatic changes of socio-economic and political conditions. Consequently, entrepreneurship does not necessarily require the establishment of a new enterprise, but includes leaders that take over state-owned enterprises and employ new combinations of resources (Estrin et al., 2009).

The purpose of this section is to address the current understanding of entrepreneurship in developing countries in general and transition countries in particular. Entrepreneurial opportunities, three determinants of entrepreneurial performance, and the role of entrepreneurship in economic development will be examined in this context.

2.7.1 Entrepreneurial Opportunities

The motivations for entrepreneurial activities in developing countries are either necessity-based or opportunity-based. Necessity entrepreneurs predominate in the developing country context where lack of other alternatives pushes individuals to engage in entrepreneurial activity. In many cases, new small businesses are founded as a last resort rather than as a first choice (Beck et al., 2005; Acs and Amoros, 2008; Bosma et al., 2008). In contrast, opportunity entrepreneurs are individuals who feel pulled into entrepreneurship due to the desire to apply a marketable idea (entrepreneurial opportunity) or to apply their skills to starting a business venture (Reynolds et al., 2002). Necessity-motivated entrepreneurs comprise up to half of those involved in

entrepreneurship in developing countries, while opportunity-motivated entrepreneurs are dominant in developed countries (ibid: 16).

One reason for high rates of necessity entrepreneurship in developing countries is the size of the informal sector. Workers who become entrepreneurs to avoid unemployment will likely to start business from low-skilled requirement, small-scale production, and subsistence activities. On the other hand, opportunities for voluntary opportunity-based entrepreneurs in developing countries are broader in scope and more pervasive than in developed markets. SMEs therefore can pursue a portfolio approach to strategy, i.e. spreading resources across several separate but related businesses in order to mitigate systematic risk (diversification).

In transition economies, necessity entrepreneurship also prevails (Arzeni, 1996). Self-employment or part-time business provides a means of “self help” support for many former employees of state-owned enterprises, who have either lost their jobs or have been forced to take leave. However, the transformation process in transition economies led to the liberalization of markets with greater flexibility in prices, wages and production decisions, and the imbalances inherited from the planned economy, which created enormous profit opportunities for entrepreneurs (Smallbone and Welter, 2001).

Nevertheless, the lack of private enterprise tradition in most transition countries results in an absence of business infrastructure and a productive entrepreneurial tradition (Smallbone and Welter, 2001). Trade and services are also a much smaller part of the transition economies than is typical for a market economy. The macro environment exposes a number of obstacles that impede entrepreneurial activities. Unfavorable economic environment, such as frequent changes of tax policies, high inflation rates, high unemployment rate, declining real earnings, unfair competition from a large informal economy, etc., makes it hard for entrepreneurs to operate (Smallbone and Welter, 2001; Glas et al., 2000; Hashi, 2000; Aidis, 2004).

Furthermore, there has been a tendency for transitional governments to over-regulate and interfere with private business activities, which further impedes the expansion and growth of private business sector. The negative attitude towards private business owners and entrepreneurs inherited from the centrally planned system continues to limit entrepreneurial activities in the transition context (Glas, et al., 2000). The government’s decisions on privatizing state firms also have affected the environment for new firms.

The scale and speed of privatization could add to the general uncertainty, thus deterring entry. The continued prevalence of state enterprises raises barriers to entry since they absorb scarce capital and receive regulatory favors (for instance, Berkowitz and Holland, 2001). Not only do governments impede entrepreneurship, formal institutions supporting entrepreneurial activity develop slowly. Banks almost exclusively serve state-owned firms, whereas business development services are poorly developed (McMillan and Woodruff, 1999; Ronnas, 1998).

2.7.2 Financial Capital

Most entrepreneurs in developing countries appear to rely upon informal sources of finance, especially personal savings and loans from friends and relatives, as important sources of start-up capital (Cooper et al., 1990:29). Once established, due to the absence of well-functioning credit markets, firms regularly reinvest from their own profits in place of external finance. Other sources of financing typically provided by development finance institutions to improve the access to capital of private sectors, such as bank lending and venture capital, play a very limited role at present in financing entrepreneurs, at least in the startup stage (formal loans). Consequently, while entrepreneurial opportunities are broader and resultant strategies are naturally self-hedging in developing countries, limited personal and family savings and an absence of financial innovation severely limits the growth prospects of promising startups in developing countries.

The situation of transition economies is similar. Financial markets in transition countries are often very limited and underdeveloped. The market structure is highly concentrated with banks with low levels of efficiency. The banking sector is in general relatively inexperienced in private sector lending, and thus lacks organizational capabilities to finance entrepreneurial businesses (Pissarides, 1999). The evidence suggests that state-owned banks continue to favor state-owned firms and, to some extent, large privatized firms by providing soft loans (Lizal and Svejnar, 2002). They rarely lend to the new private sector, especially at the start of the transition process (Richter and Schaffer, 1996; Feakins, 2002).

2.7.3 Human Capital

Generally, entrepreneurs in developing and transition countries tend to come from diverse social origins and backgrounds. Given the underdevelopment of the private sector, many business owners use quite rudimentary and primitive business methods but still obtain profitable results (Roberts and Zhou, 2000). Private entrepreneurs in transition economies tend to be more progressive and market oriented than the general population (ibid). Consequently, the tendency to engage in entrepreneurship does not seem to be greatly affected by educational level.

However, the primary motivations of entrepreneurs do vary according to educational background. Those with little educational background are much more likely to be “necessity entrepreneurs”, starting a firm because it is the best available alternative. Those with more education are more likely to be “opportunity entrepreneurs”, starting a business to pursue a particular opportunity. Those who start firms which are expected to have an impact on the market and which are likely to grow, are much more likely to have more education, often with post-secondary or graduate education (Reynolds et al., 2003:40-1).

Empirically, Smallboned and Welter (2001) find that entrepreneurs in transition countries often have comparatively high education levels and previous management experience compared with their Western counterparts. Nevertheless, the previous management experience has been obtained in a state-owned organization rather than in a market driven environment. Similar to developed countries, industry experience is associated with greater likelihood of survival and also of growth (Cooper et al., 1994; Cooper and Bruno, 1977). Those who start businesses in field they already know may be more aware of market opportunities. Managerial experience also benefits the new firm (Cooper et al., 1994) although there is evidence that managerial skills are in short supply. Most top directors in transition economies come from an engineering background and lack managerial skills as well as market experience (Estrin and Peiperl, 1998). The lack of business-related development skills stems from the absence of previous private business experience in transition countries (Roberts and Tholen, 1998).

2.7.4 Social Capital

A persistently recurring issue in studies of entrepreneurs in developing and transition economies is the importance of networks. In an unstable and weakly structured environment of a developing country, informal networks often play a key role in helping entrepreneurs to mobilize resources, and cope with the constraints imposed by highly bureaucratic structures and unfriendly officials (Lingelbach et al., 2005). The importance of greater pools of private savings for business inception in developing countries highlights the crucial role of well-developed family networks. According to Smallbone and Welter (2001), individuals whose parents were either self-employed or business owners have been shown to be more likely to become entrepreneurs than those from families without such entrepreneurial experience. The idea for business inception is also one benefit gained from informal networks. The 2003 GEM report, which includes data on many developing countries, notes that those who knew someone who started a business in the previous six months were two or three times as likely to become entrepreneurs (Reynolds et al., 2002).

The network contacts of the entrepreneur also bear upon prospects for success. If the entrepreneur has embedded relationships, suppliers may be more willing to give preferred treatment, supply detailed information, or work to solve problems jointly (Uzzi, 1997). Relationships can also decrease the need for capital, as the entrepreneur borrows space or begs for the use of excess resources (Starr and MacMillan, 1990). For instance, developing countries are more likely to see innovative, growth-oriented firms established in areas where there are already some established organizations of that type. These can function as the “incubators” where the pool of potential entrepreneurs can learn industry practices, identify market opportunities, accumulate capital, and form contacts.

In transition economies, many scholars relate the prevalence of networking to the absence of a well functioning formal institutional framework (McMillan and Woodruff, 2002). Based on the transaction costs theory, they argue that underdeveloped formal institutions in transition economies cause extensive market failures due to information asymmetries, lack of contract enforcement, high search and negotiation costs and various other effects (Swaan, 1997). In consequence, firms either stay out of these markets or they have to create alternative means to secure themselves. Hence, they build

business networks and rely on those relationships to ensure that business partners stick to their side of deals. If business partners depend on reputation within a business network, they would be cautious to cheat on anyone in the network since the damaged reputation may outweigh the short-term benefits of cheating, as observed by McMillan and Woodruff (1999) in Vietnam.

In view of the importance of both formal and informal institutions for entrepreneurs in transition economies, Nee (1998) raises the question of how these would combine to shape economic performance. He suggests that formal and informal norms would be mutually reinforcing if the formal rules were congruent with the preferences and interests of economic actors. Further research is required to investigate the interaction between formal and informal institutions in guiding entrepreneurs, and the changing role of these institutions at different stages of the transition process (Peng, 2003). Moreover, the social context inherited from the former socialist period appears to affect both the attitudes and behavior of entrepreneurs and the attitudes of society at large towards entrepreneurship (Smallbone and Welter, 2006).

Furthermore, in regard to cultural support, those who perceive that starting a new business leads to high respect and those who report seeing stories about successful new businesses in the media are much more likely to engage in entrepreneurship (Reynolds et al., 2003:43-5). However, in transition countries, history acts strongly against the entrepreneurial tradition. Entrepreneurship in the sense of creating new private businesses was illegal under the centrally planned system. Moreover, the culture has been strongly opposed to entrepreneurial activity such that entrepreneurs in the media are notorious for opportunistic behaviors (Estrin and Meyer, 2004).

2.7.5 The Role of Entrepreneurship in Economic Development

The role of entrepreneurship in economic development in developing countries is somehow different from that in developed countries. According to Naude (2008), in developing, entrepreneurship starts and accelerates growth, and provides momentum to the structural transformation of economies; whereas in the advanced economies, the concern is largely with obtaining new sources of productivity growth. Landes (1998) even asserts that entrepreneurship plays an important role in poverty alleviation. Entrepreneurship offers a new model for fighting poverty and ensuring economic growth in developing countries. Small businesses are often the backbone of the private sector in

the developing world, creating jobs and providing a tax base for local government, which provides revenue for infrastructure improvement. And frequently, SMEs offer the only employment available to millions of poor people throughout the world (Beck et al., 2005b; Reynolds et al., 2004).

However, entrepreneurship may not have much effect on economic growth in low income countries (Stam and Stel, 2009). The actions of most of the entrepreneurs in low income countries are not likely to have an effect on the restructuring and diversification of the poor economies. A substantial group of entrepreneurs in low income countries might get involved in a process of self-discovery. They do not link with global markets, and consequently, have not chance to access the world's stock of advanced knowledge. Further, in contrast to developing economies, growth-oriented entrepreneurship in low income countries is less likely to be realized due to constraints on the provision of capital and (skilled) labor. Taken together, Beck et al. (2005b:224) argue that "although a prosperous SME sector is a characteristic of flourishing economies, we cannot reject the view that SMEs do not cause growth". They also fail to observe any significant relationship between the size of the SME sector and poverty alleviation.

Regarding transition economies, there is a wide range of opportunities thrown up by the restructuring of formerly planned economies, imbalances between supply and demand, fragile market institutions. Thus, the characteristics of entrepreneurship and their economic impact cannot be assumed to be the same in Western countries (Smallbone and Welter, 2006). Estrin et al. (2009) give a review on the role of entrepreneurship in each stage of transition process:

- In the early transition period, equilibration of supply and demand, manifested in the adjustment of relative prices, opens up pervasive entrepreneurial opportunities for Kirznian-type entrepreneurs. Entrepreneurs are alert to opportunities and may take actions to exploit them.
- The second stage was marked with macro stabilization, indicated by reduced inflation and signal of economic growth. Entrepreneurs will play a role to break the stability by introducing innovations; this increases the incentives for Schumpeterian entrepreneurship.

- The third stage with more developed market institutions and property right mechanisms, Schumpeterian entrepreneurship becomes more feasible to boost up economic development.

Thus, we can expect to witness a large number of entrepreneurs entering the market during the initial stage but also to witness a larger failure rate.

2.8 Concluding Remarks

Entrepreneurship was recognized by classical economists as an important factor shaping the economic performance of an economy. However, it was almost neglected in the modern economic theory. The study of entrepreneurship has been resumed for some recent decades, especially after Kirzner (1973)'s introduction of a precise definition of entrepreneurship as the alertness of new profit opportunities. A new research field has been emerged, which cover both theoretical foundations and empirical studies. Various theoretical issues on "sources of opportunities; the processes of discovery, evaluation and exploitation of opportunities; and the set of *individuals* who discover, evaluate, and exploit them" (Shane and Venkataraman, 2000: 218) are exposed. Beside independent entrepreneurship in startup businesses, corporate entrepreneurship in established corporations is elaborated. The determinants of successful entrepreneurship and the role of entrepreneurship in economic growth are also re-examined. Recently, many studies investigate entrepreneurship in developing and transition economies in order to find its distinctive characteristics in these environments.

Despite of these efforts, research on entrepreneurship, especially empirical one, continues to remain at a crossroad. The following essays will examine various aspects of entrepreneurship in the context of Vietnam – a developing and transition economy. They are my own efforts to enrich this new field of research.

An Overview of Entrepreneurship in Vietnam

During the last 25 years, Vietnam has exemplified a successful transitional economy. “Doi moi” or renovation policy has released the productive capacities of all state, private and foreign sectors, contributing to economic growth of the nation. Private entrepreneurial activities have increasingly played an important role in investment, export and import, domestic trading and services, job creation and contribution to the state budget. The private sector has been formally recognized as a crucial element of the multi-sector market economy oriented to socialism in Vietnam.

In this chapter, an overview of Vietnamese entrepreneurship is provided. The next section shows the business environmental constraints and the development history of Vietnamese private enterprises. Section 3.2 gives an overview of general features of Vietnamese enterprises. Section 3.3 investigates the contribution of private enterprises into Vietnam’s economic performance. And finally, section 3.4 gives some concluding remarks on the review of Vietnamese entrepreneurship.

3.1 Business Environmental Constraints and Development History of Vietnamese Private Enterprises

Vietnamese entrepreneurs were nearly eradicated after the country’s reunification in 1975 as the Communist Party of Vietnam (CPV) applied the central economic planning and state ownership of the means of production throughout the whole country. The entrepreneurial force has reemerged just after the CPV admitted their ‘errors and illusions’ and subsequently introduced a range of reform measures known as *doi moi* since 1986. The renovation – a process of moving away from the central control towards a market economy – has allowed for a multi-sector economy, de-collectivization, private ownership, and liberalized foreign trade and investment.

The introduction of Company Law and Law on Private Enterprise in 1990 was the landmark that formally recognized the presence of private firms in Vietnam. The number

of private firms increased substantially during 1992-1995 and after 8 years of the implementation of these laws, more than 35,000 enterprises were established (Table 3.1).

Table 3.1 Number of Newly Established Enterprises by Legal Status in Vietnam, 1991-98

Year	Private enterprise	Limited Company	Joint-Stock Company	Total Private Number
1991	69	36	4	109
1992	2858	1064	56	3978
1993	5265	2104	40	7409
1994	5306	1840	25	7171
1995	4076	2047	35	6158
1996	3696	1753	39	5488
1997	2607	1064	22	3693
1998 ^a	1000	-	19	1019
01-02 ^b	4246	13027	2075	19348
2003 ^b	859	6679	1711	9249
2004 ^b	4327	10754	3194	18275
2005 ^b	4666	11587	3910	20163
2006 ^b	2677	11153	4516	18346

Note: The figures from 2001-2006 are the net entry.

Source: MPI-UNIDO Project (1999); ^(a) Webster and Taussig, 1999; ^(b) GSO (2007).

However, in the early 1990s, private enterprises were still subject to discrimination policies from the government. The shortage of capital was at the top of the list of constraints identified by entrepreneurs in almost every survey on private SMEs in Vietnam. Collateral requirements represented the largest obstacle to accessing loans of significant size and maturity from the formal financial system. Entrepreneurs had therefore mostly relied on personal savings and loans from families and friends for start-up capital and financing the first months of operations. Some private enterprises began operations under the name of state enterprises, but operated independently and for their own profit from the inception (World Bank, 1999).

The regional financial crisis in 1997 negatively affected the country's economy. Foreign direct investment substantially decreased. The number of domestic start-up firms also fell down (see Table 3.1). Consequently, GDP growth in 1999 reduced to the lowest level of the decade at 4.7%. To boost up the economy, the government had no choice but relied on the development of domestic private enterprises. This called for the

demand for equal treatment of private, collective, state-owned and foreign-invested enterprises. Many minor changes in credit regulations, land regulations and foreign trade regulations were introduced in favor of private enterprises. For example, bank loans were more easily accessible for the private sector, which led to a rapid increase of the private sector's share of total credit granted, from a very low base of 10 percent at the end of 1991 to 39 percent in 1994 and around 50 percent in the late 1990s (World Bank, 1999). All these minor changes were then brought to the new Enterprise Law which was launched in 2000 as a substitution for the earlier Company Law and Law on Private Enterprise.

Enterprise Law has significantly fostered entrepreneurial spirit in the country. It removed unnecessary business license restrictions in 145 industries, trades and services, and facilitated private entry in the market. Before the launch of Enterprise Law, it took 98 days to obtain the license for the establishment of a new enterprise; whereas after the enforcement of the Law, licenses were granted in 2 to 7 days after the request. The Law also enables commercial banks to provide loans to all state, foreign and private enterprises based on the efficiency of the projects and their ability to repay the loan rather than on collateral requirements. This has infused a new and strong entrepreneurial spirit into the local business environment that contributes to the economic growth of the nation. Thus, for two years (2000 and 2001) after the Law's implementation, the number of new enterprises grew to 35,447 with registered capital of VND 40,579 billion (equivalently to USD 2.66 billion), nearly equal to the total number of new enterprises generated by the former Company Law and Law on Private Enterprise in the whole 1990s.

In parallel with the creation of a better business environment for domestic enterprises, Vietnam starts to emphasize on attracting foreign trades and investments. The promulgation of Law on Foreign Investment in 1989 enabled the country to attract more than 3,000 foreign direct investment (FDI) projects valued at US\$42 billion including operating projects of US\$21 billion by 2001. However, in order to sign the Bilateral Trade Agreement with the U.S. and join the World Trade Organization (WTO), Vietnam had developed a transparent, rules-based trading and investment system. For five years 2001-2005, a series of codes were revised including Civil Code, Land Law, Commercial Law, Investment Law, Enterprise Law or newly-launched codes such as Law on Electronic Transactions, Law on Transfer of Technology, Law on Intellectual

Property, Law on Securities, Judgment Enforcement Code, and Law on Negotiable Instruments. Additionally, the government conducted the deregulation of some important industrial fields such as telephone system, internet system, and banking system. It is not exaggerated to say that by 2005 Vietnam had a full system of economic institutions for a market economy.

Besides the improvement of market-friendly business environment, Vietnamese government started introducing policies to promote SMEs. The priority of private sector and enterprise development was clearly indicated in the 2001-2005 Social Economic Development Strategy and the Comprehensive Poverty Reduction and Growth Strategy (CPRGS). SME promotion, particularly in rural areas, also attracted the attention from International institutions such as the World Bank, Asian Development Bank, UNDP, and many non-governmental organizations.

As a result, the private enterprise community has expanded at an incredible rate both in terms of number and in terms of registered capital. In particular, since the Enterprise Law became effective (1 January 2000) to the end of 2006, more than 106,134 enterprises have been registered with total investment capital of VND 320 trillion. The private enterprise community in Vietnam by 2006 was composed of more than 150,000 enterprises officially registered under the Enterprise Law, 16,899 cooperatives, 300,000 cooperative groups and 2.4 million household businesses registered in service and industry sectors, more than 10 million household businesses engaged in agriculture production and 13,000 agriculture farms (not to mention more than 3,000 foreign invested enterprises) (GSO, 2006).

Despite of these improvements in business environment, there are still many cumbersome issues. The country's justice system has not followed the Rule-of-Law yet. The Communist Party of Vietnam is still above the law.⁵ Complex administrative

⁵ The system of regulations in Vietnam is very complex. Legal institutions at the national level of Vietnam include the National Assembly—the country's legislature; the Standing Committee of the National Assembly; the Government— highest executive organ; the Ministry of Justice and other ministries and agencies; the Supreme People's Court; and the Supreme People's Procuracy. The country is divided into 64 provinces (including major cities of the first level), which are in turn subdivided into 600 districts and cities of the second level, including 10,331 communes/wards and villages (GSO, 2004). The highest organ at the local government level is the People's Council. The executive organ is the People's Committee that is elected by the People's Council. The People's Council elects the chairperson of the People's Committee as well. In the political system, Communist Party is the most important institution and dominates political life in the country. It is the center for decision-making. Party institutions are applied to the task at four levels of the government: central, provincial, district and commune.

regulation, excessive bureaucracy and frequent changes in requirements increase the risk and cost of doing business for private entrepreneurs. “Red tape” requirements permeate all levels of the hierarchy; the system is dispersed and disorderly; there have been corruption, bribery, wasted public assets and money; and public servants are unskilled and under-qualified (Phuong, 2003). Further, Vietnamese entrepreneurs still obtain little support from business development services on accounting, auditing, legal services, taxation, training, business advisory, etc. Advisory services have developed on an *ad hoc* and piecemeal basis since the country’s transition to a market-oriented system. Accounting and auditing advisory services have not been a primary concern for small private enterprises (Phuong, 2003). To conclude, many reforms need to be adopted to make Vietnam’s business environment more favorable to entrepreneurship.

3.2 General Features of the Vietnamese Enterprises

Like most transition countries, the Vietnamese enterprise community is dominated by SMEs (in terms of labor and capital). SMEs accounted for 97.2% in terms of number and 77.2% in terms of employees in 2006 (see Table 3.2). This implies that SMEs are an important source of employment generation in Vietnam.

Table 3.2 Enterprises and Employment in Vietnam (2006)

	SME			Sub- Total	Large Enterprises	Total
	Micro	Small	Medium			
Enterprises						
Number of enterprises	74,814	39,365	13,414	127,593	3,725	131,318
Percentage of all establishments (%)	57	29.98	10.2	97.2	2.84	100
Employment						
Employment (‘000 persons)	4,375	887	1,221	6,483	1,909	6,715
Percentage of persons engaged (%)	52.1	10.5	14.5	77.3	22.7	100
Average Size of Enterprises						
Persons engaged per enterprise	1.6	19	112	2.4	773	3

Note: Micro enterprises: up to 9 employees; Small enterprises: up to 49 employees; Medium enterprises: up to 299 employees; Large enterprises: more than 300 employees (World Bank definition).

Source: compiled by the author from GSO (2007).

Regarding ownership type, the share of non-state enterprises dominated and continually increased from 82.78% in 2001 to 93.96% in 2006. Among various ownership forms of non-state enterprises, limited liability and joint-stock were more

common than the private form. The proportion of enterprises registering in the limited liability form increased doubly, from 24.73% in 2001 to 48.48% in 2006, and the proportion of those registering in the joint-stock form increased substantially from 1.8% to 12.31% during the same period. This somewhat reflects the stronger confidence on the business environment from Vietnamese private enterprises such that they want to operate their establishments at a larger scale.

Table 3.3 Enterprises and Ownership types (2006)

	<i>Percentage - (%)</i>					
Year	2001	2002	2003	2004	2005	2006
Total	100.00	100.00	100.00	100.00	100.00	100.00
State enterprises	13.62	10.36	8.53	6.73	5.01	2.82
Central	4.89	3.86	3.26	2.64	2.14	1.33
Local	8.73	6.50	5.26	4.09	2.87	1.49
Non-state enterprises	82.78	85.75	87.80	89.60	91.55	93.96
Collectives	7.65	7.05	6.52	5.76	5.83	4.74
Private	48.59	44.07	39.41	35.62	32.67	28.40
Partnership	0.01	0.01	0.04	0.02	0.02	0.02
Limited liability	24.73	31.52	37.33	41.89	44.60	48.48
Joint-stock	1.80	3.09	4.50	6.31	8.43	12.31
Foreign-funded enterprises	3.61	3.89	3.67	3.67	3.44	3.21
100% foreign-funded	2.02	2.50	2.48	2.60	2.54	2.54
Joint ventures	1.59	1.39	1.19	1.07	0.90	0.67

Source: compiled by the author from GSO (2007).

Regarding registration location, among the eight economic regions of Vietnam, nearly 30% of total enterprises were concentrated in the Red River Delta region in 2006. This area offers many economic advantages, such as even and flat terrain, rich in natural resources, and a temperate climate. The South East and Mekong River Delta region both have 18% of the total establishments (see Table 3.4).

Table 3.4 Number of Enterprises by Location (2006)

Size Class	Red	North			South		Mekong	
	River Delta	North East	North West	Central Coast	Central Coast	Central Highlands	South East	River Delta
No. of enterprises ('000)	777.5	242.1	40.0	342.2	226.6	111.3	478.7	501.4
Proportion of total (%)	29	9	1	13	8	4	18	18
SMEs in region (%)	99.9	99.9	100.0	100.0	99.9	99.9	99.8	100.0
% Micro Enterprise	97.7	97.9	97.6	98.4	97.9	98.2	96.2	98.5
% Small Enterprise	1.81	1.64	1.88	1.30	1.57	1.34	2.63	1.28

<i>% Medium size</i>								
<i>Enterprise</i>	0.39	0.41	0.46	0.28	0.42	0.32	0.72	0.15
<i>% Large scale</i>								
<i>Enterprise</i>	0.08	0.08	0.05	0.03	0.09	0.10	0.20	0.03

Source: compiled by the author from GSO (2007).

In terms of industrial sectors, the wholesale-retail trade and manufacturing sectors account for the largest shares with 44.3% and 26.4% respectively, while the agriculture and forestry - formerly the key industries – take up a very minor share of only 0.1% (see Table 3.5).

Table 3.5 Distribution of Enterprises and Employees by Sectors (2006)

	No. of Enterprises	%	Employment	%
All Sectors	131,318	100	6,715,166	100
A. Agriculture and forestry	1,092	0.83	225,893	3.4
B. Fishery	1,307	1	30,469	0.5
C. Mining and Quarrying	1,369	1.04	180,155	2.7
D. Manufacturing	26,863	20.46	3,401,627	50.7
E. Electricity, gas and water supply	2,554	1.94	129,259	1.9
F. Construction	17,783	13.54	996,720	14.8
G. Wholesale and retail trade	52,505	39.98	735,115	10.9
H. Hotels and restaurants	5,116	3.9	117,843	1.8
I. Transport, storage and communications	7,695	5.86	455,358	6.8
J. Financial intermediation	1,741	1.33	122,407	1.8
K. Scientific activities and technology	33	0.03	783	0.0
L. Real estate, renting and business services	11,050	8.4	231,187	3.4
M. Education and training	785	0.6	12,123	0.2
N. Health and social work	256	0.2	8,417	0.12
O. Recreational, cultural and sporting activities	491	0.37	21,986	0.33
P. Community, social work and personal services	670	0.5	45,771	0.68

Source: compiled by the author from GSO (2007).

3.3 Contributions of Private Enterprises into Vietnam's Economic Performance

Compared to other socialist countries, Vietnam's transition would be considered as a successful case. It did not encounter common consequences like negative growth, high inflation, and high unemployment as other transition economies in the Soviet Union

block and the Eastern Europe did. Indeed, Vietnam achieved the average annual growth rate of 4.6% during 1986-1990 and 6.9% during 1991-2005, and kept inflation under control after 1989.

Private enterprises play more important role in this impressive economic performance. Table 3.6 shows us the structure of Vietnam's GDP by ownership types. Overall, the contribution of state enterprises decreases overtime, whereas private enterprises gradually have a stronger position in GDP. Particularly, in 1995, the domestic private enterprises accounted for only 7.4% of GDP. However, this sector has extended substantially and increased its GDP's contribution to 10.2% in 2007. Similarly, foreign enterprises contributed only 6.3% of GDP in 1995. But this figure increased to 18.0% in 2007.

Table 3.6 Structure of GDP by Ownership Types (%), 1995-2007

Year	State	Non-state			Total non-state	Foreign-invested
		Collective	Private	Household		
1995	40.2	10.1	7.4	36.0	53.5	6.3
1996	39.9	10.0	7.4	35.3	52.7	7.4
1997	40.5	8.9	7.2	34.3	50.5	9.1
1998	40.0	8.9	7.2	33.8	50.0	10.0
1999	38.7	8.8	7.3	32.9	49.0	12.2
2000	38.5	8.6	7.3	32.3	48.2	13.3
2001	38.4	8.1	8.0	31.8	47.8	13.8
2002	38.4	8.0	8.3	31.6	47.9	13.8
2003	39.1	7.5	8.2	30.7	46.5	14.5
2004	39.1	7.1	8.5	30.2	45.8	15.1
2005	38.4	6.8	8.9	29.9	45.6	16.0
2006	37.4	6.5	9.4	29.7	45.6	17.0
2007	35.9	6.2	10.2	29.7	46.1	18.0

Source: GSO, 2007.

Private enterprises become the main source of job generation. In 2000, this sector provided 24.3% of total employments (excluding those in the household sector) compared to 59% created by state enterprises. But in 2006, private enterprises generated 48% of total employments, while state enterprises provided only 28.3%.

Table 3.7 Numbers of Employees in Enterprises by Types of Enterprises, 2000-2006 ('000 employees)

Year	State	Non-state			Foreign-invested
		Collective	Private	Total non-state	
2000	2088.5 (59.0%)	182.3 (5.2%)	858.6 (24.3%)	1040.9 (29.4%)	407.6 (11.5%)
2003	2264.9 (43.8%)	160.9 (3.1%)	1889.0 (36.5%)	2049.9 (39.6%)	860.3 (16.6%)
2004	2250.4 (39.0%)	157.8 (2.7%)	2317.6 (40.2%)	2475.4 (42.9%)	1044.9 (18.1%)
2005	2037.7 (32.7%)	160.1 (2.6%)	2819 (45.2%)	2979.1 (47.8%)	1220.6 (19.6%)
2006	1899.9 (28.3%)	149.2 (2.2%)	3220.7 (48.0%)	3369.9 (50.2%)	1445.4 (21.5%)

Note: - Household units are not counted in this table.

- Figures in parentheses are the corresponding share in the total employments of all Vietnamese enterprises.

Source: GSO, 2007.

3.4 Concluding Remarks

Vietnam has formally started its transition out of the centrally planning model since the end of 1986. Many changes in the business environment have been implemented. The remarkable achievement is the formal recognition of private enterprises through Company Law and Law on Private Enterprise in 1990 and Enterprise Law in 2000. Private enterprises, both domestic and foreign, have gradually been treated as equally as state owned enterprises. As a result, the number of private enterprises has increased substantially. They increasingly have a large contribution into GDP as well as job generation. However, Vietnamese enterprises still have to operate in a transitional business environment with unsound legal systems, complex administrative systems, and insufficient support from business development services.

Human Capital, Social Capital, and Successful Entrepreneurship in Vietnam⁶

4.1 Introduction

Recently, there have been many studies on the role of human capital and social capital upon entrepreneurial performance. Although important work has been done, the literature on the interplay of human and social capital in entrepreneurship is still limited and in some cases contradictory. Most studies have merely picked up either human capital (Cooper et al., 1994; Van Praag and Cramer, 2001) or social capital (Yoon, 1991; Aldrich and Reese, 1993; Bates, 1994; Pennings et al., 1998; Van Praag, 2002) rather than their combination. Many studies do not address the interactions between human and social capital. Some entrepreneurship scholars argue that human capital and social capital are substitutes, while others see them as complements. Bruderl and Preisendorfer (1998) state that social capital compensates for shortcomings in human capital, and Piazza-Georgi (2002) indicates that investment in human capital leads to a loss in social capital, since one is unable to invest simultaneously in both forms of capital. Human and social capital are seen as complements in the sociological literature, just as human and physical capital are increasingly seen as complements in the economic literature on growth and productivity (Abramovitz, 1989; Szirmai, 2008). That is, there exists a considerable gap in the literature on how social capital from personal networks of entrepreneurs interacts with their own human capital to generate competitive knowledge for venture development.

A second shortcoming in the entrepreneurship literature is its focus on human and social capital in the advanced economies, while it has been argued that these aspects are critically important for developing countries. Other researchers also propose that the

⁶ The earlier versions of this chapter were presented in GREQAM Summer School 2008 - The Economics of Knowledge: Innovation and Networks (Aix-en Provence, France, October 14th – October 17th), and European Summer University on Entrepreneurship Conference (ESU 2009) in Benevento, Italy, September 8th – September 13th.

neglect of developing countries is a flaw in the entrepreneurship literature in general (Bruton et al., 2008; Rooks et al., 2009).

To address these shortcomings, this chapter has two objectives. First, it will examine specific effects of human capital and social capital on entrepreneurial performance in developing countries while controlling for a rich set of other individual and institutional factors. Second, it will investigate in particular the effect of the interaction of human and social capital on entrepreneurial performance.

For these purposes, the study exploits the cross-sectional data of Vietnamese SMEs firms for the year 2005 which are extracted from the DANIDA (Danish International Development Agency) survey carried out in collaboration between Ministry of Labor, Invalids and Social Affairs in Vietnam (MOLISA) and the Department of Economics, University of Copenhagen, Denmark. The dataset contains 2,120 start-up firms which were established for 9 years or less. Thus, their inception year ranges from 1995 until the year of conducting survey (2004). Ordinary least squares (OLS) regression with robust standard errors is adopted in operating profit equation, and tobit is used to take into account left censoring below-zero growth rate when growth of revenue per employee is considered as the success measure.

The findings are robust and in line with comparable empirical research for developed countries such as that reported by Van Praag (2005) and Parker and Van Praag (2006). Experience from working as a self-employer before or working in the same industry before plays the most significant role as the key determinant of successful entrepreneurship. Social capital is measured as the benefits obtained from personal strong-tie and weak-tie networks. The findings support Granovetter (1973) and Davidsson and Honig (2003) and contradict Bruderl and Preisendorfer (1998) such that benefits from weak-tie networks outweigh those from strong-tie networks. Weak ties give entrepreneurs access to various types of resources that are unlikely available within close strong-tie interactions. However, the economic effects from participating formal business networks (weak-tie networks) are not strong. The reason may be because networks in Vietnam are mainly politics-based, rather than business-based. In general, social capital benefits have not yet fully exploited or capitalized by Vietnamese entrepreneurs. And finally, the combination of human and social capital does create values for Vietnamese entrepreneurs.

Generally, entrepreneurship process consists of different related entrepreneurial phases, including the formation of entrepreneurial intentions, nascent entrepreneurship, start-up and venture formation as well as survival, growth and excellence in creating innovations and productivity (Van Praag, 2005). Thus, the overall entrepreneurial success is contributed from the success of each phase. Although this research aims to provide a better understanding of the determinants of successful entrepreneurship in Vietnam, it focuses only on entrepreneurial success of individuals at one phase of the process: the start-up and venture formation. The determinants of successful entrepreneurship in this phase may relate to those of other phases. However, in the field of entrepreneurship, they are normally examined separately. Human capital and social capital may determine the success of all entrepreneurial phases. Nevertheless, these two factors are normally more important during the start-up and venture formation than in other phases. For example, the success of nascent entrepreneurship in starting their own firms is attributed mainly to psychological and cognitive factors sub-components of human capital such as motivation, self efficacy/self-esteem, risk-averseness, and overconfidence rather than knowledge from education, experience, and learning (Shane, 2003; Lindsay et al. 2007; Kessler, 2009). Parker and Belghitar (2006) propose that above all, financial resources play a key role in explaining outcomes of nascent entrepreneurship. Therefore, in this study, the problem of selection bias may not be serious when we use the database of start-up firms to examine the success of entrepreneurship in the early business formation phase.

The chapter is structured as follows. Section 4.2 reviews the current literature on human capital and social capital, from which a list of hypotheses is proposed. Section 4.3 describes the dataset. Section 4.4 sets up the empirical models to test proposed hypotheses and presents results. Finally, section 4.5 discusses the results of the study and draws policy implications.

4.2 Theoretical Framework

4.2.1 Human Capital and Entrepreneurial Performance

As shown in Section 2.5.1 of Chapter 2, human capital theory generally argues that human capital leads to success of entrepreneur. The underlying reason is that human capital increases the owners' capacity of performing generic entrepreneurial tasks of

discovering and exploiting business opportunities (Shane and Venkataraman, 2000; Frese et al., 2006; Brush et al, 2001; Cohen and Levinthal, 1990; Honig, 2001; Pennings et al., 1998; Bosma et al., 2004; Sonnentag and Frese, 2002). Thus, I propose the following hypothesis:

Hypothesis 1: *There is a positive relationship between human capital and the success of start-up firms.*

However, empirical findings provide mixed results and the magnitude of the human capital–entrepreneurial success relationship is still unknown. Reuber and Fisher (1994) review eight studies testing this relationship and identify eleven significantly positive effects, eleven non-significant effects, and two significantly negative effects. Relationships between human capital and success have been described as “spotty and difficult to interpret” (Reuber and Fisher, 1994: 370), “somewhat inconclusive” (Honig, 2001: 579), and “mixed”, inconclusive on the whole (Florin et al., 2003: 375). Baum and Silverman (2004: 411) claim that venture capitalists “appear to make a common attribution error overemphasizing the human capital embodied in startups when they make their initial investment decisions”. In short, the field of entrepreneurship research so far has failed to adequately explain the differential effects of human capital attributes and to provide a framework to illuminate why and what kind of human capital should be related to success.

To obtain conclusive answers on whether human capital has a positive relationship with entrepreneurial performance, it is necessary to examine the role of its subcomponents in such the relationship, particularly, the role of education (referred to as prior knowledge), experience and learning.

Among these sub-components, past empirical studies show that education, as prior knowledge, is found to strongly influence successful entrepreneurship (Pickles and O’Farrell, 1987; Storey, 1994; Van der Sluis et al., 2003; Bosma et al., 2004; Parker and van Praag, 2006, Hamilton, 2000). The effects of experience on entrepreneurial performance are mixed. The result depends on the type of experience considered. Particularly, the effects of labor force experience on entrepreneurial performance are generally weak (Hamilton, 2000; Bosma et al., 2004); the effects of industry experience are significantly positive (Lerner and Almor, 2002; Bosma et al., 2004; Srinivasan et al., 1994; Gimeno et al., 1997); the effects of occupational experience are not clear,

depending on the position and the form of organizational structure of the organization that the entrepreneur worked before (Bosma et al., 2004; Gimeno et al., 1997); and the effects of prior entrepreneurial experience are strongly positive (Gimeno et al., 1997; Bosma et al., 2004; Holmes and Schmitz, 1996; Taylor, 1999; and Beckman and Burton, 2005). Finally, the third component of human capital – learning – is widely argued to have a positive impact on entrepreneurial performance (Minniti and Bygrave, 2001; Reuber and Fisher, 1999) since it affects the owner's capacity to recognize (Shane, 2000) and evaluate valuable business opportunities and to develop the initial idea into a new product or service (Ravasi and Turati, 2005).

Overall, I propose the following hypotheses:

Hypothesis 1.1: *There is a positive relationship between educational level and the success of start-up firms.*

Hypothesis 1.2: *There is a positive relationship between industry experience (also referred as business line experience) and the success of start-up firms.*

Hypothesis 1.3: *There is a positive relationship between prior entrepreneurial experience (or self-employment experience) and the success of start-up firms.*

Hypothesis 1.4: *There is a positive relationship between entrepreneurial learning and the success of start-up firms.*

4.2.2 Social Capital and Entrepreneurial Performance

While human capital is usually conceived as individual's attributes, skills, or experience brought to the labor market, social capital is considered as actual or potential values and benefits resulting from his/her own social interactions and networks. As shown in the review chapter, a number of studies show that characteristics of the networks that entrepreneurs are embedded in (such as network size, density, diversity, centrality, etc.) have the relationship with their business performance (for a review, see Hoang and Antoncic, 2003). However, many previous empirical studies did not consistently find positive network effects (Bates 1994; Yoon, 1991; Aldrich and Reese, 1993; Littunen, 2000). In contrast, other empirical research supports the "network success hypothesis" which assumes a positive relation between the networking activities of entrepreneurs and their start-up success (Bruderl and Preisendorfer, 1998; Jarillo,

1989; Zhao and Aram, 1995; Ostgaard and Birley, 1996; Pennings et al., 1998; Davidsson and Honig, 2003; Bosma et al., 2004; Batjargal, 2007).

To overcome the mixed results in the past empirical studies, many researchers argue that the Granovetter (1973)'s model in which network partners are classified into "strong ties" and "weak ties" should be adopted. Strong social ties are relations with high levels of emotional attachment, including the entrepreneur's family, relatives, and friends. Bruderl and Preisendorfer (1998) claim that support from strong ties is more important than support from weak ties. In the early start-up stage, the presence of strong ties appears to influence the persistence of nascent entrepreneurs to start up new ventures (Davidsson and Honig, 2003). Family members are present in entrepreneurial networks in all phases of establishing a firm (Greve and Salaff, 2003). The availability of an entrepreneur in the family can compensate for financial and managerial restrictions. Further, emotional support received from an entrepreneur-family member might be very helpful to sustain emotional stability. Sanders and Nee (1996) emphasize the role of family as social capital in the pursuit of economic gain of immigrant self-employment. In sum, I propose the "strong ties" hypothesis:

Hypothesis 2.1: Entrepreneurs who receive support from their family members, relatives, and friends during the start-up phase will be more successful than entrepreneurs who do not receive any support.

Here I consider benefits from strong-tie interactions as one component of entrepreneurs' social capital together with those from weak ties. However, we have to be aware of the recent prominence of the other stream of literature on social capital which is of more sociological nature (Putnam, 1993; Fukuyama, 1995; Miguel et al., 2005). This school of thought excludes family ties and highlights the importance of non-familial networks.

Weak ties are based on more rationally dominated relations without emotional attachment, for examples acquaintances, business partners, colleagues, etc. Granovetter (1973) proposes the hypothesis "strength of weak ties" and argues that weak ties are less reliable but provide access to a variety of new information. Based on the collective view of Putnam (1993), Fukuyama (1995) argues that in societies where economic actors are capable of trusting and working with non-family members, they are capable of building larger, and more efficient organizations which are crucial to compete in modern, high-

tech, and fast-growing industries. Davidsson and Honig (2003) emphasize the increasingly important role of weak ties that provide specific knowledge unlikely to be available within close network of strong ties during the exploitation period.

In this research, the ‘network success hypothesis’ will be examined to understand the effect of entrepreneurs’ formal business network participation on subsequent business performance. Business networks in Vietnam are organized by state-run organizations, such as Vietnam Chamber of Commerce and Industry (VCCI) or SME department of Ministry of Investment and Planning. Four reasons could be enumerated to explain why these networks are particularly important to entrepreneurs: (1) access to information (law, policies, regulations, etc.) and practical experience from other entrepreneurs, (2) access to network contacts as potential customers and suppliers, (3) access to various financial sources to mitigate financial difficulties during start-up, and (4) reputational advantage of network membership of a prominent association. However, despite these advantages, the real benefits received from joining networks are still controversial and vague until now. On one hand, it is somewhat compulsory for registered SMEs under the Enterprise Law to participate in some business associations or networks set up by the authority in order not to “stay out of the game”. On the other hand, these business networks are mainly politics-based, rather than business-based. Thus, many firms keep staying small to prevent the interference of the government. As network membership is not totally voluntary, its effect on entrepreneurial performance largely depends on entrepreneurs’ subjective evaluation. Those who acknowledge the benefits of business networks should be aware of them and exploit them better. Overall, I propose the conditional “weak ties hypothesis” as follows:

Hypothesis 2.2: Entrepreneurs who participate in formal business networks will be more successful, if they think that the networks are useful for their business operations.

4.2.3 Interaction of Social Capital and Human Capital and Entrepreneurial Performance

The role and interplay of human and social capital in entrepreneurial performance, particularly in developing countries, has not yet gained significant interests from entrepreneurship scholars. The following four studies are among the most comprehensive and influential in this raising issue:

Pennings et al. (1998) investigate the effect of human and social capital upon firm dissolution with data from a population of Dutch accounting firms. They conclude that human capital (captured by firm tenure, industry experience, and graduate education), and social capital (captured by professionals' ties to potential clients) strongly predict firm dissolution, and the effects depends on their specificity and nonappropriability to firms.

In a large sample study of 1,700 German business founders, Bruderl and Preisdorfer (1998) conclude that social capital enhances the success of newly founded businesses. Support from strong ties, such as friends and family, enhance survival and sales growth, whereas support from weak ties has an effect only on sales growth. On the other hand, the network compensation hypothesis is not supported. Although no effects of human capital on the amount of social capital are found, effects of human capital on the success of new businesses are very strong.

Davidsson and Honig (2003), by a longitudinal study of a population of Swedish nascent entrepreneurs, show that, at the individual level, human and social capital factors lead to both opportunity discovery and exploitation. Two key findings can be figured out from their study: (i) both tacit and explicit knowledge from human capital are influential during entrepreneurial discovery, but only weakly during the exploitation period; (ii) bridging and bonding social capital, consisting of both strong and weak ties, is strongly associated with probability of entry and important in predicting successful exploitation.

Bosma et al. (2004) use a large Dutch panel data of entrepreneurs to investigate the value of investments in human and social capital for the business performance of startups measured by survival, profits, and generated employment. They conclude that specific investments indeed enhance performance, irrespective of the performance measure used.

The above mentioned studies all focus on entrepreneurship in the context of advanced economies, and the findings are still mixed and inconclusive. Above all, these studies have not yet addressed directly the interplay of human and social capital. It is worth noting that this has been an increasingly controversial issue regarding the fact that human capital and social capital should be understood as complements or substitutes (Rooks et al., 2009). The notion that human capital and social capital are complementary forms of capital can be traced back to Coleman (1988). He argues that social capital in

the family as well as in the community promotes the formation of human capital. Burt (2001) also shares the same opinion when stating that “social capital is the contextual complement to human capital” (p. 32). The opposite line of thinking supports the substitutability of human and social capital. Bruderl and Preisendorfer (1988) with the so-called ‘network compensation hypothesis’ and Piazza-Georgi (2002) argue that entrepreneurs who lack a particular source of capital (such as human capital) will invest much more in the other source (such as social capital).

This study is one of the first attempts to address the complements and substitutes of human and social capital in developing countries. Particularly, it aims to test the interaction effects of human capital and social capital on the entrepreneurial performance in Vietnam. I will concentrate particularly on the indirect impact of network participation contingent on professional education and start-up experience (captured by the sum of accumulated experience components from the above review: product, self-employment, employee and industry experience) achieved. The following two hypotheses are adopted:

Hypothesis 2.3: *Entrepreneurs who participate in formal business networks will be more successful, if they have high level of professional education.*

Hypothesis 2.4: *Entrepreneurs who participate in formal business networks will be more successful, if they have more start-up experience.*

Figure 4.1 below summarizes the relations between the entrepreneur’s capital factors and entrepreneurial success as we have discussed. In this figure, the impact of environmental factors (industry, locality, ownership) on the startup firms is acknowledged.

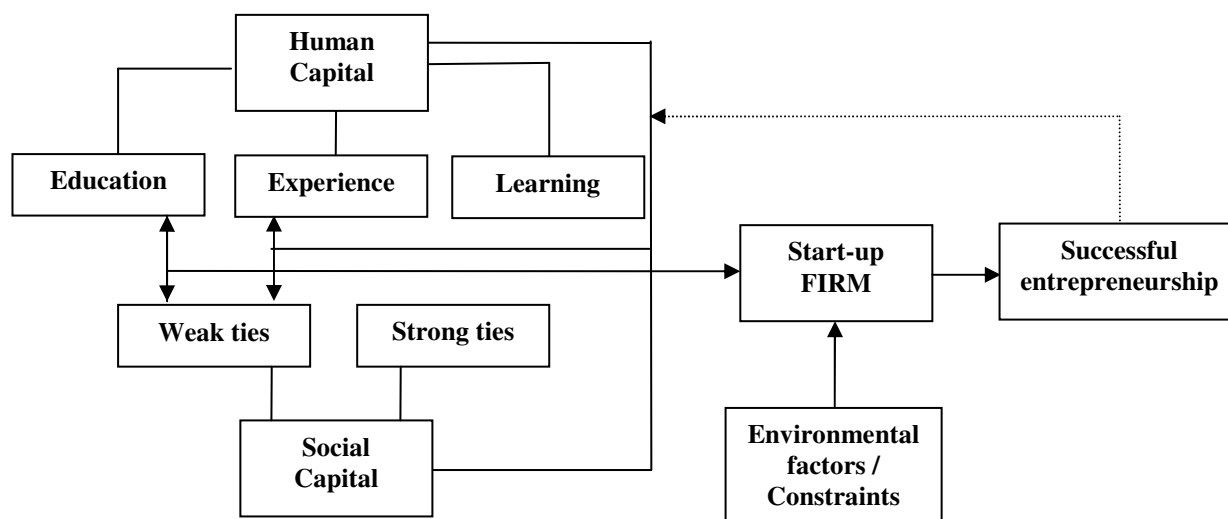


Figure 4.1 The Relation between the Entrepreneurial Capital factors and Entrepreneurial Success

4.3 Overview of Data

A sample of 2,120 out of the total 2,821 non-state manufacturing enterprises in the dataset, which were established from 1995 to 2004 and located in the three urban areas (Hanoi, Haiphong, and HCMC) and seven rural provinces (Ha Tay, Phu Tho, Nghe An, Quang Nam, Khanh Hoa, Lam Dong and Long An) are extracted from the DANIDA (Danish International Development Agency) survey in 2004. This extraction means that firms in the dataset are considered as startup firms whose age ranges from 1 to 9 years old⁷. Their performance reflects entrepreneurial performance. Table 4.1 documents the number of non-state manufacturing enterprises sampled in each ownership form category⁸. Household enterprises account for 67% of the sample as compared to 95% in

⁷ Prior studies on “start-up” firms generally use size and age thresholds to construct an appropriate sample, with maximum ages set from 10 to 12 years since founding. Empirical research using this upper bound of firm age to delineate start-up firms includes Lynskey (2004); Ostgaard and Birley (1996); Hellmann and Puri (2000, 2002); Stuart et al. (1999). Another reason that I choose start-up firms as those being established from 1995 is I want to investigate the whole development process of the private sector since the introduction of Company Law and Law on Private Enterprise in 1990 which created the landmark for the emergence and development of private firms in Vietnam until the promulgation of Enterprise Law in 2000, which infused a strong entrepreneurial spirit into the local business environment. Actually, up to 70% of the sample was established after 2000 (less than 5 years old). The other 30% despite being established before 2000, during the late 1990s, remains small and inexperienced (only 38 firms among 551 ones reach medium-sized). The oldest start-up firms which account for only 0.03% of the sample were set up in 1995. Thus, the sample on overall is still characterized by young and new firms with recently-emerged generations of entrepreneurs.

⁸ For reasons of implementation, the surveys were confined to specific areas in each province/city. Subsequently, the samples were drawn randomly from a complete list of enterprises, where the stratified sampling procedures were used to ensure the inclusion of an adequate number of enterprises in each province with different ownership forms, including household, private, partnership, and co-operative

total population of enterprises documented by Rand and Tarp (2007). This means that non-household enterprises are over-represented in the sample.

Table 4.1 Tabulation of Ownership types and originating Provinces of Firms

	Household enterprises	Private/sole proprietorship	Partnership/ Collective/ Cooperative	Limited liability company	Joint stock company	Total
Hanoi	87	29	11	97	14	238
Phu Tho	185	5	5	8	3	206
Ha Tay	241	9	3	35	2	290
Hai Phong	79	25	15	23	6	148
Nghe An	226	32	7	25	5	295
Quang Nam	115	5	1	7	1	129
Khanh Hoa	51	13	2	10	1	77
Lam Dong	44	11	1	6	0	62
Hochiminh city	312	81	10	154	10	567
Long An	87	17	0	4	0	108
Total	1,427	227	55	369	42	2120

Table 4.2 presents the location-sector split. The three largest sectors in terms of number of enterprises are food and beverages (25%), machinery and electric manufacturing (18%) and metal products (17%).

Table 4.2 Tabulation of Sectors and originating Provinces of Firms

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	Total
Hanoi	34	24	21	16	8	33	33	40	238
Phu Tho	63	10	25	5	4	42	37	48	206
Ha Tay	60	26	33	9	5	33	31	48	290
Hai Phong	40	15	15	7	0	28	31	27	148
Nghe An	102	13	38	4	7	36	71	44	295
Quang Nam	43	10	13	5	3	20	30	33	129
Khanh Hoa	38	13	16	4	0	29	27	22	77
Lam Dong	37	26	10	2	0	19	23	21	62
Hochiminhcity	85	71	24	19	16	51	47	75	567
Long An	31	13	11	7	9	17	20	20	108

firms. First of all, I see that 68% of the sampled enterprises are household enterprises as compared to 95% in total population of enterprises documented by Rand and Tarp (2007). This means that non-household enterprises are over-represented in the overall survey. On the other hand, a small sample selection bias may be present as samples were not selected exactly proportional to the (unknown) number of enterprises in the country.

Total	533	221	206	78	52	298	354	378	2120
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Note: (1) Food and beverages; (2) Textile, leather and footwear; (3) Wood and paper products; (4) Publishing and printing; (5) Chemicals and petroleum products; (6) Non-metallic mineral products; (7) Metal products; (8) Machinery and electric manufacturing.

Table 4.3 documents the location-size tabulation. Enterprises in urban areas (Hanoi and Hochiminh city especially) have a larger share of medium enterprises than rural provinces. In general, micro enterprises account for the majority of the total sample.

Table 4.3 Number of Enterprises by Size and Location

	Micro-sized	Small-sized	Medium-sized	Total	Percent
Hanoi	97 (8.58)	114 (18.33)	32 (19.04)	238	11.2
Phu Tho	178 (13.38)	25 (4.2)	4 (2.4)	206	9.7
Ha Tay	171 (12.86)	101 (16.24)	16 (9.5)	290	13.68
Hai Phong	90 (6.77)	51 (8.2)	20 (11.9)	148	6.98
Nghe An	235 (17.67)	50 (8.03)	11 (6.5)	295	13.91
Quang Nam	107 (8.04)	20 (3.2)	0	129	6.1
Khanh Hoa	48 (3.6)	24 (3.85)	5 (2.98)	77	3.6
Lam Dong	38 (2.86)	13 (2.1)	10 (5.95)	62	2.9
Hochiminh City	280 (21.05)	209 (33.6)	65 (38.69)	567	26.74
Long An	86 (6.5)	17 (2.73)	5 (2.98)	108	5.1
Total	1,330 (100)	622 (100)	168 (100)	2120	100.00

Note: Group percentages in parentheses. Micro: 1-9 employees; Small: 10-49 employees; Medium: 50-299 employees (World Bank definition)

Table 4.4 presents the gender-size tabulation. Male entrepreneurs account for three quarters of the total sample. They also take somewhat similar share in the total in each size category, a little bit higher for the small-sized category.

Table 4.4 Number of Enterprises by Gender and Size

	Micro-sized	Small-sized	Medium-sized	Total
Male	901 (68.88)	425 (68.22)	135 (71.43)	1461 (68.92)
Female	407 (31.12)	198 (31.78)	54 (28.57)	659 (31.08)
Total	1,308 (100.00)	623 (100.00)	189 (100.00)	2,120 (100.00)

Note: Percentages are in parentheses. Micro: 1-9 employees; Small: 10-49 employees; Medium: 50-299 employees (World Bank definition)

Subjects answering the questionnaire are owners or managers of firms, who are called “entrepreneurs” The dataset contains a wide range of variables on demographic, innovation and economic factors including ones relating to entrepreneurial characteristics, innovative features and business performance. The survey adopts the definition of small and medium sized enterprises (SMEs) following the current World Bank and Vietnamese Government definition: Micro enterprises have up to 10 employees, small-scale enterprises up to 50 employees, and medium-sized enterprises up to 300 employees.

4.4 Empirical Methodology and Results

Entrepreneurial success is measured by the success of the start-up firm. The most widely used measures for entrepreneurial performance are accounting and growth measures (Timmons, 1994).⁹ In this chapter, I use profit to measure the accounting performance; and growth of revenue per employees as a measure of the productivity of firm employees. To isolate the effects of different financial structures among firms and business cycle which creates interest fluctuation, the success measure ‘profit’ is equated to operating profit, i.e. profit after interests and tax, and then taken log to obtain the elasticity between firm performance and independent variables. Growth of real revenue per employee is computed as the ratio between revenue per employee at the end of 2004 and revenue per employee at the end of 2003. Indeed, the pair-wise correlation between these two dependent variables is quite high as expected with the pair-wise correlation of 0.2948, significant at 1% level.

4.4.1 Human Capital

Human capital determinants include education, experience and learning. The variable ‘education’ is used as a proxy for prior knowledge, the previously attained knowledge before firm start-up which may have a partial effect on subsequent firm performance. Researchers often claim that bias is likely to occur if ordinary least squares (OLS) is used to estimate this relationship. This is because there may be unobserved individual characteristics, such as ability and motivation, that affect the schooling level attained and subsequent performance. However, most empirical research studies the

⁹ For a review on the classification of performance measures of entrepreneurial ventures, see Deeds et al. (1998).

effect of the endogenous education in the wage/income equation, in which different educational level or number of school years is taken as the main input to explain individual return in terms of wages and incomes. In such cases, important unobservable factors such as ability, motivation will bias the estimation and give misleading results.

In this case, the effects of knowledge from individual learning and experience achieved during firm operations which I expect of more significant to the entrepreneurial performance are focused. On the other hand, a number of other control variables to account for different individual, firm, sectoral characteristics may offset partly the endogenous educational bias.

4.4.1.1 Human Capital Determinants of Entrepreneurial Performance

Eight human capital variables are included (see Table 4.5). Education enters the analyses as a dummy variable, differentiating the high-educated business founders (university/college and technical high school) from the less educated ones (vocational training or no education). The experience of the business founder is measured in different dimensions: experience in the type of product/service manufactured, experience in business ownership itself (self-employment experience), experience in the industry in which the founder's business is active, and experience from working as employees. The general effect of experience will be the sum value of all these dimensions (each achieved experience dimension adds one point to the total general experience of entrepreneurs). Finally, the effect of knowledge from learning will be considered as the ability to accumulate knowledge to conduct innovation activities of three types: new product introduction, product innovation and process/technological innovation¹⁰. The variable ranges from 0 to 3 with each point standing for a specific type of innovation activities conducted.

The correlation matrix of independent variables is presented in Appendix 4A. A review of the correlations shows that of the 36 inter-correlations, 24 were significant at

¹⁰ "New product introduction" refers to the ability to bring / launch out a new product or service to market. The variable is operationalized by the answer of the question "Has the firm introduced new products since 2002?" By "product innovation", I mean the introduction of any improvements to the firm's existing goods or services. This includes, but is not limited to, improvements in functional characteristics, technical abilities, or ease of use. It is the answer of the question "Has the enterprise made any major improvements of existing products or changed specification since 2002?" Finally, "process/technological innovation" indicates the implementation of a new or significantly improved production or delivery method by developing or bringing new technology into widespread use. The variable is constructed by the answer of the question "Has the enterprise introduced new production processes/new technology since 2002?"

the .01 level. Thus, 53% of the correlations are statistically significant. It should be noted, however, that the correlation analysis possessed sufficient power to detect statistically significant relationships with coefficients as small as 0.06. As a result, many of the correlations are not substantive, even though they are statistically significant. It is also noteworthy that some variables by nature are inherently correlated, for instance between education and sub-components of experience, among sub-components of experience, and among sub-components of learning (product experience and industry experience; self-employment experience and employee experience; product innovation and new product introduction). 6 of the significant inter-correlations are negative due to (i) the negative impact of age; (ii) self-employment experience has negative correlation with employee experience.

Table 4.5 Summary statistics of Human Capital independent variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Age	2120	4.32	0.982	2	8.2
Professional education	2120	0.335	0.472	0	1
Experience	2120	1.959	1.016	0	3
Product experience	2120	0.702	0.457	0	1
Self-employment exp	2120	0.273	0.446	0	1
Industry experience	2120	0.457	0.498	0	1
Employee experience	2120	0.527	0.499	0	1
Learning	2120	1.3	1.130	0	3
New product introduction	2120	0.409	0.492	0	1
Product innovations	2120	0.592	0.491	0	1
Process innovations	2120	0.298	0.457	0	1

Note: Age of the entrepreneur is divided by 10.

Theoretical and empirical research on the performance of small businesses (Audretsch, 1995) indicates three groups of controlling factors. First, with respect to individual characteristics of business owners, I will include age and gender of business owners. Second, regarding to characteristics of new firm itself, I include the age, size (in terms of employees), and ownership type of firms. Third, in terms of characteristics of the environment of the firm, it is clearly difficult to collect reliable information about the environment of new businesses, such as competitive intensity, market concentration, the extent of scale economies which are all considered to affect the success of new entrants (Audretsch, 1995). Further, the survey data do not give information on these environmental variables. Thus, I only control for environmental effects via industry

dummies. As all my sample firms are considered as start-ups, industry effects are not causal, but reflect different environmental influences on firms instead.

4.4.1.2 Estimation Results

The estimation model and method are presented in Appendix 4B. Table 4.6 shows results from the OLS estimation with robust standard errors of human capital equation¹¹. The entrepreneur's human capital is seen to influence the entire set of performance measures. Leaving out the human capital variables results in a model, according to the likelihood ratio tests, that performs significantly worse for all two performance measures.¹² Parameters on the main human capital inputs (education, experience, learning) are positive and significantly different from zero, which enables me to conclude that hypothesis 1 – human capital positively influences the performance of start-up firms – is confirmed. To be more specific, I will look at each main independent variable in details:

- Professional education is significantly greater than zero, which plays an essential role in differentiating the performance of entrepreneurs. Although the decreasing magnitude of the 'education' coefficient diminishes the economic importance of educational level when ownership types and industries are controlled, highly educated entrepreneurs are able to make approximately 24% more profits than low educated ones do. Significant ownership type variables reveal that earned profits are divergent partly due to specific features of the firm's ownership type, which reduces quickly the numerical significance of education. As the based group is household enterprises from food and beverages industry, a typical traditional sector, it is plausible that education is less important to determine the entrepreneurial success. Overall, hypothesis 1.1 - positive relation between education and entrepreneurial performance – is strongly supported.
- The former experience of the business founder appears to improve operating profit as the performance measure. When considering the specific dimension

¹¹ Since the dataset is cross-sectional, the dependent variable (logarithm of operating profit) is a continuous variable, and the White and Breusch Pagan test (appendix 4B) indicates the presence of heteroskedasticity, robust OLS estimation is adopted for the human capital equation.

¹² The likelihood ratio test for the inclusion of *education*, *experience* and *learning* in the profit equation both gives p-value = 0.000 with LR chi2(3) of 23.11.

of experience, self-employment experience and industry experience are significant at 1% level. Experience in activities related to business ownership is relevant in generating higher profit, approximately more than 21% higher. *Ceteris paribus*, entrepreneurs who used to do business in the same industry (industry experience) are likely to generate approximately 32% profits higher than industry new entrants. The effect is both numerically and statistically significant. Experience in using the same products before and previous status as public employees also enable entrepreneurs to enhance their performance as well, but the effect is not significant. Thus, hypothesis 1.2 and 1.3 (industry experience and self-employment experience positively influence firm performance) are supported if operating profit is used as the measure of entrepreneurial performance.

- Knowledge from learning is seen to be very important in enhancing entrepreneurial performance. Statistically significant results strongly support hypothesis 1.4 (positive relation between learning and performance). Of those components of learning, knowledge from process innovation appears to have the strongest power both numerically and statistically. Everything else equal, those entrepreneurs having conducted process innovations are estimated to attain approximately 23% more profit than those having no process innovation.

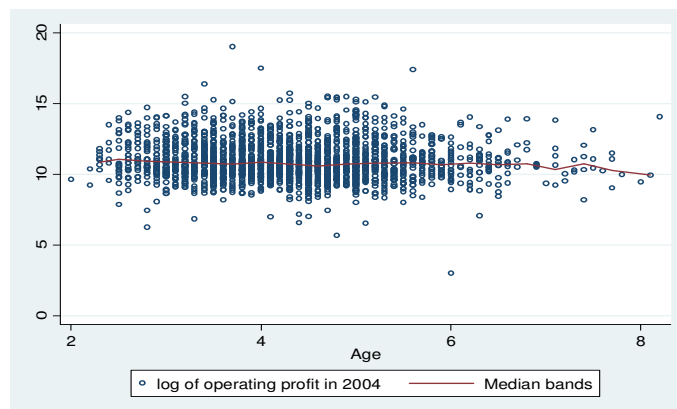


Figure 4.2 Linear relationship between age and operating profit

- With respect to control variables, the following results are worth mentioning:
 - (i) the scatter plot with median trace smoother (Figure 4.2) shows a great variance of operating profits for all ages with flat relationship. From the figure, it could be proposed that operating profit is independent of age. Nevertheless,

statistically, the significant negative sign of ‘age’ parameter shows the negative relationship between entrepreneurs’ age and their entrepreneurial profit gained. A ten-year older entrepreneur is estimated to earn approximately 8.3% profit less. This result confirms previous findings by Holmes and Schmitz (1996), Reynolds and White (1997), and Van Praag (2003) that show a negative relationship between the two variables: aging makes the contribution of the founder progressively less valuable for company performance;

(ii) there is no significant divergence in entrepreneurial performance between males and females;

(iii) firms located in urban areas (big cities including Hanoi, Hochiminh and Haiphong) also perform much better than firms in rural areas. The divergence in performance between urban and rural firms is large. Averagely, profits earned by firms located in rural areas are less than half of profits earned by those in urban areas given other things equal; and

(iv) the size of the firm is very important in explaining different performance among firms: bigger firms earn much higher profits. Age of the firm becomes significant when ownership types and industries are isolated. This is reasonable to the extent that though all sampled firms are characterized as newly start-up firms, firm age does matter when we compare the performance of firms in the same industry or type of ownership.

Table 4.6 Estimation results: Impact of Human Capital on Entrepreneurial Performance

Variables	Operating Profit				
Age	-0.0443 (0.0288)	-0.050 (0.028)	-0.066* (0.028)	-0.09** (0.025)	-0.083** (0.025)
Professional education	0.916** (0.065)	0.792** (0.065)	0.81** (0.067)	0.344** (0.059)	0.246** (0.059)
Experience	0.114 (0.024)	0.096** (0.024)			
Product experience			0.083 (0.082)	0.093 (0.08)	0.093 (0.08)
Self-employment experience			0.307** (0.075)	0.247** (0.065)	0.208** (0.063)

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Industry exp			0.211**	0.309**	0.323**
			(0.081)	(0.068)	(0.067)
Employee exp			0.158*	0.131*	0.094
			(0.07)	(0.059)	(0.059)
Learning	0.303**	0.281**			
	(0.025)	(0.025)			
New product			0.064	0.018	0.029
			(0.066)	(0.056)	(0.056)
Product innovation			0.255**	0.174**	0.166**
			(0.066)	(0.058)	(0.059)
Process innovation			0.563**	0.253**	0.231**
			(0.068)	(0.06)	(0.06)
Female		-0.099	-0.104	-0.049	-0.054
		(0.061)	(0.062)	(0.053)	(0.055)
Urban		0.542**	0.544**	0.389**	0.345**
		(0.058)	(0.059)	(0.05)	(0.053)
Firm size – small				1.08**	0.998**
				(0.058)	(0.064)
- medium				2.23**	2.039**
				(0.117)	(0.13)
Firm age				0.01*	0.015*
				(0.007)	(0.007)
The type of ownership					
Private					0.124
					(0.085)
Partnership					0.0078
					(0.18)
Limited liability co.					0.53**
					(0.099)
Joint stock co.					0.129
					(0.273)
Sector categories					
Textile, leather, footwear					0.124
					(0.08)
Wood and paper products					0.066
					(0.154)
Publishing and printing					0.125
					(0.184)
Chemicals and petroleum					0.178*
					(0.083)
Non-metallic mineral product					-0.01
					(0.072)
Metal products					0.166
					(0.094)
Machinery and electric manufacturing					-0.039
					(0.076)
R-squared	0.1975	0.2307	0.2445	0.4448	0.4598
Observations	2120	2120	2120	2120	2120

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Note: - Number of observations: 2120 obs. Standard errors are in parentheses
- ** Significant at 1% level, * Significant at 5% level
- Based group: Low-educated male entrepreneurs owning micro-sized, household enterprises in food and beverages industry, located in rural areas.

4.4.2 Social Capital

This section aims to explore (i) the effect of strong-tie and weak-tie individual network on entrepreneurial performance of firms, and (ii) the importance of strong-tie and weak-tie interaction to entrepreneurs' business performance. It is necessary to capture the effects of strong-tie informal networks, i.e. relations with family, relatives, and friends, on entrepreneurship in Vietnam where the community culture favoring mutual trust and reciprocity is appreciated. With respect to the effects of weak-tie formal networks, there is not yet any academic research on formal network participation as an important source of firms' social capital. This is because networks remain a relatively new concept that has just gained attention recently from Vietnamese policy-makers as a beneficial recipe for the enhancement of entrepreneurial performance. Only with the launch of the Enterprise Law in 2000 did the Vietnamese government begin to develop networks in different industries in order to support firms operating in these industries. Robust OLS estimation is used when operating profit is the performance measure where as tobit estimation¹³ is used in growth of revenue per employee equation.

4.4.2.1 Social Capital Determinants of Entrepreneurial Performance

There is no doubt that the success of new businesses depends on a broad range of factors and that network support is only one part of the picture. For a more convincing and robust test of the network success hypothesis, it is necessary to have a model that controls for relevant influences on success of new businesses. Four groups of variables are included as follows:

Group 1 - Human capital: significant human capital variables from the above regression are included in 3 sub-components: professional education, experience, and learning) to prevent omitted variable bias.

¹³ Tobit is an econometric, biometric model proposed by James Tobin (1958) to describe the relationship between a non-negative dependent variable y_i and an independent variable (or vector) x_i . Since the dependent variable "growth of revenue per employee" has '0' threshold with positive and negative values. Tobit is adopted for left censoring below-zero growth of revenue and is estimated with maximum likelihood technique.

Group 2 – Social capital from weak-tie networks: the effect of formal business networks (partners, bank officials, authority, mass organizations, etc) will be captured: (i) formal business network participation, which is a dummy attaining value one if the entrepreneur joins one or more than one network,¹⁴ and zero otherwise; (ii) network usefulness, which is included as an interaction term with network participation. The aim is to explore whether those firms who already participate in networks and find them useful and beneficial for their operation are actually better performers; (iii) network intensity, i.e. frequency of network assistance, which is operationalized by the answer of the question “how many times a year the entrepreneur receives the assistance in issues directly related to the operation of his firm?”; (iv) network size, which is the sum of regular contacts (at least once every 3 months) that entrepreneurs find useful for their business operations in 4 categories (business people in the same line of business and in different lines of business, bank officials, and mass organizations); (v) network support in terms of finance that verifies whether business partners are the main creditor of firms’ obtained loans; and (vi) network support in terms of production activities that verifies whether a firm subcontracts (or outsourcing) parts of its production to others.

Group 3 – Social capital from strong-tie networks: to get an impression about the role of family members, relatives and friends in both the start-up and growth period of new businesses, three variables are constructed: (i) financial support, captured by the percentage of initial investment capital as loans from family/friends; (ii) emotional support, explained by two variables: number of family members working as self-employer and family/friends as the guarantor of obtained loans.

Group 4 – Interaction between social capital and human capital: two interaction variables will be included to verify the indirect effect of network participation on subsequent entrepreneurial performance depending on the type of human capital obtained, e.g., professional education and start-up experience.

In terms of control variables, beside age and gender of entrepreneurs, location and ownership types of their firms, I include a dummy to distinguish performance of Communist party members from that of non-members. In a one-party political system like Vietnam’s, holding membership of the Party could be considered as the social

¹⁴ The dummy combines the answers to two questions: “Do you participate in one business network?” and “Do you participate in more than one network?”

advantage that facilitates business operations. He/she may get more access to governmental assistance due to the inherently close relation between Party members and the government. Table 4.7 presents summary statistics of proposed independent variables. Their correlation matrix is placed in Appendix 4A.

A review of the correlations shows that of the 78 inter-correlations, 30 are significant at the .01 level. Thus, 38% of the correlations are statistically significant. However, the majority of correlation coefficients are not numerically significant, even though they are statistically significant. Several strong pair-wise correlations among independent variables include network intensity / network size; network size/ network participation; education / network participation; and education / network size, which are intuitively and inherently interrelated. Only one of the significant inter-correlations is negative, that is the correlation between age and knowledge from learning.

Table 4.7 Summary statistics of Social Capital independent variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Network participation	2120	0.092	0.289	0	1
Network usefulness	2120	0.075	0.263	0	1
Network size	2118	25.75	18.93	1	95
Network intensity	2120	2.426	3.21	0	18
Business partners as the main creditor	2120	0.366	0.482	0	1
Subcontract parts of production	2120	0.063	0.243	0	1
Percentage of internal capital as loans from relatives/friends	2112	9.77	19.68	0	100
Number of entrepreneurs in the family	2120	0.255	0.64	0	5
Family/friends as the guarantor of loans	2120	0.072	0.258	0	1
Communist party membership	2120	0.089	0.285	0	1

4.4.2.2 Estimation Results

Estimation model and method is presented in Appendix 4B. Table 4.8 shows estimated effects of human and social capital determinants as well as their interaction on subsequent entrepreneurial performance measured by operating profit and growth of revenue per employee.

Table 4.8 Estimates of the Entrepreneurial Performance equation

Variable		Growth of revenue per employee		Operating profit	
		Coefficients	t-value	Coefficients	t-value
Human capital	Professional education	0.276** (0.058)	4.71	0.155** (0.057)	2.7
	Experience	0.065** (0.023)	2.76	0.052** (0.02)	2.59
	Learning	0.031 (0.021)	1.45	0.11** (0.021)	5.18
Weak ties	Network participation (NETPAR)	0.7* (0.315)	2.22	1.04** (0.33)	3.11
	NETPAR*network usefulness	-0.557* (0.287)	-2.44	-0.97** (0.245)	-3.97
	Network intensity	0.0017 (0.007)	0.22	0.004 (0.007)	0.46
	Network size	0.0024 (0.0013)	1.8	0.0036** (0.0014)	2.57
	Business partners as the main creditor	0.115* (0.049)	2.33	0.145** (0.051)	2.87
	Outsourcing	0.131 (0.094)	1.38	0.214* (0.102)	2.11
Strong ties	Percentage of initial capital as loans from relatives / friends	-0.001 (0.001)	-1.03	-0.001 (0.001)	-1.10
	Family/friends as the guarantor of loans	0.014 (0.088)	0.16	-0.264** (0.093)	-2.83
	Number of entrepreneurs in the family	0.058 (0.035)	1.62	0.015 (0.045)	0.34
Interaction effects	Pro. Education*NETPAR	0.57** (0.171)	3.33	0.389* (0.204)	1.9
	Experience*NETPAR	0.169 (0.091)	1.86	0.219* (0.107)	2.04
	Age	-0.07** (0.024)	-2.86	-0.057* (0.024)	-2.42
	Female	0.013 (0.05)	0.27	-0.0735 (0.049)	-1.49
	Urban-located firms	0.109* (0.05)	2.18	0.369** (0.052)	7.14
	Communist Party membership	0.11 (0.084)	1.3	-0.061 (0.093)	-0.66
	Small-sized firms	-0.166**	-2.73	0.857**	14.08

	(0.06)		(0.061)	
Medium-sized firms	-0.026	-0.26	1.621**	13.69
	(0.102)		(0.118)	
Private (sole proprietorship)	0.174*	2.19	0.104	1.27
	(0.079)		(0.082)	
Partnership	0.053	0.35	-0.242	-1.28
	(0.15)		(0.189)	
Limited liability company	0.38**	4.57	0.365**	3.94
	(0.082)		(0.093)	
Joint stock company	0.47**	2.74	0.029	0.13
	(0.171)		(0.237)	
R-squared			0.5011	
Number of left-censored obs.	368			
Number of observations	2110		2110	

Note: OLS regression is reported with robust standard errors in parentheses. The base group is micro-sized enterprises, rural-located with male owners;

** significant at 5% level; ** significant at 1% level*

Except the insignificant effect of learning in the revenue equation, consistent with above findings (section 4.5.1), all other human capital determinants have significant and positive relations with entrepreneurial performance, no matter whether operating profit or growth of revenue per employee is used as the success measure. Among them, while experience has similar estimation in terms of both statistical and numerical effects in two regressions, professional education shows a larger numerical effect in both equations: other things equal, entrepreneurs who have higher professional education are estimated to generate approximately 15% profit higher and 27% revenue per employee higher. Accumulated knowledge from innovation activities (learning) is also an important human capital factor for entrepreneurs to enhance their profits.

For the effect of weak-tie networks, network participation has a significant positive effect on entrepreneurial performance, both in terms of profit and revenue. The economic effect is much larger in the profit equation. However, the negative interaction between the entrepreneur's network participation and his response of useful participation reduces the economic effect of the participation. Other things held constant, those entrepreneurs who enter the network and find it useful are likely to generate about 10% revenue higher and 7% profit higher than those do not. It is important to note that 81% (159/196) entrepreneurs joining networks respond that the participation is efficient and useful for their business. Thus, the economic effect of network participation is not strong

for the majority of network participants. In sum, the negative interaction does not allow us to support hypothesis 2.2.

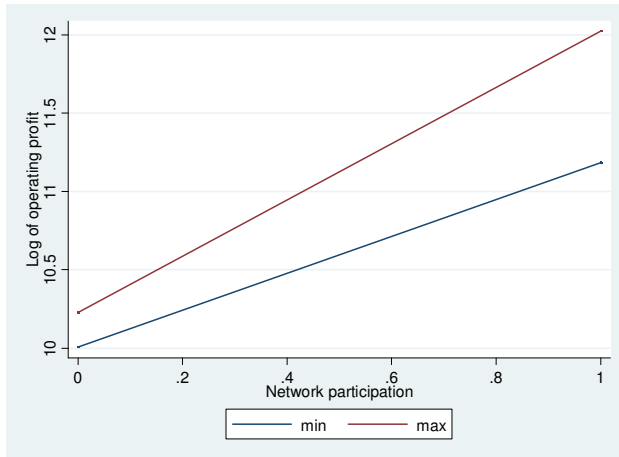
The significant positive effect of network participation is mainly reflected through network size, rather than network intensity. In other words, the quality of network assistance, i.e. number of useful and regular contacts directly associated with daily operations of firms, is essentially more important than the quantity, or frequency, of network assistance. This is indicated by the statistically and numerically insignificant coefficient of the variable “network intensity” in both equations. Another noteworthy finding is the strong effect of the fact that business partners are the main creditor of firms. Loans borrowed from business partners, mainly from banks or business development funds of mass associations, with monthly interest rates may act as a pressure to motivate entrepreneurs to spend more efforts for firm success. Finally, outsourcing activities is also a determinant of profit enhancement as firms can concentrate on particular production activities within their competitive advantage and subcontract other inefficient parts of production to their network partners.

The effects of strong-tie networks, in general, are insignificant, even negatively related to entrepreneurial success. Unlike other empirical studies (e.g., Bruderl and Preisdorfer, 1998) financial support from strong ties, operationalized as percentage of loans from family, relatives or friends in the total initial investment capital, does not play a role in determining successful entrepreneurship. Loans obtained from friends or relatives are normally trust-based, i.e. without monthly interest pressure and specific due dates, and thus, do not stimulate entrepreneurs’ commitment to their firm success. From the above findings, financial support from business partners is positively related to profits and revenue earned by firms. But in order to obtain loans, entrepreneurs need adequate collateral or a guarantor. However, insignificant and negative parameter of the variable “family/friends as the guarantor of loans” indicates a potential impedimental factor to the positive effect of weak-tie loans on entrepreneurial performance. Nevertheless, the availability of entrepreneurs in the family as a source of emotional support is positive related to entrepreneurial performance although the effect is not strong (at 10% significance level). On overall, hypothesis 2.1 which affirms the positive relation between strong-tie support and firm success is not supported.

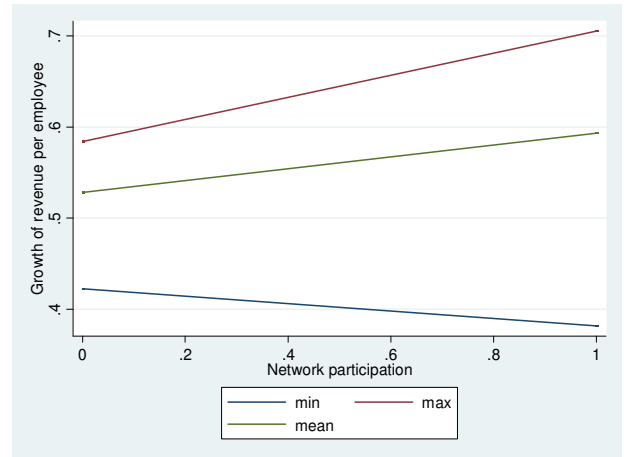
While the interaction term between professional education and network participation has positive and significant relation to both operating profit and growth of revenue per employee of firms, the interaction between experience and network participation significantly enhance their operating profit. The economic effects are large: other things held constant, entrepreneurs who participate in formal networks are estimated to earn approximately 39% profit higher and boost up nearly 60% growth of revenue per employee higher if they attained high level of professional education; as well increase approximately 22% profit higher if they have start-up experience. Hypothesis 2.3 is supported no matter which success indicator is used, and hypothesis 2.4 is supported if operating profit is used.

Empirically, positive and significant coefficients of the human capital variable and the social capital variable in the same equation mean that they are substitutable. And a positive and significant coefficient for the interaction term between human and social capital implies complementarity. And a positive and significant interaction coefficient together with positive (significant) coefficients for human and social capital imply complementarity, but with some substitutability at the margin (Rooks et al., 2009). With this reasoning, the interaction term between network participation and education is positive and significant, indicating complementarity of human and social capital in the profit equation. The similar finding can be proposed with respect to the interaction term between network participation and experience in the growth of revenue per employee equation. Furthermore, the positive coefficients of both network participation and human capital variables (education or experience) indicate that there is substitutability at the margin.

Figure 4.3(a) constructs conditional-effects plots to indicate the correlation between network participation and min/max value of professional education. In other words, two regression lines are computed to represent the effect of network participation on the high educational group (top line) and the low educational group (bottom line). It is clear from the graph that network membership has a different effect for each group: the higher the educational level, the greater is the increase of profit with increasing likelihood of network participation. The divergence is much larger when we consider the correlation between network participation and the lowest as well as highest level of start-up experience achieved (Figure 4.3b). In models without interaction terms, the lines in a conditional-effects plot would always be parallel.



(a) Interaction between network participation and professional education



(b) Interaction between network participation and start-up experience

Figure 4.3 Conditional-effects plot

Communist party membership is not significant. It merely ensures that the entrepreneur may be a member of a particular formal network, but does not guarantee that he has a successful performance. In terms of control variables, consistent with above findings, age of the entrepreneur has a negative relationship with his firm performance; female entrepreneurs show a poorer performance than male; firms located in urban areas have more profitable business. Larger firms perform significantly better with regards to profit as the success measure, but the effect is adverse when growth of revenue is the dependent variable. And finally, private firms, partnership, limited liability, and joint stock firms are all more successful than household firms that are mainly micro-sized and rural-located (based group).

4.5 Final Discussions

4.5.1 Human Capital

Generally, there is a positive relationship between human capital and the success of start-up firms (Hypothesis 1 is supported). Specifically, education, industry experience, entrepreneurial experience and learning all positively and significantly influence entrepreneurial performance (Hypothesis 1.1, 1.2, 1.3, and 1.4 are supported). Of these, education and learning have strong statistical and economic effects on firm success; experience gradually loses its significance when more control variables are added (ownership types and sectors). Nevertheless, the high numerical magnitude of industry

experience demonstrates its importance in contributing entrepreneurial knowledge to Vietnamese firm-founders. They operate in a transitional business environment with weak legal systems, complex administrative systems, and little support from business development services that prior knowledge from education at school does not prepare them adequately for start-up activities.

With respect to learning effects, product innovations and process innovations show a strong positive relation with the overall performance. On the contrary, the introduction of new products inversely correlated with entrepreneurial profits. This is actually not surprising since developing a new product requires a lot of effort, time and capital while the likelihood of profitability cannot be assured. We have witnessed a number of new products disappeared shortly after becoming available in the market. Empirical research supports this finding including Cooper (1984); Hultink and Robben (1995). According to Hultink and Robben (1995), a new product considered as a success or a failure depends on the relationship between a company's time perspective and its choice of criteria for measuring new product success. They propose that in the short term, profitability cannot serve as an appropriate indicator of success due to high sunk costs of developing new products, but instead, criteria such as development cost and speed-to-market are more important.

In terms of policy implications, the study confirms that specific investments of firm founders in professional education, experience, and learning will significantly enhance their performance. However, these investments do not always bring comparatively similar benefits at any moment in life. As aging makes the contribution of the founder progressively less valuable for the company performance, entrepreneurs should take into account their age when they decide to make a human capital investment. However, my findings have the potential limitation that without further research one cannot be sure whether the positive effect of human capital is solely due to the investment itself or whether it is partly due to the fact that more talented firm founders invest more in their human capital. In the latter case of endogenous human capital variables, it would be incorrect to assign the credit for better performance solely to the investment. In other words, the reported effect would be upwardly biased (Bosma et al., 2004).

4.5.2 Social Capital

This study supports findings of Granovetter (1973), Fukuyama (1995), and Davidsson and Honig (2003) that entrepreneurs could gain more benefits from weak-tie business networks than from strong-tie emotional interactions. Tangible benefits such as loans and subcontracting parts of production show significant magnitude. However, although network participation has a positive and statistical significant effect on entrepreneurial performance, it no longer has strong economic effects once entrepreneurs' ideas of useful participation are controlled. Hypothesis 2.1 and 2.2 are not supported.

The finding is surprising since it works against popular opinions that the informality of business environment in Vietnam highlights the role of close interactions with family, relatives, and friends in stimulating entrepreneurial activities. Network is such a new concept that people hardly refer to when they attempt to explain successful entrepreneurship. Although support from strong ties is always available to help business founders overcome start-up difficulties, the real tangible benefits are unexpectedly vague. Loans from relatives and friends without monthly interest pressure may impede the entrepreneur's motivation and commitment to his/her venture success. Whereas support from weak ties (loans and outsourcing) has quite strong effect on firm performance, the likelihood of being a member of a business network merely has trivial economic impact. This is partly because entrepreneurs are involved in formal network activities for political reasons rather than business-related ones. Although network members are more likely to do business with each other and assist each other in difficult times, this benefit is not as numerically strong as expected. Usually, network activities are limited to the facilitation of the policy-making process of the government, receive updated information on newly-launched business-related regulations, and punish any firm (including non-members) that does not conform to governmental or industry rules. On the other hand, there is no statistical evidence that the frequency of assistance received from networks (network intensity) is related to benefits gained.

Thus, social capital brought by formal network participation in Vietnam is still very limited. The evidences of social capital benefits from business network participation are widely observed in many transitional economies: in Russia (Batjargal, 2000), in Eastern Europe (Paldam and Svendsen, 2000) and in China (Koch, 2005). Therefore, policies

from the government in the future should encourage the establishment of business-oriented networks (rather than politics-based) to support directly entrepreneurs, especially small-sized ones, in both their daily operations and long-term strategic management.

4.5.3 Interaction of Human and Social Capital

The important suggestive finding is that entrepreneurs do create values by combining their social and human capital. Both hypothesis 2.3, i.e. positive relation between the interaction of network participation and high educational level and entrepreneurial performance, and hypothesis 2.4, i.e. positive relation between the interaction of network participation and start-up experience and entrepreneurial performance, are supported. This reflects the positive indirect effects of network participation on firm performance, depending on the type of human capital that they possess, e.g., professional education or start-up experience.

The answer to the question of the substitutability or complementarity of human and social capital influencing entrepreneurial behavior depends on the dependent variable. In the analysis of gross profit equation, we find the complementarity and substitutability between network participation and professional education. There is no complementarity when experience is taken into the interaction. In the case of growth of revenue per employee as a measure of entrepreneurial performance, the interaction term between network participation and experience is positive and significant, pointing to complementarity between human and social capital. Also, the first-order coefficients of experience and network participation are positive, resulting in substitutability at the margin.

Finally, this study is one of first studies that have examined the impact of the interaction between human and social capital on entrepreneurship in a transition economy. However, my tests of social capital effects are limited to the extent that I have not isolated various characteristics of networks: functions, strength of ties, density, degree of centrality, etc. Further research need to capture unique network characteristics for the Vietnamese case in order to “capitalize social capital” (Ellerman, 1996: 14) in a way that fully exploit the inherent benefits of social capital.

4.5.4. Future Research

The future research should account for the selection bias that limits the robustness of the study. In other words, human capital and social capital of both nascent entrepreneurs and incumbent entrepreneurs at post-startup phases also contribute to the overall successful entrepreneurial performance. With respect to the methodology, the estimation would be more efficient if panel data with sophisticated econometric models are exploited. Thus, samples for the analysis could be extended to recent survey datasets in 2007 and forthcoming 2009.

Finally, a final remark on civic norms is worth to expose before ending this section. Knack and Keefer (1977) propose that interpersonal trust and civic norms are stronger associated with improved economic performance than memberships in formal groups. It is plausible that economic activities that require some agents to rely on the future actions of others are accomplished at lower transaction costs in higher-trust environments. The relationship of trust and norms to economic growth is even larger in poorer countries, which may be attributable to their under-developed financial sectors, weak property rights, and unreliable enforceability of contracts (*ibid.*, p. 1285). Thus, since social capital is measured in terms of “group membership”, i.e. benefits and values obtained from personal strong-tie and weak-tie networks, the chapter incurs a limitation of not examining the effect of these two important dimensions of social capital. Irrespective of the degree of involvement of entrepreneurs in groups and associations which are characterized by either strong or weak ties, the future research should investigate an additional hypothesis: “entrepreneurs who trust other people more and display greater respect of civil norms are more likely to be successful, given other things being equal”.

Appendix 4A. Correlation Matrices

4.A.1. Correlation Matrix of Variables in Human Capital Equation

	Age	Professional Education	Industry Experience	Employee Experience	Self-employment Experience	Product Experience	New Product Introduction	Product Innovation	Process Innovation
Age	1.0000								
Professional Education	-0.0176	1.0000							
Industry Experience	0.0680*	-0.1317*	1.0000						
Employee Experience	0.0763*	0.2202*	0.1110*	1.0000					
Self-employment Experience	-0.0225	-0.1424*	0.0513	-0.6482*	1.0000				
Product Experience	-0.0746*	0.0305	0.5767*	0.1493*	0.0137	1.0000			
New Product Introduction	-0.0782*	0.1481*	0.0225	0.0908*	-0.0010	0.0582*	1.0000		
Product Innovation	-0.0646*	0.1419*	0.1012*	0.1224*	0.0008	0.1037*	0.5071*	1.0000	
Process Innovation	-0.0366	0.1945*	-0.0074	0.0448	-0.0021	0.0573*	0.3801*	0.3768*	1.0000

Note: *: significant at 1% level

4.A.2. Correlation Matrix of Variables in Social Capital Equation

	Age	Education	Experience	Learning	Strong- tie Capital	Strong- tie. Guarantor	Family Entrepreneur	Network Participation	Network Size	Network Intensity	Weak- tie Creditor	Outsourcing
Age	1.0000											
Education	-0.017	1.0000										
Experience	0.0274	-0.005	1.0000									
Learning	-0.077*	0.2048*	0.1211*	1.0000								
Strong Capital	-0.053	0.0066	-0.0219	0.0043	1.0000							
Strong Guarantor	-0.043	0.0760*	0.0183	0.0582*	0.0643*	1.0000						
Family Entrepreneurs	0.0081	0.0290	0.0283	-0.0230	0.0115	-0.0058	1.0000					
Network Participation	0.0185	0.2251*	0.0785*	0.1962*	-0.0448	0.0431	0.0050	1.0000				
Network Size	0.0158	0.2017*	-0.0138	0.1437*	0.0113	0.0656*	0.0527	0.2083*	1.0000			
Network Intensity	-0.0009	0.1206*	0.0285	0.0931*	0.0270	0.0827*	0.0389	0.1497*	0.3387*	1.0000		
Weak Creditor	-0.0250	0.0313	-0.0237	0.0836*	0.0324	0.1138*	-0.0058	0.1297*	0.1709*	0.0914*	1.0000	
Outsourcing	-0.0152	0.0741*	0.1020*	0.1763*	-0.0201	0.0699*	-0.0127	0.1312*	0.1005*	0.0886*	0.0403	1.0000

Note: *: significant at 1% level

Appendix 4.B Estimation Models

4.B.1 Human Capital Model: OLS Estimation with Robust Standard Errors

$$\ln \pi_i = y_i = \beta_1 + \beta_2 x_{2i} + \dots + \beta_k x_{ki} + u_i = X\beta + u \quad (1) \quad (i = 1, \dots, n)$$

π_i : operating profit of firm i at the end of 2005

x_{2i}, \dots, x_{ki} : values of human capital determinants in 2004

u_i : model error with the assumption $E(u/X) = 0$

The White test for homoskedasticity assumption:

$$\hat{\sigma}^2 = s^2 = \frac{1}{n-k} e'e \text{ where } e \text{ is fitted value from (1).}$$

$$e_i^2 = \alpha_{11} + \sum_{h=2}^k \sum_{j=2}^h \alpha_{hj} x_{hi} x_{ji} + v_i \quad (2) \quad (i = 1, \dots, n)$$

$$H_0: \alpha_{hj} = 0$$

OLS estimation of (2) results in the standard F-test: $F(105) = 186.8781$; p-value = 0.00, which indicate the presence of heteroskedasticity.

For graphical tests, the symmetry plot to check the symmetry of profit distribution shows the larger distances of observations above the median compared to those below. Thus, the distribution is right-skewed. From the residual-versus-fitted plot, there is a slight increase in the variance of the residuals. In sum, a high risk of violating the homoskedasticity assumption could be observed graphically.

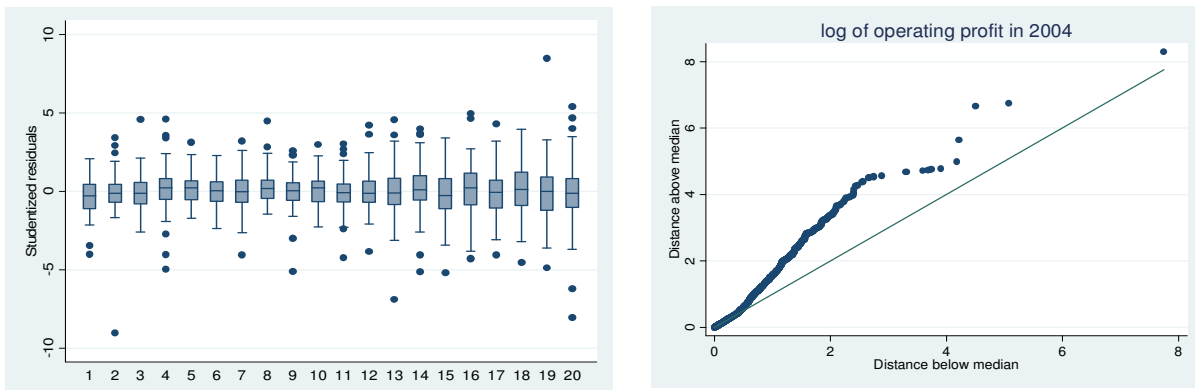


Figure 4.4 Residual-versus-fitted plot (right) and symmetry plot (left)

Let Σ be the variance matrix $\Sigma = \begin{bmatrix} \sigma_1^2 & & 0 \\ & \ddots & \\ 0 & & \sigma_n^2 \end{bmatrix}$ where $E(u_i^2/X) = \sigma_i^2 < \infty$

Estimate $\sum_{i=1}^n x_{hi} x_{ji} e_i^2$ as a consistent estimator of $X'\Sigma X$. Then, the heteroskedasticity-robust standard error is adopted by:

$$\tilde{\sigma}_{\tilde{\beta}} = (X'X)^{-1} \widehat{X'\Sigma X} (X'X)^{-1}$$

Using these estimated robust standard errors to transform (1) to Generalized Least Squares (GLS) equation:

$$\ln \pi_i^* = \frac{\ln \pi_i}{\tilde{s}_i} = \beta' \frac{x_i}{\tilde{s}_i} + \frac{u_i}{\tilde{s}_i} = \beta' x_i^* + u_i^* \quad (3)$$

Equation (3) satisfies the classical assumptions, thus, the estimator is efficient:

$$\tilde{\beta} = (X^{*'} X^*)^{-1} X^{*'} y^* = (X' \Sigma^{-1} X)^{-1} X' \Sigma^{-1} y$$

4.B.2 Social Capital Model: Tobit Estimation

Tobit model assumes that the observed dependent variables r_i ($i = 1, \dots, n$) satisfy $r_i = \max(r_i^*, 0)$ where r_i^* are latent variables generated by the linear regression model

$$r_i^* = \beta_1 + \beta_2 x_{2i} + \dots + \beta_k x_{ki} + u_i \quad (i = 1, \dots, n) \quad (5)$$

r_i : growth of revenue per employee of firm i made at the end of 2005, calculated by $\frac{(Revenue/Total \text{ of employees of } 2004) - (Revenue/Total \text{ of employees of } 2003)}{Revenue/Total \text{ of employees of } 2003}$

x_{2i}, \dots, x_{ki} : values of social capital determinants in 2004

u_i : model error with the assumption $E(u/X) = 0$

S is the set of n_1 observations that satisfies $r_i > 0$.

(5) can be transformed into the log-likelihood function:

$$\begin{aligned}
l(\beta, \sigma^2, r) &= \sum_{i \in S} \ln [\Pr(r_i/r_i > 0, x_i; \beta, \sigma^2) \Pr(r_i > 0/x_i; \beta, \sigma^2)] \\
&\quad + \sum_{i \notin S} \ln[\Pr(r_i = 0/x_i; \beta, \sigma^2)] \\
&= \sum_{i \in S} \ln[\Pr(r_i/x_i; \beta, \sigma^2)] + \sum_{i \notin S} \ln[\Pr(r_i = 0/x_i; \beta, \sigma^2)] \\
&= -\frac{n_1}{2} \ln(2\pi) - \frac{n_1}{2} \ln \sigma^2 - \frac{1}{2\sigma^2} \sum_{i \in S} (r_i - \beta'x_i)^2 + \sum_{i \notin S} \ln \left[1 - \Phi \left(\frac{\beta'x_i}{\sigma} \right) \right] \quad (6)
\end{aligned}$$

(6) is a combination of OLS likelihood function (the first three terms) and Probit likelihood scaled by σ (the final term).

Tobit log-likelihood function is estimated by maximum likelihood (ML) such that the estimated value $\hat{\beta}$ maximizes $l(\beta, \sigma^2, r)$.

Product Diversification, Corporate Entrepreneurship, and Firm Performance: An Empirical Study of Vietnamese Firms

5.1 Introduction

Product diversification is a purposeful and strategic decision made by managers. That is why in principle managers always expect that product diversification improves the performance of their firm. However, scholars do not always agree with this view. In the past, the industrial organization literature like Gort (1962), Arnould (1969), Markham (1973), etc. argues that there is no significant relationship existing between product diversification and firm performance. Recently, scholars show that diversification generates multiple directions of outcomes. Extensive empirical research has pointed out that related diversification outperforms unrelated diversification (Datta et al., 1991). As well, many empirical findings to date suggest that moderate levels of diversification yield higher levels of performance than either limited or extensive diversification (Palich et al., 2000). That is, the diversification-performance relationship follows a non-linear form rather than the linear one. So, the question is which pattern of the diversification-performance relationship is relevant to describe the case of Vietnamese firms nowadays?

To answer this empirical question, we have to investigate why the diversification-performance relationship is non-linear? However, the static theories such as Structure-Conduct-Performance (or neoclassical) framework (Bain, 1959; Mason, 1957; Lopez, 1984; Roberts, 1984; Slade, 1987; etc.), transaction cost economics framework (Caves, 1971; Gorecki, 1975; Montgomery and Wernerfelt, 1988; Teece, 1982), internal-capital framework (Weston, 1970; Williamson, 1970; Lang and Stulz, 1994; Khanna and Palepu, 1997; Liebeskind, 2000; and Khanna et al., 2005) , and agency framework (Mueller, 1969; Jensen, 1986; Morck et al., 1990; Hoskisson and Turk, 1990; and Constantinides et al., 2003) could not provide us appropriate answers. Resource-based

framework (Rumelt, 1974; Burt, 1983; Chatterjee and Wernerfelt, 1991; Peteraf, 1993; Markides and Williamson, 1994; and Markides, 1998) could explain this non-linear relationship but only for related diversification. According to them, related diversification enables corporations to have a better performance if they expand their stocks of strategic assets more efficiently. The matter is that not all related diversification leads to the enrichment of the stock of strategic assets due to the existence of 'non-profitable relatedness' (Markides and Williamson, 1994).

Although these theories depart from different sets of axioms or assumptions, they all converge in dealing the conflicting demands of synergies and responsiveness with respect to diversification. Diversification, on one hand, brings benefits from synergy effects such as market-position aligning, resource leveraging, and activity integrating, and on the other hand, causes harmful effects from responsiveness such as higher governance costs, slower decision making, strategy incongruence, dysfunctional control, and dulled incentives (Wit and Meyer, 2005). Nevertheless, the investigation of synergy and responsiveness only enables us to figure out whether diversification has a positive or a negative effect on firm performance, or, which type of diversification, related or unrelated, is more beneficial. We are not able to explain why moderate levels of diversification yield higher levels of performance than either limited or extensive diversification does as indicated by many empirical studies.

In this chapter, I propose that we could have a sound explanation for the non-linear diversification-performance relationship by introducing *corporate entrepreneurship*, which is defined as a process of recognizing and exploiting profit opportunities within existing organizations (Elfring, 2005), into the picture. In this sense, diversification is considered as an act of corporate entrepreneurship. By showing that the determinants of corporate entrepreneurial performance - entrepreneurial expertise and organizational form - are also the determinants of diversification performance and that the extension of diversification has detrimental effect on both diversification performance and subsequent corporate entrepreneurial performance, we could understand why the diversification-performance relationship is non-linear. From the proposed analytical framework, I draw empirical propositions for the relationship between product diversification and firm performance for the case of an emerging market like Vietnam's.

The recent economic environment in Vietnam enables me to propose two empirical propositions: (i) *product diversification of private Vietnamese firms has a positive relationship with firm performance; and (ii) positive effects of diversification will reduce gradually as Vietnamese firms increase their diversification scope.* The first empirical proposition is raised from the fact that a transition country like Vietnam offers a number of available profit opportunities since the transformation process leads to the liberalization of markets with greater flexibility in prices, wages and production decisions. As long as a firm has excess resources, it can easily find a good profit opportunity to exploit. The second empirical proposition results from the fact that most Vietnamese firms are small and medium-sized ones and generally are controlled by family members (family businesses). Their managerial ability and the organizational structure would be limited once the scope of diversification becomes large.

This chapter aims to re-examine two above empirical propositions based on the dataset of Vietnamese firms in Binh Duong, a province in the South of Vietnam, from 2003 to 2006. The dataset is extracted from the General Statistic Office (GSO)'s annual enterprise surveys. All state owned firms and foreign invested enterprises are removed from the dataset. This prevents the analysis from any potential bias due to extreme outliers. By using the provincial dataset, it is assumed that the effects from macro environment are homogenous to every firm in the same province. As well, industries are assumed to be competitive all over the country such that any shortages in supply in a regional market will be compensated by excess production in other nearby regions. Thus, the study could leave out the effects of unique macroeconomic and institutional environment of each province as well as the effects of industrial structure. Binh Duong is selected because it is always among the top competitive market environments in Vietnam (PCI, 2006, 2007). With various firms of different origins and evolutionary patterns, Binh Duong's enterprise dataset is an appropriate ground to test the long-term effectiveness of various elements and types of resources and capabilities that the enterprises utilize for diversification measures.

Beside the novelty of constructing a new theoretical framework to analyze the relationship between product diversification and firm performance as well as using the provincial dataset to test empirical propositions, the chapter has another contribution in the methodological approach. Most research in the field uses hypothesis tests, ANOVA tests or cross-sectional regressions to test the relationship between product

diversification strategy and firm performance. The limitation of this approach is that the decision to diversify is treated exogenously such that firm-level and industry-level characteristics as well as impacts of external environment do not have any influence on firms' diversification strategy. Many studies, for instance, Maksimovic and Phillips (2002) and Lang and Stulz (1994), have shown that firm and industry characteristics influence a firm's decision to diversify. To overcome this problem, I adopt the generalized method of moments (GMM) estimation to control for the endogeneity of the diversification decision with panel data. The dynamic model with lagged dependent variable is also examined to account for any potential performance shocks. The findings support our research hypothesis that: *product diversification has a positive relationship with firm performance*. Nevertheless, this relationship is not linear: positive effects of diversification will reduce gradually as the firm moves further and further away from the core business.

The chapter is structured as follows: section 5.2 gives a definition of the concept "corporate entrepreneurship" and "product diversification" and builds up a theoretical framework to explore the relationship between these two concepts. Product diversification is constrained by synergy and responsiveness that it creates for the firm. Corporate entrepreneurship is the tool to reconcile these two conflicting demands. Section 5.3 sets up two empirical propositions based on the theoretical framework from section 5.2 for the case of Vietnam. Section 5.4 describes the dataset used to test the empirical propositions. Section 5.5 gives the definition, measurement and descriptive statistics of all variables adopted for the empirical study. Section 5.6 develops the empirical model and proposes estimation methods for different specifications. Section 5.7 gives the interpretation and discussion of estimated results. And finally, section 5.8 ends with some concluding remarks.

5.2 Corporate Entrepreneurship and Product Diversification

Definition and measures of product diversification are varied according to particular researchers. What diversification implies depends on the grouping of commodities defined as a single product. While Ansoff (1965) focuses on the strategic act of diversification to define it as the entry into new markets with new products, Kamien and Schwartz (1975) define diversification by the firm's degree of product and market involvement. Nevertheless, in defining diversification, this chapter follows the distinction

initially made by Rumelt (1974) and adopted by many analyses on diversification (for instance, Markides, 1995; Markides and Williamson, 1996; Tallman and Li, 1996; Nachum, 1999). This views product diversification as an “entry into a new product activity that requires or implies an appreciable increase in available managerial competence within the firm”. In other words, product diversification occurs when a firm expands its products into new lines of activity or into new product markets.¹⁵

Despite the recognized linkage between product diversification and other strategy-making elements, such as corporate entrepreneurship, research has devoted minimal attention to explicitly investigating relationships among diversification, corporate entrepreneurship, and performance elements (Antonicic, 2006). Corporate entrepreneurship is a specific application of entrepreneurship: discovery and exploitation of profit opportunities that rivals have not noticed or aggressively pursued (Katz and Shepherd 2004; Elfring, 2005). However, unlike start-up entrepreneurship which refers to individual founders of newly-established firms, corporate entrepreneurship aims at a collective of owners and managers working in incumbent firms. In general, corporate entrepreneurship is defined as a process of recognizing and exploiting profit opportunities within existing organizations (Elfring, 2005). It often requires resource commitments for the purpose of carrying out innovative activities in the form of product, process and organizational innovations (Schollhammer 1982; Burgelman, 1984; Alterowitz, 1988; Jennings and Young, 1990). The fundamental challenge facing corporate entrepreneurship, as described by Dess et al. (2003), is ‘managing the conflict between the new and old (business activities) and overcoming the inevitable tensions that such conflict produces for management’.

Product diversification is an act of corporate entrepreneurship that addresses the question of what business the organization should be in. It requires resource commitments from existing organizations for a new business activity. That is why Burgelman (1984: 154) defines corporate entrepreneurship as “the process whereby firms engage in diversification through internal development. Such diversification requires new resource combinations to extend the firm’s activities in areas unrelated or

¹⁵ With this conception, product diversification is totally distinguished from product differentiation which is regularly used in marketing field. It is the process of distinguishing a product from competitors’ products as well as a firm’s own product offerings, to make it more attractive to a particular target market. In other words, product differentiation refers to the customer perception of differences between a brand and its competition on any product characteristics: price, design, quality, etc (Datta, 1996).

marginally related to its current domain of competence and corresponding opportunity set". However, it should be noted that product diversification, or new business activity within an existing firm, is only one of the possible activities implemented by corporate entrepreneurship that involve the creation of new wealth through new combinations of resources. Other activities include refocusing a business competitively, making major changes in marketing or distribution, redirecting product development, and reshaping operations (Guth and Ginsberg, 1990).

Product diversification is constrained by synergy and responsiveness that it creates for the firm. Synergy is defined as the benefits that the introduction of a new business unit brings to other existing business units and vice versa. Responsiveness is defined as the ability to respond adequately to the competitive demands of a specific business area (Wit and Mayer, 2005). It is no doubt that on one hand multi-business firms must determine their management system in a way that enables their different business units to be responsive. On the other hand, they also need to strive towards the identification and realization of synergies. In other words, multi-business firms need to be integrated and differentiated at the same time – emphasizing the whole and respecting the part. Striving towards synergy is a force pulling the firm together into an integrated whole, while being responsive to business demands is a force pulling the firm apart into autonomous market-focused units (Ghoshal and Mintzberg, 1994). The question is how these two conflicting demands can be reconciled?

Corporate entrepreneurship is the answer since it implies both synergy and responsiveness. The consideration of synergy is reflected via the fact that corporate entrepreneurship requires the participation of all levels of management (Burgelman, 1983; Kuratko et al. 2002:25). Top-level managers must form strategies through which new businesses can be created or existing ones can be reconfigured. Middle-level managers are required to interpret the newly-formed strategies from top-level managers to their subordinates; and then facilitate the development of expected entrepreneurial behaviors among employees. As recipients of these interpretations, first-level managers then work closely with their people to shape the entrepreneurial behaviors whereby the firm's core competences can be used as daily routines to exploit available opportunities in the marketplace. The participation of all levels of management implies that all synergy aspects of the existing firm, such as market power, resource reallocation, and activity sharing, are carefully considered by entrepreneurial managers.

Responsiveness is reflected in corporate entrepreneurship via the existence of nearly independent divisions or firms with respect to resources and capabilities in order to quickly respond to changes in the marketplace. Morris et al. (2001) indicates that one of the main functions of corporate entrepreneurship is to respond to customer changes. Customer changes are viewed as customer opportunities. In other words, corporate entrepreneurship creates the competence of timely and accurate self-restructuring to capture these customer changes on the ground of existing resources and capabilities.

Corporate entrepreneurship of a firm is however determined by (i) the entrepreneurial expertise of every member of the firm, especially top-level managers and (ii) the organizational form of the firm (Elfring, 2005). If firms are new and/or very small, single individuals are responsible for important decisions and actions: all revolves around the entrepreneur. The firm's goals are his goals; its strategy is his vision of its position in the world. As the firm becomes larger, more people inside the firm are likely to get involved in its management. If the founders of the firm still maintain the initial organizational form, their entrepreneurial expertise would be overloaded. Employees become too dependent on the founder in daily operations, which hampers the overall performance of the firm. If the firm restructures its organizational form in a way that its management becomes more professional, the interests of managers rather than shareholders now play a crucial role (Grant, 2002). If the founders and managers still work close together, the divergence between shareholders and managers might be undersized. However, as the firm expands, behaviors of managers are beyond the eyes of the founders such that managers tend to be motivated by financial gain, status, and power. In this case, if their salaries and prestige are correlated with corporate size rather than corporate profitability, they are likely to pursue growth at the expense of profitability (Jensen, 1986; Jensen, 1993; and Stein, 2003). Further, as the firm grows, the conflict between top-level managers and division managers tend to increase. Rajan et al. (2000) argue that when divisions have different investment opportunities, the CEO will want to tilt the capital budget away from the efficient point, and towards a "socialist" outcome in which the weaker division gets relatively more than it expects.

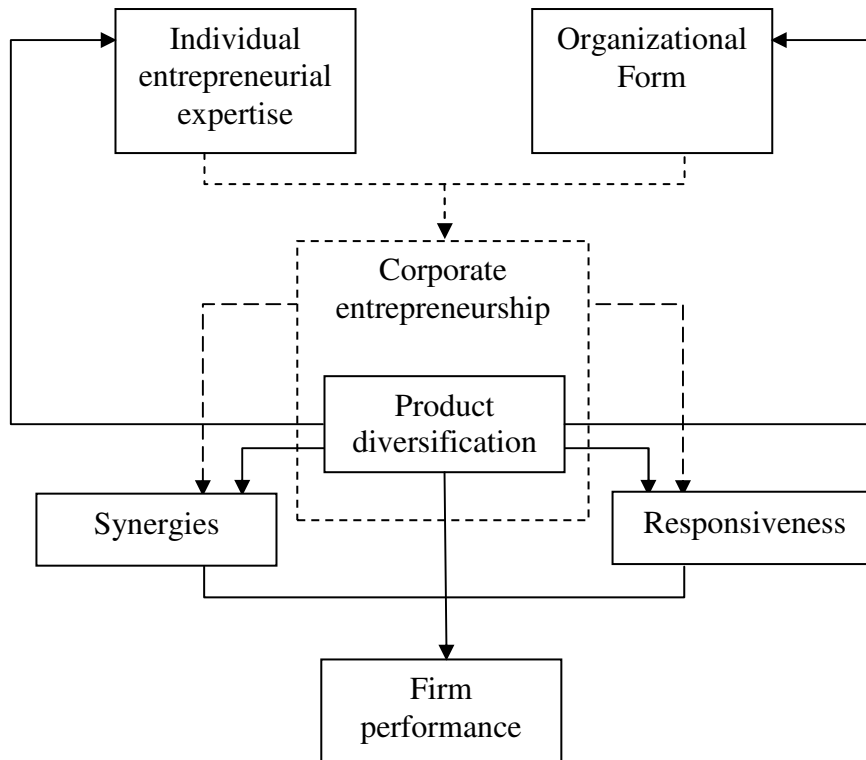


Figure 5.1 The Relationship between Product Diversification, Corporate Entrepreneurship, and Firm Performance

Our above discussions could be summarized via Figure 5.1. Product diversification impacts on the firm's performance. However, contingent on whether the diversification amplifies synergy and responsiveness of the firm, the impact could be positive or negative. Product diversification, synergy, and responsiveness, however, are all implied by corporate entrepreneurship. **Once corporate entrepreneurship manifests itself via product diversification, it must also consider synergies and responsiveness.** Thus, the success of product diversification ultimately depends on the quality of corporate entrepreneurship, which in turn is determined by the entrepreneurial expertise of the firm's members, especially, top-level managers and by the organizational form of the firm. However, both entrepreneurial expertise and organizational form will be unproductive once the scope of diversification is extended beyond a certain optimum level. As a consequence, product diversification on one side generally promotes firm-level performance, but on the other side restricts its positive impact over the next diversification. A non-positive or even negative effect may occur if the organizational form is not restructured. Figure 5.2 illustrates this argument. At the initial establishment, a firm has a very simple organizational form. The founder manages every daily

operation and gives direct leadership to employees (Form I or entrepreneurial form). As the firm grows, the founder has to delegate his power to a number of middle-level managers, each of whom is in charge of one or some specific areas of activities (Form II or U-form). But, if the firm continues to expand further and further, the founder may need to share his ownership right of the firm with other partners. The firm now has the Organizational Form III (or M-form).

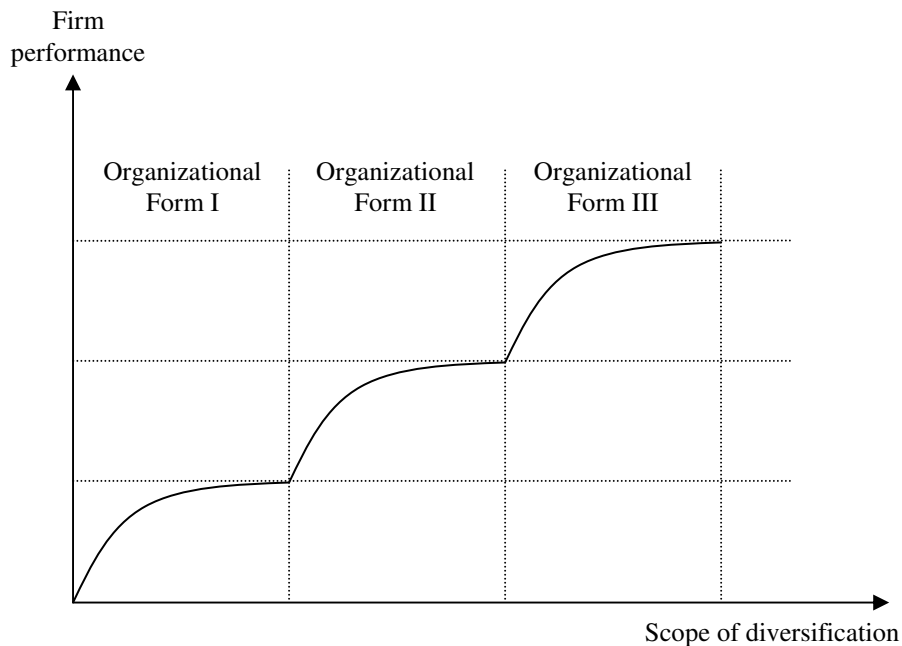


Figure 5.2 The Relationship between Firm Performance, Product Diversification, and Organizational Form

5.3 Hypotheses

The models or theories in this literature are mainly developed on the basis of the Western theory, which may not be as powerful in contexts where market forces and efficient governance mechanisms are not fully developed. Thus, a study in Vietnam – a transition economy of South East Asia – has to focus more on the practical environment where control and governance structures emerged from the recent privatization process significantly differ with those of developed countries (Zahra et al, 2000), rather than normative theoretical models. Private firms in Vietnam are mainly small and medium-sized. Most of them were established after 2000 with the official launch of the Enterprise Law which aims to create a level playing field for private firms. One crucial characteristic of private firms is that they are mostly family businesses of which the

founders and managers are family members or relatives. The separation between ownership and control is not substantially introduced in large firms as it is commonly in developed countries. Corporate entrepreneurship therefore still concentrates on few founding persons. Hence, synergies and responsiveness should be highly considered if diversification takes place.

Further, given the fact that Vietnam is an emerging economy whose GDP growth is about 7% to 8% during 2001-2006, profit opportunities available to firms are pervasive. Thus, the problem of Vietnamese firms is not whether they can find good profit opportunities to exploit or not, but whether they can have enough resources for the exploitation. The annual start-up rate of new firms of about 35% during 2000-2006 is a good illustration for the plenty of profit opportunities in Vietnam. On the other hand, due to many constraints in the external capital market (high transaction costs, shortage of credits), diversification is a superior option if the firm has excess resources and redundant cash flow. From these empirical premises, we can induce the following empirical proposition:

Hypothesis 1: Product diversification of private Vietnamese firms has a positive relationship with firm performance.

Although private Vietnamese firms may not have to challenge with agency costs, the increase of the diversification scope will limit entrepreneurial expertise. The organizational U-form that most Vietnamese firms have still applied for their firms until now becomes cumbersome when they grow and expand to a certain point. “Managerial economies of scope” is no longer advantageous when the firm has to manage a number of different business units (Chandler, 1977). In other words, the performance of Vietnamese firm tends to vary with product diversity in a nonlinear relationship: increasing as entrepreneurial expertise is exploited at a greater scope but falling off as product scope exceeds the range of this resource and governance scope surpasses management capabilities. So, we raise the second proposition:

Hypothesis 2: Positive effects of diversification will reduce gradually as Vietnamese firms increase their diversification scope.

5.4 Data Description

Panel firm-level data from 2003 to 2006 are extracted from the GSO (General Statistics Office) database of annual national enterprise surveys. Since the chapter wants to leave out the effects of unique macroeconomic and institutional environment of each province as well as the effects of industrial structure, only firms that locate in Binh Duong province are used in the empirical analysis. It is assumed that the effects from macro environment are homogenous to every firm in the same province. As well, industries are assumed to be competitive all over the country such that any shortage in supply in a provincial market will be compensated by excess production in other nearby provinces. In other words, the characteristics of industries within a province do not have important impacts on the performance of firms in that province¹⁶. Further, state owned firms and foreign-invested firms are removed from the dataset to prevent extreme outliers. Thus, the final sample consists of only private firms after excluding 39 state-owned firms and 480 foreign-invested ones.

Binh Duong was chosen because of its competitive and dynamic market¹⁷. The firm-level dataset, which is available for the period 2003-2006, includes segment data (ISIC code, segment sales and assets), accounting data (debts, revenue, profit, and assets), and basic demographic data (inception year, ownership structure, labor size and technical personnel). To be included in our final sample, multi-segment firms must have data available at both the firm and segment levels. On the other hand, since the purpose of the chapter is to investigate the effect of diversification strategy on firm performance overtime, only those firms that were established before 2003 and still survived in 2006 are used for the analysis. State-owned monopolistic firms (in electricity, water supply and post and telecommunications) and foreign-invested firms which are generally large-scaled and overcapitalized are removed from the analysis to ensure competitive characteristics of all industries that firms involve. Thus, the final dataset forms a

¹⁶ The rationale to select only observations in one province for the analysis is (i) to isolate the effect of institutional and macro-economic features which are assumed to be homogenous to every firm within one province; (ii) to control for the impact of industry characteristics at national level which are minor or even trivial on a firm in a province; and (iii) to give a good statistical control of the dataset consisting of all observations within a geographical area, for instance, prevent any potential spatial autocorrelations increasing variances of disturbances if the analysis is conducted at cross-regional level.

¹⁷ Binh Duong is always among the top three provinces to have the highest PCI index (Provincial Competitiveness Index) (PCI, 2005; PCI, 2006; PCI, 2007; PCI, 2008). The PCI ranks the ability and willingness of provincial governments to develop business-friendly environments for private sector development.

balanced panel of 4452 observations which consists of 1113 firms observed continuously over 4 years.

Table 5.1 documents the number of private enterprises sampled in each tabulation of size-age category.

Table 5.1 Tabulation of size and age of firms (2003)

Firm age	Micro-sized	Small-sized	Medium-sized	Large-sized	Total
1 – 9	339	325	276	50	990
10 – 19	40	37	18	5	100
20 – 29	3	10	2	0	15
30 – 39	3	3	0	0	6
40 – 49	1	1	0	0	2
Total	386	376	296	55	1113

Notes: Micro-sized: 1-9 employees; Small-sized: 10-49 employees; Medium-sized: 50-299 employees; Large-sized: over 300 employees (World Bank definition)

It can be seen that firms are very young: 89% of the total sample are less than 10 years old. Most of the firms are micro-sized (35%), small-sized (34%), and medium-sized (27%). Unlike other provinces where micro-sized firms significantly outnumber, Binh Duong's firm population is quite evenly distributed among the three size categories: micro, small and medium, since its market is relatively competitive and dynamic to facilitate the growth and development of firms. SMEs account for up to 60% of the sample in 2003. Large-scaled firms account for only 5% of all sampled firms.

Table 5.2 focuses on the size – sector split. The two largest sectors in terms of number of enterprises are manufacturing – 47% and trade and repair services – 33%. Whereas most of manufacturing firms are small and medium-sized ones (85%), the majority of firms in trade and repair services industry have micro scale (76%).

Table 5.2 Tabulation of size and sectors (2003)

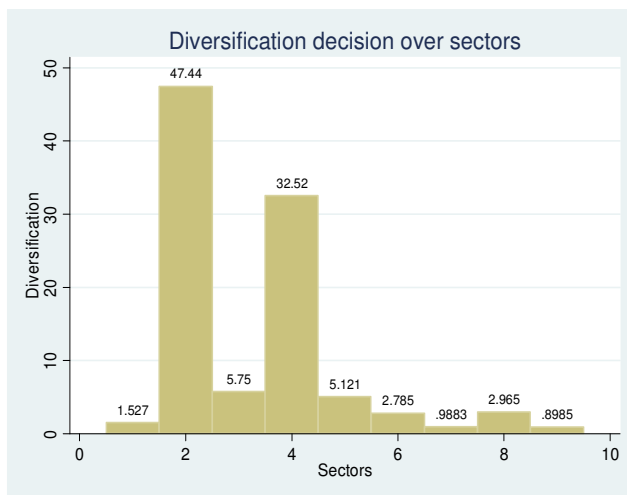
Ownership type	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Total
Micro-sized	4	31	6	276	34	7	5	18	5	386
Small-sized	10	219	30	69	17	11	6	10	4	376
Medium-sized	3	229	25	16	6	11	0	5	1	296
Large-sized	0	49	3	1	0	2	0	0	0	55

Total	17	528	64	362	57	31	11	33	10	1113
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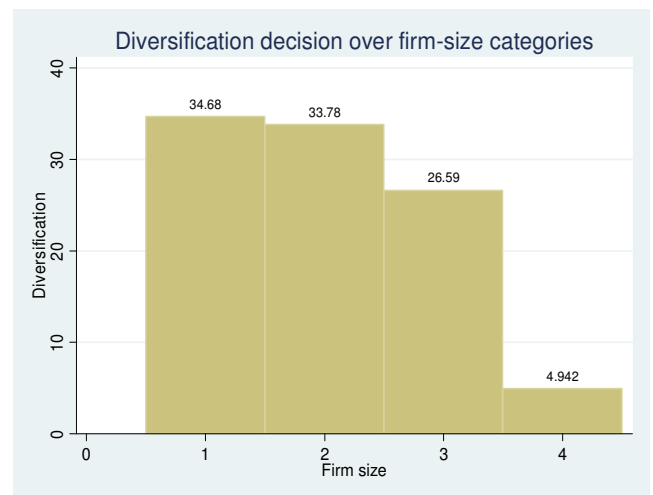
Note: Micro-sized: 1-9 employees; Small-sized: 10-49 employees; Medium-sized: 50-299 employees; Large-sized: over 300 employees (World Bank definition)

(1) Mining; (2) Manufacturing; (3) Construction; (4) Trade and repair services; (5) Hotels and restaurants; (6) Transportation; (7) Finance services; (8) Real estate; (9) Education and medical services.

Finally, we will investigate which firms are more likely to diversify with respect to size and sectors. In 2003, of all 1113 firms, 147 firms are diversified ones, which accounts for 13.2% of the sample. During the period 2003-2006, there was a trend among diversified firms to refocus on core business in 2004, which reduces the percentage of multi-business firms to 11.1%; but soon after that, firms started to enlarge their business scope again, which increases this percentage to 14.6% in 2006. Figure 5.3a indicates that in 2003, firms operating in manufacturing service sector have the highest propensity to engage in diversification: they take up to 47.44% of all diversified firms; then those from trade and repair service sector account for 32.52% of all multi-business private firms. From figure 5.3b, it is clear that firms will be more likely to get involved in diversification when they are small: micro-sized and small-sized firms take up 35% and 34% respectively of all diversified firms in 2003. Larger firms are less involved in diversification activities. The share of diversified firms reduces to 26% for medium-sized firms; and to only 5% with respect to large-sized ones.



(a)



(b)

Note: Sectors: (1) Mining; (2) Manufacturing; (3) Construction; (4) Trade and repair services; (5) Hotels and restaurants; (6) Transportation; (7) Finance services; (8) Real estate; (9) Education and medical services.

Firm size: (1) Micro-sized firms (1-9 employees); (2) Small-sized firms (10-49 employees); (3) Medium-sized firms (50-299 employees); (4) Large-sized firms (over 300 employees) (World Bank definition)

Figure 5.3 Histogram of Diversification decision over Sectors and Size (2003)

5.5 Operationalization of Variables and Descriptive Statistics

Dependent variable: Accurate performance measurement is critical to understanding new venture and small business success and failure. Different measures of firm performance will produce strikingly different results (for a review, see Deeds et al., 1998). For instance, R&D intensive companies may have low profit during the developmental stage; but it does not mean that the value of firms, i.e. the amount of shareholder wealth, is equivalently low. Similarly, recent analysis has found a negative correlation between sales growth and the performance measures of earnings per share, return on equity, and return on investment (Murphy et al., 1996). Nevertheless, according to Deeds et al. (1998), the most widely used measures for entrepreneurial performance are accounting and growth measures. For accounting measures, this chapter will adopt return on sales (ROS) as a performance indicator to reflect the profitability of firms. For growth measures, I tried to use growth of sales as a dependent variable to reflect the firm's accounting performance. However, the test for serial autocorrelation indicates significant violation of the assumption of no serial correlation, which seriously biases the final findings with panel data. Thus, I will focus only on profitability as the performance measure of sampled firms. While profitability is only one of several objectives of an enterprise, the strategic management literature assumes that it is the ultimate test of business performance. "Not only does profitability measure the net effectiveness and soundness of a business's efforts and constitute the risk premium that covers the costs of staying in business, but profits ensure the supply of future capital for innovation and expansion" (Salter and Weinhold, 1979:51).

Diversification index: Gollop and Monahan (1991: 319) indicate five properties of a diversification index: (i) vary directly with the number of different products produced; (ii) vary inversely with the increasingly unequal distribution of products across product lines; (iii) vary directly with the dissimilarity or heterogeneity of products; (iv) apply equally well to various scopes: plants, firms, industries; and (v) be bounded between zero and unity. For a review of all relevant diversification indexes, see Gollop and Monahan (1991). In this chapter, we use entropy index, the most common and robust to all these five properties, to measure diversification levels of firms. The construction of entropy index is presented in Table 5.3. To construct this measure of diversification, segment information by SIC code (Standard Industrial Classification) is used. The index

is sensitive to changes in the number and distribution of products: it is bounded below by zero ($0 \leq E < \ln(n)$). As the number of products increases, entropy index increases at a decreasing rate; but as the distribution of products becomes more equal, it increases at an increasing rate.

Control variables:

- Technological resources: it has been widely recognized that they are measured through R&D activities (for a review, see Audretsch, 1995). Such measures range from indicators of R&D inputs such as R&D investments, R&D personnel, to indicators of R&D process, e.g. number of hours devoted to R&D activity, and to indicators of R&D outputs, e.g. number of patented inventions, new product innovations introduced into the market. However, indicators of R&D process and outputs have not been widely used to reflect technological resources of firms in developing countries, including Vietnam, due to the lack of an efficient property right protection system to evaluate and measure both R&D process and outputs. Therefore, the size of qualified R&D team in each firm is adopted as a proxy for its technological resources.
- Firm size is measured on two aspects with respect to economic size and labor size. The economic size is taken as the natural logarithm of total assets of firms. A quadratic term is also added to establish a non-linear relationship between firm size and its performance. The labor size is measured as the natural logarithm of the number of total employees working in the firm.
- Firm age: the age effect on firm performance is inconclusive and controversial depending on the specific environment and industry where firms reside. Given the emerging and dynamic feature of Vietnamese market, aging may impede the ability of firms to be alert and capture profit opportunities timely and efficiently. The effect of firm age will be explored through the natural number of years that the firm is in continuous operation.
- The capital intensity of industries varies extensively. Some industries are by the nature of technology more capital intensive than others. Within any particular industry, a firm has some range of choice regarding the level of capital intensity vis-à-vis competitors. A firm can choose a highly automated

process or opt for a more labor intensive one. As Porter (1976) pointed out, capital intensity in the form of industry specific assets acts as a barrier to exit. In general, capital intensity imposes a greater degree of risk because assets are frozen in long-lived forms that may not be easy to sell. Given the foregoing reasons to expect return (and risk) to vary with capital intensity, it seems reasonable that there may be differences in capital intensity between diversified firms and undiversified firms and that these differences may be associated with differences in profitability. As Shepherd (1979: 191) notes there are several ways to measure capital intensity and all show similar patterns when applied. The present study will use the ratio of net fixed assets to total employees of the firm.

- Debt ratio: the finance literature indicates that leverage situation of firms strongly influence their value. For example, Opler and Titman (1994) find that highly leveraged firms lose substantial market share to their more conservatively financed competitors. Thus, the debt ratio, measured as the ratio of total debts to total assets, will be adopted to isolate the effect of a firm's leverage capacity on its performance.

Table 5.3(a) presents the pair-wise correlation matrix of the dependent variable and independent variables. Table 5.3(b) gives the list of variables adopted in the chapter, as well as how to measure / construct them and their descriptive statistics. We can see from the correlation matrix below, of 36 pair-wise correlations, 20 are statistically significant. However, most of them are not numerically substantive with the correlation coefficients of below 0.1. One substantive correlation should be noted is the strong positive correlation between economic size of the firm and its debt ratio (0.4076). Larger firms could gain more benefits from financial leverage, and hence, are exposed to more debts than smaller ones (Opler and Titman, 1994).

Table 5.3 (a) Correlation Matrix of Dependent variable and Independent variables

	ROS	Entropy	Tech. resources	Debt Ratio	Econo. Size	Capital Intensity	Labor Size	Firm Age
ROS	1.0000							
Entropy	0.0660*	1.0000						
Tech. resources	0.1420*	0.0536*	1.0000					
Debt Ratio	-0.051*	0.0386	0.0640*	1.0000				
Eco. Size	-0.0345	0.1437*	0.1717*	0.4076*	1.0000			
Capital Intensity	-0.0030	-0.0146	0.0019	0.0049	-0.050*	1.0000		
Labor Size	0.0289	0.1514*	0.2133*	0.3159*	0.7164*	-0.078*	1.0000	
Firm Age	0.0595*	-0.05*	0.0552*	-0.147*	-0.081*	0.0094	-0.055*	1.000

Note: significant at 1% level

Table 5.3 (b) Dependent variables and Independent variables

Categories	Indicators	Variables	Measure	Obs.	Mean	Std. Dev.	Min	Max
Dependent variable	Accounting measures	ROS: Return on sales	$ROS = \frac{(\text{Operating profit})}{(\text{Total sales})}$	4452	0.022	0.227	-9.359	7.929
		Growth of sales	$\frac{(\text{Sales}_{i,t} - \text{Sales}_{i,t-1})}{\text{Sales}_{i,t-1}}$	3339	0.574	1.549	-1.699	26.978
Explanatory variable	Diversification index	Entropy index (E)	$TD = \sum_i^n S_i \ln(1/S_i)$ where S_i is the share of segment i in the firm's sales, and $\ln(1/S_i)$ is the weight for each segment i .	4452	0.0291	0.085	0	0.516
			Square of Entropy index	4452	0.008	0.0279	0	0.267
Control variables	Firm size	Labor force size	Natural log of total number of employees	4452	3.119	1.536	0	8.991
		Economic size	Natural log of total assets	4452	8.236	1.783	0	15.539
			Square of natural log of total assets	4452	71.014	30.638	0	241.47
	Firm age	Firm age	Number of years that the firm is in operation	4452	5.600	5.112	0	50
	Technological resources	R&D personnel	Natural log of number of R&D and technical employees	4452	1.374	0.993	0	6.652
	Financial leverage	Debt ratio	$Debt\ ratio = \frac{Total\ debt}{Total\ assets}$	4452	0.257	0.306	-0.217	3.353
	Capital intensiveness	Capital intensity	$Capital\ intensity = \frac{Fixed\ assets}{Number\ of\ employees}$	4452	0.557	6.118	0	312.82

Note: SIC industries at the four-digit level are treated as industry segments; at the two-digit level are treated as industry group

5.6 Model Development and Estimation Methods

I propose two models: the static model and the dynamic model where the lagged dependent variable is included to isolate the effect of potential performance shock. In each model, I give two different specifications: the first one treats the decision to diversify as exogenous whereas the second measures diversification endogenously to take into account firm characteristics that both lead firms to diversify and affect firm value. However, since the covering period of the dataset from 2003 to 2006 was marked by a stable and fast economic development trend all over the country, the influence from economic cycle might be trivial to firms. Indeed, the insignificant effect of the lagged dependent variable in the dynamic model justifies this conjecture, and indicates the superiority of the static model. Although endogeneity bias is commonly confronted in cross-sectional studies, it is less frequently considered a concern in panel data estimation. This is partially due to the conception that fixed effects estimation will eliminate most forms of unobserved heterogeneity (Verbeek and Nijman, 1992). However, Vella (1998) claims that certain forms of selection bias and heterogeneity will not be eliminated with panel FE and RE models. Indeed, the Durbin-Wu-Hausman test for endogeneity later will justify the necessity to isolate the endogeneity bias of diversification strategies.

5.6.1 The Static Model

5.6.1.1 Diversification Measured Exogenously with Firm-Level Characteristics

The error components model is adopted to introduce the firm specific factors and time effects in the error terms. Using i to index a firm and t a time period, the empirical specification can be written as:

$$y_{it} = \alpha + x_{it}\beta + v_i + \gamma_t + \epsilon_{it} \quad (1)$$

$$(i = 1, 2, \dots, n; t = 1, 2, \dots, T)$$

Where y_{it} is the performance indicator of firm i in time t ; x_{it} is the vector of firm characteristics (explanatory variables); $v_i + \gamma_t + \epsilon_{it}$ is the residual, in which v_i is the firm-specific residual; γ_t are time dummies, and ϵ_{it} is the usual error term with the following assumptions.

H1: ϵ_{it} is uncorrelated with v_i for all i and t .

$$H2: E(\epsilon_{it}) = 0$$

$$H3: E(\epsilon_{it}\epsilon_{i't'}) = \begin{cases} \sigma_\epsilon^2 & i = i', t = t' \quad (H3a) \\ 0 & otherwise \quad (H3b) \end{cases}$$

$$H4: \epsilon_{it} \sim N(0, \sigma_\epsilon^2)$$

- *Estimation methods:* Given the panel structure (cross-sectional and time-series) of my regional-database, fixed-effects or random-effects regression model can be adopted owing to the fact that firm specific effects, ν_i , should be treated as random or fixed. Table 5.7 shows the results from both random-effects and fixed-effects regression.

- *Test for violations of assumptions*

+ Heteroskedasticity (H3a): the problem of heteroskedasticity is more prevalent in cross-sectional data because they involve units and groups that are heterogeneous in nature. Two diagnostic tests, Breusch-Pagan’s and White’s test are employed to check for the presence of heteroskedasticity. It was indeed confirmed by both tests for the presence of heteroskedasticity.

Table 5.4 Test for heteroskedasticity

Heteroskedasticity test	ROS
Breusch-Pagan test	Chi2(1) = 1069.20 Prob>chi2 = 0.000
White test	Chi2(72) = 80.386 Prob>chi2 = 0.007

Thus, estimation with OLS is rejected, and the alternative estimation technique capable of correcting for heteroskedastic errors is “robust” regression method with standard errors corrected for heteroskedasticity by White’s method.

+ Serial correlation in time-series data (H3b): The Wooldridge test for first-order autocorrelation in panel data is insignificant even at 10% level, which indicates the absence of first-order serial correlation in the ROS equation. Serially correlated errors will give biased estimators by increasing variances of estimated coefficients. In this case, we can feel secured that ROS as the dependent variable satisfies the assumption of no serial correlation.

Table 5.5 Test for serial correlation

Serial correlation test	ROS
Wooldridge first-order serial correlation test	F (1,1112) = 1.102 P-value = 0.2941

5.6.1.2 Diversification Measured Endogenously with Firm-Level Characteristics

Diversification strategy is treated endogenously to the extent that firm-level characteristics are expected to influence both the firm's diversification decision and subsequent profitability. Further, causality may run in both directions – from diversification strategy to performance and vice versa. Lang and Stulz (1994) propose that there may be self-selection bias such that poor performers diversify in search of growth opportunities because they have exhausted growth opportunities in their existing activities. Thus, diversification strategy is likely to be correlated with controlled observable firm characteristics and unobserved characteristics absorbed in error terms.

The Durbin-Wu-Hausman test below, indeed, indicates the strong presence of the endogeneity of diversification. The test begins with the reduced form regression in which the assumed-endogenous diversification index is the dependent variable and all other observed exogenous firm-level characteristics are independent ones. Then residuals predicted from this regression are added into the structural form equation (1). The endogeneity problem is determined based on the significance of the residual coefficient.

Table 5.6 Test for endogeneity

Durbin-Wu-Hausman test	F(1, 3331) = 14.78 P-value = 0.0001
------------------------	----------------------------------------

In case of endogeneity problem, instrumental variable (IV) two-stage least squares estimation is often adopted. However, since heteroskedasticity is present, I will apply the generalized method of moments (GMM) estimation which is more efficient than the 2SLS (Baum and Schaffer, 2003). Following Arellano-Bond (1991), the instrument for the endogenous diversification index is its one-period lagged values. This makes the endogenous variable pre-determined and, hence, not correlated with the error term in

equation (1). The results from GMM estimation applied for the static model are presented in Table 5.7.

5.6.2 The Dynamic Model

$$y_{it} = \alpha y_{it-1} + \gamma z_{it} + X_{it}\beta + v_i + \epsilon_{it} \quad (2)$$

$$i = 1, 2, \dots, n; t = 1, 2, \dots, T$$

In equation (2) above, y_{it} is ROS and y_{it-1} is its lagged value. z_{it} is the diversification index. X_{it} is a matrix of control firm-level characteristics. v_i is an unobserved firm-specific time-invariant effect which allows for heterogeneity in the means of the y_{it} series across firms, and ϵ_{it} is a disturbance term. A key assumption I maintain throughout is that the disturbances ϵ_{it} are independent across individuals. I also treat the firm-effects v_i as being stochastic, which here implies that they are necessarily correlated with the lagged dependent variable y_{it-1} .

Several econometric problems may arise from estimating equation (2):

1. The diversification index z_{it} is assumed to be endogenous.
2. Time-invariant unobserved firm characteristics (fixed effects) v_i may be correlated with diversification index z_{it} and control explanatory variables X_{it} .
3. The panel dataset has a short time dimension ($T = 4$) and a large number of firms ($n = 1113$). Thus, the presence of the lagged dependent variable y_{it-1} would give rise to autocorrelation since it is correlated with fixed effects. It is, therefore, also treated as endogenous variable.

OLS estimators of α, γ, β are inconsistent, since the explanatory variable y_{it-1} is positively correlated with the error term ($v_i + \epsilon_{it}$) due to the presence of firm-effects, and this correlation does not vanish as the number of firms in the sample gets larger.

The Within Groups estimator eliminates this source of inconsistency by transforming the equation to eliminate v_i . However, for panels where the number of time periods available is small, this transformation includes a non-negligible correlation between the transformed lagged dependent variable and the transformed error term: $y_{it-1} -$

$\frac{1}{T-1}(y_{i1} + \dots + y_{iT-1})$ and $v_{it} - \frac{1}{T-1}(v_{12} + \dots + v_{iT})$. Thus the Within Groups estimator is also inconsistent here.

To solve problem 1 and problem 2, one would usually use fixed-effects instrumental variables estimation (2SLS), but it depends on the availability and validity of exogenous instruments. Therefore, I decide to use the Arellano-Bond (1991) difference GMM estimator first proposed by Holtz-Eakin, Newey and Rosen (1988). Lagged levels of the endogenous regressor z_{it} are used as instruments, which rise over time. This makes the endogenous variable pre-determined and, hence, not correlated with the error term in equation (2).

To cope with problem 2 (fixed effects), the difference GMM uses first-differences to transform equation (2) into:

$$\Delta y_{it} = \alpha \Delta y_{it-1} + \gamma \Delta z_{it} + \beta \Delta X_{it} + \Delta \epsilon_{it} \quad (3)$$

By transforming the regressors by first differencing, the fixed firm-specific effect is removed, because it does not vary with time.

Finally, to cope with problem 3, the Arellano-Bond estimator was designed for small-T and large-N panels. For the endogenous lagged dependent variable, the first-differenced lagged dependent variable is instrumented with its past levels.

5.7 Estimation Results and Discussion

Table 5.7 presents the estimation results for both static model and dynamic model. The static model adopts panel-data estimation: fixed-effects and random-effects regression when diversification is assumed exogenously; and GMM technique when it is assumed endogenously. The dynamic model adopts differenced GMM estimation and considers two regressions: the first measures diversification exogenously and the second measures it endogenously. Given the panel data structure and diagnosis tests performed above, the Static model with GMM treatment is the most preferable estimation, based on which results will be interpreted. The rationales for this claim are:

- (i) The dataset has panel structure with a short time dimension and a large number of observations.

- (ii) The Heteroskedasticity tests indicate the presence of heteroskedasticity in the dataset.
- (iii) The Wooldridge test for first-order serial correlation indicates the absence of serial correlation in the dataset.

Fixed-effects or random-effects model can be adopted owing to the fact that firm specific effects should be treated as random or fixed. However,

- (iv) The Durbin-Wu-Hausman test for endogeneity indicates the presence of endogeneity of the variable “diversification”.

In case of endogeneity, instrumental variable two-stage least squares (2SLS) or generalized method of moments (GMM) can be applied. Nevertheless, according to Baum and Schaffer (2003), if heteroskedasticity is present, GMM estimation will give more efficient estimators than 2SLS. Thus, GMM is preferable for the analysis. Furthermore, if we do a benchmark of estimation results between two models in table 5.7, the lagged dependent variable in the dynamic model is statistically insignificant, which indicates the absence of potential performance shock, and the unnecessary dynamic treatment as well. In conclusion, the static model with GMM treatment is the best estimation technique proposed.

Table 5.7 Estimation results: Static model and Dynamic model

	Firm return on sales (ROS)				
	Static model			Dynamic model	
	$y_{it} = \alpha + x_{it}\beta + v_i + u_t + \epsilon_{it}$			$y_{it} = \alpha y_{it-1} + \gamma z_{it} + X_{it}\beta + v_i + \epsilon_{it}$	
	FE ¹	RE ¹	GMM ²	GMM exogenous ³	GMM endogenous ⁴
Intercept	-0.0409 (0.127)	-0.203** (0.065)	-0.221** (0.066)		
ROS (t-1)				0.043 (0.034)	0.042 (0.034)
Diversification	0.737** (0.185)	0.651** (0.141)	0.410** (0.0698)	0.246* (0.118)	0.435* (0.216)
Diversification squared	-1.473** (0.538)	-1.498** (0.425)	-0.979** (0.185)	-0.431* (0.219)	-0.894* (0.391)
Technological resources	0.0405** (0.005)	0.038** (0.004)	0.0398** (0.0039)	0.103** (0.009)	0.103** (0.009)
Leverage (debt)	-0.047**	-0.029*	-0.031	-0.038	-0.038

ratio)	(0.0158)	(0.012)	(0.024)	(0.031)	(0.032)
Capital intensity	0.001 (0.005)	0.0005 (0.005)	0.0007 (0.001)	0.0007 (0.001)	0.0008 (0.001)
Firm age	0.0004 (0.003)	0.002 (0.0007)	0.003** (0.0005)	0.0005 (0.004)	0.0003 (0.004)
Economic size	0.034 (0.029)	0.046** (0.015)	0.048** (0.016)	0.005 (0.046)	0.006 (0.046)
Economic size squared	-0.0044* (0.0017)	- 0.0037** (0.0009)	-0.004** (0.001)	-0.0009 (0.003)	-0.001 (0.003)
Labor size	0.011 (0.0086)	0.0136** (0.0035)	0.018** (0.006)	-0.006 (0.018)	0.005 (0.017)
F-value	16.65**	9.73**	18.52**		
Hausman test	Chi2(9) = 24.6 P-value = 0.003				
Arellano-Bond test for AR(1) in first differences				z = -1.96 p-value = 0.05	z = -1.96 p-value = 0.05
Hansen J statistic of excluded instruments				Chi2(1) = 0.074 p-value = 0.785	
Sargan test of overid. Restrictions				Chi2(2) = 1.97 p-value = 0.373	Chi2(10) = 4.91 p-value = 0.897
Observations	4452	4452	3339	2226	2226

Notes: (**): significant at 1% level; (*): significant at 5% level

Standard errors are in parentheses

¹: FE and RE estimators that assumes diversification index exogenous

²: GMM estimators that assumes diversification index endogenous

³: differenced GMM estimator that assumes all explanatory variables apart from the lagged dependent variable are exogenous, robust standard errors are used to control for heteroskedasticity and serial correlation

⁴: differenced GMM estimator that assumes diversification index and lagged dependent variable are endogenous, robust standard errors are used

The Sargan test is a test of over-identifying restrictions, with the null hypothesis of the validity of the instruments. The Sargan test is a special case of Hansen's J under the assumption of homoskedasticity. Test on the serial correlation of the errors show no sign of serial correlation (which is essentially for the consistency of the estimators)

5.7.1 The Static Model: Discussion

First, we will discuss the estimation results from FE and RE regressions of which diversification is measured exogenously. The criteria for selecting the RE or FE model is often based on whether $cor(v_i, X) = 0$. If this is the case, the RE estimator is consistent and efficient, if not the RE model is inconsistent. A Hausman test can be used to investigate this issue and the null hypothesis that $cor(v_i, X) = 0$ can be rejected. This suggests that the FE model is preferred.

Using ROS as the measure of profitability of firms, both FE / RE estimation and GMM estimation tend to find a positive relationship between diversification strategy and firm performance. Hypothesis 1 is supported. Generally, more focused firms tend to have lower profitability or, equivalently, that more diversification raises profitability. In other words, positive effects occur as firms move from a single-business strategy to a diversification strategy. However, the significant parameters of the square of the diversification index signify a nonlinear influence of diversification: positive effects of diversification will reduce gradually as the firm moves further and further away from the core business. This coincides with the statement of hypothesis 2. This finding somehow supports the finding of Palich et al. (2000) who synthesize relevant studies on this subject for more than five decades to conclude that performance increases as firms shift from single-business strategies to low-scaled diversification (highly related one), but the effect deteriorates as firms shift away from low end of diversification, even turns around as they change to the high end of unrelated diversification.

Obviously, profitability of the firm can be mainly accelerated by increasing innovativeness through its accumulated technological resources. According to resource-based view theory, such a manufacturing firm's technology resources are valuable assets for the survival and development of firms, and are able to differentiate the firm's performance. Thus, it is not surprising that the number of R&D and technical personnel as a proxy of technological resources of a firm has a strong positive effect on its profitability.

The relation between corporate performance and the debt-to-assets ratio has long established in corporate finance literature (McConnell and Servaes, 1990; Lang et al., 1991; Harford, 1999). According to this paradigm, capital structure choice is a tradeoff between the costs and benefits of debt. Although there is a broad agreement among academics and practitioners on the benefits of debt, it can be argued that large firms are more likely to receive more benefits than middle or small firms do under the same level debt ratio. Since the population of manufacturing firms in Vietnam is outnumbered by small-sized firms, debt burden imposes a serious impediment to the value of firms. The estimation result with FE and RE regression predicts that firms' performance will decrease as debt ratio increases. However, the estimation loses its statistical significance when diversification is correctly treated as endogenous decision. Thus, we cannot

evidence a statistical linkage between the firm's diversification and its leverage decision, which requires more insightful inspection.

Finally, we also find a positive relation between the size of firms with respect to both total assets and total labor and their profitability. However, the significant and negative quadratic coefficient of economic size shows a curvilinear influence on the performance. In other words, firms face the law of decreasing return to scale: their profitability decreases marginally with their increase in total assets overtime. This tends to limit the economic size of the firm to the extent that owners-managers achieve the optimum efficiency.

For the GMM estimation to take into account the endogeneity of diversification strategy, the findings are quite consistent with the FE and RE estimations. Diversification has a significant positive and nonlinear decreasing effect on the firm's profitability, which supports our two hypotheses. Other explanatory firm-level characteristics (technological resources, firm size) have similar estimated effects with FE and RE regressions. The difference with the exogenous specification is that the age of firms is now significantly positively related to firm performance: older firms are more profitable than younger ones given other variables held constant.

5.7.2 The Dynamic Model: Discussion

The dynamic model with lagged dependent variable is estimated by differenced GMM method proposed by Arellano-Bond (1991). The GMM estimator is based on a first difference transformation (which removes the firm specific effects), which means that one time period is lost from the data. In addition, the presence of the lagged dependent variable means that the panel would be reduced by a further year. This allows only a two year panel to be used. The first regression assumes all other explanatory variables a part from the lagged dependent variable are exogenous, i.e. diversification index is measured exogenously. The second one takes diversification as an endogenous variable together with the lagged dependent one.

From table 5.7, the dynamic panel model shows evidence of a similar association between diversification and profitability although the statistical significance of diversification reduces from 1% level in the static model to 5% level. Similar to Campa and Kedia (2002) and Schumacher and Boland (2004), I also find a positive

diversification effect when modeling the decision to diversify as endogenous. This strongly supports hypothesis 1. Furthermore, the significant parameters of the square of entropy index signify a nonlinear influence of diversification: positive effects of diversification will reduce gradually as the firm moves further and further away from the core business. In other words, hypothesis 2 is also significantly supported.

The coefficients on lagged profitability are insignificant in both regressions, which indicate the superiority of the static model with endogeneity treatment of diversification in explaining the interested relationship. The coefficient's magnitude (0.042) is low in comparison with other studies. Goddard et al. (2004) present a summary of previous studies that found the coefficient to be between 0.2 and 0.5. McDonald (1999), for Australian manufacturing firms finds a coefficient of 0.4. However, most of these studies consider firms in advanced countries and only in manufacturing industry. The sample of firms here consists of all private firms operating in all industries, including those in the service sector such that their previous year profitability hardly explains the performance this year. In fact, Rogers (2001) finds out that restricting the sample to contain only manufacturing firms raises the coefficient of lagged profitability to around 0.25.

Similarly to findings from model 1, technological resources significantly stimulate firm performance. All other control explanatory variables are insignificant in explaining the variation of firm profitability in the dynamic model.

5.8 Conclusions

Product diversification is one of the most important strategies of the firm's strategic management. Nevertheless, the debate on the impact of diversification on firm-level performance has long received interests from various disciplines and still seems to be far from reaching a consensus. In this chapter, I argue that the divergent findings of this topic rest in different sets of axioms or assumptions proposed by these disciplines. However, these assumptions all converge in dealing conflicting demands of synergies and responsiveness with respect to diversification. And the investigation of synergies and responsiveness will enable us to figure out whether diversification has a positive or a negative effect on firm performance. I propose a theoretical framework in which corporate entrepreneurship, the process of recognizing and exploiting profit opportunities within existing organizations, is introduced. In this sense, diversification is

considered as an act of corporate entrepreneurship to have a nonlinear impact on corporate entrepreneurial performance depending on either responsiveness effects or synergy effects are emphasized. Of course, the individual-level characteristics, organizational structure of firms, and unique macro-economic environment play an important role in determining the causal relationship between firm diversification and firm performance.

In this chapter, I utilize different estimation specifications in two models (the static and the dynamic one) with respect to whether diversification strategy is treated exogenously or endogenously. GMM estimation was adopted to control for the endogeneity of the diversification decision. Since the lagged dependent variable in the dynamic model is insignificant, the static model with GMM treatment is proposed to give more consistent and efficient estimation. The empirical evidences from different methodological treatments (static or dynamic, endogenous or exogenous treatment) based on the provincial dataset of Vietnam all indicate that product diversification has a positive and non-linear effect on firm profitability. In other words, the positive effect is increasing as entrepreneurial expertise is exploited at a greater scope but falling off as product scope exceeds the range of this resource and governance scope surpasses management capabilities.

There are some limitations in this study. Since return on sales (ROS) is used as an indicator of profitability, it may be misleading to the extent that ROS accounts for only one component of profitability. In general, profitability is a measure on the efficiency of capital, i.e. capital turnover (invested capital/sales) times ROS. Thus, return on investment (ROI) would be a more appropriate indicator. For instance, it is likely that once firms reach a certain level of complexity of differentiation, they are still competitive and able to take up other businesses with a lower ROS and a higher capital turnover (high sales can be obtained from a given amount of capital invested). However, since the majority of firms in the sample are small-scaled and labor-intensive, businesses are often operated based on fixed assets (basically land and machinery) and labor, rather than liquid investment capital. Hence, data on invested capital are either null or insufficient, which is impossible to construct ROI as an indicator of profitability. Furthermore, the study has not tested adequately the proposed interpretation: the higher is diversification, the higher is the complexity firms have to manage; and as a consequence, after a given degree of complexity, a lower profitability can be observed,

at least till firms do not reorganize. For future research, the “organization hypothesis” could be adopted and empirically checked: diversified firms could be less profitable if they do not have an organizational form that is able to support increasing complexity. The reasoning could be deduced as follows: an average firm, with only one business, should present average profitability. If from then on, given a better knowledge of the market, it extends its business to achieve expected profitability, it is plausible to observe an inverted U-shaped relationship between the firm’s diversification scope and its profit due to the vanishing rents of the marginal business in which it enters. In other words, diversification improves the firm’s performance up to a certain optimal point, and then reverts to the mean.

Entrepreneurship, New Entry and Firm Growth: An Empirical Study of Vietnam¹⁸

6.1 Introduction

This chapter aims to set up the relationship between the performance of incumbent firms and the entry of new firms via the fundamental element of the modern theory of entrepreneurship: entrepreneurial opportunity. Similar to Audretsch et al (2005)'s argument that new knowledge and ideas that are not fully commercialized by the organization actually investing in the creation of that knowledge (incumbent firms and research institutions) are an important source of new entrepreneurial opportunities for nascent firms, I argue based on the Kirznerian interpretation of entrepreneurship that the growth of incumbent firms in a region will stimulate start-up activities by creating abundant new profit opportunities for potential entrepreneurs, which subsequently enriches the entrepreneurial climate of that region.

The contributions of the chapter are two-fold. On the theoretical side, an analytical integrated framework on the dynamic relationships among entrepreneurship, firm entry, and incumbent firms will be set up. Entrepreneurial opportunity is the glue to combine these three domains together: entrepreneurs are alert to and act on entrepreneurial opportunities; firms are a means for entrepreneurs to discover and exploit entrepreneurial opportunities; incumbent firms generate entrepreneurial opportunities not only for themselves but also for new firms. The growth of incumbent firms stimulates new entries in a region through two channels: entrepreneurial opportunities (uncommercialized productive opportunities) and productive resources (physical and human resources). On the empirical side, I develop a fixed-effects regression model to control for unobserved location and period specific influences that are capable of biasing the results. Vietnam's regional micro-databases on annual basis from 2000 to 2006 are

¹⁸ The earlier version of this chapter was presented in the European Summer University on Entrepreneurship Conference (ESU 2009), Benevento, Italy, September 8th – September 13th.

selected because of the practical reason. The findings support our hypothesis “*The net entry rate of new firms of a region has a positive relationship with the growth of sales of all incumbent firms in that region*”.

The chapter is structured as follows: Section 6.2 explores the dynamics of the growth of incumbent firms and suggests that during their growing process, they create new entrepreneurial opportunities not only for themselves but also for nascent firms, which subsequently stimulates new entries. Section 6.3 investigates how new firms can survive and grow from the perspective of knowledge spillover theory. Three interrelated domains of entrepreneurship, the growth of firms, and new firm entries reviewed from above sections are integrated into a dynamic framework via the element of entrepreneurial opportunity in section 6.4. Relevant research hypothesis is also proposed in this section. Section 6.5 will give empirical evidences based on regional micro-data on annual basis from 2000 to 2006 in Vietnam. The chapter ends with some concluding remarks in section 6.6.

6.2 The Growth of Incumbent Firms and Entrepreneurial Opportunities

To date, the theory of the growth of the firm is fundamentally built on the ground of Penrose’s conceptualization of the nature of the firm. According to Penrose, firm is a collection of physical and human resources whose services are made productive by the firm’s ‘coherent administrative organization’ (Penrose, 1995[1959]: xii). The presumptions underlying Penrose’s definition of the firm are that each resource renders a bundle of potential services, and that the administrative team can determine at any time the way to combine the firm’s resources to generate services that it considers as the most profitable. Based on these presumptions, Penrose argues that as long as these resources are used productively, the firm will continue to grow and will, therefore, accumulate even more resources. Moreover, additional accumulation of productive resources extends the firm’s productive opportunities as it increases the possibilities of deploying resources in higher productive ways. However, although a firm’s productive possibilities always expand with the number and variety of available accumulated physical resources, the pool of its productive opportunities does not necessarily expand equivalently. This is because the context and uniqueness of the firm’s administrative organization set the limitation on the discovery and realization of productive opportunities from various and abundant productive possibilities. In short, according to Penrose, the unique collection

of resources that makes up the firm, especially its existing human resources, provides “both an inducement to expand and a limit to the rate of expansion” for the firm (ibid.).

It should be noted here that Penrose’s concept of “productive opportunity” is similar but somehow different with our concept of “entrepreneurial opportunity”. Penrose defines the firm’s “productive opportunity” as those possibilities for deploying resources that its entrepreneurs or managers can *see* and which they are *willing* and *able* to act on (Penrose, 1959:32). Comparing to our definition of entrepreneurial opportunity in the introductory chapter, each possibility for deploying resources here is equivalent to a profit opportunity. Thus, our “entrepreneurial opportunities” – those profit opportunities in which the firm can create new means-ends frameworks for recombining resources to yield profit – are a subset of Penrose’s productive opportunities. As the firm continues to grow, it generates a larger number of productive resources into the existing resource pool, and therefore, expands its potential possibilities to recombine resources at higher values. However, due to the inflexibility of productive resources, especially human resources, that are embedded in a solid administrative structure, only a part of these productive possibilities become entrepreneurial opportunities. This way of interpretation of Penrose’s idea has an important implication here. As the firm has to keep its entrepreneurial opportunities in balance with its generating productive possibilities, it leaves a part of these productive possibilities to other economic actors who reside outside the firm.

This implication is fundamentally unchanged under the recently emerging knowledge-based theory of the firm which views firm as a set of productive and dynamic capabilities to do well certain things (Dosi and Marengo, 2000).¹⁹ The firm is viewed as a *processor of knowledge* or the locus for creation, selection, use, and development of knowledge (Fransman, 1999; Cohendet et al., 2000). To ‘do well certain things’, a firm has to coordinate different individual knowledge and capabilities into ‘coherent sets’ or competences. Thus, it is likely that how efficient firms bring a new model from concept to market is contingent on the interdependency and coherence of their coordinative routines and capabilities (Teece et al. 1997). A partial minor change in one set of routines in one part of the firm may require systemic changes and adjustments

¹⁹ Here dynamic capability should be understood as an interpretive framework or a pattern or rules to search, select, define, and synthesize internal knowledge and external knowledge to generate new knowledge to respond to changes in the competitive environment (Teece et al., 1997).

in some other parts which might be very hard or even impossible to effectuate since many organizational routines are quite tacit in nature (Nelson and Winter, 1982). Furthermore, the notion of path dependencies rules over where a firm can go. At any given point in time, firms must follow a certain trajectory or path of competence development. This path is not only defines what choices are open to the firm today, but it also puts bounds around what its repertoire is likely to be in the future. “A firm’s previous investments and its repertoire of routines constrain its future behavior” (Teece et al., 1997: 275). There is no doubt that profit opportunities will be ‘close in’ to previous activities and thus will be transaction and production specific (Teece et al., 1997). Even the recognition of such opportunities is also firm specific since the realization process is affected by the firm’s unique organizational structures. Therefore, the firm’s dynamic capability constrains the richness of the menu of new opportunities from which it may select, and subsequently its performance in a changing environment. It is obvious that firms could not exploit all new profit opportunities that are open to them, and always leave some unfeasible ones to nascent firms.

As entrepreneurial opportunities come from the errors or new knowledge generated by the activities of other entrepreneurs, it is not necessary for us to distinguish the origin of those opportunities as from incumbent firms of a particular sort of industry, for instance, a traditional industry, a low-tech or a high-tech industry. It is the implication from both Penrose’s and the recent knowledge-based theory of the firm that the expansion or contraction of any incumbent firm locating in an industry always generates new profit opportunities to other economic actors residing either in the same industry or different ones. And by modifying their existing means-ends framework, these economic actors are capable of capturing such new profit opportunities. In short, as Holcombe (2003: 33) concludes, activities of other entrepreneurs (incumbent firms) can create entrepreneurial opportunities for other nascent entrepreneurs (new firms), and hence, “the process of entrepreneurship itself is the most common source of new entrepreneurial opportunities”.

6.3 New Firms, the Entry Rate of New Firms, and Entrepreneurial Opportunities

In the previous section, I have reviewed the literature and shown that incumbent firms are important sources of entrepreneurial opportunities for nascent entrepreneurs to start their own new firms. This section aims at answering the question why new firms

can compete with incumbent firms to survive? And what determines the entry rate of new firms?

To start a new firm, the entrepreneur has to face up with many disadvantages in comparison with incumbent firms. For examples, new firms lack cash flow and must raise external capital at a higher interest rate; they are difficult to lure skilled labors, to costly establish an administrative structure in a legal form to run the new business, to persuade customers to try their products or services, and to get credit from suppliers. Given these disadvantages, the question is how new firms could get over and survive. The answer for this question results from the relative advantage of new firms that is explained by the recent knowledge spillover theory of entrepreneurship (Audretsch, 1995; Acs et al., 2005; Audretsch et al., 2005).

According to this theory, the most important advantage of the nascent entrepreneur is that he does not need to invest into new knowledge as incumbent firms have to do (Audretsch et al., 2005). He can enjoy the free lunch because of the appearance of the *knowledge filter* within the incumbent firms and R&D institutions. Here, the knowledge filter is the gap between new knowledge and economic or commercialized knowledge. Due to the basic conditions inherent in new knowledge like high uncertainty, asymmetries, and transaction costs, the management team of incumbent firms has to decide to leave away many new ideas which other individuals or agents evaluate as worth to pursue (ibid.: 75-6). As Acs et al. state that “the divergence in valuation of knowledge across economic agents and within the decision-making process of incumbent firms can induce agents to start new firms as a mechanism to appropriate the (expected) value of their knowledge” (Acs et al., 2005: 6). Further, the nascent entrepreneur can freely exploit his technological and managerial experience and knowledge that he learnt from the firm he worked before and can take advantage of its current customer and supplier linkages without initial investments as well. In many circumstances, the nascent entrepreneur can lure managers and employees from the firm he left if these people share the same expectation on the profit of the new venture (Shane, 2003).

On the other hand, the knowledge spillover theory of entrepreneurship gives us another implication on what determines the entry rate of new firms at the aggregate level. According to this theory, access to knowledge spillovers requires spatial

proximity. In other words, knowledge spillovers are geographically bounded and localized within close geographical proximity to the knowledge source (Audretsch et al., 2005: 78-80). In order to make the best of knowledge spillovers, new firms tend to locate close to knowledge sources, such as large incumbent firms or universities/research institutions. Thus, not all new start-up firms enjoy benefits of investments into new knowledge from incumbent institutions at the same level. Rather, only start-up firms in the region characterized by strong growth of incumbent firms and technical intensiveness (abundant research and development personnel and technical personnel) can benefit from such investment. In this sense, the entry rate of new firms in a region is determined by investment of incumbent institutions into new knowledge.

Many empirical researchers have recently tested the importance of the spillover of knowledge generated through R&D activities of existing firms, universities, and research institutions to new firm entry activities. The empirical evidences supporting the knowledge spillover theory of entrepreneurship were provided across different industries reflecting different underlying knowledge contexts. In particular, Audretsch (1995) and Caves (1998) find out that those industries with a greater investment in new knowledge exhibit higher startup rates and vice versa. Whereas Audretsch and Feldman (1996), and Audretsch and Lehmann (2005) provide evidence concerning the spatial dimension of knowledge spillovers. In general, the greater the presence of this local knowledge stock in a region, the richer the pool of entrepreneurial opportunities and the higher the level of absorptive capacity for knowledge of that region. Subsequently, the region is expected to stimulate more new entries and experience higher growth rates (Mueller, 2007).

6.4 Integrated Framework and Research Hypothesis

As mentioned above, compelling evidence was provided to suggest that entrepreneurship is an endogenous response to opportunities created but not exploited by incumbent firms or research institutions. However, none of these studies identified the actual mechanisms which actually transmit the knowledge spillover; rather, the spillovers were implicitly assumed to automatically occur, but only within a geographically bounded spatial area (Audretsch et al., 2005). Thus, in this section, I aim to investigate such mechanism underlying the entrepreneurship process as the realization process of entrepreneurial opportunities. My reviews of the literature on

entrepreneurship, the growth of the firm and new firm entry show that these three domains relate one to another via entrepreneurial opportunity. Based on the above discussions, I build up an integrated framework to indicate the dynamic interactions between these three domains. Figure 1 below depicts these relationships.

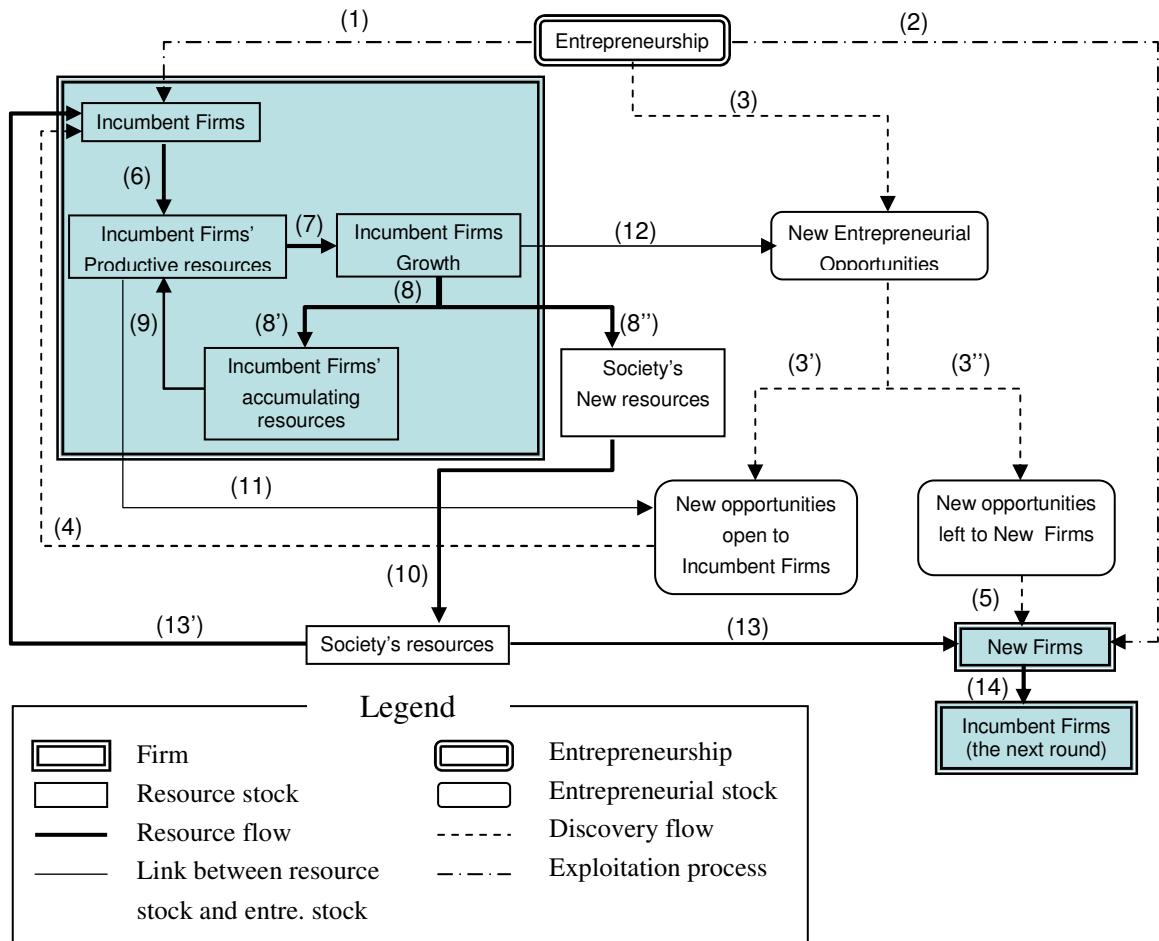


Figure 6.1 The integrated Diagram on the Relationships between Entrepreneurship, New Firm Entry, and Firm Growth

6.4.1 The Description of the Diagram

The diagram depicts the relationships between entrepreneurship, new firm entry, and the growth of incumbent firm. It includes stocks and flows:

A. Stocks

- Firm: a firm is a collection of productive (human and physical) resources guided by an entrepreneurial team (Penrose, 1959). There are two types of firm:

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- + Incumbent firm: it is the firm which has operated for a certain number of years, e.g. more than three years.
- + New firm: it is the firm which has just established, e.g. not more than three years.
- Entrepreneurship: entrepreneurship is an activity that involves the discovery and exploitation of entrepreneurial opportunities (Shane, 2003). It should be noted that I consider the evaluation activity mentioned by Shane as a part of the exploitation activity.
- Entrepreneurial opportunities: an entrepreneurial opportunity is a situation where a new means-ends framework is created for recombining productive resources that the entrepreneur believes will yield a profit (Shane, 2003). New entrepreneurial opportunities are generated through the growth of incumbent firms, including both expansion and contraction, and through the investment into new knowledge by incumbent institutions, including both incumbent firms and public R&D institutions. Thus, I follow the Kirznerian view that individuals observe and alert to entrepreneurial opportunities generated by incumbent institutions rather than create opportunities by themselves (Kirzner, 1997).
- Productive resources: a productive resource is a means that provides a service or a bundle of services desired by the entrepreneur. The concept covers both physical resource and human resource (Penrose, 1959). New productive resources (i.e., after offsetting depreciation) are partly retained in the incumbent firms and partly distributed to the society, which are then mobilized either by incumbent firms or new firms.

B. Flows

There are three types of flow in the digram: entrepreneurial flow, resource flow, and the link between the resource domain and the entrepreneurial domain.

- Entrepreneurial flows: it is dichotomized into two types according to two entrepreneurial acts: entrepreneurial discovery and entrepreneurial exploitation.
- + Entrepreneurial discovery: individuals put effort to recognize entrepreneurial opportunities generated by incumbent firms (relationship 3). Those opportunities which match with the constraints resulted from incumbent firms' productive resources, and hence, belong to incumbent firms' stock of productive opportunities

(relationship 4). And those opportunities which are not evaluated worthy or feasible to pursuit by incumbent firms but beneficial to other individuals who desire to exploit, and hence, belong to new firms' stock of productive opportunities (relationship 5).

+ Entrepreneurial exploitation: If entrepreneurs decide to gather resources and combine them into organizing entities to exploit the recognized entrepreneurial opportunities, they involve in the entrepreneurial exploitation process. If entrepreneurial opportunities are recognized by those belonging to the incumbent firms, they will be exploited by the incumbent firms (relationship 1), and if they are recognized by those who desire to run the new firms, they will be exploited by the new firms (relationship 2).

- Resource flows:

+ The incumbent firms: The incumbent firms have already possessed a certain stock of productive resources. They can mobilize and integrate additional resources from the society to pursue their new entrepreneurial opportunities (relationship 6). The output of the exploitation process is the growth of the incumbent firms (relationship 7). The growth of revenues of the incumbent firms which is measured in terms of an increase in productive resources (relationship 8) is either retained by the incumbent firms (relationship 9) or pumped into the society's reservoir (relationship 10).

+ The new firms: The new firms are established by mobilizing productive resources from the society's reservoir (relationship 13). These productive resources are either the savings of the entrepreneurs or the loans from credit institutions. After some years of operation (e.g. three years), the new firms join the club of incumbent firms if they survive (relationship 14).

- The links between entrepreneurial domain and resource domain:

+ The growth of the incumbent firms and new entrepreneurial opportunities: Firms grow, which expands the stock of productive resources and creates changes to the existing production system not only for themselves but also for the whole society. New productive resources and technologies are in turn sources of new entrepreneurial opportunities for all market players (relationship 12).

+ The incumbent firms' productive resources and the incumbent firms' productive opportunity: the existing productive resources of the incumbent firms constrain and limit the entrepreneurial team of these firms to act on a certain number of entrepreneurial opportunities which they create for the society (relationship 11).

6.4.2 Hypothesis

This chapter examines the relationship between the performance of the incumbent firms and the net entry of new firms via the force of entrepreneurship. As the diagram show, the incumbent firms accumulate resources through two channels: retaining their own profit (relationship 8' and 9) and mobilizing from outside (relationship 13'). As entrepreneurs discover entrepreneurial opportunities and want to realize them in the incumbent firms (relationship 1, 3->3', and 4) they will use accumulated resources in the form of R&D investment (relationship 6 and 7) to create new means-ends frameworks. The outcome of this process is the growth of the incumbent firms. A higher investment in new knowledge of the incumbent firms generates a higher knowledge spillover or a higher number of entrepreneurial opportunities for nascent entrepreneurs, and therefore fosters new firm entry (relationship 12 and 3''). Further, the growth of incumbent firms increases the stock of productive resources for the society; and hence, relaxes the capital constraints faced by nascent entrepreneurs (relationship 10 and relationship 13).

A higher growth of incumbent firms in aggregate further implies that the number of firms having less excess profit tends to lower. In other words, in this case, the number of firms which have to leave the industry tends to decrease.²⁰ In combination, the net entry as the subtraction of the number of exit firms from the number of new entry firms in a period tends to have a strongly positive correlation with the growth of incumbent firms in the same period.

Thus, I propose the following hypothesis:

²⁰ This argument induces straightly from standard economics textbook of industrial organization (e.g., Shepherd, 1979). According to Marshallian partial equilibrium theory, all existing and potential firms have U-shaped long-run average cost curves with identical values at their minimum points. Positive or negative excess profits cause new firms to enter or existing firms to leave the industry. The expansion or contraction of industry output through changes in the number of firms continues until a long-run equilibrium is established with zero excess profits., i.e., output prices equals the minimum average cost.

Hypothesis: The net entry rate of new firms of a region has a positive correlation with the growth of sales of all incumbent firms in that region.

6.5 Empirical Evidence

The empirical analysis of this chapter will be based on the growing empirical literature identifying the determinants of new firm entry on a regional basis with an emphasis on the effect of incumbent firms' growth. Two chronological periods characterize two different focuses of new firm entry research. Studies of the first period that were published in the early 1990s based on data from the 1980s are motivated by high levels of unemployment in traditional industrial regions (Armington and Acs, 2002). Structural characteristics of regions (such as unemployment, population density, income, etc) were adopted as key explanatory variables. Typical studies of this period were included in a special issue of *Regional Studies* (28(4), 1994) that investigate the determinants of business startups in seven advanced countries: Ireland (Hart and Gudgin, 1994); France (Guesnier, 1994); Italy (Garofoli, 1994); Germany (Audretsch and Fritsch, 1994); Sweden (Davidsson et al., 1994); United Kingdom (Keeble and Walker, 1994); and United States (Reynolds, 1994) (See Reynolds et al., 1994 for a synthesis review). They used the same group of regional explanatory variables and the same analysis procedure (ordinary least squares) to facilitate cross-national comparisons. Substantial similarities in results across these countries could be found with respect to the important effects of regional structural characteristics, specifically unemployment, agglomeration / urbanization, and small firm specialization on regional firm birth variations. The second period research which is published recently based on data from the 1990s is motivated by the upheaval and importance of high technological innovations to new business entry. Apart from influences of regional structural characteristics, the effect of innovation activities and qualifications of human capital in regions on new firm entry are increasingly considered. Common proxies for regional human capital are percentage of college graduates (Armington and Acs, 2002), the share of natural scientists and engineers (Brixly and Grotz, 2006), labor productivity (Fotopoulos and Spence, 1999); while the proxy for regional innovativeness is normally the share of labor force in technical professions (Gaygisiz and Koksall, 2003) or number of employees working in R&D sector (Fritsch, 2008). Regarding research methodology, the use of simple OLS regression in the previous period is incapable of controlling for

immeasurable region-specific and time-specific effects. Recent studies have made effort in filling these gaps by employing fixed effects regression technique on a dataset available for a longer period of time.

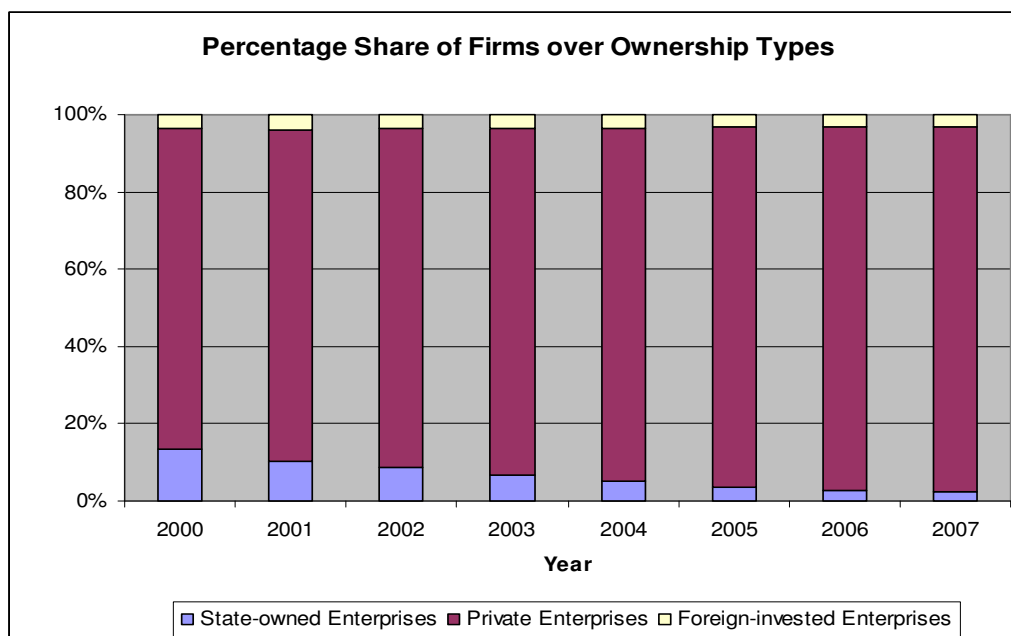
However, despite rich literature on determinants of new firm entry, the majority of which is involved in the case of advanced countries. So far I have recognized only two recent studies attempting to capture the empirical evidences in Turkey (Gaygisiz and Koksak, 2003) and Taiwan (Wang, 2006) as representatives of developing countries. The paucity of suitable regional-level data due to poor statistics work is one of the main reasons to impede research efforts for these countries. This section aims to explore the determinants of new firm entry in Vietnam as another representative of developing countries by exploiting the availability of a unique set of regional micro-data on annual basis from 2000 to 2006. I employ fixed-effects regression modeling approach to control for unobserved location- and period-specific influences that are capable of biasing the results.

6.5.1 Data Description

The dataset used for the empirical analysis is the panel regional-level data of 61 provinces in Vietnam from 2000 to 2006. Firms which develop to a certain threshold of size or desire to adopt a formal ownership form (partnership, limited liability, corporation, etc.) are required to register into the national enterprise database. This database is managed and aggregated annually at provincial level by the General Statistics Office. Thus, in this case, diverse entrepreneurial activities of small households who are not required to officially register are not taken into account. It is worth mentioning that from 2004, for certain regions, new provinces were created through separations from the existing ones, which increases the number of Vietnamese provinces to 64 now. For simplification, the values related to provinces that were founded after 2004 are added to the provinces from which they were separated.

During the period 2000-2006, there were about 16,000 net start-ups, mostly in the private sector, on average per year. Over the period 2000-2003, the number of net start-ups increased slightly, from 9,392 net entries in 2000 to 11,228 new ones in 2003. The period 2004-2006 marked a sharp rise of new firms with 21,194 net entries in 2005 and 24,453 ones in 2006. In general, the average number of net start-ups in the period 2004-2006 was more than double the one of the period 2000-2003. Figure 6.2 illustrates the

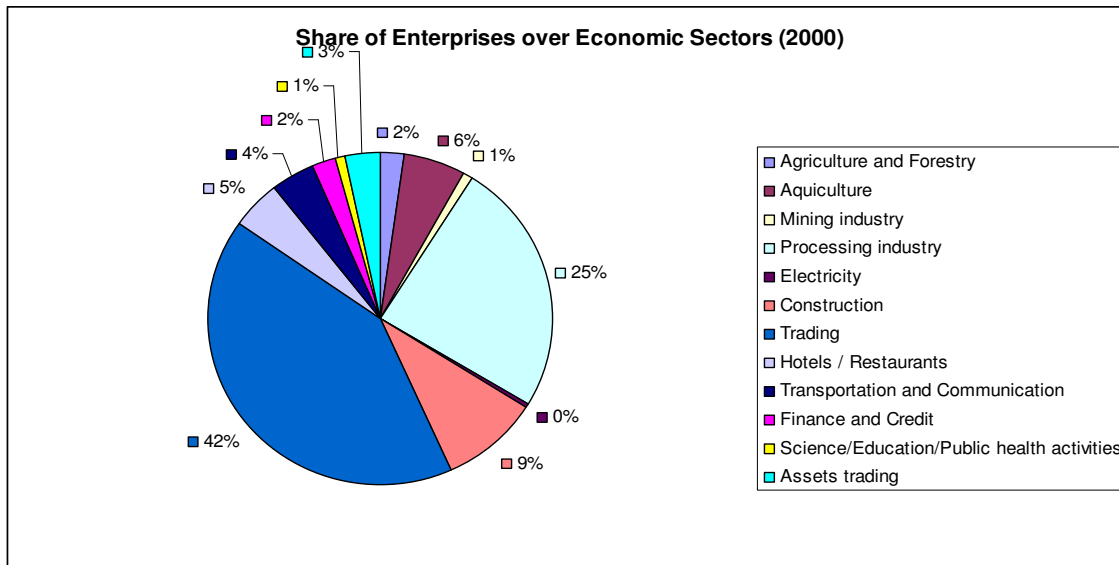
increasing prominence of private firms and the sharp decline of state-owned firms over the period from 2000 to 2007 whereas foreign-invested firms still maintain their share of about 3%.



Source: compiled by the author from GSO (2007)

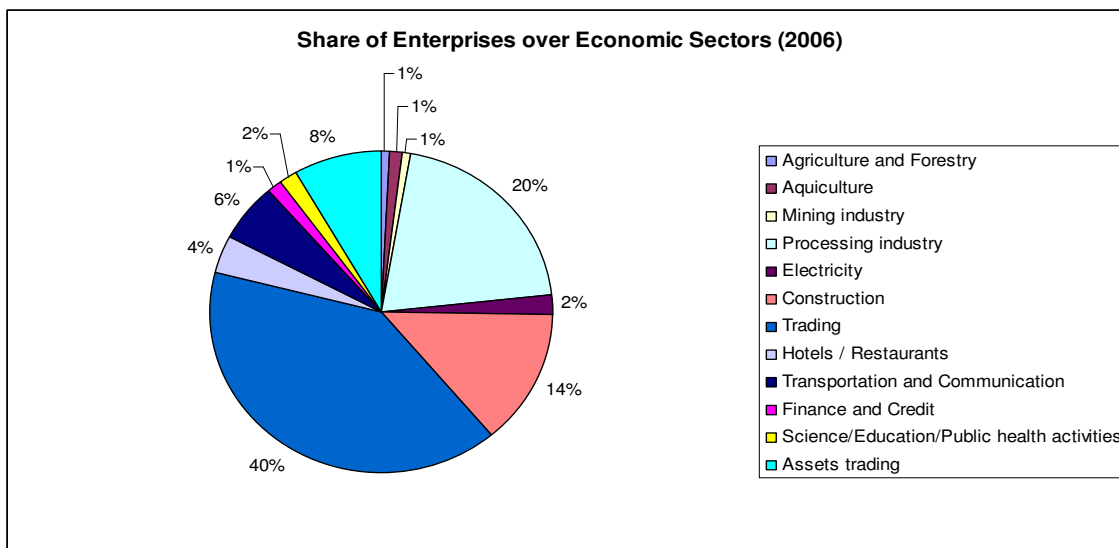
Figure 6.2: Percentage share of Firms over Ownership Types (2000-2007)

Figure 6.3 presents the percentage share of enterprises over economic sectors in 2000 and figure 6.4 shows the percentage share in 2006. Looking at two figures, we have some insightful views on which economic sectors attract more start-ups and how the structure of economic activities shifts overtime from 2000 to 2006. The majority of new businesses were in the electricity, construction, transportation and communication, and asset trading sector. Over 6 years, the share of enterprises increases from 0.2% to 2% in electricity; from 9% to 14% in construction, from 4% to 6% in transportation and communication; and finally from 4% to 8% in asset trading. Thus, there has been an overall trend towards an increasing share of enterprises in the service sector and a corresponding decreasing share in agriculture, aquiculture and processing industry.



Source: compiled by the author from GSO (2000)

Figure 6.3: Percentage share of Firms over Economic Sectors (2000)



Source: compiled by the author from GSO (2006)

Figure 6.4: Percentage share of Firms over Economic Sectors (2006)

Figure 6.5 indicates the number of enterprises per 1000 persons in 61 provinces of Vietnam in 2006. Agglomerated provinces in Red River and Mekong delta are still the main location choice for entrepreneurial activities with high start-up activities. Hanoi - the capital, and Hochiminh city – the biggest commercial and cultural city – have the highest number of firms per 1000 population: averagely 6 firms/1000 persons, whereas mountainous and rural provinces such as Ha Giang, Son La, Tuyen Quang are generally not the desirable places for entrepreneurial activities. There is a large divergence

between the share of firms per 1000 population of the six densely-populated and highly-developed provinces (Khanh Hoa, Hai Phong, Binh Duong, Da Nang, Hochiminh, and Hanoi) and the remaining provinces. The majority of provinces has less than 1 or approximately 1 firm per 1000 persons (55/61 provinces) whereas the other 6 provinces have from 2 to 6 firms per 1000 persons.

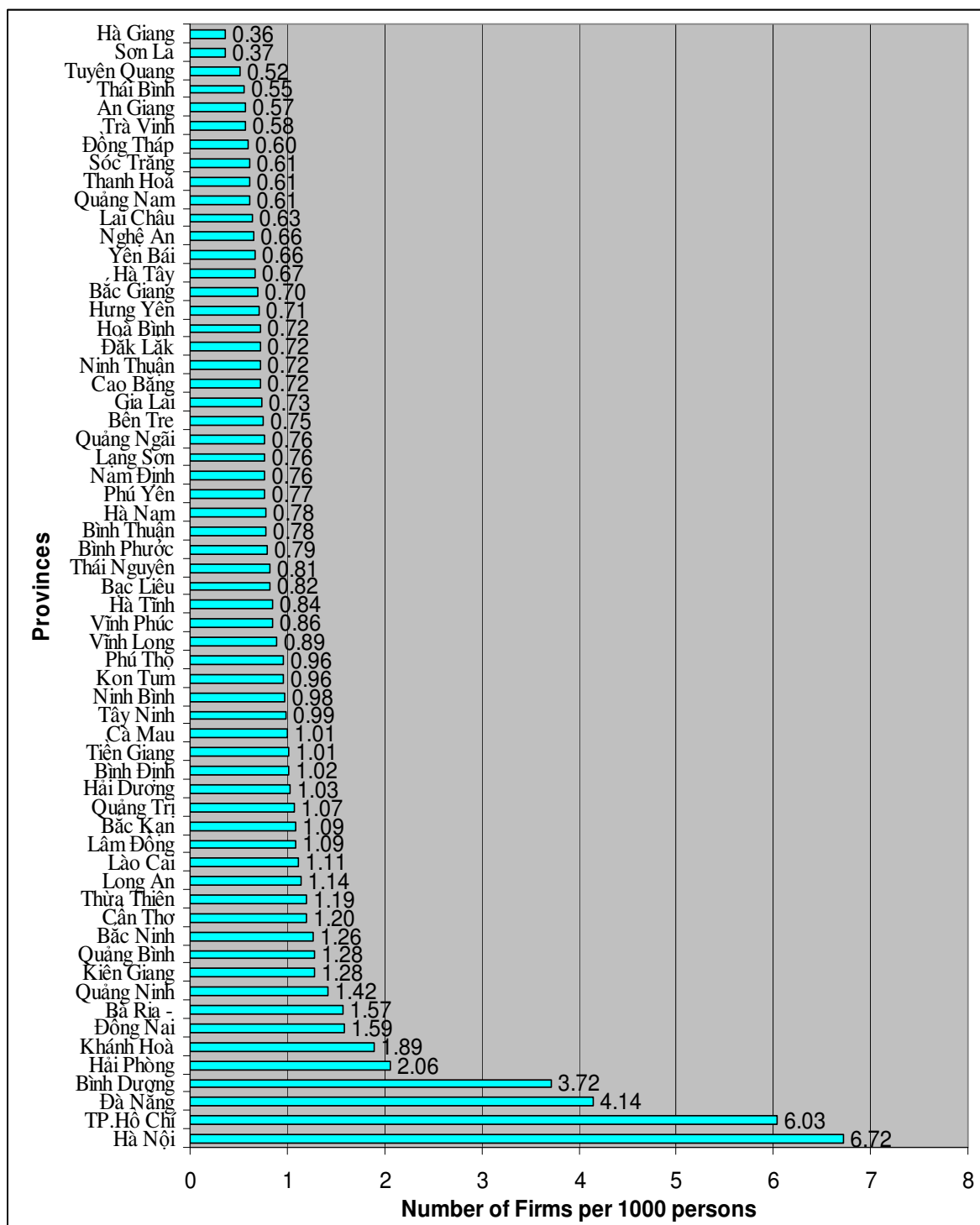


Figure 6.5 Number of Firms per 1000 Persons in each Province

6.5.2 Operationalization of Variables

Dependent variable Different measures of new firm entry produce strikingly different results. Over the research literature of region-scale economic dynamics, two approaches have often been adopted to compare start-up rates across regional markets. The *ecological* approach standardizes number of entrants relative to number of firms in existence to investigate the amount of startup activity relative to the size of existing population of businesses. However, a potential measurement bias could occur due to regional heterogeneity in mean establishment size (MES), i.e. average number of employees per establishment that overstate start-up rates in relatively high MES regions and understate ones in relatively low MES regions. Audretsch and Fritsch (1994) recommend including a measure of MES along with other explanatory variables to control for measurement biases inherent in the ecological approach. The *labor market* approach, on the other hand, standardizes number of new firms with respect to the size of workforce. The theoretical appeal of this approach, according to Audretsch and Fritsch (1994), reflects the construct of entrepreneurial choice proposed by Evans and Jovanovic (1989). That is, all firms are assumed to be the result of individual actions. Each person in the labor pool is considered as a nascent entrepreneur, and has the potentiality to set up his own business.

In this study, the start-up rate measurement according to the labor market approach will be used with relevant justification to available data. As only data on the number of firms already in existence on annual 31 December are collected, net start-ups, i.e. the number of surviving new firms, rather than gross start-ups will be used to construct start-up rates. 'Net new firm entry rates' measure the success of regions in retaining new firms once they have been created. They are, thus, somewhat a better measure than gross entry for the potential long term impact of new firms on the local economy (Hart and Gudgin, 1994).

Independent variable: Annual growth of revenues of incumbent firms in a region during the period 2000 to 2006 is adopted to study the relationship between their sales performance and new entries of that region. Empirical evidences in advanced countries often consider incumbents as those firms operating for more than 6 years old (Audretsch, 1995). However, in a very dynamic business environment of a transitional economy as Vietnam, the rules of games are continuously changing such that firm entry

and firm exit are exaggerated in a much quicker speed. The number of new entries is increasing over years; but a significant number of these new entries fail soon after they enter the market. Thus, in this chapter, incumbent firms are defined as existing firms of over 3 years old.

Control variables: control variables can be categorized into two different sets of variables. The first set includes other sources of entrepreneurial opportunities rather than those created by incumbent firms (see Shane, 2003). Each source is represented by one or two specific variables that either have been employed in previous research or reflected the unique regional factors of Vietnam.

- Regional entrepreneurial factors

- o *Entrepreneurial climate:* Wagner (2004) strongly indicates that small and young firms can be regarded as seedbeds for future entrepreneurs. Recent empirical studies have shown that employees in small and young establishments have a considerably higher propensity to start their business than employees in older and in larger establishments (Beesley and Hamilton, 1984; Wagner, 2004). From the management perspective, employees in small firms have relatively good possibility of direct contact with business founders who may serve as their role models (Reynolds, 1994). From a more economic view, Storey (1982) argues that since employment in small firms is often less secure and well paid than in a large firms, individuals working for small firms are more prone to entrepreneurship than their more risk-averse peers in large firms. Furthermore, Fritsch and Falck (2007) suggest that a high promotion of employment in small firms may also indicate a low minimum efficient size which can be assumed favorable for firm entry. Two proxies will be adopted to reflect entrepreneurial spirit of a particular region: (i) the proportion of micro-sized firms in the total existing firms (1 year lagged);²¹ (ii) the share of enterprises' labor force in the total regional labor force (1 year lagged). A number of studies have found a statistical and

²¹ As most of start-up firms in Vietnam are at micro-sized levels, the share of micro-sized firms in the total number of enterprises in the region could be a good proxy for its breeding ground for nascent entrepreneurship. In 2006, nearly 60% of establishments are micro-sized firms (employing less than 10 employees) with approximately 52% of employment share (GSO, 2006). Here I adopt the World Bank definition on the size of firms: Micro enterprises: up to 9 employees; Small enterprises: up to 49 employees; Medium enterprises: up to 299 employees; Large enterprises: more than 300 employees.

positive significant relation between proportion of small firms and start-up rate (Guesnier, 1994; Keeble and Walker, 1994; Hart and Gudgin, 1994; Fotopoulos and Spence, 1999). However, while Keeble and Walker (1994) suggest that this effect is only limited to manufacturing sectors whereas the service sector reflects the importance of large firms, Audretsch and Fritsch (1994) could not find the predominance of small firms in manufacturing sectors due to the relevance of economies of scale in manufacturing activities. Adversely, Garofoli (1994) could not find the support for this positive relation for the case of Italy due to its unique market structural characteristics.

- *Entrepreneurial demand* Expanding markets and demands for goods and services are considered fundamental to encouraging firm births. New business entry can be driven or restricted by demand. Regional gross domestic income per capita (1-year lagged GDP per capita at competitive price of 1994) is used as indicators for the level of demand and welfare. Previous studies such as Audretsch and Fritsch (1994), Reynolds (1994), Davidsson et al. (1994), and Armington and Acs (2002) find out that start-up rates tend to be higher in regions where gross value added per person is higher. However, Kangasharju (2000) and Sutaria and Hicks (2004) do not find any demonstrable influence of income per capita on new manufacturing firm births. They suggest that personal wealth is relatively unimportant today in founding a new manufacturing firm due to the special organizational features of advance manufacturing.
- Regional structural factors
 - *Urbanization / Agglomeration* Regions with a high density of population and economic activity may have higher start-up rates than rural areas due to better access to large and differentiated markets for production factors such as capital, labor and services. Moreover, firms located in agglomerations can be assumed to be more exposed to knowledge spillover of academic institutions and research conducted by other firms in the region. Overall, Krugman's (1991) new theory of economic geography offers three reasons for the concentration of firms in agglomerated locations: (i) pooled market

for high-skilled labors; (ii) non-pecuniary transactions, or production of non-tradable specialized inputs; and (iii) informational spillovers. However, sunk costs of starting a business (wages, rent for office space, etc.) are usually much higher in a high-density agglomeration than in rural areas. On the other hand, although agglomerations provide a large local output market, there can also be a larger number of local suppliers which cause a more intense competitive environment. Two indicators will be adopted to investigate the agglomeration effects on new firm births: population density (1 year lagged) and the share of urban population in the total regional population (1 year lagged). Positive and significant effects of population density on start-up rates can be found in Guesnier (1994), Audretsch and Fritsch (1994), Keeble and Walker (1994), Armington and Acs (2002), and Brixy and Grotz (2006). Whereas the urban incubator theory, i.e. urban areas have advantages as incubators for new firms, is supported for the case of UK (Keeble and Walker, 1994), but not supported for the case of Ireland (Hart and Gudgin, 1994).

- *Market structure*: the proxy is *1-year lagged mean establishment size (MES)*, defined as the mean number of employees per establishment. It is measured as the ratio of enterprises' labor force, i.e. total number of employees working in enterprises of all ownership types, over the number of firms in the region. Its coefficient has been hypothesized to be negatively related to regional entry rate since larger average establishment size indicates greater dominance by large firms in the market, as well as greater entry barriers for small start-ups. However, while Armington and Acs (2002) report a negative impact on new firm entry as hypothesized, Audretsch and Fritsch (1994) find no evidence of a mean establishment size effect, and Sutaria and Hicks (2004) even find a positive relation between MES and the region's entry rate; since, according to them, it may be more efficient for larger firms to outsource to smaller neighboring firms specialty goods and services.
- *Education background/ Innovativeness*: A large number of studies emphasize on the crucial role of knowledge and ideas as a stimulating source for new business entry (Klepper and Sleeper, 2005; Agarwal et al., 2004; Shane, 2000; Shepherd and DeTienne, 2005). There is no doubt that innovative start-

ups are more likely to occur in regions that are characterized by a high level of knowledge and innovative activities. The regional share of technical and R&D personnel in the total labor force is used as a proxy for regional innovation activity. It will measure the regional knowledge stock and innovativeness. The higher the share, the higher the importance of innovation activities for the region.

- *Regional economic environment:* Economic environment of a region is reflected via the change of GDP, institutions, or investments from the state budget. Change of GDP tells us the change in demand which is an incentive for firms to extend their production activities. However, GDP at provincial level does not have much sense in this aspect since the growth of GDP in a province may create benefits in terms of demand for all relevant firms all over the country rather than merely those within the province. That is the reason I do not include GDP growth of province as a control variable reflecting regional economic environment.

Institution is an important factor that influences entrepreneur's decisions to establish new firms. Unfortunately, we do not have reliable indicators to reflect this factor at the provincial level. The provincial competitiveness index which is constructed by Vietnam Chamber of Commerce is a good one. However, it has just been built since 2005, and therefore, could not tell us much the changes of institutions in provinces of Vietnam.

Therefore, in this chapter, I use only *1-year lagged public investment* as an indicator for regional economic environment. The importance of public investment in promoting economic development via the construction of public infrastructure has been widely recognized among policymakers. The consensus among economists is that by enhancing a region's amenities, public investment may also attract new firms, which further contributes to an area's growth. Eberts (1990) claims that public capital and private capital are complements, not substitutes. Lewis (2001: 4) indicates that the benefits of public investment in technology incubation include "fostering an entrepreneurial spirit that will result in new firm entry and increased private investment in innovation". This view is also shared by Allen and McClusky (1990) who demonstrate that new firms require persistent governmental support and investment. In Vietnam, contingent on annually-proposed macroeconomic strategies,

the government will adjust its public investments into each province accordingly. To account for the divergence of economic size of all provinces (large provinces receive more state support than small ones), annual public investment per a person at working age will be used as a proxy for regional economic development.

The second set of variables refers to other motivations to establish new firms rather than those inspired by entrepreneurial opportunities.

- *Income effect:* For the case of Vietnam, 1-year lagged average compensation per month of employees working in SMEs is used as proxy for their opportunity cost as nascent entrepreneurs to actually start up their own businesses. We have discussed above the higher potentiality that employees in small firms are prone to become self-employed. It is plausible that the opportunity cost of their start-up decision is their salaries. The higher the salaries they receive, the less likely they will split off to set up their own establishments.
- *Unemployment effect:* In most studies of new firm entry published in the 1990s, there was a heavy emphasis on the explanatory power of unemployment. Regional unemployment may affect the level of start-up activity in contradictory ways. On one hand, unemployed persons face rather low opportunity costs when setting up their own businesses with no other prospects for employment (“entrepreneurs of need” or “necessity-based entrepreneurship”). Hence, a high level of unemployment may force individuals to become self-employed workers, especially if residential mobility is unattractive (Reynolds, 1994; Guesnier, 1994; Wang, 2006). On the other hand, unemployment rate is generally seen as a sign of quantitative and structural problems on the labor market (Fritsch, 1992; Storey, 1994; Armington and Acs, 2002). High regional unemployment rates may indicate slack growth, relatively low demand and correspondingly bad prospects for a successful start-up, thereby dampening incentives for new firms to locate within the region. Moreover, unemployed persons may have little capital of their own and, therefore, also limited access to external finance sources. In fact, empirical evidences reflect these two conflicting forces. While Wagner and Sternberg (2004) suggest that unemployed individuals have a higher propensity to be a nascent entrepreneur than people in employment, Gaygisiz and Koksall (2003) and Sutaria and Hicks (2004) imply a negative significant impact of unemployment rate on

new firm entry. However, in most of the empirical studies, the impact of the unemployment rate on new business entry has been found to be weakly significant or insignificant (Armington and Acs, 2002; Reynolds et al., 1994; Keeble and Walker 1994; and Brixy and Gortz, 2006). Data on 1-year lagged urban unemployment rate in regions (the average number of unemployed in a year divided by this year's labor force) will be included to investigate its effect.

As the samples are exhaustive geographical regions of a country whereby the economic situation in a region is likely influenced by the one of nearby regions, we need to isolate such spatial autocorrelation:

- *Spatial autocorrelation* Spatial autocorrelation can cause the standard deviation of estimated coefficients to be underestimated. Brixy and Grotz (2006) offer two reasons for such spatial correlation. First, the effect of factors that determine new firm entry may not be limited to a particular region but may spill over into its adjacent regions. Thus, the mean of regional start-up rates in the regions neighboring each region is included. This indicator measures spill-over-effects and is expected to have a positive effect on the dependent variable, since nearer regions have more in common than those further away. Second, unobserved factors which may not be fully reflected in the explanatory variables of a region but influence neighboring regions equally are to be captured. In this case, the mean of residuals of neighboring regions will be included²² (Fritsch and Falck, 2007).

Table 6.1 presents the construction and descriptive statistics of the dependent and independent variables. Table 6.2 shows the pooled pair-wise correlation matrix of respective variables. The cross-section and time-series correlation matrices are presented in Appendix A. Since variables are aggregate data at provincial level, so by nature of the construction, inter-correlations among them are quite high and significant. For instance, governmental investments are higher in those provinces being rich in entrepreneurial and innovative spirit; mean establishment size is certainly higher in those provinces having a larger share of population working in private sector; or technological resources are generally located in urban areas. However, we try to prevent the multi-collinearity by

²² Unobserved factors of new business entry processes in adjacent regions are not independent, but related to this process in a particular region. These unobserved factors are reflected through residuals or disturbance terms of the regression equations. Thus, according to Anselin (1988) and Fritsch and Falck (2007), the weighted average of the disturbance terms of adjacent regions would be appropriate to account for the spatial autocorrelation

grouping independent variables into the regression in a way that is suggested by previous research.

Table 6.1 Dependent variables and Independent variables

Categories	Indicators	Variables	Measure	Obs.	Mean	Std.Dev.	Min	Max
Dependent variable	New business entry	Start-up rates	The ratio of number of new firms per 1000 persons in labor supply	366	0.27	0.39	-0.79	2.73
Explanatory variable	Growth of incumbent firms	Incumbent growth	The annual percentage change in revenues of existing incumbent firms (over 3 years old)	366	0.33	0.687	-0.18	4.814
Control vars: Entrepreneurial opportunities created from Regional Entrepreneurial indicators	Entrepreneurial climate	The share of micro-sized firms	The percentage share of micro-sized firms in the total number of enterprises in the region	427	44.39	16.27	6.14	97.05
		Labor force in private sector	The percentage share of enterprises' labor force in the total regional labor force	427	9.62	12.63	1.53	94.73
	Entrepreneurial demand	Growth of regional GDP per capita	The annual percentage change in regional gross domestic product per capita at comparative price of 1994	427	9.61	4.36	-12.3	40.38
Control vars: Entrepreneurial opportunities created from Regional Structural indicators	Agglomeration	Growth of population density	The annual percentage change in regional population density	427	1.34	1.343	-11	15.49
		Urbanization	The percentage share of urban population in the total regional population	488	22.3	15.85	5.79	87.5
	Market structure	Mean Establishment Size (MES)	The mean number of employees per establishment	427	59.65	31.25	14.14	226
	Education background	Innovativeness	The percentage share of technical and R&D personnel in the total regional labor force	305	0.69	1.34	0.015	10.24
	Reg. economic environment	Public investment	State-invested capital per a person at working age	366	1.309	1.350	0.001	11.99
Control vars.: other individual motivational factors	Unemployment effect	Urban unemployment	Annual urban unemployment rate	488	5.49	1.13	2.28	8.96
	Income effect	Compensation in private sector	Log of average compensation per month of employees working in SMEs	366	6.85	0.33	5.93	8.01
Control vars: Spatial autocorrelation	Spill-over effects		Mean of regional start-up rates in the regions neighboring each region	366	0.267	0.206	-0.16	1.27
	Residuals		Mean of residuals of neighboring regions	366	0.004	0.106	-0.37	0.374

Table 6.2 Correlation Matrix of Dependent variables and Independent variables

	Net start-up	Incum. Growth	Micro share	Enter labor	GDP. capita	Popu. Density	Urban popu.	MES	Tech. employ	Compen.	Unemploy.	Public invest.
Net start-up	1.0000											
Incum. Growth	0.1231	1.0000										
Micro share	-0.0506	-0.0594	1.0000									
Enter labor	0.7524*	0.1723*	-0.0610	1.0000								
GDP. capita	0.1121	0.1425*	0.0136	0.0640	1.0000							
Popu. Density	0.2040*	0.0753	-0.0216	0.3498*	-0.175*	1.0000						
Urban popu.	0.6734*	0.0685	0.1775*	0.6491	-0.0111	0.2918*	1.0000					
MES	0.1472*	0.1132	-0.455*	0.4966*	0.0822	0.1495*	0.1612*	1.0000				
Tech. employ.	0.5666*	0.0837	-0.0227	0.6216*	0.0700	0.2323*	0.5766*	0.2343*	1.0000			
Compen.	0.3889*	0.1742*	0.2115*	0.4501*	0.2140*	0.2358*	0.4791*	0.0269	0.4198*	1.0000		
Unemploy.	0.2237*	-0.0972	0.0095	0.1290*	-0.145*	-0.0003	0.1582*	0.2770*	0.2715*	-0.0784	1.0000	
Public invest.	0.5850*	0.2089*	-0.0314	0.5863*	0.1605*	0.2808*	0.4145*	0.1308*	0.5084*	0.5077*	-0.2431*	1.0000

Note: *: significant at 1% level

6.5.3 Model Development and Estimation Methods

- Model development: the error components model is adopted to introduce the regional and time effects in the error terms. Thus, spatial and temporal heterogeneity is incorporated into the model by its variance.

$$y_{it} = \alpha + x_{it}\beta + \gamma z_{i,t-1} + v_i + \epsilon_{it} \quad (1)$$

$$(i = 1, 2, \dots, n; t = 1, 2, \dots, T)$$

where x_{it} is the explanatory variable; $z_{i,t-1}$ is the vector of control variables; $v_i + \epsilon_{it}$ is the residual, in which v_i is the regional-specific residual; it differs between regions but, for any particular unit, its value is constant, ϵ_{it} is the usual error term with the following assumptions

H1: ϵ_{it} is uncorrelated with v_i for all i and t .

H2: $E(\epsilon_{it}) = 0$

$$H3: E(\epsilon_{it}\epsilon_{i't'}) = \begin{cases} \sigma_\epsilon^2 & i = i', t = t' \\ 0 & otherwise \end{cases} \quad \begin{matrix} (H3a) \\ (H3b) \end{matrix}$$

H4: $\epsilon_{it} \sim N(0, \sigma_\epsilon^2)$

Review of literature shows that primary predictors selected for this study would take approximately one year to influence the process of new firm entry. Thus, all control variables are taken one-year lag. However, the explanatory variable, the growth of incumbent firms' revenue from the previous year to the current year, is expected to have immediate effect on start-up activities of that year. This is because business market in Vietnam is highly competitive and dynamic such that any emerging unrecognized profit opportunities will be realized and seized right away. Nevertheless, Sutaria and Hicks (2004: 251) check for the comparability of alternative lag specifications (including two-year lags, one-year lags and zero-year lags) with their database and indicate that "adjusted R^2 values and F-values are essentially the same for all models regardless of lag structure". The R^2 and F-values of subsequent regressions indeed show a good fit of the dataset.

Primary predictors of the regression model (1) are described as follows:

y_{it} : $startuprate_{it}$ = Firm start-up rate in region i for year t

$x_{i,t}$: $incumgrowth_{it}$ = Growth of incumbent firms' revenue in region i for year t

$z_{i,t-1}$: $microshare_{i,t-1}$ = Percentage share of micro-sized firms in region i for year $t-1$

$enterlabor_{i,t-1}$ = Percentage share of enterprises' labor force in region i for year $t-1$

$gdp_{i,t-1}$ = Growth of gross domestic product per capita in region i for year $t-1$

$compen_{i,t-1}$ = Average compensation per month of an employee in SMEs in region i for year $t-1$ (in natural logarithmic form)

$unemploy_{i,t-1}$ = Unemployment rate in region i for year $t-1$

$popudens_{i,t-1}$ = Growth of population density in region i for year $t-1$

$urban_{i,t-1}$ = Percentage share of urban population in region i for year $t-1$

$mes_{i,t-1}$ = Mean establishment size in region i for year $t-1$

$pubinvest_{i,t-1}$ = Public investment per a person at working age in region i for year $t-1$

$techemploy_{i,t-1}$ = Percentage share of technical and R&D personnel in region i for year $t-1$

- Tests for violations of assumptions:

+ Heteroskedasticity (H3a): the problem of heteroskedasticity is more prevalent in cross-sectional data because they involve units and groups that are heterogeneous in nature. Two diagnostic tests, Breusch-Pagan's and White's test are employed to check for the presence of heteroskedasticity. It was indeed confirmed by both tests.

Table 6.3 Test for heteroskedasticity

Breusch-Pagan test	Chi2(1) = 537.39 Prob>chi2 = 0.000
White test	Chi2(65) = 236.55 Prob>chi2 = 0.000

Thus, estimation with OLS is rejected, and the alternative estimation technique capable of correcting for heteroskedastic errors is “robust” regression method with standard errors corrected for heteroskedasticity by White’s method.

+ Multicollinearity: Gujarati (1988) and Sutaria and Hicks (2004) indicate that multicollinearity is not a common problem in the case of cross-sectional time-series data. Additionally, transformation of variables which I take full advantage here is a technique to prevent multicollinearity problems. However, explanatory variables will be grouped in a way suggested by theory or previous research to prevent any multicollinearity problems. For example, measurements for the regional welfare level such as gross domestic per capita is not included together with the regional unemployment rate, or mean establishment size (MES) is also not considered together with the share of enterprise employment in the total labor force in the same equation due to their close statistical relationship.

+ Serial correlation in time-series data (H3b): A regression model is estimated to check the first-order coefficient of serial correlation (Wooldridge, 2002).

$$\epsilon_t = \rho\epsilon_{t-1} + \omega_t \quad (2)$$

where $-1 < \rho < 1$ and $E(\omega_t/\epsilon_{t-1}, \epsilon_{t-2}, \dots) = 0$; $Var(\omega_t) = \sigma_\omega^2$

Wooldridge’s method uses the residuals from a first-differenced regression to remove the regional-level effect. Estimator $\hat{\rho}$ achieved by running OLS regression with equation (2) is insignificant at 5% significance level, which indicates the absence of first-order serial correlation in the dataset²³.

Table 6.4 Wooldridge test for AR(1) serial correlation

$H_0: \rho = 0$	$H_1: \rho \neq 0$
F(1,60) = 3.531	
P-value = 0.0651	

²³ Although the test is not strong, the F-value is still marginally insignificant at the default significance level of 5%. Furthermore, the use of distributed lag model where 1-period lagged values of independent variables are included also impedes the consequences of serial correlation due to the transformation of relevant variables by fixed effect procedure that may themselves be auto-correlated and the autocorrelation because of unparameterized seasonality (Sims, 1973; Griliches, 1967).

- Estimation methods: Given the panel structure (cross-sectional and time-series) of my regional-database, fixed-effects or random-effects regression model can be used. However, according to Balestra (1995), as the nature of sample is geographical regions that are closed and exhaustive, and the type of inference is with respect to effects that are in the sample (i.e. the sample itself is the population), fixed effects regression are the natural candidate. Estimators are obtained from fixed effects regression of equation (1) as follows:

Define regional-specific means by $\bar{y}_i = \frac{1}{T} \sum_{t=1}^T y_{it}$ and $\bar{x}_i = \frac{1}{T} \sum_{t=1}^T x_{it}$ and take deviations from these means as $y_i^* = y_i - \bar{y}_i l_T$ and $X_i^* = X_i - l_T \bar{x}_i'$. Applying the within transformation, model (1) becomes

$$y_i^* = X_i^* \beta_i + \epsilon_i^* \quad (i = 1, 2, \dots, n)$$

The transformation eliminates totally unobserved regional-specific effects \mathbf{v}_i when n is fixed (clearly the case) and T goes to infinity, which results in efficient estimator

$$\hat{\beta}_{WG} = \sum_{i=1}^n (X_i^{*'} X_i^*)^{-1} X_i^{*'} y_i^*$$

6.5.4 Model Estimation: Results and Interpretation

This section reports the results of a series of multivariate analyses with an attempt to identify whether the growth of incumbent firms creates favorable conditions to stimulate new entries, as well as figure out the most important influences underpinning spatial and temporal variations in new firm entry in 61 Vietnamese provinces from 2000 to 2006. It is worth mentioning that from 2004, for certain regions, new provinces were created through separations from the existing ones, which increases the number of Vietnamese provinces to 64 now. For simplification, the values related to provinces that were founded after 2004 are added to the provinces from which they were separated. The original model is tested using fixed effects estimation. Pooled OLS estimates with “robust” standard errors are included for comparison purposes. I conduct two tests to verify which estimation model is preferable: (i) the F-test which tests the significance of regional fixed effects²⁴; (ii) the Roy-Zellner test for poolability of data across regions.²⁵

²⁴ F (60, 299) = 5.152; P-value: 0.000

²⁵ Chi2 (60) = 389.41; P-value = 0.000

The F-test indicates the presence of significant regional fixed effects, and the Roy-Zellner test rejects the null of poolability across regions. Thus, regional fixed-effects need to be controlled, which justifies the superiority of fixed effects over pooled OLS estimation. The results are reported in Table 6.5.

In general, the growth of incumbent firms in a particular region does have a significant stimulating effect on firm entry activities. The evidence is stronger when the sign of the associated regression coefficient is constant and the coefficient estimate is statistically significant across all model specifications (Levine and Renelt, 1992). This finding strongly supports our hypothesis. Entrepreneurial opportunities emerging during the growth of incumbent firms motivate the competition among nascent entrepreneurs to “seize” and transform these opportunities into new firms. However, the parameters are no longer significant and biased in pooled OLS regression, which justifies the necessity to isolate inherently unique features in different regions with the fixed-effect model.

With respect to control variables, six predictors – share of micro-sized firms, growth of GDP per capita, mean establishment size (MES), share of technical personnel, monthly compensation per employee in SMEs, and governmental investment per capita—are found to have statistical significant effects on the dependent variable. Let us consider each indicator separately.

The indicator for the entrepreneurial climate in a region has a considerable impact on start-up formation. However, the negative sign of coefficients of “share of micro-sized firms” contradicts findings in other comparable studies (Guesnier, 1994; Keeble and Walker, 1994; Hart and Gudgin, 1994; Fotopoulos and Spence, 1999). It indicates that the prevalence of micro-sized firms in the market of last year is not conducive to net entry rate of this year. Two reasons can be proposed to explain for this: either nascent entrepreneurs themselves are not motivated to participate into a market of intense competition among newly-established or “the revolving door” of the market is so efficient that a significant number of new entries last year will immediately cause an equivalent number of exits from both unprofitable incumbents and “bad entries” (Santarelli and Vivarelli, 2007), which may subsequently produce negative net start-ups this year. The fixed-effects regression when the share of micro-sized firms of the current

year is used instead of one-year lagged one indeed justifies the latter reason²⁶. In other words, the share of micro-sized firms has a positive relationship with net entry of this year, i.e. the dominance of small firms will cause an immediate stimulating impact on new entries that outnumber exits in the same year; but a negative relationship with net entry of the next year, i.e. the entry of a great number of new firms creates an intense competitive and turbulent market such that an equivalently large number of firms, either “bad entries” or stagnating incumbents. Thus, the “creative destruction” process as proposed by Schumpeter (1934) operates efficiently in Vietnamese business environment to the extent that a firm should be categorized as incumbent firm if it can resist and survive for approximately 3 years.

The positive effect of share of enterprises’ labor force in the total regional labor supply, on the other hand, clearly indicates that the dominance of a strong private sector in general in the market is favorable to start-up activities. This confirms the “incubator theory”, which assumes that people employed in smaller firms are more prone to set up a business of their own. It is likely that working in smaller firms allow employees to have a deeper and more general insight into how to run a firm, while working in larger firms enables them to be more specialized. Since nearly 95% of enterprises in Vietnam are household businesses with household proprietorship as the main ownership type (Rand and Tarp, 2007), a large proportion of the labor force working in private sector are self-employed workers, so-called entrepreneurs. Thus, it is fair to say that the higher the share of labor force working in the private sector is, the higher entrepreneurial spirit the region reflects. Its dwellers are basically more dynamic, active and intuitive to any recognized entrepreneurial opportunities. However, the parameter loses its significance in both statistical and numerical magnitude when I control for market innovativeness, operationalized as the share of technical or R&D personnel in the total regional labor force. It is likely that the stimulating effect of new entries comes from innovative spirit, rather than entrepreneurial climate of a region.

Expanding markets and demands for goods and services are considered fundamental to encourage entrepreneurial demand with respect to firm births. The positive and statistically significant parameter of growth of regional gross domestic income per capita

²⁶ The respective coefficient is positive and statistically significant at 1% level: $F(1, 295) = 11.73$; $\text{Prob} > F = 0.0007$

indicates that start-up rates tend to be higher in regions where gross value added per person is higher. However, I cannot find any demonstrable influence of income per capita on firm births when market innovativeness is controlled, which somehow suggests that personal wealth is relatively unimportant today in founding a new manufacturing firm due to increasingly high requirement of technological intensiveness in modern industries. Kangasharju (2000) and Sutaria and Hicks (2004) suggest that incomes of people are no longer important in modern economy to stimulate entrepreneurial activities, but specific characteristics of industry instead.

One important finding is the market innovativeness of a region, reflected by the share of technical and research and development employees, as a crucial stimulating factor of start-up activities. This indicator, named as “technological regime” by Audretsch (1995), is emphasized and highlighted in many previous studies (Klepper and Sleeper, 2005; Agarwal et al., 2004; Shane, 2000; Shepherd and DeTienne, 2005) as the key determinant to motivate economic development from firm-level to national level. Since qualified personnel generally concentrate in private sector employments, the share of entrepreneurs quickly reduces its significance when the effect of highly qualified employees is isolated.

For mean establishment size, the finding confirms Armington and Acs (2002) when a negative and statistical significant relationship with new firm entry is established. The dominance of large firms in the market impedes new entries, most of which are small or even very small. However, this result may be varied in different industries whereby entry barriers created by large firm dominance in an industry characterized by economies of scale and labor or capital intensiveness are somewhat more severe than those in modern industries characterized by innovation activities and technological advancement. Thus, this chapter incurs the limitation that has not isolated the effect of industries on new business entry.

For a potential entrepreneur who is currently an employee, the opportunity cost when establishing a new firm is his or her monthly salary or compensation. Indeed, the finding does signify a negative income effect such that receiving high salaries will indeed impede employees’ potentiality to start their own businesses. On the other hand, the push effect from regional economic environment through public investments on entry activities in each province is quite strong. Other things held constant, people in a

province being endowed with more state-invested capital are more likely to be self-employed than equally able people in another province with less state-invested capital.

Insignificant indicators that need to consider are effects of agglomeration and unemployment rate. Vietnam is characterized by the dominance of agricultural and rural-based economic activities whereby metropolitan areas and urban centers are not nurseries of new successful firms, but rather a “revolving door” to eliminate efficiently “entry mistakes”. Thus, net start-up rates in agglomerated areas are normally low, or even negative, compared to rural areas. Although previous empirical studies have reported contradictory evidences with respect to the relationship between unemployment rate and entry rate, in the present study, the results of the fixed-effects estimation techniques offer confirmation of a relationship whereby a region’s rate of new firm entry and unemployment rate are essentially unrelated. It is worth noting that the period from 2000 to 2007 marks both high economic growth and poor labor market conditions in Vietnam simultaneously. The country has experienced significantly high economic performance since the launch of Enterprise Law in 2000 that creates a firmer legal basis for the development of the private sector, and the recent official approval to hold World Trade Organization membership. Nevertheless, high economic growth attracts people to migrate to big cities in large number. The inevitable consequence is while unemployment rate in urban areas increases quickly, job opportunities are redundant in rural areas. Thus, the insignificant relationship between unemployment rate and start-up activities may be attributable to the interplay of two coexisting forces, i.e. on one hand, high unemployment rate shows a poor functioning market that hamper start-up efforts and on the other hand, high economic growth stimulates new firm entry to satisfy increasing consumers’ demands, that balance each other out.

Finally, I do not find any significant spatial autocorrelation among neighboring regions in Vietnam when unique features of each region are isolated with fixed-effects estimation, while spatial correlation is quite strong in simple OLS regression.

Table 6.5 Determinants of New Business Entry

	Regional start-up rate							
	Panel fixed-effects regression²⁷				Pooled OLS regression (heterokedasticity adjusted)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Intercept	0.029 (0.123)	1.894** (0.51)	1.967** (0.506)	1.263* (0.599)	0.044 (0.052)	0.142 (0.337)	0.187 (0.325)	0.359 (0.284)
Growth of incumbent firms (t)	0.041* (0.016)	0.039** (0.015)	0.034* (0.014)	0.039* (0.019)	-0.003 (0.023)	0.011 (0.02)	0.007 (0.018)	0.012 (0.026)
<i>Entrepreneurial climate</i>								
Share of micro-sized firms (t-1)	-0.003 (0.002)	-0.01** (0.002)	-0.009** (0.002)	-0.008** (0.002)	-0.002* (.0006)	-0.005** (.0006)	-0.005** (.0007)	-0.004** (.0006)
Share of enterprises' labor force(t-1)	0.014** (0.003)	0.002 (0.003)	0.003 (0.004)	0.001 (0.005)	0.016** (0.004)	0.024** (0.005)	0.025** (0.005)	0.008 (0.005)
<i>Entrepreneurial demand</i>								
Growth of GDP per capita (t-1)	0.011** (0.003)	-	0.008** (0.003)	0.005 (0.003)	0.004 (0.004)	-	0.007 (0.005)	0.002 (0.002)
<i>Agglomeration</i>								
Growth of population density(t-1)	0.004 (0.009)	-	0.005 (0.008)	0.002 (0.008)	-0.012 (0.01)	-	-0.004 (0.009)	-0.007 (0.006)
Share of urban population(t-1)	0.005 (0.004)	0.001 (0.003)	0.002 (0.003)	0.001 (0.003)	0.009** (0.003)	0.007** (0.002)	0.007** (0.002)	0.003 (0.002)
<i>Market structure</i>								
Mean establishment size MES (t-1)	-	-0.007** (0.001)	-0.007** (0.001)	-0.006** (0.001)	-	-0.005** (.0007)	-0.005** (.0007)	-0.003** (.0005)
<i>Market innovativeness</i>								
Share of technical/R&D personnel (t-1)	-	-	-	0.181** (0.04)	-	-	-	0.163** (0.028)
<i>Income effect</i>								
Monthly compensation per employee in SMEs (t-1)	-	-0.152* (0.064)	-0.181** (0.064)	-0.097 (0.078)	-	0.004 (0.05)	-0.012 (0.048)	-0.032 (0.04)
<i>Unemployment effect</i>								
Unemployment	-	0.015	0.014	0.016	-	0.05**	0.052**	0.023* ²⁸

²⁷ The F-test indicates statistically significant fixed-effects, which justifies the superior use of fixed effect regression: F (60, 229) = 5.152; p-value = 0.0000.

²⁸ The significant “unemployment rate” in OLS estimation in which we do not control for regional fixed effects may be an indicator of business cycle. The period 2000 to 2007 marks both high economic growth

rate (t-1)		(0.015)	(0.014)	(0.015)		(0.013)	(0.013)	(0.009)
<i>Regional economic environment</i>								
Public investment per capita (t-1)	-	0.033**	0.032**	0.016		-0.009	-0.009	0.018
		(0.009)	(0.009)	(0.011)		(0.015)	(0.015)	(0.014)
<i>Spatial autocorrelation control</i>								
Residuals	0.198	0.155	0.155	-	0.461**	0.39**	0.373**	-
	(0.117)	(0.107)	(0.106)		(0.121)	(0.1)	(0.1)	
Spatial spill-over effects	-	-	-	0.031	-	-	-	0.099
				(0.094)				(0.062)
Adjusted R-squared					0.6457	0.7290	0.7342	0.8093 ²⁹
F-value	8.28**	14.96**	13.27**	13.47**	21.42**	21.66**	22.65**	23.46**
M1 statistics for serial correlation in OLS						F (1, 242) = 9.66		P-value = 0.0021 ³⁰
M2 statistics for serial correlation in OLS						F (1, 180) = 1.34		P-value = 0.2491
Roy-Zellner poolability test						Chi2(60) = 389.41		P-value = 0.0000
Holtz-Eakin test of existence of individual heterogeneity ³¹						AR(1): chi2 = 85.48		AR(2): chi2 = 68.89
						P-value = 0.0000		P-value = 0.0000
Observations	366	366	366	305	366	366	366	305

Note: ** significant at 1%-level; * significant at 5%-level; standard errors are in parentheses

and poor labor market conditions in Vietnam, The unemployment rate is quite high in urban areas whereas the deregulation policy of governments is adopted to boost up economic growth. This stimulate a great number of nascent entrepreneurs from unemployed as well as employees to start up their firms

²⁹ It should be noted that high adjusted R-squared here does not mean the “goodness” of the regression model, but only measures how well it is explained by the included regressors. And since my regressors are aggregate data at regional level with significant inter-correlation, for instance, unemployment in a region is surely closely related to economic conditions in that region (GDP, compensation, governmental investment), the high R-squared could result from over-fitting of data and the hidden correlation among independent variables. The hidden factors here are unobserved regional fixed effects, which we need to control for in fixed effects model in order to have unbiased and consistent estimation.

³⁰ M1 and M2 statistics give the tests for the presence of first-order and second-order serial correlation respectively. Significant M1 statistics indicates the presence of first-order serial correlation in pooled OLS regression, which seriously biases the estimation.

³¹ The Holtz-Eakin test is the linear test for individual effects in dynamic panel model. Due to short time periods, I present here the test for AR(1) and AR(2) model. Consider a general specification for the autoregressive model: $y_{it} = \sum \beta_k y_{it-k} + \varepsilon_{it}$, $k = 1 \dots m$. The null hypothesis of no individual effects implies the orthogonality conditions: $E(y_{it-j} \varepsilon_{it}) = 0$, $j = 1 \dots t - 1$, $t = (m + 1) \dots T$. As a result, there are $T - m$ equations containing the m parameters. The null hypothesis imposes $R = [T(T - 1) - m(m - 1)]/2$ orthogonality conditions and leaves $(R - m)$ over-identifying restrictions which may contribute to a test of the null hypothesis (Holtz-Eakin, 1986). Thus the Holtz-Eakin test is equivalent to Sargan test of over-identifying restrictions in dynamic panel models with the null hypothesis “the instruments as a group are exogenous”. As shown in Table 6.5, the hypothesis of no fixed effects is strongly rejected. Thus, the net start-up rate differs across regions, and an estimation model to control for individual heterogeneity is required.

6.6 Concluding Remarks

This chapter argues that new firm entry is strongly affected by the performance of incumbent firms via the force of entrepreneurship acting upon both the incumbent firms and the new firms. The growth of the incumbent firms in terms of creating changes in the existing production system generates new entrepreneurial opportunities not only for themselves but also for the whole society. Due to their inflexible administrative organization and path-dependent development, incumbent firms are constrained to pursue only those opportunities constrained by their productive resources. As a consequence, a significant number of entrepreneurial opportunities are left underexploited, which wait for the alert and realization from nascent entrepreneurs.

The empirical research which uses the micro-level data of 61 Vietnamese provinces from 2000 to 2006 supports significantly my research hypothesis “The rate of new firm entry of a region has a positive relationship with the growth of sales of all incumbent firms in that region”. Entrepreneurial opportunities emerging during the growth of incumbent firms motivate the competition among nascent entrepreneurs to “seize” and transform these opportunities into new firms. Furthermore, four controlling indicators – entrepreneurial climate, entrepreneurial demand, market structure, and market innovativeness – are found to have statistical significant stimulating effect on new entries. Thus, it is plausible for us to conclude that new firm entry is a relevant proxy for entrepreneurship in geographical level research.

A limitation of the chapter is concerned with the use of net entry as a proxy of regional firm entry activities. Since it appears clearly from the discussion above that the presence of the “revolving door effect” is quite strong such that firm entry and firm exit are significantly correlated. As the finding from the estimation, a significant number of new entries last year will immediately cause an equivalent number of exits from both unprofitable incumbents and bad entries, which may subsequently produce negative net start-ups this year. Thus, I understand that the use of net entry cannot capture the dynamics of entry and exit activities in a region, and is normally used under specific conditions. However, since it is also quite hard for the statistics office to keep track of these dynamic activities of firms, which are almost very small and not registered formally, this is the only data I have for the analysis.

Appendix 6.A Cross-section Correlation of Dependent variables and Independent variables

1. Year: 2001

	Net start-up	Incum. Growth	Micro share	Enter labor	GDP. capita	Popu. Density	Urban popu.	MES	Tech. employ	Compen.	Unemploy.	Public invest.
Net start-up	1.0000											
Incum. Growth	0.3527*	1.0000										
Micro share	-0.0816	-0.0376	1.0000									
Enter labor	0.6550*	0.2551	-0.0360	1.0000								
GDP. capita	0.0124	-0.0017	-0.0810	0.1031	1.0000							
Popu. Density	0.3143	0.1434	0.0794	0.3869*	-0.0490	1.0000						
Urban popu.	0.6414*	0.0551	0.1837	0.6890*	0.0449	0.4162*	1.0000					
MES	0.2428	0.1720	-0.5497*	0.5089*	0.2421	0.2041	0.2401	1.0000				
Tech employ.	0.7191*	0.1319	-0.0483	0.7045*	0.0374	0.2354	0.5375*	0.2790	1.0000			
Compen	0.4257*	0.2463	0.3805*	0.4613*	0.1502	0.2577	0.5977*	0.1157	0.4552*	1.0000		
Unemploy.	0.1671	0.1118	-0.0504	0.1187	-0.0248	-0.2094	0.1082	0.1926	0.2630	0.0692	1.0000	
Public invest.	0.6252*	0.2576	-0.0454	0.6533*	0.0275	0.2752	0.3665*	0.2232	0.3776*	0.2785	-0.2245	1.0000

Note: *: significant at 1% level

2. Year: 2002

	Net start-up	Incum. Growth	Micro share	Enter labor	GDP. capita	Popu. Density	Urban popu.	MES	Tech. employ	Compen.	Unemploy.	Public invest.
Net start-up	1.0000											
Incum. Growth	-0.0102	1.0000										
Micro share	-0.1678	-0.0882	1.0000									
Enter labor	0.7138*	0.0142	-0.0663	1.0000								
GDP capita	0.0235	0.1600	-0.2247	0.1682	1.0000							
Popu. Density	0.4615*	-0.1523	0.0403	0.5747*	-0.0859	1.0000						
Urban popu.	0.6148*	0.0927	0.1580	0.7610*	0.1455	0.4345*	1.0000					
MES	0.2365	0.0614	-0.5218*	0.5339*	0.2737	0.1863	0.2235	1.0000				
Tech employ.	0.8118*	0.0041	-0.0653	0.8183*	0.0111	0.5356*	0.6711*	0.2730	1.0000			
Compen	0.3899*	-0.0506	0.2877	0.5918*	0.1587	0.4652*	0.6188*	0.2546	0.4933*	1.0000		
Unemploy.	0.3659*	-0.1005	-0.0018	0.3309*	-0.1323	0.1222	0.3022	0.2262	0.3754*	0.3331*	1.0000	
Public invest.	0.2065	0.1810	-0.0628	0.6871*	0.1943	0.3536*	0.3915*	0.4082*	0.3028	0.3385*	0.0976	1.0000

Note: *: significant at 1% level

3. Year: 2003

	Net start-up	Incum. Growth	Micro share	Enter labor	GDP. capita	Popu. Density	Urban popu.	MES	Tech. employ	Compen.	Unemploy.	Public invest.
Net start-up	1.0000											
Incum. Growth	0.2265	1.0000										
Micro share	-0.1994	-0.4419*	1.0000									
Enter labor	0.7258*	0.0919	-0.0714	1.0000								
GDP capita	0.1204	-0.0265	-0.0673	0.1476	1.0000							
Popu. Density	0.3854*	-0.1441	0.0171	0.3977*	-0.0037	1.0000						
Urban popu.	0.6101*	-0.1453	0.1890	0.7106*	-0.0129	0.4066*	1.0000					
MES	0.2761	0.3326*	-0.4185*	0.5917*	0.1346	0.0710	0.2102	1.0000				
Tech employ.	0.8347*	0.0111	-0.0287	0.8044*	0.0616	0.4282*	0.6745*	0.2672	1.0000			
Compen	0.4600*	-0.0709	0.2634	0.5663*	0.2398	0.3007	0.6233*	0.2725	0.4523*	1.0000		
Unemploy.	0.3552*	0.0761	0.0976	0.2833	-0.0946	-0.0688	0.2910	0.1499	0.3949*	0.3114	1.0000	
Public invest.	0.5564*	0.1254	-0.0847	0.8908*	0.1772	0.3333*	0.4769*	0.5364*	0.6056*	0.4590*	0.1862	1.0000

*Note: *: significant at 1% level*

4. Year: 2004

	Net start-up	Incum. Growth	Micro share	Enter labor	GDP. capita	Popu. Density	Urban popu.	MES	Tech. employ	Compen.	Unemploy.	Public invest.
Net start-up	1.0000											
Incum. Growth	-0.0696	1.0000										
Micro share	0.0204	0.0100	1.0000									
Enter labor	0.7396*	0.0733	-0.0492	1.0000								
GDP capita	-0.0276	-0.0878	0.1501	-0.0931	1.0000							
Popu. Density	0.1486	0.2038	-0.0125	0.4892*	-0.1650	1.0000						
Urban popu.	0.6536*	0.1073	0.1824	0.5842*	-0.1417	0.3864*	1.0000					
MES	0.1942	0.1182	-0.3857*	0.6395*	-0.1226	0.4123*	0.1801	1.0000				
Tech employ.	0.8963*	0.0530	0.0208	0.8253*	-0.0690	0.2718	0.6533*	0.2956	1.0000			
Compen	0.4339*	0.4538*	0.2418	0.4975*	0.0516	0.4307*	0.5413*	0.2907	0.4590*	1.0000		
Unemploy.	0.3974*	-0.0575	-0.0755	0.2134	-0.1162	-0.1097	0.2664	0.1081	0.3500*	0.1682	1.0000	
Public invest.	0.6893*	0.0004	-0.0088	0.9105*	-0.0491	0.4792*	0.5421*	0.5292*	0.7708*	0.4387*	0.1856	1.0000

Note: *: significant at 1% level

5. Year: 2005

	Net start-up	Incum. Growth	Micro share	Enter labor	GDP. capita	Popu. Density	Urban popu.	MES	Tech. employ	Compen.	Unemploy.	Public invest.
Net start-up	1.0000											
Incum. Growth	0.2321	1.0000										
Micro share	-0.0036	-0.1740	1.0000									
Enter labor	0.8590*	0.3948*	-0.0952	1.0000								
GDP capita	0.2050	0.3638*	0.0283	0.4333*	1.0000							
Popu. Density	0.1336	0.1412	-0.0110	0.1523	-0.4515*	1.0000						
Urban popu.	0.7532*	0.1032	0.1954	0.6346*	0.0901	0.1290	1.0000					
MES	0.2391	0.3192	-0.3971*	0.5981*	0.4094*	0.0597	0.1692	1.0000				
Tech employ.	0.8837*	0.1256	-0.0004	0.8334*	0.1643	0.1250	0.7646*	0.2767	1.0000			
Compen	0.3001	0.0570	0.1047	0.4090*	0.0524	0.2650	0.5197*	0.3389*	0.3974*	1.0000		
Unemploy.	0.2985	-0.0722	0.0701	0.2122	-0.1579	0.0433	0.3733*	0.0550	0.3682*	0.0674	1.0000	
Public invest.	0.6212*	0.4484*	-0.1283	0.7649*	0.4044*	0.2799	0.4120*	0.5509*	0.4090*	0.3056	0.0408	1.0000

Note: *: significant at 1% level

6. Year: 2006

	Net start-up	Incum. Growth	Micro share	Enter labor	GDP. capita	Popu. Density	Urban popu.	MES	Compen.	Unemploy.	Public invest.
Net start-up	1.0000										
Incum. Growth	0.0692	1.0000									
Micro share	0.0724	0.0017	1.0000								
Enter labor	0.6837*	0.0951	-0.0878	1.0000							
GDP capita	0.0718	0.1120	0.1403	-0.2106	1.0000						
Popu. Density	0.3367*	-0.1046	-0.1116	0.5136*	-0.1291	1.0000					
Urban popu.	0.8138*	0.0443	0.1789	0.6309*	0.0559	0.4510*	1.0000				
MES	0.1152	0.2541	-0.4347*	0.5977*	-0.0613	0.1543	0.1168	1.0000			
Compen	0.3842*	0.1419	0.1083	0.4467*	0.0249	0.3852*	0.5370*	0.3086	1.0000		
Unemploy.	0.3225	-0.0174	0.1746	0.1700	-0.0359	0.0003	0.3284*	-0.0060	0.0817	1.0000	
Public invest.	0.6950*	0.0176	-0.0300	0.8018*	-0.1369	0.5390*	0.6123*	0.4213*	0.3739*	0.2110	1.0000

Note: *: significant at 1% level

Appendix 6.B Time-series Correlation of Dependent variables and Independent variables

	Net start-up	Incum. Growth	Micro share	Enter labor	GDP. capita	Popu. Density	Urban popu.	MES	Tech. employ	Compen.	Unemploy.	Public invest.
Net start-up	1.0000											
Incum. Growth	0.0989	1.0000										
Micro share	-0.0530	-0.0685	1.0000									
Enter labor	0.7566*	0.1619*	-0.0672	1.0000								
GDP capita	0.0783	0.1219	0.0005	0.0332	1.0000							
Popu. Density	0.2016*	0.0754	-0.0133	0.3567*	-0.1740*	1.0000						
Urban popu.	0.6800*	0.0630	0.1768*	0.6487*	-0.0260	0.2940*	1.0000					
MES	0.2046*	0.1615*	-0.4646*	0.5480*	0.1507*	0.1576*	0.1874*	1.0000				
Tech employ.	0.8722*	0.0705	-0.0208	0.8203*	0.0498	0.2295*	0.6764*	0.2649*	1.0000			
Compen	0.3803*	0.1142	0.2401*	0.4894*	0.1111	0.2928*	0.5685*	0.2487*	0.4372*	1.0000		
Unemploy.	0.3078*	-0.0414	0.0469	0.1894*	-0.0787	-0.0183	0.2606*	0.1467*	0.3324*	0.1680*	1.0000	
Public invest.	0.5942*	0.1681*	-0.0557	0.8254*	0.0891	0.3119*	0.4517*	0.3503*	0.5132*	0.3518*	0.0807	1.0000

Note: *: significant at 1% level

7

Conclusions

Entrepreneurship is widely recognized as an important factor of economic growth. It is even much more important in a transition and developing country like Vietnam. This dissertation gives the investigation of the various issues of Vietnamese entrepreneurship: the role of human capital and social capital in successful entrepreneurship; strategic behavior of corporate entrepreneurship and firm performance; and the relationship between incumbent firms and new firm entry with respect to entrepreneurial opportunities. This chapter outlines four main empirical results from a thorough examination of these issues.

Human capital has a positive relationship with the success of start-up firms. Specifically, education, industry experience, entrepreneurial experience and learning all positively and significantly influence entrepreneurial performance. Of which, industry experience demonstrates its importance in contributing entrepreneurial knowledge to Vietnamese firm-founders such that prior knowledge from education at school does not prepare them adequately for start-up activities. With respect to learning effects, product innovations and process innovations show a strong positive relation with the overall performance.

The effects of social capital, measured as benefits gained from social interactions, in weak-tie business networks are more fruitful to entrepreneurs than those from strong tie emotional relationships. However, although network participation has a positive and statistical significant effect on entrepreneurial performance, it no longer has strong economic effects once entrepreneurs' ideas of useful participation are controlled. Another important suggestive finding is that entrepreneurs do create values by combining their social and human capital. This is revealed by positive indirect effects of network participation on firm performance, depending on the type of human capital that they possess: professional education or start-up experience.

Product diversification, as an act of corporate entrepreneurship, has a positive and non-linear effect on firm profitability; i.e., the positive effect is increasing as entrepreneurial expertise is exploited at a greater scope but falling off as product scope

exceeds the range of this resource and governance scope surpasses management capabilities. The empirical evidences from different methodological treatments (static or dynamic, endogenous or exogenous treatment) based on the provincial dataset of Vietnam - an emerging economy - all indicate that product diversification has a positive and non-linear effect on firm profitability.

The growth of incumbent firms generates new entrepreneurial opportunities, which stimulates net entry of new firms in a region. When incumbent firms accumulate and combine resources for their production, due to their inflexible administrative organization and path-dependent development, they cannot exploit all the pool of resources at their disposal. Through the knowledge spillover mechanism, those underexploited resources will be left to the society's reservoir. These resources in turn are the source of entrepreneurial opportunities that wait for the alert and realization from nascent entrepreneurs. New firm is one of the important channels for nascent entrepreneurs to seize and capitalize these opportunities. The study, indeed, finds a positive relationship between the rate of new firm entry of a region and the growth of sales of all incumbent firms in that region. On the other hand, the entrepreneurial climate, entrepreneurial demand, market structure and market innovativeness of a region are found to have significant stimulating effects on new entries.

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