FINANCIAL CONSTRAINTS, LOCAL GOVERNANCE AND SMALL FIRM PERFORMANCE: EVIDENCE FROM VIETNAM

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THESIS SUMMARY

Young and small firms are vulnerable to external environments because of their age and size liabilities. Specifically, the lack of external finance and the poor governance quality of local governments are the two important determinants of local entrepreneurship.

This thesis aims to contribute to the understanding of the relationship between financial constraints, local governance and local entrepreneurship in weak institutional and underdeveloped financial environments. Employing the census data of small and medium sized enterprises (SMEs) from Vietnam, this thesis is comprised of three empirical studies examining young and small firm investment and performance.

The first empirical study investigates firm financing strategy. It aims to explore how firms make use of external financing sources for new investments. This study stresses that entrepreneurs' self-finance and bank loans are the two most important external financing sources for SMEs in emerging countries. In addition, it proposes that financial constraints is an important factor that determines to what extent firms make use of entrepreneurs' self-finance and bank loans.

The second empirical study investigates the influence of local governance arrangements on local young and small firm investments. It provides evidence to highlight the importance of local formal and informal governance forces to local SME investments. In addition, it particularly examines the linkage between firm-level financial constraints and governance effects. Its finding indicates that the effects of local governance on firm investments vary significantly depending on degrees of firm-level financial constraints.

The third empirical study extends the discussion to the effects of local governance on firm growth performance. Particularly, it investigates the relationship between informal governance forces (unofficial policies) and local firm growth performance. It proposes that local governance is important not only to firm investments but also to firm performance. In addition to local governance, this chapter also analyses a higher-level institution – the pro-entrepreneurial culture in relation with local firm growth performance.

Key words: small firm, financial constraints, local governance, informal institutions, entrepreneurship, Vietnam.

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CHAPTER 1: INTRODUCTION

1.1 State of art

Entrepreneurial finance is crucial for business growth. This applies for economies of different contexts – developed economies and emerging economies – but for differed reasons. In developed economies like Britain, small and medium sized enterprises (SMEs) seem to experience declined flow of external finance in economic challenging times, and the government is concerned of limited growth potential due to funding gaps (Fraser, Bhaumik, & Wright, 2015). In emerging economies such as China and Vietnam, small businesses are well known to face financial constraints (Ding, Guariglia, & Knight, 2013; Tran & Santarelli, 2014) and have few choices of financing options in weaker economic environments with less developed financial system (Du, Guariglia, & Newman, 2015) and less secured property right protection (Ayyagari, Demirgüç-Kunt, & Maksimovic, 2010). What common across these different contexts is that SME investments and development have a key role in promoting and sustaining economic growth, and there is room for governance and policy to make a positive impact.

In a very large literature on firms' financing decisions,[1] the mainstream economic literature pays attention to the relative importance between internal funds and bank loans. The pecking order theory highlights the role of asymmetric information in financing, leading to the preference for the lower-cost internal funds, followed by the higher-cost external loans (Myers, 1984).[2] The recent literature investigating entrepreneurial finance, moreover, focuses on finance

[1] Fraser et al. (2015) suggest that financial constraints has two sides: the supply side constraint is concerning the funding gaps incurred by market failures, in which firms need but cannot obtain sufficient finance from external sources; meanwhile, the demand side constraint is concerning the cognition and motivation of entrepreneurs. Many entrepreneurs, for example, are motivated by lifestyle factors and may have little need for external finance. This thesis is about the conventional supply side constraint because the context of studying is a developing country in which the financial constraints caused by the financial market imperfections is expected to be more severe than the entrepreneurs' cognitive constraint (Nguyen, Le, & Freeman, 2006).

[2] In contrast to the pecking order theory, there is the static trade-off theory (Kraus & Litzenberger, 1973). This theory stresses the impact of taxes, agency costs, and financial distress on firm financing decision. It

providers who do not simply supply businesses with finance but provide other add-in services. For example, venture capital, peer-to-peer lending, and microcredit, etc. These emerging financial alternatives are demonstrated to have positive effects on firm performance thanks to their "attached" services such as skill trainings, and creating networking platforms for entrepreneurs, etc. (Bruton, Khavul, Siegel, & Wright, 2015).

The main message from this literature is that financing decisions are crucial for firm investments and performance (Fraser et al., 2015). However, in the context of emerging world with underdeveloped financial system and incomplete institutional frameworks, we know very little about the role of entrepreneurs' self-finance to firm financing. The reason is that firms in this context must rely mostly on entrepreneurs' self-finance to fund their investments but when and why entrepreneurs use self-finance instead of bank loans remain largely unexplored. Therefore, there is an important gap in knowledge about the financing strategy of SMEs in emerging economies. The first empirical study of this thesis aims to fill this gap.

Moving to the supply side of firm financing, the recent mushrooming literature on institutions in several research fields highlights the crucial role of institutional arrangements in affecting individual firm decisions and outcomes.[3] Formal institutions (e.g., laws, contracts, constitutions) and informal institutions (e.g., culture, customs, codes of conduct) have long been recognised as important factors explaining for entrepreneurship variation among countries. The key conclusion of this literature is that countries with weak institutional frameworks will hamper entrepreneurship capital by imposing higher risk and increasing transaction costs on

argues that firms tend to trade off the tax shields benefits with the agency costs and the costs of financial distress, resulting in maintaining high level of debts. However, the static trade-off theory is empirically found insignificant in explaining firm financing decision in comparison to the pecking order theory (Du et al., 2015).

[3] There are two branches of institutional research in entrepreneurship literature: the organizational institutional theory pays attention to understand the cognitive patterns direct entrepreneurs' abilities to identify novel opportunities (Baron, 2007); and the institutional economics theory highlights the impact of the formal institutions, informal institutions, and institutions of governance on entrepreneurs' incentives and behaviours (Williamson, 2000). This thesis makes use of the institutional economics theory.

new ventures. Moreover, in countries with weak institutions, there is a wider variation in governance arrangements across space, compared to a country with strong institutions, where governance quality is more homogenous (Efendic, Mickiewicz, & Rebmann, 2015). For this reason, what is less understood in literature is that within a relatively weak institutional environment, how local governance affects local SME investment decisions. It is noteworthy that new ventures are typically young and small; their investments are thus typically restricted to local markets which are strongly shaped by local governance rather than the very broad general configurations. Hence, the second study aims to explore the influence of local governance quality on local SME investments.

The third study focuses on firm growth, for growth is what ultimately matters to SMEs. Since investment is an important channel to growth performance (Carpenter & Petersen, 2002b), governance forces that affect investment may also have significant impact on firm growth. However, the existing literature has little evidence on how local governance quality accounts for SME growth performance (Du & Mickiewicz, 2016). This study thus, controlling for the effects of investment, investigates how local governance arrangements influence local SME revenue growth performance.

Also in this study, the interlinkage between levels of institutions are closely investigated. The interaction of informal institutions, formal institutions with institutions of governance is first theoretically discussed by Williamson (2000). Empirical literature also confirms that the quality of governance could be influenced by the embedded informal institutions (e.g., customs, systems of values, traditions) (Li & Zahra, 2012; Stephan, Uhlaner, & Stride, 2015).

Entrepreneurial culture can be regarded as an informal institution that comprises norms, values, and codes of conduct (Fritsch & Mueller, 2007, 2008). While this entrepreneurial culture is essentially important to local entrepreneurship, there is little knowledge about whether regions with weak entrepreneurial culture, i.e., low level of social acceptance or “legitimacy” of entrepreneurship, could successfully facilitate SME growth by introducing a set of committed

governance arrangements as a substitute or not. This study sheds light onto this question by examining how the strength of local governance effects is moderated by pro-entrepreneurial culture in differed regions sharing identical formal law systems within a country.

1.2 Empirical setting

The empirical setting of this thesis is Vietnam. Vietnam is an interesting context for studying the impact of financial constraints on entrepreneurship due to its post-socialist political ideology and on-going economic transformation. The socialist-oriented market economy aims to develop a multi-sectoral market economy, where the state sector plays a decisive role in directing economic development, with the eventual long-term goal of developing socialism (Makino & Tsang, 2011).

This ideology has been applied since 1965, and the country economic development can be categorised into 4 periods: 1965-75, war in the South and the socialist industrialisation in the North; 1976-85, socialist industrialization in the centrally planning economy; 1986-2005, *Doimoi* period (economic renovation) and the transition towards market-oriented and open economy; 2006-present, trade liberalization in post WTO entry period and economic restructuring. In the first two periods, the economy concentrated on heavy industry, and was exclusively led by the state, under the planning structure, in the absence of the market-based price mechanism. In 1991, on the promulgation of the Company Law, private businesses were legalised; and were encouraged since 1999 on the amendment of the Law, to reduce entry barriers for the private sector.

Due to the socialism ideology, financial system in Vietnam is biased against the private sector, therefore being lack of finance is a significant problem for Vietnamese private SMEs (Leung, 2009). This country-specific factor together with the typical asymmetric information and the agency costs remarkably restrict domestic SMEs to gain sufficient access to external funds.

This severe financial constraints problem may delay firm investments and hamper firm growth (Anwar & Nguyen, 2011).

However, in contrast to its recent establishment and fragile development, the private sector (with 95% of the population is young and small businesses) contributed considerably to the economic growth of Vietnam in the last few decades (Nguyen & Dijk, 2012; Nguyen, Le, & Bryant, 2013a; Tran & Santarelli, 2014). Till 2015, the sector accounts for 91% of total registered capital, 65% of national revenue, 97% of total registered businesses, and 64% of total employees in the economy.[4] Despite these superior contributions, the extant literature suggests that young and small firms in Vietnam severely suffer from financial constraints problem (Anwar & Nguyen, 2011; Tran & Santarelli, 2014). The contrasting facts make it intriguing that to date we know surprisingly little about how entrepreneurs finance their investments to make such an impressive contribution to the economy.

In addition to the weak financial system, weak institutions and poor governance quality are directly relevant to Vietnam.[5] Given that most private firms are young and small, they may be very fragile and sensitive to the governance quality of local governments (Nguyen & Dijk, 2012). The quality of governance across spaces, however, varies significantly due to the impact of the nation's history (Mirza & Giroud, 2004). While in the North of Vietnam industry was initially built following the pure socialist blueprint, the South Vietnam was transformed away from capitalism only since 1975. This historical diversity can be treated as an exogenous factor that is reflected in the differences in local informal institutions across regions of Vietnam (Makino & Tsang, 2011). Moreover, these informal institutions are expected, according to the institutional theory, to persist despite the unification of the two states four decades ago, which instituted a single formal framework for the entire nation.

[4] Source: https://www.gso.gov.vn/Default_en.aspx?tabid=515

[5] According to Williamson (2000), institutions of governance is the third level of the new institutional economics theory. This level emphasises the governance of contractual relations – the play of the game, rather than the rules of the game (formal and informal institutions).

In addition, the variation of local governance arrangements has been magnified due to the extensive decentralisation program during the *Doimoi* process (Lan Phi & Anwar, 2011). The foundation of this program was the promulgation of the 1996 (revision in 1998) State Budget Law which grants local governments sufficient autonomy in their fiscal strategies. Local governments are considerably independent from the central government in their revenue and expenditure decisions, and they have substantial freedom to determine their local governance and regulatory arrangements for local businesses. Despite that, governance structures across regions remained relatively sluggish and out of date until the recent 2007 WTO entry, when local governments began to pay more attention to the quality of their governance arrangements, in particular to aspects of corruption, transparency, and leadership proactivity (Hanh, 2011; Thanh & Duong, 2009). This is a result of the more open economic policy, in which local authorities have to compete for foreign direct investment (FDI), to boost local private sector in order to obtain higher revenue (Lan Phi & Anwar, 2011).

Unless there are proper incentive structures, local entrepreneurs are unlikely to make investments in new projects, or to seek improving economic performance (Baumol & Strom, 2007). This eventually results in slowing-down growth rate for the entire economy. Given that the entrepreneurship sector in Vietnam is very young, it may be very sensitive to the incentive structures shaped by local governments (Cooke & Lin, 2012). This makes Vietnam a relevant and arguably an interesting context for examining the impact of local governance on local entrepreneurship.

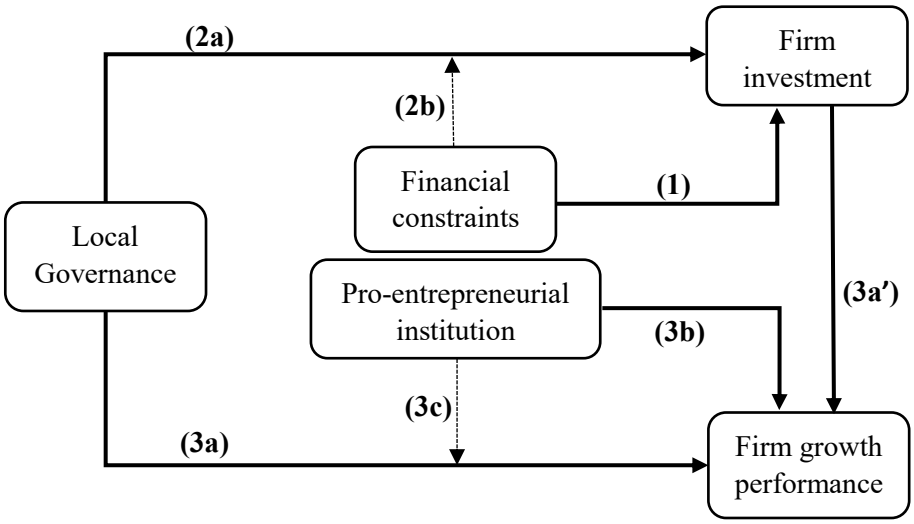
In general, there are two salient challenging issues to the entrepreneurship sector in Vietnam: (1) financial resources are not being distributed properly to the private young and small businesses; and (2), the incentive structures that local governance systems provided are not sufficiently strong and reliable. Severe financial constraints and poor governance quality may result in low entrepreneurial investment and poor performance. Therefore, the primary purpose

of this thesis is to examine how to facilitate SME investments and performance by reducing financial constraints and improving local governance quality.

1.3 Outline of the thesis chapters

This thesis aims to make contributions to the understanding of the relationships between financial constraints, local governance, and SME investments and performance. In order to investigate this research topic, three empirical studies have been conducted. This section first shows the interlinks among the three studies, then it provides the motivations, rationales the research objectives, and briefly overviews the expected contributions of each study.

Figure1.1: Theoretical framework (1)



Notes: The solid arrows indicate the causal effects; the dot arrows indicate the moderating effects.

Figure 1.1 shows the proposed theoretical framework investigated in this thesis. The number on each arrow specifies the study that particularly investigates the relationship between two variables. The first study investigates the effects of financial constraints on firm financing for new investments (1). The second study examines the effects of governance forces on local firm investment decisions (2a), and how financial constraints moderate the relationship (2b). The third study inspects the role of governance forces (3a and 3a′), and pro-entrepreneurial institution (3b) on firm growth. The (3a) pattern is the direct effect of governance on firm

growth, and the (3a′) is the indirect effect of governance through firm investment. This study moreover investigates how pro-entrepreneurial culture moderate the effect of local governance (3c).

Closely analysing these relationships, this thesis makes four important contributions to the entrepreneurship literature. First, it highlights the crucial role of entrepreneurs' self-finance in underdeveloped financial markets and weak institutional environments. Findings in this thesis subscribes to the arguments of Guariglia, Liu, and Song (2011) that well developed external capital markets may not always be needed for fast economic growth. This is the case not only because firms in emerging countries are abundant in cash flow, but also because entrepreneurs appear to pour much money into their businesses.

Second, it demonstrates that local governance environments have a significant impact on local SME investments and performance. Because national legal institutions take time to change, this thesis proposes that focusing on improving local governance quality may be a plausible solution to improve local entrepreneurship.

Third, this thesis makes important contribution by demonstrating that governance effects are *not* homogeneous on all firms. It is the degrees of financial constraints that determines which sets of governance arrangements are more important to local firms. Understanding about the distribution of local governance effects on local firms is particularly important for policymakers.

Finally, this thesis provides evidence showing that in regions with less pro-entrepreneurial culture, local governments could still facilitate SME growth by improving local governance arrangements. This thesis thus empirically demonstrates the interaction between levels of institutions: local governance matters more where institutional history suggests less support for entrepreneurship.

The next section introduces the motivations, research questions and main contributions of each study.

1.3.1 How do financial constraints influence financing strategy of small businesses?

This study is motivated by the fact that the focus of previous works concerning firm investments is typically restricted to the effect of financial constraints on total investments, instead of financing strategy for investments. For example, in an endeavour to synthesise contradictory findings in the financial constraints literature[6], Cleary, Povel, and Raith (2007) propose a theoretical model to prove that, under plausible assumptions, investment is a U-shaped function of degrees of financial constraints. However, there remain several important questions related to investment decision including: how do financially constrained young and small firms raise funds to finance their new projects? Where does the money come from when they cannot gain sufficient bank loans? How does financing strategy alter when firms become older and larger? And is it the case that the old and large financially constrained firms are always able to raise more finance than their less financially constrained counterparts?

Another motivation for this study stems from the context of Vietnam. O'Toole and Newman (2016) analyse whether financial development reduces external investment financing constraints for firms in Vietnam. Using the fundamental Q approach, the authors find that firms face imperfections in capital markets, and that financial constraints are decreasing in credit provided to the private sector, increasing in the use of financing by state-owned enterprises, and decreasing in the degree to which finance is allocated based on market-oriented standards. They conclude that as financial development increases, either through an expansion of credit or through improved financial allocation, firm reliance on internal finance decreases. More importantly, they propose that concerning the distributional impact of financial development on

[6]The debate about the "correct" sign of cash flow coefficient in an investment equation begins with (Fazzari, Hubbard, & Petersen, 1988) and (Kaplan & Zingales, 1997) who find contradictory results and argue for different interpretations. See Appendix 3.2 for detailed information.

financing constraints across firms, the results are strongest for private domestic firms, especially small- and medium-sized enterprises. This finding strongly motivates us to further expand O'Toole and Newman (2016) study by examining how SMEs in Vietnam finance their investments given that both conditions they proposed for reducing financial constraints, i.e., expansion of credit and improved financial allocation are unlikely popular across most regions in the country.

This study examines the underlying strategy by which small and medium-sized enterprises organise their external funding sources for new investments according to degrees of financial constraints. The funding sources examined include two options: bank loans and entrepreneurs' self-finance. Because banks and entrepreneurs have different motivations, requirements, and expectations when providing funds to SMEs (Beck, Lu, & Yang, 2014; Cleary et al., 2007), this study aims to understand when and why firms make use of bank loans and entrepreneurs' self-finance to invest in new projects with respect to degrees of financial constraints.

By closely examining entrepreneurs' self-finance and bank loans, this study has two objectives. The first objective is to investigate how financial constraints influences the use of each financing source. The investments funded by bank loans and by entrepreneurs' self-finance will be linked to the degrees of financial constraints, testing the validity of the U-shaped investment theory on each source of financing. The second objective is to examine how firm age and firm size influence the use of bank loans and entrepreneurs' self-finance. In particular, it aims to explain how firm age and size can moderate financial constraints by raising more entrepreneurs' self-finance and bank loans.

To empirically test the hypotheses related to these objectives, this thesis employs the census data of the Annual Enterprises Survey issued by the Vietnam General Statistics Office. The dataset is a 13-year panel from 2000 to 2012. In general, all firms that have more than 10 employees are required to complete the survey; for firms that have less than 10 employees (micro-firms), a sample of firms is randomly selected and surveyed in each province according

to its economic size. The survey basically includes firm-level information concerning firms-specific characteristics, performance, investment, and employment. One of the advantages of the dataset is that it contains both firms operating in manufacturing and in service industries. Therefore, we believe that results obtained from testing the hypotheses against this dataset are more representative and reliable.

Using this comprehensive dataset and employing the System General Method of Moment (SGMM) to control for possible endogeneity of regressors (e.g., the reverse effects from dependent variable to independent variables), this chapter makes several contributions to literature. The empirical findings illustrate that the proportions of investment funded by both bank loans and entrepreneurs' self-finance are a U-shape function of financial constraints. For sufficient low levels of internal funds, a further decrease leads to an increase in firm investments funded by bank loans and entrepreneurs' self-finance.

Moreover, we find that firm age and size can moderate financial constraints by raising more entrepreneurs' self-finance (but not bank loans). For sufficiently old and large firms, the more financially constrained they are, the more entrepreneurs' self-finance they use for new investment projects. This finding highlights the importance of entrepreneurs who finance the investments of the old and large firms when they are in financial distress situation.

The results found in this chapter are of both theoretical and empirical significance. Specifically, they suggest that entrepreneurs' self-finance – the overlooked financing source in literature – plays a crucial role in financing SME investments in emerging countries. They also shed light on the possible impact of firm age and size on firm investments. The results in general support Baumol (1968) early argument that investment in the context of entrepreneurship is distinct from the context of well-established corporations.

1.3.2 Which local governance forces influence local SME investments, and how does financial constraints moderate the relationship?

This study is concerned with the effects of local governance on SME investment decisions. It stresses the important role of the governance quality of local governments on local entrepreneurship. In addition, this chapter also argues that governance effects are heterogeneous on SME investments depending on the degrees of firm-level financial constraints.

The motivation for this study is that most previous works about institutional effects are conducted assuming that there is a constant homogeneity across regions within a country. In emerging countries, where national formal legal institutions are weak and incomplete, there is a wider variation in governance arrangements and governance quality across spaces (Efendic et al., 2015). This fact challenges the traditional view that national institutions (either formal or informal) are sufficient to account for entrepreneurship activities. As a result, this study proposes that the mere comparison of the very broad general configurations at country-level is not sufficient to understand entrepreneurial investment and performance.

In addition, SMEs are typically small and young, thereby being restricted to local markets, which are strongly shaped by local governments' policies and governance quality. In other words, there is a linkage between local governance and local entrepreneurship in the sense that entrepreneurs' incentives are primarily moulded by the surrounding governance environments (North, 2006), rather than by the very broad institutional configurations. Despite this important theoretical proposition, the enquiry of which particular local governance forces influence local entrepreneurial investment is largely unanswered.

Moreover, this study proposes that financial constraints may affect the extent to which local governance influences firm investment decisions. In order to examine the channels by which financial constraints are able to moderate the impact of local governance on SME investments, one needs to combine financial constraints theory and institutional economics theory. However, literature is lack of discussion on this topic. For this reason, another objective of this chapter is to examine how financial constraints moderate local governance effects.

In general, this study investigates two research questions. First, which local governance arrangements are conducive to local SME investments? Local governance is classified into two board groups: formal governance and informal governance. The former includes forces such as legal enforcement, market-access regulations, and economic regulations. The latter involves unwritten rules such as freedom from corruption, and informal policies. The second question is concerning how financial constraints moderate the effects of local governance on firm investment. Financial constraints restricts firms from realising investment opportunities, or even puts them at risks (Antonio, Rafael, & Juan, 2014). Therefore, firms may react differently to the incentive structures provided by the surrounding governance arrangements depending on their degrees of financial constraints.

The empirical analysis of this study is based on a dataset generated from combining two large datasets. The first is the Annual Survey on Enterprises dataset, which is a 13-year panel from 2000 to 2012, and has been used in the last study. The second data is the Provincial Competitiveness Index (PCI)[7], which are first conducted for a sample of regions in 2005 and then for all of 63 Vietnamese provinces and municipal cities from 2006. The survey is a product of the collaboration between Vietnam Chamber of Commerce (VCCI) and the U.S Agency for International Development (USAID). Generally, PCI is an overall provincial governance index, a weighted average of the other 9 sub-indices, each measures a particular dimension of formal and informal governance quality of local governments. The matched dataset of the Enterprise data and the PCI data is comprised of variables at both firm-level and regional level.

Using the matched dataset and the multi-level estimation technique, this study makes several contributions to the extant literature. First, it proposes that in the context of Vietnam, local governance significantly affects local entrepreneurship. Therefore, it calls for more attention to

[7] PCI is based on a rigorous survey of the perceptions of more than 8,000 domestic firms and 1,600 foreign invested enterprises about local economic governance and the business environment across Vietnam. From 2013, there is an additional sub-index i.e. Policy Bias. Details of items measured in each indicator, methodology, and data collection information please visit www.eng.pcivietnam.org.

improve local governance quality in order to facilitate productive entrepreneurial activities. Second, this study provides a robust theoretical framework involving the moderating effects of financial constraints on the relationship between local governance and small firm investments. In doing this, this study extends the discussion about the governance quality of local governments by showing that local governance effects are *not* homogeneous across SMEs but changing according to firm-level financial constraints. In particular, when making investment decisions, more financially constrained firms are more sensitive to formal governance, while less financially constrained firms are more sensitive to informal governance. This finding highlights the importance of setting up a set of proper governance arrangements according to the characteristics of local SMEs. Having an appropriate governance structure is crucial to local entrepreneurship because entrepreneurial incentives and behaviours are strongly shaped by the surrounding governance environments (North, 2006).

1.3.3 How do governance quality and pro-entrepreneurial culture influence local SME growth performance?

This study builds on the findings of the previous study, which highlighted the importance of local governance on SME investments, to further extend the discussion to the effects of local governance on SME growth performance. Growth is what ultimately matters, especially in the context of young and small firms (Guariglia et al., 2011; Hansen, Rand, & Tarp, 2009). Because governance affects investment, and investment is an essential channel to growth (King & Levine, 1993; Nickell, 1978), governance may also have an impact on firm growth performance. The main research question in this study is thus how local governance arrangements affect local SME growth performance.

This study particularly focuses on informal governance forces (i.e., freedom from corruption, public administration transparency, and leadership proactivity) because these forces are the root of formal arrangements (North, 1990). The informal governance is expected to shape

entrepreneurs' incentives and behaviours even stronger than the formal forces, especially in the context of Vietnam (Makino & Tsang, 2011).

While examining local governance, this study also accounts for the fact that firm performance may be influenced by long term cultural persistence (Thi Thu Tra & Lensink, 2007). The 1954 war with the America partitioned the country into two halves, the North state and the South state. While the North Vietnam has been purely communism from the very beginning, the South was in capitalism under the support of the U.S. government until the North's army invasion and unifying the two states. This particular historical event may make the South more pro-entrepreneurial in comparison with the North. This chapter thus aims to test whether informal institutions such as the pro-entrepreneurial culture endowed to a specific region in the past could be a cause of firm performance variation.

This study also explores whether pro-entrepreneurial culture is an important moderator to the relationship between local governance and firm performance. This is motivated by the argument of Charron, Dijkstra, and Lapuente (2014) that governance forces and policies are able to substitute weak informal institutions (i.e., less pro-entrepreneurial) and nurture entrepreneurship as long as governments give strong commitments to improve local governance quality. Therefore, this study examines whether in the North of Vietnam (less pro-entrepreneurial), the effects of local governance on local firm performance are stronger than in the South (more pro-entrepreneurial) or not.

In addition to pro-entrepreneurial culture, firm age, size may also influence firm sensitivity to local governance. For example, Du and Mickiewicz (2016) find that being young, small, and private in China can help firms escape bureaucracy governments. This study examines the validity of their findings in the context of Vietnam. Specifically, it aims to understand whether the young and small firms in Vietnam gain more benefits from local governance improvements than the old and large firms do.

Concerning the relative efficiency among ownership types, this chapter builds on the findings of O'Toole, Morgenroth, and Ha (2016) showing no evidence of investment spending being linked to marginal returns by SOEs across all sectors and size classes in the context of Vietnam. This result indicates that non-state-owned firms allocate resources more efficiently because their investment are highly correlated expected marginal returns of new projects. SOEs, being supported by the state-owned banking system, will find that capital input choices are not linked to firm-specific marginal returns. However, following privatisation, firms with minority SOE shareholdings does improve the investment efficiency of firms.

Because of this significant difference between ownership sectors, we propose that it is important to examine whether state-owned firms are less reactive to local governance or not. If there is no evidence of state-owned firm performance being linked to local governance quality, it could be concluded in line with O'Toole et al. (2016) that playing-field for ownership sectors in Vietnam is not evenly supportive for all economic players. We will thus agree with O'Toole et al. (2016) that a continued focus on reforming state-owned sector and undertaking managed and balanced privatisation policies can contribute to improved efficiency for Vietnam economy.

In general, this study has three interests. First, to examine how governance quality of local governments, including freedom from corruption, public administration transparency, and leadership proactivity influence local SME growth performance. Second, to investigate whether being young, small, and private in Vietnam can help firms gain more benefits from local governance. Finally, this study inspects whether firms respond differently to incentives provided by local governance depending on the degrees of pro-entrepreneurial culture in their located region.

To test the hypotheses related to the proposed research questions, this study employs the same dataset introduced in the last study. The dataset is a combination of two data sources. The first is the Annual Survey on Enterprises of the Vietnam General Statistics Office (GSO). The second dataset is the Provincial Competitiveness Index (PCI).

This study contributes to the entrepreneurship literature in several ways. First, it demonstrates that local informal governance is an important determinant of local SME revenue growth. This finding confirms the significance of governance – the "play of the game" (Williamson, 2000) in facilitating local entrepreneurship. Second, findings in this study shows that the effects of local governance are stronger on the small, young and private SMEs than be on the large, old, and non-private ones. This result is in line with previous studies (Meyer, Tran, & Nguyen, 2006; Nguyen & Dijk, 2012; Nguyen et al., 2013a), and has important implications for policymakers. Creating inclusive governance structures to support local entrepreneurial sector is the key to sustaining economic development. Finally, this study shows that the effects of local governance in the North Vietnam is more significant than in the South. In other words, local governance becomes more important where it needs to compensate for the lack of pro-entrepreneurial culture.

1.4 Structure of the thesis

This thesis is structured into 6 chapters. This chapter summaries the relevant literatures and positions the research questions concerning the influence of financial constraints and local governance arrangements on young and small firms. The next chapter introduces Vietnam as a background for empirical studies. Chapters 3, 4, and 5 investigate each empirical study respectively. The last chapter concludes the thesis with summary on key findings, discusses managerial and policy implications and suggestion for future research.

CHAPTER 2: BACKGROUND

2.1 Introduction

This chapter introduces Vietnam as the background for the empirical studies in this thesis. We am going to examine the current situation of Vietnam in several key factors related to economic performance, entrepreneurial sector, financial market, institutions, and local governance quality. This chapter will set up the context to test the hypotheses proposed in the next chapters.

Vietnam is chosen as the empirical setting because it fits into the research topic of this thesis. Vietnam is an SME economy with more than 95% of total businesses are young and small firms. However, these firms encounter several difficulties due to the underdeveloped financial market and poor governance quality (Malesky, 2015; Nguyen, Nghiem, Roca, & Sharma, 2016). To understand how to alleviate these obstacles and help them to improve performance is crucial to maintain the current economic growth of the state.

This chapter is organised as following. It first presents key features of the Vietnam economy; it then examines the role of the entrepreneurial sector in the economy. The current financial market, institutional environments and local governance quality are described in detail subsequently. This chapter concludes by providing suggestions for the governments to overcome prevailing difficulties, and to help the development of domestic young and small firms.

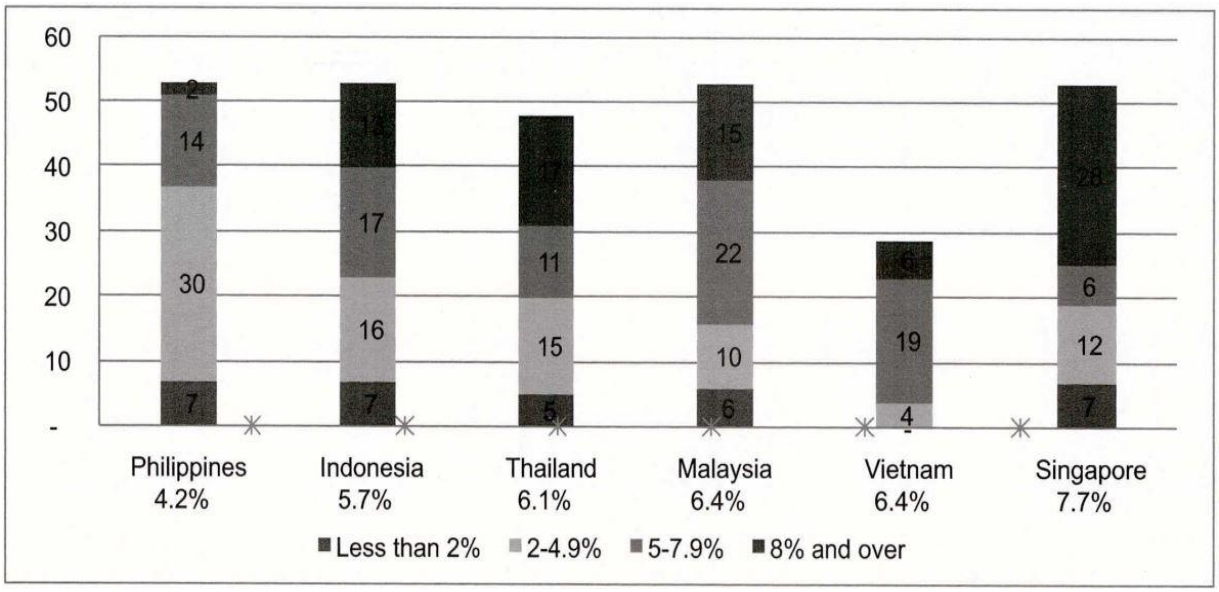
2.2 Vietnam economy

- *Vietnam is an increasingly important segment of the global economy*

Vietnam is "one of the most successful cases in economic development in recent time" according to the World Bank 2015 report. The country has gradually obtained a significant economic position in Southeast Asia (Pincus, 2015). Figure 2.1 summarises the economic growth performance of the 6 largest economies in the area from 1961 to 2013. Vietnam is the country that experienced no period of less than 2% growth of GDP per annum. It also has only

4 years of less than 5% GDP growth, significantly less than other countries in the area. The average GDP growth of Vietnam is only second to Singapore in the whole period. These statistics indicate that Vietnam has a potential to become the next "Asian Tiger" in the near future.[8]

Figure 2.1: Economic growth in Southeast Asia (2)

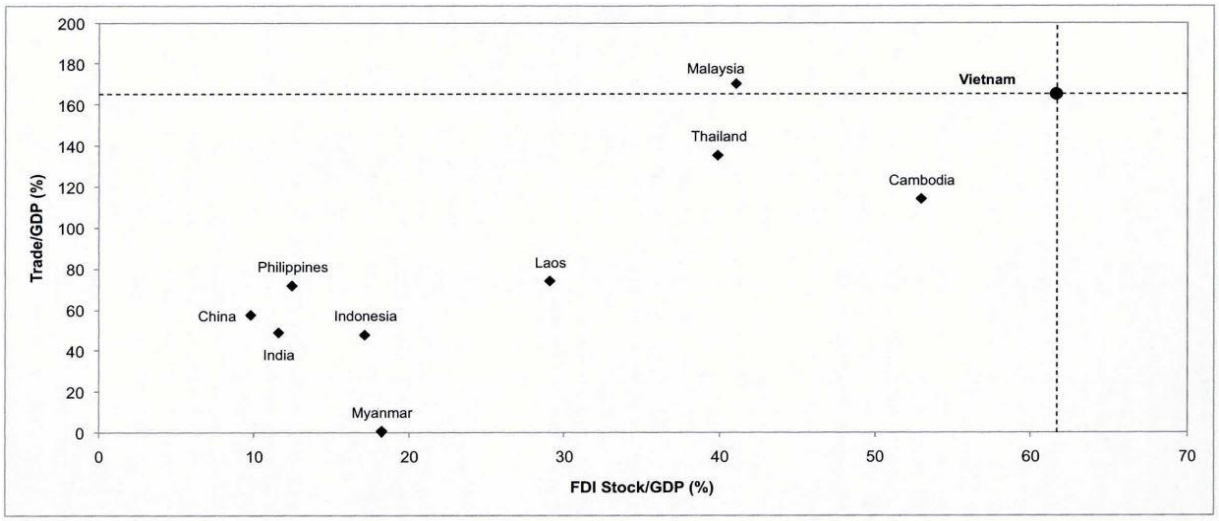


Note: Figure below country names are average growth rates 1961-2013 (for Thailand 1966-2013, and Vietnam 1985-2013). Source: Pincus (2015).

In terms of the global integration, Vietnam far surpassed its Asian peers on the two key measure of openness: The Foreign Direct Investment (FDI) stock/GDP ratio, and the international trade/GDP ratio (Khuong, 2015). Figure 2.2 compares the degrees of integration of some large economies in Asia. Vietnam is the country that achieves the highest FDI stock, which is over 60% of GDP. Its value of international trade is approximately 160% of GDP, and is insignificantly lower than the best country – Malaysia.

Figure 2.2: Global integration: Vietnam vs. Asian peers, 2010 (3)

[8] The current four Asian Dragons or four Asian Tigers is a term used in reference to the highly free-market and developed economies of Hong Kong, Singapore, South Korea, and Taiwan.



Source: Khuong (2015).

There are three reasons explaining for the country's strong performance in global integration. First, Vietnam is endowed with a strategic geographical location in the area (Riedel, 1993). With more than 3000 km coastline and several international water ports, it is the main gate to enter into the Indochina region (also known as Mainland Southeast Asia including Laos, Cambodia, Malaysia, Myanmar, Thailand, and Vietnam) (Meyer et al., 2006). The distance from Vietnam to major economic centres of Asia such as Hong Kong, Shanghai, Tokyo, Seoul, Taipei, etc. is only two to five hours of flight. This helps to set up a close connection with investors from the developed economies (Makino & Tsang, 2011). Second, Vietnam has successfully achieved and maintained a stable political system with low risks of unexpected transformation (Tran, Grafton, & Kompas, 2009). Third, Vietnam is in its optimal demographic situation in comparison with other Asian countries. They state now has 68% of the population in the workforce (Thai Thanh & Le Thi Van, 2012). The abundant workforce with low price, being hard working, and quick to learn is the key attracting point for foreign firms to make investments in Vietnam (Chien, Zhong, & Giang, 2012).

Besides these natural advantages, Vietnamese governments have been actively seeking for trade partners by singing free trade agreements (FTA) with most leading economies and regions in the world (Olivie & Steinberg, 2014). One of the most important free trade agreements is the

one signed with the U.S. in 2001. This accord reduces the tariff on Vietnamese products exported to the U.S. from more than 40% to less than 4% on average (Olivie & Steinberg, 2014). This results in the nearly triple export values from Vietnam to the U.S. in 2002. Another salient trade agreement is the Trans-Pacific Partnership (TPP). It is a free trade agreement among twelve country members, including United States, Canada, Mexico, Peru, Chile, New Zealand, Australia, Japan, Singapore, Brunei, Malaysia and Vietnam. TPP is a new generation trade agreement with board coverage of trade and non-trade matters and high level of commitments. The agreement was signed in February 2016 and is expected to come into force in 2018.

- *Vietnam Doimoi (economic renovation) process is slowing down*

Vietnam is a renovating economy. The renovation process began with the 6th Congress of the Communist Party of Vietnam in 1986. The congress was to elect new leadership with a liberal reputation to launch a complete economic reform (Wheeler). The reform was triggered by the pressure of a deep economic recession since 1975, and an urgent need to recover the economy in order to maintain the political stability. Its fundamental viewpoints were to establish a multi-sectoral economy, to alter the economy from the bureaucratic planned centralised and state-subsidised mechanism to the socialist-oriented market economy under state management (Khuong, 2015). The major steps of the programme include:

    - New leaders are elected according to their capability in managing economic performance, criteria related to army capability are significantly alleviated. Each reforming programme has its own leadership who is in charge of the programme performance.
    - Allow the existence of the private sector, legalise the formation of individual business; gradually release the non-core businesses to private enterprises; restructure the law and regulation systems to provide appropriate incentives to the private sector.

- State-owned enterprises (SOEs) reforms, alleviate the monopolism. Privatisation is an important task to reduce the overwhelming power of SOEs in the economy, give rooms for other ownership sectors to play.
- Attract FDI to boost infrastructure improvements, to obtain managerial and knowledge-spillovers.
- Reform the banking system, allow the participant of non-state financial institutions, modernise the financial system, including the establishment of stock and commodities exchanges.

To understand the implications of these reforms, it is helpful to make a comparison with China, a country that shares much political and social similarity with Vietnam (Khuong, 2015). Table 2.2 presents the conditions of the two countries at the time launching reforms.

Table 2.1: Developmental conditions in China and Vietnam at the launch of reforms (1)

Indicator	*Vietnam*	*China*
	1986	*1978*
*Human Capital**		
Adult literacy (% of total)	89.2	67.1
Young adult literacy (% of total)	93.6	91.3
Calorie supply (kcal/day)	2,300	2,328
Median age	19.5	22.1
Life expectancy at birth, years	69.2	66.5
GDP Per Capita (2005 US$)	240	195
GDP Structure, %		
Agriculture	38.1	28.2
Industry	28.9	47.9
Services	33.1	23.9
Rural economy		
Share of rural population, %	80.3	81.4
Cereal yield (kg per hectare)	2,792	2,715
Infrastructure		
Main line telephones per 1,000 people	1.2	2.0
Openness		
Exports of goods and services (% of GDP)	6.6	6.6
Imports of goods and services (% of GDP)	16.6	7.1

Source: Khuong (2015)

These statistics reveals that Vietnam outperformed China in many key factors including human capital and GDP per capita at the initial time. The time lag in applying reforming programmes between the two countries is only five to eight years. Therefore, the current gap in development is not due to the willingness to carry out reforms of the Vietnamese governments, but most likely due to leadership-related factors such as vision, governance quality, and execution skills (Doanh & Heo, 2009; Khuong, 2015).

Table 2.3 exhibits the comparison of factors that have potential effects on the Vietnam-China growth gap. In general, China surpasses Vietnam in many key governance arrangements, including government effectiveness, regulatory quality, administrative reforms, and policy experimentation. These governance forces are important determinants of entrepreneurship and economic growth (Malesky, 2015). Unless Vietnam improve these forces, the growth gap between the two countries will remain.

Table 2.2: Factors that have potential effects on the Vietnam-China growth gap (2)

Key determinants of growth	*Country with a clear advantage or a stronger performance*
Initial level of income	Vietnam
Exogenous factors	
• Geographic location	"="
• Population size	China
Governance factors	
• Government effectiveness	China
• Regulatory quality	China
• Rule of law	"="
• Control of corruption	"="
• Political stability	Vietnam
• Voice and accountability	"="
Efforts to build good governance	
• Administrative reforms	China
• SOE reforms	China
• Policy experimentation	China
Enabling factors	
• Human capital, Health	Vietnam
• Human capital, Education	China
• Openness	Vietnam
• Technological competence upgrading	China

Note: "=" means the two countries are comparable on measure. Source: Khuong (2015)

2.3 Vietnam entrepreneurial sector

Entrepreneurial sector can be considered young, small, and private companies (Du & Mickiewicz, 2016). Vietnamese government defines SMEs in the Circular No. 16/2013/TT-BTC as follows: small and medium-sized enterprises are business establishments that have registered their business according to law and are divided into three levels: very small, small and medium according to the sizes of their total capital (equivalent to the total assets identified in an enterprise's accounting balance sheet) or the average annual number of labours (total capital is the priority criterion), concretely as follows:

Table 2.3: Vietnam classification of firms by size 3

	Very small enterprises	Small-sized enterprises		Medium-sized enterprises	
	Number of laborers	Total capital	Number of laborers	Total capital	Number of laborers
I. Agriculture, forestry and fishery	10 persons or fewer	VND 20 billion or less	Between over 10 persons and 200 persons	Between over VND 20 billion and VND 100 billion	Between over 200 persons and 300 persons
II. Industry and construction	10 persons or fewer	VND 20 billion or less	Between over 10 persons and 200 persons	Between over VND 20 billion and VND 100 billion	Between over 200 persons and 300 persons
III. Trade and service	10 persons or fewer	VND 10 billion or less	Between over 10 persons and 50 persons	Between over VND 10 billion and VND 50 billion	Between over 50 persons and 100 persons

Source: Vietnam Ministry of Industry and Trade

Given the classification of table 2.4, Vietnam is an SME economy. According to the statistical data from the Vietnam General Statistics Office (GSO), till the end of 2015, there are more than 500,000 SMEs in operation, accounting for more than 95% of total registered businesses. Investment capital of this sector reaches USD 121 billion in the end of 2014, and accounts for 30% of total investment in the economy. Table 2.5 and 2.6 exhibits firm ownership and capital structure including the entrepreneurial sector till the end of 2014. One important fact revealed

by these tables is that the non-state-owned enterprises accounts for more than 96% of total registered firms, and more than 90% of this number is SMEs.

Table2.4: Firms classified by ownership sectors from 2010 to 2014 (4)

	Number of enterprise									
	2010		2011		2012		2013		2014	
	Quantity	Rate (%)	Quantity	Rate (%)	Quantity	Rate (%)	Quantity	Rate (%)	Quantity	Rate (%)
A	1	2	3	4	5	6	7	8	9	10
Total	**279360**	**100**	**324691**	**100**	**346777**	**100**	**373213**	**100**	**402326**	**100**
1. State-owned enterprises	3281	1.2	3265	1.0	3239	0.9	3199	0.9	3048	0.8
2. Non state-owned enterprises	268831	96.2	312416	96.2	334562	96.5	359794	96.4	388232	96.5
3. FDI enterprises	7248	2.6	9010	2.8	8976	2.6	10220	2.7	11046	2.7

Source: Statistical Yearbook of Vietnam, 2014.

Table 2.5: Firm classified by total capital in 2010 and 2014 (5)

	2010				2014			
	Less than 5 billion	From 5 to less than 10 billion	From 10 to less than 50 billion	From 50 billion and above	Less than 5 billion	From 5 to less than 10 billion	From 10 to less than 50 billion	From 50 billion and above
A	1	2	3	4	5	6	7	8
Total	**55.2**	**19.0**	**19.6**	**6.2**	**53.0**	**18.3**	**21.6**	**7.1**
I. By type of ownership								
1. State-owned enterprise	6.1	7.1	27.1	59.7	4.6	5.0	24.1	66.2
2. Non state-owned enterprises	56.8	19.4	19.2	4.7	54.3	18.7	21.3	5.7
3. FDI enterprises	19.4	10.4	31.2	39.0	20.1	9.6	29.6	40.7
II. By economic activities								
Agriculture, forestry and fishery	60.8	12.2	16.2	10.7	53.0	14.4	20.3	12.4
Industry and construction	48.4	18.7	24.0	9.0	43.4	19.5	26.1	11.0

Source: Statistical Yearbook of Vietnam, 2014.

An important conclusion resulted from these tables is that the entrepreneurial sector occupies a crucial position in the economic development of Vietnam (Hoang, 2016; Nguyen, Le, & Bryant, 2013b). Therefore, it is important to understand their profile. According to the Provincial Competitiveness Index (PCI) Report, Vietnamese SMEs can be characterised as following:

- Origins as household business: Vietnam's private enterprises were formerly household businesses that later incorporated when they found opportunities to grow. The PCI 2015 survey showed that 77% of micro-size enterprises and 69% of small-size firms were formerly household businesses.
- Qualified managers: Nearly 60% of SME owners are college graduates. Some used to be leaders of state agencies (5%); some used to be managers of SOEs (11%), and some used to work for SOEs (15%).
- Reliance on domestic sales: Because of their age and size, Vietnamese SMEs are bounded to local markets, their customer base is mostly domestic. Only 3% of micro-size, 4% of small-size, and 9% of medium-size firms have customers that are foreign individuals or enterprises.

The Vietnam entrepreneurial sector contributes to the economy in many fronts. First, they create a competing environment in which new comers and incumbents have to actively seek to improve their product innovation, managerial skills, and customer services, thereby forcing firms to become more efficient and productive (Leung, 2015; Makino & Tsang, 2011). Second, SMEs create jobs for employees. They use 54% of total workforce in the economy. In the context of abundant low-skilled and untrained labour force in Vietnam, this sector provides employability for a large number of population (Collins, Nankervis, Sitalaksmi, & Warner, 2011). Third, SMEs have an important role in the supply chain of large firms. Due to the absence of upstream and downstream industries, foreign firms have to rely on SMEs to obtain domestic materials, processing products, and retailing products (Duc Nam & Thi Phuong Vy, 2013).

Given these important roles of SMEs, in the 5-year plan for SMEs development in the 2011-2015 period (Decision No.1231/QĐ-TTG 2012) the central government has further specified several policies in addition to the polices regulated in the Decree No.56/2009/NĐ-CP to facilitate the development of SMEs. In general, the support is multi-dimensional, and concerning the following aspects (Khuong, 2015):

- Financial assistance: private firms could apply for the interest rate support scheme of 1-2% lower borrowing rate compared to the market interest rate applying for other ownership sectors. There are also several tax exemption and reduction schemes for private firms when investing in some particular industries and regions.
- Legislation reform: The amended Enterprise Law in 2015 significantly highlights the property rights of the private sector, and individual freedom of setting up businesses in any industry, province, with any economic scale and scope as long as these businesses do not violate the Law. The central authorities also strive to improve administrative transparency, registration procedures, and reduce officials' the freedom from corruptions.
- Human resource: There are several schemes aiming to train employees in SMEs. For example, the Circular No. 04/2014/TTLT-BKHĐT-BT 2014 regulates policy of training human for young and small firms. The government also encourages the private sector to open schools and training centres by applying no income tax for education industry.
- Local governance: To provide customised support to SMEs, top authorities decentralised power to local governments, allowing sufficient autonomy for local authorities to set up their most appropriate economic environments for local young and small firms. Many provinces established specific departments to provide information and business matchmaking services to local firms.

Despite these specific and thorough supporting policies, SMEs in Vietnam still suffer from several difficulties. For example, the non-transparent subsidies in which firms that are similar to each other are not treated similarly. Hoang (2016) find that many SMEs when interviewed claim that they did not know information about any support schemes from the governments. Du and Mickiewicz (2016) suggest that the distribution of subsidies if uneven and non-transparent may harm the economic performance even stronger than the absence of subsidies. Similarly, the interest support scheme for SMEs are not executed properly since there is no official documents explaining the qualification criteria and application procedures (Nguyen et al., 2016). Other difficulties SMEs face will be discussed in detail in the section of local governance because most of these difficulties originate from the poor governance of local governments.

In summary, SMEs is an important contributor to the economic growth of Vietnam. In order to nurture and improve their performance, central government has published policies and regulations that aim to support their operation, allow them access to finance and productive resources. However, due to the undeveloped financial system and poor governance quality, SMEs still encounters several difficulties.

2.4 Vietnam financial system

According to the *Doimoi* policy, banking system reform is one of the key pillar of the renovation process. Banking system is particularly important in the context of Vietnam because the country demonstrates specific features of a bank-based financial market where banks are dominant players (Sarath & Pham, 2015). Before the *Doimoi*, the banking system in Vietnam was organised in a planned mechanism (Minh, Long, & Hung, 2013). There was a state-owned foreign trade bank to process all foreign trade and foreign investment transactions, a state-owned construction bank to fund large-scale infrastructure projects, a state-owned agriculture bank to deal with small deposits and loans from households, etc.

Since 1990, the banking system in Vietnam has experienced significant reforms. These reforms aim to give more rooms for non-state-owned commercial banks, for example they relax restrictions on industries that commercial banks are allowed to make loans, or restrictions on opening and running branches (Vu & Nahm, 2013). More important, these reforms also force state-owned banks to gradually privatise, and welcome the investment of foreign-owned banks (Minh et al., 2013). By 2015, the number of local banks listed on the stock exchange was 9 compared to only 2 in 2006. Vietnam also increased the maximum stake of a foreign strategic investor in a local bank to 15% from 2007, while the cap for total foreign holdings at any local bank was 30%. Moreover, the Decree No. 69/2007/NĐ-CP allows the share of a foreign strategic investor to raise up to 20% by Prime Minister's decision (Nguyen et al., 2016).

These movements indicate that the banking sector has gradually altered from a one-tier system, where the state bank serves as a commercial bank, to a two-tier system, where the managing and commercial functions of the banking system were separated in 1990 (Thi Thu Tra & Lensink, 2007). Nonetheless, it is noteworthy that the role of the state-owned bank remains significant. Table 2.7 summaries key features of the Vietnam financial intermediaries in 2011.

Table 2.6: Vietnam financial intermediaries, 2011 (6)

	Number	Chartered capital (%)	Total assets (%)	Deposit mobilization (%)	Loans (%)
State-owned commercial banks	5	26.96	40.68	45.34	51.28
Private commercial banks	37	49.61	43.61	44.26	35.32
Foreign commercial banks	53	14.70	10.98	6.70	8.94
Financial and leasing companies	30	7.69	3.80	2.67	3.21
Central credit funds	1	0.60	0.26	0.20	0.22
Local credit funds	1.057	0.44	0.67	0.81	1.03

Source: Sarath and Pham (2015)

There are 5 state-owned commercial banks which account for more than 50% of the loans market, 40% total assets of the banking system, and 45% of the deposit mobilisation. The total

assets held by the three largest banks (state-owned) are 35%. Sarath and Pham (2015) recognise that the banking market in Vietnam has typical features of a monopolistically competitive market. From the table, we can see that Vietnam has several players in the field including state-owned commercial banks, private commercial banks, foreign commercial banks, financial and leasing companies, and credit funds. However, a large number of participants in the non-state sectors contributes insignificantly in comparison with the 5 state-owned commercial banks.

By early 2009, Vietnam was hit by the global crisis. The rapid credit growth and assets bubbles created in 2008 led to two-digit inflation and place a systematic risk on the entire banking system (Kalra, 2015). By 2010, the amount of non-performing loans in the economy was over 11%, which is made up partly by the unsuccessful monetary stimulus scheme in 2009 (Hoang, 2015). These difficulties pose a need for the government to execute another renovation on the entire banking system. In particular, the central bank started to apply the Basel Accord standards and increase entry barriers for commercial banks by requiring a minimum nominal amount of capital, and a minimum capital adequacy ratio (Nguyen et al., 2016). According to the Decree No. 141/2006/NĐ-CP, all commercial banks must hold at least VND 3 trillion in capital in 2008, up from the minimum of VND 70 billion prior to the crisis.

Despite several in-depth reforms, the key problem of the banking system, i.e., the substantial presence of the state in the banking sector remains. Besides the 5 state-owned commercial banks, the state also indirectly holds equity in several financial institutions through the investment of SOEs (Menon, 2009). This makes the ownership structure of the financial market become complex and opaque (Kalra, 2015). The whole system is exposed to high risk and vulnerability because of the non-transparent and cross-ownership among state-owned banks and SOEs. Meanwhile, there is inadequate governance regulations to monitor the investment and performance of state-owned financial institutions (Duc & Van, 2016). The direct and indirect lending to state-owned conglomerates is prevailing in state-owned banks. This promises a high

level of non-performing loans in the future which will harm the entire credit market (Vu & Nahm, 2013).

2.5 Institutional environments

Institutions are comprised of informal forces (culture) and formal rules (law) (North, 1990; Williamson, 2000). In terms of informal institutions, Vietnam is characterised with a unique culture which is a mix between the thousand-year Confucianism resulted from the occupation of China and the recent socialism since the communist party took over the control of the political system in 1975 (Makino & Tsang, 2011). From the pure Marxist-Leninist socialism blueprint, after the *Doimoi*, the country has gradually transformed to the socialist-oriented market economy. This ideology aims to develop a multi-sectoral economy regulated by the market, consisting several ownership sectors, under the leading of the state sector (Athukorala, 2006; Glewwe, Gragnolati, & Zaman, 2002).

According to the ideology promoted by socialism, values such as collectivism, interdependence, risk-avoidance are highlighted and prevailing in the society (Fritsch & Mueller, 2007; Shultz, Speece, & Pecotich, 2000). These values and norms however provide less support to individual business, and are not beneficial to nurture entrepreneurship culture (Fritsch & Mueller, 2007). The lack of entrepreneurial "legitimacy" – social acceptance of entrepreneurship is one of the key explanation for the slow establishment and stagnate growth of the private sector during the first few years of the *Doimoi* programme (Haughton, 2004). This is particularly the case in the North Vietnam (Mai, 2002). The reason is that the North Vietnam was following the pure socialist blueprint, while the South Vietnam was transformed away from capitalism only since 1975, on the unification of the two states. This historical diversity can be treated as an exogenous factor that is reflected in the differences in local entrepreneurial culture across regions of Vietnam (Makino & Tsang, 2011).

In line with informal institutions, formal configurations in Vietnam are also weak and incomplete (Nguyen Thi Tue, Luu Minh, & Trinh Duc, 2014). There are substantial redundant and conflict regulations in the law system. Many policies are not relevant to the economy, implausible, or too costly to execute in practice (Santarelli & Tran, 2012). There are also no functioning monitoring and governance systems to enforce the implementation of laws and regulations (Nguyen et al., 2013a). More important, the national regulation framework remains significantly biased towards the state sector and reserve several privileges and resources to the state-owned firms (Riedel, 1993).

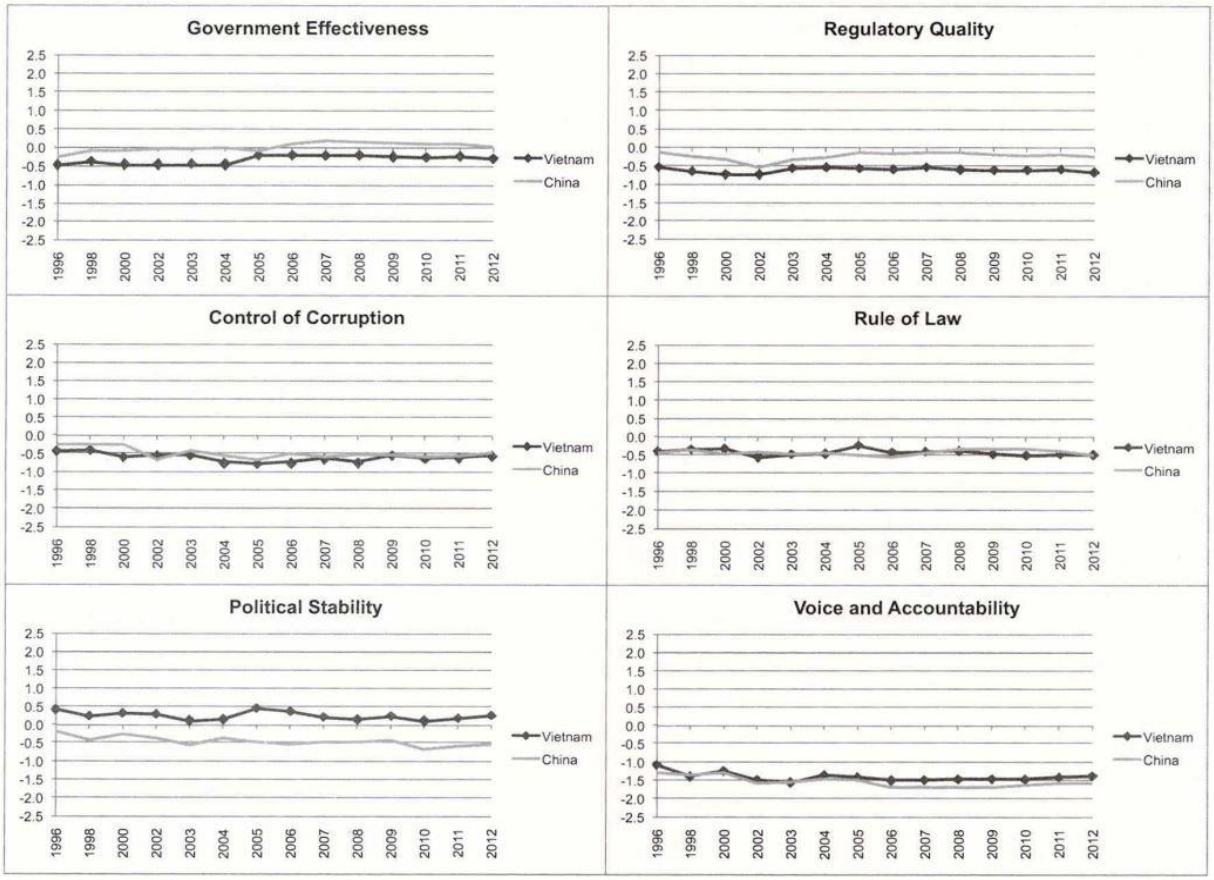
Since the WTO entry, according to the requirements of the organisation, before and after the joining Vietnam government has to involved in several reforms concerning formal institutions (Hanh, 2011; Shieh & Wu, 2012b; Thanh & Duong, 2009). For example, export subsidies for SOEs are no longer permitted. The 1996 Enterprise Law has to be revised (in 2005) to equalise the rights of foreign firms and domestic firms. Selected SOEs are required to transform into joint-stock companies (Decree No. 28/1996/ND-CP). Other rules and regulations related to intellectual property rights, corruption, bankruptcy, international trade, etc. are revised or scheduled to be revised soon.

However, it is noteworthy that the changing process is slow and stagnate in the recent years. Vietnamese trade partners complain that the country is not a "market economy" due to the presence of the state in every corner of the economy (Chien et al., 2012). Moreover, the governance quality of governments appears to be lagged behind in comparison with its competing neighbour – China. Table 2.8 presents the performance of Vietnam and China in six governance indicators identified by World Bank. These indicators measure three dimensions of governance:

- The capacity of a government to effectively formulate and implement sound policies; this includes two indicators: government effectiveness and regulator quality.

- Respect for institutions, by citizens and the state, that govern economic and social interactions among them, include two indicators: rule of law and control of corruption.
- The process by which governments are selected, monitored and replaced; the two indicators are: political stability and voice and accountability.

Table 2.7: Governance Indicators: Vietnam vs. China (7)



Source: World Governance Indicator (World Bank), Khuong (2015)

The value of each indicator varies from -2.5 to +2.5, the higher the score the better the performance. There are some important conclusions derived from figure 2.8. First, the gaps in control for corruption, rule of law, and voice and accountability are not significant between the two countries. However, China surpasses Vietnam in two key governance forces which are government effectiveness and regulatory quality. In contrast, Vietnam outperform China in political stability. These results indicate that the developmental gap between the two economies

might be due to the government ineffectiveness and the poor regulatory quality implemented by Vietnamese authorities (Khuong, 2015). This also implies that there remain rooms for Vietnamese authorities to improve their local governance environments.

2.6 Local governance

Vietnam has four levels of government: central, provincial, district, and communal. According to the *Doimoi*, central governments gradually release governance function to local governments and keep focusing on planning and designing general visions and configurations for the state (Lan Phi & Anwar, 2011). This policy was initialised by the fiscal decentralisation programme which gave local governments substantial autonomy in public spending and revenue collection (the 1996 State Budget Law and its revision in 1998). As a result of the Law, the share of local governments in total expenditures increased from 26% in 1992 to 36% in 1997 and to 43% in 2001 (Lan Phi & Anwar, 2011). In 2002, in preparation for WTO entry, the Law was amended to further allow local governments setting up their own economic and governance structures that best fit into their local circumstances (Thanh & Duong, 2009).

Previous works on decentralisation suggest that local-based governance structure is appropriate in Vietnam because it leads to better resource allocation and a more productive and possibly smaller public sector (Lan Phi & Anwar, 2011; Vu, Nguyen, Smith, & Nghiem, 2015). Locally determined policies could quickly take into account changes of local conditions, and that one-size-fit-all approach is likely to be bureaucratic and sub-optimal (Jordan, 2015). In order to measure implications of the decentralisation programme, from 2006 Vietnam has conducted the Provincial Competitiveness Index (PCI) for all of 63 provinces and municipal cities. This index reflects several dimensions of local governance quality including legal enforcement, business support services, control for corruption, administrative transparency, and leadership proactivity,

etc. (Malesky, 2015).[9] Figure 2.3 maps the performance of provinces in terms of local governance quality in 2015.

Figure 2.3: Performance of PCI across provinces in Vietnam, 2015 (4)

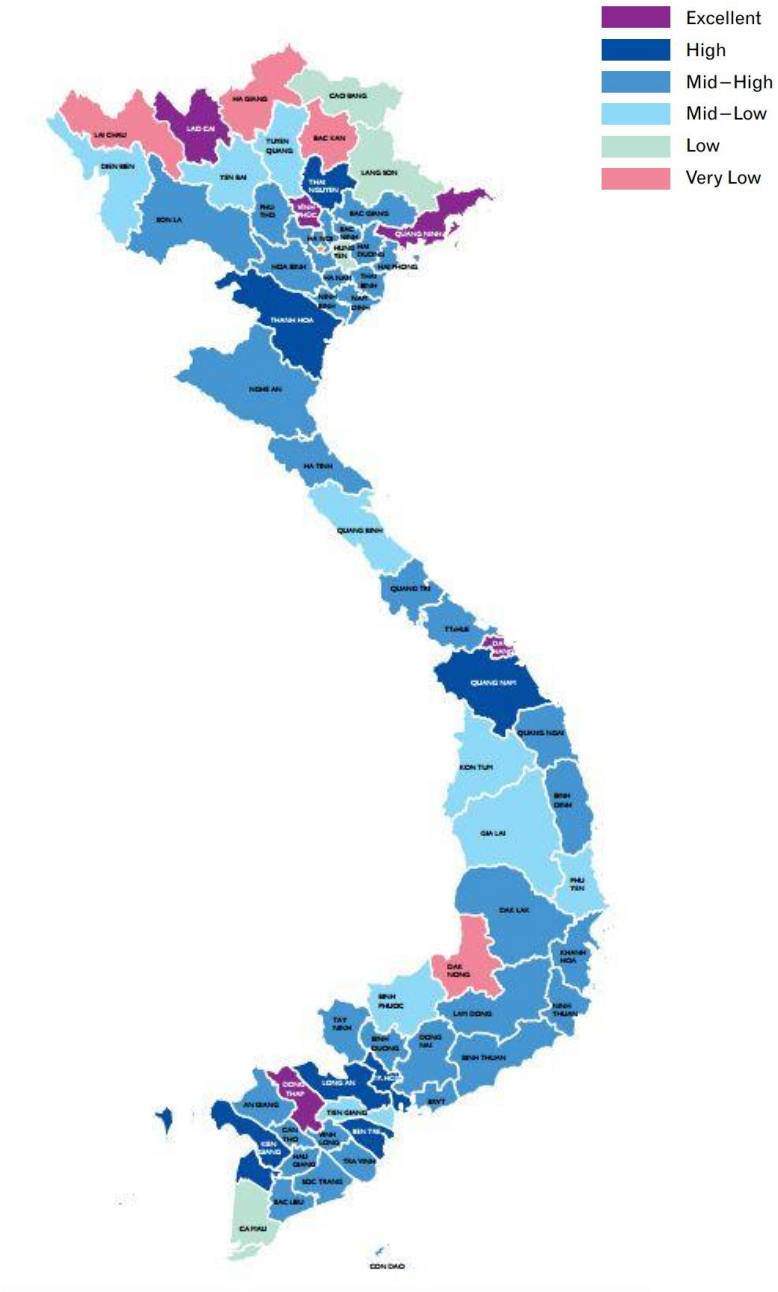


Figure 2.3 shows that there is significant variation in the governance quality of local governments across space. Although some provinces surpass others, SMEs' evaluations of local

[9] PCI is based on a rigorous survey of the perceptions of more than 8,000 domestic firms and 1,600 foreign invested enterprises about local economic governance and the business environment across Vietnam. Details of this dataset will be discussed in the empirical chapters.

governance are more negative than those of large enterprises. According to the PCI 2015 Report (Malesky, 2015):

- 87% of SMEs have land or business premises, but only half of them own Land Use Right Certificate. Only 22% of micro-size, 24% of small-size, and 29% of medium-size enterprises reported that the tenure security of their business premises is high or very high, compared with 31% percent of large firms.
- 75% of SMEs confirm that they have to count on their relationships with individuals at state agencies to have access to information. 54% of them see negotiations with tax authorities on the payment amount as an important part of doing business.
- 65% of SMEs report paying informal charges (bribes) as a common practice.
- SMEs cannot access business support services. Only 20% of them acknowledged using these services. SMEs' awareness of business incentive policies offered by central and local offices is much lower (51%) than that of large firms (77%).
- Up to 74% of firms received visits from inspection delegations in 2015. The bigger the firm is, the heavier the burden of inspection. 25% of micro and small and 30% of medium enterprises were subject to duplicative inspections from agencies studying the same issues.
- There are some fields in which administrative procedures are regarded as more troublesome as firm size increases. These include: social insurance, land, tax, customs, free safety, labour, environment protection, and payment clearance through state treasuries.

2.7 What Vietnam should do to improve its economic growth

Vietnam is gaining increasingly important position in regional and global markets. However, the above discussion points out that the country encounters several issues. The financial sector is undeveloped, biased against the private sector, and remains largely under the control of the state. The institutional frameworks are incomplete, provide insufficient support for the private

sector, and yet able to encourage entrepreneurship development. The governance quality of local governments does not provide appropriate incentives for local SMEs to make investments and improve performance. To address these weaknesses and facilitate entrepreneurial investment and performance, Vietnamese authorities should:

- Undertake deep structural reforms in the financial sector (Pincus, 2015). It is important to reduce state-ownership in the sector to improve the transparency and efficiency of cash flow in the economy. The state should keep pushing the privatisation of the state-owned commercial banks by encouraging the banks to list on stock exchanges. It is also important to relax restrictions on foreign-owned banks, and also to diversify players in the financial market to create an even playing-field for all participants.
- Complete the legal frameworks, especially property rights including intellectual rights (Hoang, 2016). Unless there is a stable, transparent and complete legislative environment, entrepreneurs have no incentives to make long-term and large-scale investments.
- Continue the privatisation of SOEs (Leung, 2009, 2015). Managers of state-owned firms in weak institutional and poor internal governance environments can easily make use of the privileged access to state land and credit to optimise their private benefits rather than to exercise economic and political accountabilities. It is important to stop SOEs launching risky ventures, create subsidies in sectors unrelated to their core businesses. Also, to create an even playing-field among ownership sectors, the state must mitigate the cross-ownership among SOEs, and state-owned commercial banks.
- Improve the quality of local governance (Malesky, McCulloch, & Nhat, 2015). Local authorities should be proactive in formulating policies that cater to the practical needs of SMEs during their development stages. They should also

increase the effectiveness of communication about policies and laws related to SMEs, improve the quality of business support services, defining the beneficiary as SMEs, reduce the burden and better coordinate inspections, and simplify administrative procedures to mitigate freedom from corruption (Malesky, 2015).

In these suggested reforms, local governance quality is easily to improve in the short and medium terms. Other structural reforms concerning financial system and institutional framework take time to change (Kalra, 2015). Given that SMEs are young, small and typically operate in their local markets, improving local governance quality could significantly encourage them to make investments and facilitate their growth performance. Similarly, given that financial markets need time to develop and mature (Anwar & Nguyen, 2011), SMEs in the meantime have to rely largely on entrepreneurs' self-finance to make investments and grow. These results urge an in-depth investigation about the role of local governance and entrepreneurs' self-finance in the development of domestic SMEs.

2.8 Conclusion

This chapter examines several aspects of Vietnam. First, it demonstrates that Vietnam is an emerging economy which increasingly achieves a significant position in Southeast Asia, and obtain an important role in the global trade and production chains. The nation's economy is characterised by young and small enterprises. However, the entrepreneurial sector encounters several difficulties, for example, the incomplete institutional framework, the underdeveloped financial market, and the poor governance quality of local governments.

Since SMEs typically operate within their local markets, local governance may have crucial role in shaping local firm incentives to expand operation or to improve performance. The general picture of current Vietnam economy signals that the economic renovation is still on-going, and will take time to improve the institutional environments. Therefore, in the meantime,

local governance could be considered as a feasible instrument to facilitate the development of local entrepreneurship.

This chapter also indicates that Vietnam financial market is biased against the private sector, and advanced financial alternatives are insignificant and unpopular. Therefore, entrepreneurs may have to rely largely on their self-finance to make investments, but this funding source remains unexplored.

CHAPTER 3: INTRODUCTION TO DATA

3.1 Introduction

This chapter is to deliberately describe the datasets used for analysing the research questions introduced in the previous chapter. These questions are related to the effects of financial constraints and local governance institutions on local entrepreneurship investment and performance. To provide insights into these questions using Vietnam as a context, three empirical studies were conducted based on two sets of representative data. The first dataset is the Annual Enterprise Survey, which has been collected by the General Statistics Office of Vietnam since 2000. The second dataset is the Provincial Competitiveness Index, which was piloted in a few provinces in 2005 and started being surveyed for all 61 provinces in Vietnam since 2006.

This chapter first introduces the data sources for each of the two datasets. It then presents steps of cleaning and merging them into one multi-level dataset. Consequently, variables used for each empirical study will be defined and described. Finally, a general comment on the validity, representativeness and future usage of the datasets will conclude the chapter.

3.2 Firm-level data: The Annual Enterprise Survey

The Annual Enterprise Survey is a firm-level dataset. This survey is conducted annually by the General Statistics Office (GSO). GSO is an organization directly under the Ministry of Planning and Investment (MPI) realising the function as an adviser for the MPI Minister in state management for statistics; conducting statistical activities and providing social and economic information to organizations and individuals domestically and internationally in accordance with the law. Among other annual surveys (e.g., household survey, survey in industrial sectors, gender and population survey, etc.), the Annual Enterprise Survey is one of the most important survey that has been conducted since the establishment of the GSO in 1999.

Specifically, the Survey is a compulsory report required by the local Tax Offices that all firms when paying annual taxes must fill in the survey. The questionnaire comprises a common section that requires all firms to provide information. Then, each firm must complete additional sections depending on their operating industries and ownership. For example, FDI firms must provide their legal capital composition. Table 3.1 shows that firms need to show in detail the sources of capital from the Vietnam side, i.e., from SOEs, non-SOEs, or other (individuals); the value of capital registered by the end of the year, as well as the cumulative value of implemented capital. For specific industries like hotel and restaurant, there are also specific questionnaires that firms operating in these industries must complete. Details please refer to the Appendix 3, Form KS03 for hotel industry, and Form NH03 for restaurant industry[10].

Table 3.1: Report specific to FDI firms in Vietnam (8)

12. Legal capital composition
(Applicable to FDI-enterprises)

VP03

Unit: 1000 USD

	Code	Registered capital to 31/12/03	Accumulative implemented capital by 31/12/03		Code	Registered capital to 31/12/03	Accumulative implemented capital by 31/12/03
A	B	1	2	A	B	1	2
Total legal capital (01=02+06)	**01**	**VPD11**	**VPD12**	**12.2. Foreign side**	**06**	**VPD61**	**VPD62**
12.1 Vietnam side(02=03+04+05) *Where:*	02			*Where:*	Country code		
+ SOE	03			- Country.....	**NVPD1**	**VPDN11**	**VPDN12**
+ Non-SOE	04			- Country.....	**NVPD2**		
+ Others	05	**VPD51**	**VPD52**	- Country.....	**NVPD3**		
				- Country.....	**NVPD4**	**VPDN41**	**VPDN42**

In the common section, firms are required to provide information related to their ownership structure, operation industries, details of employment including the number of employees,

[10] The annual Questionnaires are available in two languages, Vietnamese and English. The Vietnamese version of the Questionnaires is available with the dataset when acquired from GSO. However, for the English version, GSO does not publicly deliver to researchers. By personal requirement, GSO provide the English version in 2004 which will be used as a sample for the structure of the datasets. More recent questionnaires are basically similar to the 2004 Questionnaire with more in-depth or additional questions.

income structures, social insurance, health care and trade union, etc. Second, firms will clearly address their basic information concerning assets and capital structures in the year. Following firm capital information is business performance report including revenue structure and profit, types of taxes payable and paying status. Then, firms will fill in the form of investment which provides information concerning the sources of investment (e.g., from state budget, commercial banks, and government funds, etc.), the investment categories (e.g., construction, fixed assets, repairs of fixed assets, etc.), and by industries/activities if firms operate in more than one industries.

It is important to notice that each year the questionnaire is revised and amended. Most of the time, new questions are added in and more detailed information is required from the surveyed firms. The primary objective of the survey is to serve government management and policymaking. However, the survey has recently attracted interest from researchers thanks to its representativeness and rich information on all types of firms operating in the entire Vietnam economy. Nonetheless, due to its secondary nature, this dataset does not comprise all information required by academic research. For example, the dataset does not provide thorough information concerning firm liabilities (e.g., short-term, long-term, payable, etc.). Being restricted to available information, researchers must conduct data-tailored research or must find proxies for the variables required by the models but not available in the dataset.

Despite this shortage, the Annual Enterprise Survey is currently the most comprehensive and representative dataset that provides firm-level information concerning capital, performance, employment, and investment for all firms in Vietnam. The survey is revised and updated annually to include new information that governments believe important to policymaking. This continuing changing benefits new research topics, as well provides increasingly rich information to facilitate research questions which were implausible in the past.

3.3 Provincial level: The Provincial Competitiveness Index (PCI)

The PCI was introduced in 2005. This Index is to provide information on Vietnam business environment at provincial level. Basically, it is conducted using annual business survey to assess and rank the economic governance quality of provincial authorities in creating a favourable business environment for development of local private sector.

The survey is a cooperation between Vietnam Chamber of Commerce and Industry (VCCI) and United States Agency for International Development (USAID). VCCI is a national organization that assembles and represents the business community, employers, and business associations of all economic sectors in Vietnam. The mission of VCCI is to protect and assist business enterprises, to contribute to the socio-economic development of the country, and to promote economic, commercial, and technological cooperation between Vietnam and other countries in the world. Meanwhile, USAID is an independent federal agency that provides economic, development and humanitarian assistance around the world in support of U.S. foreign policy goals. USAID supports efforts to strengthen the rule of law and improves economic governance while seeking to further Vietnam's integration into the global economy as it continues its transition to a market-driven system.

PCI is one of the most important cooperated product between VCCI and USAID. The overall PCI comprises ten sub-indices, reflecting economic governance areas that affect private sector development. A province that is considered to perform well on the PCI is the one that has: 1) low entry costs for business start-up; 2) easy access to land and security of business premises; 3) a transparent business environment and equitable business information; 4) minimal informal charges; 5) has limited time requirements for bureaucratic procedures and inspections; 6) limit crowding out of private activity from policy biases toward state, foreign, or connected firms; 7) proactive and creative provincial leadership in solving problems for enterprises; 8) developed and high-quality business support services; 9) sound labour training policies; and 10) fair and effective legal procedures for dispute resolution.

The PCI is constructed in three steps. First, local agencies will collect business survey data and published data sources. Second, collected raw data will be used to calculate nine sub-indices and standardise to a 10-point scale. Finally, experts will calibrate the composite PCI as the weighted mean of nine sub-indices with a maximum score of 100 points. To ensure the representativeness of the survey, firms are selected using random sampling to mirror provincial populations. Stratification is used to make sure that firm age, legal type, and sector are accurately represented. The number of sampling firms keep increasing to ensure the generalisation of the analysing results. The most recent survey comprises more than 10,000 domestic businesses and 1,500 foreign invested enterprises in all of 63 municipal cities and provinces.

This thesis uses the sub-indices of the PCI index to measure local governance institutions. In explaining the association between local governance and local SME investment and performance, we merge the PCI dataset with the firm-level Annual Enterprise Survey dataset. The merged dataset comprises information for individual firms, grouped into 63 provinces with several provincial information. This multi-level structure of the dataset allows us to analyse not only the impact of firm-level characteristics, but also the effects of local governance quality on local firm investment and performance. Since the Annual Enterprise Survey is a census data and the Provincial Competitiveness Index is a strictly balanced panel data, we believe that the three empirical studies conducted using the combination of these two datasets will provide reliable and representative results.

3.4 Data cleaning

3.4.1 Annual Enterprise Survey

This dataset is an unbalanced 13-year panel. On the one hand, due to the increasingly opening policy of Vietnam government, more and more firms are established (Schmitz, Tuan, Hang, & McCulloch, 2015). Thus, the more recent years, the higher the number of newly established firms. On the other hand, due to the vulnerability nature of small and family businesses, several

firms (especially young and small firms) come to bankruptcy after each year. Therefore, the gaps of observations between two consecutive years in the panel are significant. However, this is common in firm-level panel data, especially data for firms in transitioning countries where the entry and exit activities of entrepreneurs are busier than those in well-developed economies (Shieh & Wu, 2012a). Table 3.2 presents the number of observations in the study period by frequency.

Table 3.2: Observation Structure (9)

Number of years per firm (1)	Frequency (2)	Observations repeated to the corresponding year (3) = (1) × (2)	Percentage	Cumulative percentage
1	144,894	144,894	7.0%	7.0%
2	110,034	220,068	10.6%	17.7%
3	80,812	242,436	11.7%	29.4%
4	56,297	225,188	10.9%	40.3%
5	42,995	214,975	10.4%	50.7%
6	30,912	185,472	9.0%	59.7%
7	22,307	156,149	7.6%	67.2%
8	17,648	141,184	6.8%	74.0%
9	14,324	128,916	6.2%	80.3%
10	10,071	100,710	4.9%	85.2%
11	9,729	107,019	5.2%	90.3%
12	9,931	119,172	5.8%	96.1%
13	6,200	80,600	3.9%	100.0%
Total		**2,066,783**	**100.0%**	

There are 9,931 firms that have survived 12 years from 2000 to 2011. The number of firms that have been in operating to the 11th year – 9,729 firms is almost as high as firms were in their 12th year. However, there are only 6,200 firms survive to their 13th year in the survey. Firms that could survive the first 3 years since establishment account for the highest proportion in the dataset with 11.7% total observations. After the 3rd year, the number of firms exiting markets keeps increasing. In fact, only slightly more than a half (50.7%) of total firms could survive till their 5th year. This indicate the difficulties of running young and small businesses Vietnam.

Table 3.3 presents the number of firms by years. The key message from this Table is that the number of firms keeps increasing with a faster pace from 2000 to 2012. While in 2000, the beginning of the studying period, there were only 37,679 firms in operation. This number accounts for only 1.82% of total observations. In contrast, in the final year of the studying period, 2012, the number of firms reaches 352,718 firms, accounts for 17.07% total observations. The booming of new firm establishments signals that Vietnam governments are opening a playing-field for the private sector. However, as we have introduced in Chapter 2, the playing-field for the private sector remains inferior to those of the SOEs and FDI firms.

Table 3.3: Number of observations by year (10)

Year	Frequency	Percentage	Cumulative percentage
2000	37,679	1.82%	1.82%
2001	53,821	2.60%	4.43%
2002	61,381	2.97%	7.40%
2003	66,607	3.22%	10.62%
2004	89,174	4.31%	14.93%
2005	106,752	5.17%	20.10%
2006	126,979	6.14%	26.24%
2007	151,132	7.31%	33.56%
2008	191,250	9.25%	42.81%
2009	216,988	10.50%	53.31%
2010	279,312	13.51%	66.82%
2011	332,990	16.11%	82.93%
2012	352,718	17.07%	100.00%
Total	**2,066,783**	**100.00%**	

To serve the purpose of the research questions, in this thesis, we keep only firms that are classified as small and medium-sized as in the Enterprise Law of Vietnam, i.e., firms have more than 10 but less than 300 employees, and have total capital less than 100 billion VND. Table 3.4 presents the cleaning steps and observations remained after each step.

Table 3.4: Data cleaning process (11)

Number of observations	Actions	Number of observations lost	Percentage of observations lost	Number of observations remained	Percentage of observations remained
2,066,783	NO	0	0	0	0
791,889	Keep SMEs	1,274,894	61.68%	**791,889**	38.32%
791,889	Replace total assets = missing if total assets negative	591	0.07%	791,298	0.999
791,889	Replace fix assets = missing if fix assets negative or larger than total assets	691	0.09%	790,607	0.998
791,889	Replace depreciation = missing if depreciation negative	3178	0.40%	787,429	0.994
791,889	Replace investment = missing if investment negative	4	0.00%	787,425	0.994
791,889	Replace firm age = missing if firm age smaller or equal to 0	2447	0.31%	784,978	0.991

The final observations available for analysing is 791,889 in 13 years, from 2000 to 2012. This sub-dataset will be used for the first empirical study concerning the role of financial constraints on firm financing sources for their new investment projects. The second and third studies, due to the availability of the PCI dataset, will only cover seven-year period, from 2006 to 2012. Therefore, the number of observations for these two studies will be 599,065. There are 192,824 observations lost due to the contract of the studying period from 13 to 7 years. However, the dropped-out observations are disproportionately lower than the contract of 6 studying years. The reason is that most firms are established in the recent years, after the 2008 financial crisis. Therefore, having not including the first 6 years in the studying period will not lead to significant information lost.

As Vietnam is an emerging economy, firm performance may vary significantly across years and regions due to their vulnerability and fragileness. Moreover, some firms may perform outstandingly better or worse than the majority of population due to their specific resources, information, or capital. These firms are not representative and may cause biased results for the analyses. Therefore, throught the thesis, possible influence of outliers is controlled for by excluding obervations in the top and bottom 1% for each of the study variables.

3.4.2 Provincial Competitiveness Index

The PCI dataset is a seven-year panel on 63 provinces and strictly balanced. Therefore, there is no need to clean this dataset. We merge this PCI dataset with the firm-level dataset using province unique codes. By doing this, we will have a merged dataset which includes both information at firm-level and provincial level. The next section will introduce the variables used in each study in detail.

3.5 Chapter 4 variables

Chapter 4 aims to explore the relationship between financial constraints and firm financing for their investment projects. Specifically, it searches for the impacts of financial constraints on the

use of bank loans and entrepreneurs' self-finance of young and small firms. Variables used in this study are at firm-level, including firm basic characteristics e.g., investment sourced from bank loans, investment sourced from entrepreneurs' self-finance, cash flow, firm age, and firm size. Table 3.5 defines variables, Table 3.6 presents their basic statistics, and Table 3.7 shows the frequency of missing observations in each variable.

Table 3.5: Variable definitions (12)

Variable	Definition
Bank loan investment	The ratio of the amount of investment sourced from bank loans to firm capital
Entrepreneurs' self-finance investment	The ratio of the amount of investment sourced from entrepreneurs' self-finance to firm capital
Firm age	Years since establishment
Firm size	Natural log of total number of employees at the end of each year
Cash flow	The ratio of cash flow to firm capital; cash flow is the sum of net revenue and depreciation
Asset structure	The ratio of fixed assets to total assets
Labour productivity	The ratio of employee number to firm sales revenue
Total investment	The ratio of total investment to firm capital

As per research objective of the study, investment related variables including total investment, bank loan investment, and entrepreneurs' self-finance investment are the dependent variables. These variables are measured as the ratios of firm capital. This measurement is the standard in literature which aims to normalise the investment value of firms (Du et al., 2015). Firm size is measured by the natural log of the number of employees. In this summary, we will report the number of employees instead for the sake of interpretation. Cash flow is the sum of net sales revenue and depreciation in the same year. Cash flow variable in this study is the ratio of cash flow value over firm capital. This measurement once again is consistent with the extant literature (Guariglia, 2008). Finally, we use labour productivity as a control variable explaining for firm investment decision. Due to the lack of intermediate input variables, we were unable to conduct the total factor productivity (TFP) (Levinsohn & Petrin, 2003). Labour productivity in this study is a measure of how much sales revenue per employee.

Table 3.6: Summary statistics (13)

Variable	Mean	SD	Min	Max	Observations
Bank loans investment	0.04	0.10	0.00	0.58	480,420
Entrepreneurs' self-finance investment	0.16	0.24	0.00	1.00	491,220
Firm age	6.89	6.58	1.00	41.00	764,177
Firm size	38.59	46.60	10.00	300.00	791,889
Cash flow	0.09	0.20	-0.58	0.99	600,761
Asset structure	0.27	0.26	0.00	0.95	789,771
Labour productivity	708.69	1504.02	0.00	10273.90	791,889
Total investment	0.23	0.29	0.00	1.08	498,088

Table 3.6 exbibits simple statistics of each variable. In general, bank loans account for only 4% of total capital while the ratio for self-finance is 17%. These numbers primarily suggest that SMEs in Vietnam rely largely on their entrepreneurs to finance investment projects. Firm age is relatively young, approximately 7 years old with the oldest firms are just 41 years old. Since most firms are young, their size is also rather small, which is approximately 39 employees. The average level of fixed assets is 27% of total assets, which is reasonable because the dataset comprises both manufacturing and service industries. Finally, the average sales revenue is slightly more than 700 million VND per employee. Details of interpretation and explanation for these summary statistics are provided in each empirical chapter, where the statistics are reported on the number of observations used in regressions only.

Table 3.7: Missing observations (14)

Variable	Observations	Missing observations	Frequency of missing observations	Non-missing observations	Frequency of non-missing observations
Bank loans investment	791,889	311,469	39.33	480,420	60.67
Entrepreneurs' self-finance investment	791,889	300,669	37.10	491,220	62.03
Firm age	791,889	27,712	3.499	764,177	96.50
Firm size	791,889	0	0	791,889	100
Cash flow	791,889	191,128	24.14	600,761	75.86
Asset structure	791,889	2,118	0.2675	789,771	99.73
Labour productivity	791,889	0	0	791,889	100
Total investment	791,889	293,801	37.10	498,088	62.90

Table 3.7 presents the number of missing observations for each variable. The two investment variables, i.e., bank loans investment and entrepreneurs' self-finance investment have the highest missing frequency in their observations. The reason is that not all firms make investment every year. On average, 60.67% of total firm-year makes new investment projects in the studying period using bank loans, and 62.9% of total firm-year makes new investment projects using entrepreneurs' self-finance. Except for investment related variables, other firm characteristics variables have less than 25% of missing observations. Cash flow is the firm characteristic variable that has the highest missing observations with 24.14% of total observations. This missing is due to the lack of depreciation information. Therefore, cash flow as a combination of net revenue and depreciation will be correspondingly missing as well.

3.6 Chapter 5 variables

This chapter aims to explain how local governance affect local SME investments. Moreover, it tests whether governance effects are moderated by firm-level financial constraints or not. Due to the multi-level setting (firm-level and provincial level), variables used in this study comprises both firm characteristics and provincial governance. The following Tables 3.8, 3.9, and 3.10 will provide definition of variables, their missing observations, and summary statistics.

Table 3.8: Variable definitions (15)

Variable	Definition
Investment	Total investments firm i makes in year t divided by total capital stock in the same period.
Cash flow	Cash flow generated by firm i in year t divided by total capital stock in the same period.
Sales revenue growth	The percentage change of sales revenue between two consecutive periods.
Age	Number of years since establishment
Size	Natural log of the number of employees that firm i hires in year t (report here the number of employees)
Legal enforcement	A dimension of formal governance: measures the quality of the local contracting governance and the risks of expropriation. Legal enforcement variable is the percentage change of the legal institutions indicator in two consecutive periods.

Market-access regulations	A dimension of formal governance: measures the quality of the local markets openness. Market-access regulations variable is a standardised combination of the percentage change in land access and entry costs indicators.
Economic regulations	A dimension of formal governance: measures the quality of the local economic environments. Economic regulations variable is a standardised combination of the percentage change in labour training and business supports indicators.
Corruption	A dimension of informal governance: measures the freedom from corruption of local officials. Corruption variable is the percentage change of the informal charges indicator in two consecutive periods.
Informal policies	A dimension of informal governance: measures the quality of unofficial polices. Informal policies variable is a standardised combination of the percentage change in time costs, transparency, and leadership proactivity indicators.

In this study, the definitions of the four variables: investment, cash flow, firm age and firm size are identical to their definitions in the previous study. Sales growth is the new variable specific to this study which is included to control for investment opportunity. Sales growth is the difference of natural log of sales revenue in two consecutive years, which could be interpreted as the percentage change in sales revenue between any two years. There are 5 provincial variables: legal enforcement, market-access regulations, economic regulations, corruption, and informal policies. These variables are measured as the percentage changes of the corresponding indices in two consecutive years. Except for the legal enforcement and corruption which use single governance index to construct variables. Other three governance variables employ factor analysis to combine two or three governance indices into one variables. Details of the combination will be discussed in chapter 5.

Table 3.9: Summary statistics (16)

Variable	Mean	S.D.	Min.	Max.	Observations
Investment	0.22	0.27	0.00	1.11	398,787
Cash flow	0.09	0.20	-0.58	0.99	595,538
Sales growth	0.04	1.13	-5.21	4.55	353,938
Age	6.58	5.32	1.00	33.00	527,553
Size	35.93	43.30	2.30	5.70	599,065

Legal enforcement	-0.05	0.35	-0.88	0.92	353,950
Market-access regulations	0.14	0.46	-1.15	2.01	353,950
Economic regulations	0.66	0.97	-2.58	4.04	353,950
Corruption	0.01	0.13	-0.50	0.54	353,950
Informal policies	0.11	0.34	-1.33	1.20	353,950

Table 3.9 shows the summary statistics of the variables. The summary statistics of investment, cash flow, firm age, and firm size variables are consistent with the reports for the 13-year period in chapter 4. This similarity suggests that there is no significant loss of information when we drop the first 6 years' observations. The fact that the number of observations reduce insignificantly less than the observations reported in the 13-years study. The reason is that most firms are established recently, thus we believe that using the 7-year panel to analyse the effects of local governance is sufficient to provide reliable results representative for the entire Vietnam economy. In terms of sales growth, the average increase is 4% of total capital per year. However, this number is accompanied by a large standard deviation which implies that there is significant variation among firms. For the governance variables, legal enforcement is the only variable that has negative mean, indicating a decline in this governance score throughout the period. Among other governance variables, Economic regulations have the highest improvement with 66% increase in score between two consecutive years. Meanwhile, corruption has the lowest improvement with only 1% increase in score between two consecutive years.

Table 3.10 presents the number of missing observations for each variable. Investment has 66.57% observations non-missing, higher than the number 62.90% non-missing observations for the 13-year study. This implies that more firms make investments in the recently years compared to the early 2000s. Variables that is calculated as the difference between two years such as sales growth and the 5 governance variables will lose nearly one half of observations. Firm size is the only variable that has no missing observations. Cash flow has only 11.94%

missing observation, lower than 24.14% in the 13-year panel. The reason might be that officials occasionally check and require firms to provide missing information in the recent years.

Table 3.10: Missing observations (17)

Variable	Observations	Missing observations	Frequency of missing observations	Non-missing observations	Frequency of non-missing observations
Investment	599,065	200,278	33.43	398,787	66.57
Cash flow	599,065	3,527	0.59	595,538	99.41
Sales growth	599,065	245,127	40.92	353,938	59.08
Age	599,065	71,512	11.94	527,553	88.06
Size	599,065	0	0	599,065	100.00
Legal enforcement	599,065	245,115	40.92	353,950	59.08
Market-access regulations	599,065	245,115	40.92	353,950	59.08
Economic regulations	599,065	245,115	40.92	353,950	59.08
Corruption	599,065	245,115	40.92	353,950	59.08
Informal policies	599,065	245,115	40.92	353,950	59.08

3.7 Chapter 6 variables

Chapter 6 is an extension of chapter 5. This chapter furthers the discussion concerning the effects of local governance on local entrepreneurship. Specifically, this chapter focuses on the impact of local governance institutions on local SME performance, which is measured as revenue growth. For this reason, this chapter will continue using the 7-year panel data introduced in the last section to empirically test the related hypotheses. To remind, this dataset covers all firm-level characteristics and provincial level governance variables in 7-year period, from 2006 to 2012. Tables 3.11 defines variables, Table 3.12 provides summary statistics, and Table 3.13 shows the frequency of missing observations.

Table 3.11: Variable definitions (18)

Variable	Definition
Sales revenue growth	The percentage change of sales revenue in two consecutive years
Firm age	Years of operation since establishment
Ownership	Code "1" state-owned SMEs, code "2" private SMEs, code "3" foreign-owned SMEs
Investment	Total investment, normalised by total capital
Size	Natural log of the number of employees (reported the number of employees)
Corruption	The difference of the Informal charges indicator in two consecutive years: $\text{Informal charges}_{it} - \text{Informal charges}_{it-1}$
Transparency	The difference of the Transparency indicator in two consecutive years: $\text{Transparency}_{it} - \text{Transparency}_{it-1}$
Proactivity	The difference of the Proactivity indicator in two consecutive years: $\text{Proactivity}_{it} - \text{Proactivity}_{it-1}$
South	Provinces belonged to the North state before 1975 (located to the north of the 17th parallel).

Table 3.11 presents variables used in this study. Revenue growth, firm age, firm size, and investment are variables that have been used in the last study. Their definitions are identical to the ones used in chapter 4. In this study, besides the private sector, we also analyse the distinct effects of local governance on different types of ownership, including state-owned, private, and foreign-owned firms. The number of governance variables in this study reduces to 3 variables: transparency, proactivity, and corruption. The chosen of these variables are theoretically concerned with the new institutional economics theory, which will be deliberately discussed in the empirical chapter. It is noteworthy that the measurement of governance variables in this study is different from the measurement used for chapter 5. Instead of using the percentage change of PCI indices' scores, we construct the governance variables by taking difference (score change) between two consecutive years. The use of difference instead of percentage

could allow the variables to vary in a larger range of values, which will facilitate the reliability of econometric estimators. Finally, in this study, South is a time-invariant dummy variable which take value 1 if provinces locate to the south of the 17th parallel, and take value 0 otherwise.

Table 3.12: Summary statistics (19)

Variable	Mean	S.D.	Min.	Max.	Observations
Sales growth	0.04	1.13	-5.21	4.55	353,938
Firm age	6.58	5.32	1.00	33.00	527,553
Ownership	1.98	0.31	1.00	3.00	599,065
Investment	0.22	0.27	0.00	1.11	398,787
Firm size	35.93	43.29	10	300	599,065
Corruption	0.04	0.83	-3.39	3.62	352,031
Transparency	-0.05	0.62	-2.99	3.05	352,031
Proactivity	-0.22	1.10	-5.46	6.18	352,031
South	0.53	0.50	0.00	1.00	599,065

Table 3.12 presents the summary statistics of variables used in chapter 6. Revenue growth (sales growth), firm age, firm size and investment are re-used variables from the previous study. The governance variables: corruption, transparency, and proactivity are theoretically identical to the ones used in chapter 5. However, they are operationalised using first different of PCI scores, instead of using percentage changes as measurement. In comparison with the governance variables in chapter 5, the 3 governance variables in this chapter have a larger range of values. Moreover, transparency and proactivity have negative means, indicating that on average, these variables reduce their score (local governance quality become worst) in the studying period. Corruption has a positive mean, but the value is close to zero, implying that the improvement of corruption is not significant when taking average for all 63 provinces. However, the large standard deviation, and the minimum and maximum values suggest that there is significant variation among provinces. Finally, the

South dummy has the mean of 0.53, indicating roughly equal distribution of the number of firms between the North and the South.

Table 3.13 shows the summary of missing observations for each variable. Because we use first difference to measure revenue growth and governance improvement, these variables will lose nearly one-half observations. The use of first difference is theoretically important because it measure the change of governance on the change of entrepreneurship, which are theoretically suggested to be highly correlated. Other variables such as ownership, firm size, and the South dummy have no missing observations. Investment miss out 33.43% of total observation simply because not all firms make investments every year. In general, there is no serious issues with the data. We thus believe that using this dataset to examine corresponding research questions will produce reliable and representative results.

Table 3.13: Missing observations (20)

Variable	Observations	Missing observations	Frequency of missing observations	Non-missing observations	Frequency of non-missing observations
Revenue growth	599,065	245,127	40.92	353,938	59.08
Firm age	599,065	71,512	11.94	527,553	88.06
Ownership	599,065	0	0	599,065	100
Investment	599,065	200,278	33.43	398,787	66.57
Firm size	599,065	0	0	599,065	100
Corruption	599,065	247,034	41.24	352,031	58.76
Transparency	599,065	247,034	41.24	352,031	58.76
Proactivity	599,065	247,034	41.24	352,031	58.76
South	599,065	0	0	599,065	100

3.8 Conclusion

This chapter describes the datasets going to be used in the next three empirical chapters. It first introduces the sources that the datasets are acquired. They are the General Statistics Office of Vietnam and the Vietnam Chamber of Commerce and Industry. In this section, we discuss the

structure of each dataset and how the surveys are conducted. The firm-level dataset is unbalanced and not ready for regression analysis. Therefore, this chapter describes the cleaning process, the number of observations reduction after each step of cleaning. Then, variables for each empirical study are deliberately defined. We also provide summary statistics for each variable as well as report their missing observations. The summary statistics provided in this chapter are different from the ones will be provided in each empirical study. In the data section of the three empirical chapters, the summary statistics are reported based on the number of observations used in regressions, which is a sub-sample of the number of observations described in this chapter.

Because of the aims and scopes of the thesis. We only use a small number of variables in the firm-level dataset. There is a large amount of information has not been explored, especially the industry-specific variables. Future research could make use of these variables to test or extend current theories. However, it is noteworthy that because the Annual Enterprise Survey are revised and amended every year, some variables may exist for only for a short-term period. This situation may limit researchers to certain types of research settings only.

Appendix 3: Sample of the Annual Enterprise Survey

General Statistics Office of Vietnam

Ent No

filled in by Statistics Office

Questionnaire on enterprise survey 2003

(Promulgation in accordance with the Law on Statistics)

1. Name of enterprise:.....

(Fully capitalized)

DN03

Tax code

..... **ma_thue** **ma_thue2**

2. Address *(detailed address of main facility/office of enterprise):*

- Village/hamlet (Building/street No.):.....
- Commune/Ward/District Town:.....
- District/ Provincial Town :.....
- Province/ City:.....**TINH**.....

Filled in by Statistics Office

- Tel:.....
- Fax:.....
- Email:.....

Ent. type code (Filled in by Statistics Office)

LHDN

3. Type of enterprise (circle defined number)

- Central SOE.....	01	- Partnership company	08
- Local SOE.....	02	- Private Limited Co.....	09
- State Limited Co with 1 member.....	03	- Joint-stock Co. without state capital.....	10
- State Limited Co with more 2 member.....	04	- Joint-stock Co. with state capital <= 50%:...	11
- Joint-stock Co. with state capital > 50%....	05	- Wholly foreign-owned Company.....	12
- Collective enterprise (cooperative).....	06	- Joint-Venture (SOE and foreign partners).....	13
- Private enterprise.....	07	- Joint-Venture (nonstate company and foreign partners)	14

-

4. Production/Business activities in 2004 :

Industrial class. code (filled in by statistics office)

4.1. Major activity/industry :.....**NGANH_KD..**.....

(Defined as the industry that generates the largest share of value and/or is the most labor-intensive)

4.2. Other activities/industries (differ from major industry):

Activity/Industry:.....**NKD1**.....

Activity/industry:.....**NKD2**.....

Activity/industry:.....**NKD3**.....

Activity/industry:.....**NKD4.**.....

4.3. Did your enterprise involve in export and/or import activities in 2003? (tick X to selected cell)?

Export : **CO_XK** Yes .....1 No.....2 Import : **CO_NK** Yes .....1 No.....2

5. Employment in 2003

DN03

Unit: Person

	Code	Year beginning		Year end	
		Total	In which: Female	Total	In which: Female
A	B	1	2	3	4
5.1. Total current employees	01	**LD11**	**LD12**		**LD14**
In which: - Unpaid labor	02				
- Contracted labor	03				**LD34**
Total employees by business activities	industrial code				
- Major activity	**LDNC**	**LDNC1**		**LDNC3**	
- Other activities : + Activity	**NLD1**	**LDN11**	**LDN12**		**LDN14**
+ Activity	**NLD2**				
+ Activity	**NLD3**				
+ Activity	**NLD4**			**LDN43**	**LDN44**
5.2. No. of employees recruited within the year	04			**LD41**	
5.3. No. of employees reduced within the year	05				**LD54**

6. Incomes of employers and contributions of the owner to social insurance, health care and trade union in 2003

DN03

Unit: VND million

	Code	amount
A	B	1
6.1 Income of employers (01=02+03+04)	01	**TN1**
- Wage, bonus, allowances and other wage-derived incomes	02	**TN2**
- Payments in form of social insurance	03	
- Other incomes those are not accounted in business costs	04	
6.2. Contributions of the owner to social insurance, health care and trade union	05	**TN5**

7. Assets and capital in 2003

DN03

VND million

	Code	Year beginning	Year end
A	B	1	2
7.1. Total assets (01= 02+03)	**01**	**TS11**	**TS12**
7.1.1. Liquid assets and short-term investment (Total)	**02**		
In which: Receivables (Total)	03		
Inventories (Total)	04		
Where : + Unfinished product	05		**TS52**
+ Inventory product	06		
+ Inventory commodities	07		
+ Goods on consignment	08		
7.1.2. Fixed assets and long-term investment	**09**	**TS91**	**TS92**
In which: - Fixed assets (14= 15-16)	10		
+ Original value	11		
+ accumulated depreciation	12		
- Unfinished construction costs	13		
7.2. Liability (18=19+20)	**14**		
- Debts payable	15		
- Owner capital	16	**Ts161**	**Ts162**

Note: Total assets = total liability (Code 01 = Code 18)

8. Business performance in 2003

DN03

Unit: VND million

	Code	Amount
A	B	1
8.1. Revenues		
1. Revenues from sales and services provision	**01**	**KQKD1**
1.1. Deductions	02	
In which: Excise duties, export tax, direct VAT payable calculated by direct method	03	
1.2. Net revenues from sales and services (04=01-02)	04	**KQKD4**
By business activities:	Industrial	
- Major business activity	code	**KQKDC**
- Other business activities: + Activity:	**NCQKD1**	**KQKDN1**
+ Activity:	**NCQKD2**	**KQKDN2**
+ Activity:	**NCQKD3**	**KQKDN3**
+ Activity:	**NCQKD4**	**KQKDN4**
2. Revenues from financial activities	05	**KQKD5**
3. Other incomes	06	
8.2. Total pre-tax profit (07=08+09+10)	07	
Where: - Profit from production activities	08	**KQKD7**
- Profit from financial activities	09	
- Profit from other activities	10	
8.3. Enterprise income tax payable	11	**KQKD11**

9. State budget obligation in 2003

DN03

Unit: VND million

	Code	Planned amount payable in 2003	Arisen amount payable in 2003	Amount paid in 2003
A	B	1	2	3
9.1.Taxes (Total)	01	**NNS11**	**NNS12**	
In which: - VAT on domestic goods	02			
- VAT on imported goods	03			
- Special consumption tax	04			
- Export tax	05			
- Import tax	06		**NNS62**	
- Enterprise Income tax	07			
9.2. Others payable items	**08**			
In which - Additional levied	09			
- Fees/charges	10			
- Others payable	11	**NNS111**		**NNS113**

10. Production/business products in 2003

(Applicable to enterprises involving in manufacturing, transportation, telecommunication)

SP03

Name of products (list products and respective units according to production/business performance of enterprise)	Product code	Unit	Amount
A	B	C	1
STT	**MASP**	**DVT**	**THUCHIEN**

11. Transportation means of enterprise till 31/12/2003
(Applicable to enterprises involving in transportation services)

PT03

	Code	Unit	Quantity		Code	Unit	Quantity
A	B	C	1	A	B	C	1
1. Means of roadway transportation				**2. Means of marine transportation**			
1.1. Lorry	01	Unit/ton	**PT1**	2.1.Freighter	04	Unit/ton	
1.2. Bus (more 5 seat)	02	Unit/seat	**PT2**	2.2. Oil tanker	05	Unit/ton	
1.3. Car (< 5 seats	03	Unit/seat		2.3. Passenger ship	06	Unit/seat	
				3. Means of waterway transportation			
				3.1. Freighter	07	Unit/ton	**PT7**
				3.2.Passenger ship	08	Unit/seat	

12. Legal capital composition
(Applicable to FDI-enterprises)

VP03

Unit: 1000 USD

	Code	Registered capital to 31/12/03	Accumulative implemented capital by 31/12/03		Code	Registered capital to 31/12/03	Accumulative implemented capital by 31/12/03
A	B	1	2	A	B	1	2
Total legal capital (01=02+06)	**01**	**VPD11**	**VPD12**	**12.2. Foreign side**	**06**	**VPD61**	**VPD62**
12.1 Vietnam side(02=03+04+05) *Where:*	02			*Where:*	Country code		
+ SOE	03			- Country.....	**NVPD1**	**VPDN11**	**VPDN12**
+ Non-SOE	04			- Country.....	**NVPD2**		
+ Others	05	**VPD51**	**VPD52**	- Country.....	**NVPD3**		
				- Country.....	**NVPD4**	**VPDN41**	**VPDN42**

VD03

13. Investment in 2003

Unit: VND million

	Code	Amount
A	B	1
Total (01=03+06+09+10=11+14+16+17+18)	**01**	**VDTPT1**
In which: Leasing and buying land-use right	02	
A. By sources		
1. State budget	03	
- Central budget	04	
- Local budget	05	
2. Loans for construction and equipment	06	
- Government fund	07	
- Commercial banks and others	08	
3. Own capital	09	
4. Other sources	10	
B. By investment categories		
1. Basic construction	11	
In which: - Construction	12	
- Equipment	13	
2. Purchase of fixed assets	14	
In which: brandnew machines	15	
3. Major repairs of fixed assets	16	
4. Supplement to working capital	17	
5. Other investments	18	**VDTPT18**
C. By economic activities/industries	Industrial code 2digit ↓	
- Activity/industry	**NVDTPT1**	**VDTPTN1**
- Activity/industry	**NVDTPT2**	
- Industry/industry	**NVDTPT3**	
- Industry/industry	**NVDTPT4**	**VDTPTN4**

14. Finished construction works and incremental value in 2003
(Applicable to enterprises as investors)

CT03

No.	Name of construction works	Code	Address	Duration		Designed capacity		Total investments (VND million)	Incremental value of fixed assets (VND million)
				Start	Finish	Unit	Amount		
A	B	C	1	2	3	4	5	6	7
	1. Completed construction works								
		maso	**stt**	**NGAY_KC**	**NGAY_HT**	**DVT**	**SLUONG**	**VON_DT**	**TSCD_MT**

15. IT application indicators

DN03

18.1. No. of computers are currently used till 31/12/2004: .....**PC**.....

(Circle defined number bellow)

18.2. Do your enterprise have LAN? **CO_LAN** No: 2; Yes: 1; LAN computers: **PC_LAN**

18.3. Do your enterprise have Internet ? **CO_INT** No: 2; Yes: 1; Networked computers:**PC_INT**

18.4. Do your enterprise have WEBSITE? **CO_web** No: 2; Yes: 1 WEBSITE address.....

18.5.Do your enterprise participate in E-commerce transaction ? **CO_EMAIL** No: 2; Yes: 1 Transaction address:.....

16. Gross output of industry and construction activities in 2003
(applicable to enterprises involving in manufacturing and construction activities)

XD03

	Code	Amount		Code	Amount
A	B	1	A	B	1
16.1. Gross output of manufacturing *(price 1994)*	01	**GTSX_CN**	- Value of other housing structures	06	**XD5**
			- Value of infrastructure works	07	**XD6**
16.2. GO of construction (current price)	02	**XD1**	- Value of other construction/installation	08	**XD7**
(1) Value of construction (03= 04+...+08)	03	**XD2**	(2) Value of survey, design – planning included in construction accounting	09	**XD8**
by components: - Value of houses	04	**XD3**			
- Value of stores, factory	05	**XD4**			

17. Trading activities in 2003

(Including purchase, sell, agent, intermediary with regard to goods/commodities; and repair of engine-equipped vehicles, motorbikes, individual and household appliances)

TN03

	Code	Unit	Total	By selling methods		
				Wholesale	Retail sale	
					Total	*In which:* supermarket
A	B	C	1	2	3	4
17.1. No. of units till year end	01	Unit	**C01**	**xx**	**xx**	**C04**
17.2. Space for business by year end	02	m2	**DT1**			**DT4**
17.3 Net revenues	03	VND million	**DTHU1**			**DTHU4**
17.4. Sales	04	"	**DTVON1**			**DTVON4**
17.5. VAT and export tax payable	05	"	**THUE1**			**THUE4**

17.6. Net revenues by commodity groups

TN03

ĐVT: VND million

	Code	Total net revenues	Division	
			Wholesale	Retail
A	B	1	2	3
Total	01	**TN11**	**TN12**	
- Food and foodstuff	02			
- Garment and textile products	03			
- Household appliances	04			
- Cultural and educational products	05			
- Wood and building materials	06			
- Fertilizer and pesticide	07			
- Mean of transport (including spare parts)	08			
- Oils of all kinds	09			
- Other fuels (exclude oils)	10			**TN103**
- Other goods	11			
- Repair of motor vehicles, motorbikes, individual and household appliances	12			**TN123**

KS03

18. Hotel and recreational services in 2003

(Applicable to enterprises involving in hotel, recreation and other services for short-term staying)

	Code	Unit	Quantity
A	B	C	1
18.1. No. of unit by year end	01	Unit	**SO_COSO**
18.2. No. of visitors			
- Visitors staying overnight	02	visitor	**KH_NGU**
In which: international tourist	03	"	**KHQ_NGU**
- Visitors staying daytime	04	"	**KH_NGAY**
In which: international tourist	05	"	**KHQ_NGAY**
18.3. No. of serviced days *(only account for visitors staying overnight)*	06	Person.day	**NGAYK**
In which: international tourist	07	"	**NGAYK_QT**
18.4. Net revenues	08	VND million	**DTHU**
- *In which:* Revenues from accommodation (room/bed)	09	"	**DTHU_BG**
+ where: Revenues from international tourist	10	"	**DTHU_QT**
18.5. VAT, export tax payable	11	"	**THUE**

KS03

18.6. Accommodations by detailed classification

	Code	No. of units till end of 2003 (unit)	No. of rooms till end of 2003 (room)	No. of beds till end of 2003 (bed)	No. of visitors in 2003 (only visitors with overnight staying) – visitor		No. of serviced days in 2003 (day)	
					Total	*In which:* Inter. visitor	Room	Bed
A	B	1	2	3	4	5	6	7
Total	01	**KS11**						**KS17**
Hotel	02							
- 5 star	03							
- 4 star	04							
- 3 star	05							
- 2 star	06							
- 1 star	07			**KS74**				
- Less	08							
Guest house	09							
Tourist villa	10							
Tourist village	11							
Tourist house	12							
Others	13							**KS137**

19. Restaurant operation in 2003

(Applicable to enterprises operating in restaurant, bar and canteen activities)

NH03

	Code	Unit	Quantity
A	B	C	1
19.1. No. of restaurants till year end	**01**	**unit**	**SO_COSO**
In which: - Restaurant	02	"	**NHA_HANG**
- Bar	03	"	**QUAY_BAR**
- Canteen	04	"	**CANG_TIN**
19.2. Net revenues	**05**	**VND million**	**DTHU**
In which: -Revenues from food servicing	06	"	**DTHU_AN**
In which: Revenues from goods on consignment	07	"	**DTHU_HB**
19.3. Capital value of goods on consignment	**08**	"	**TG_VON**
19.4. VAT payable	**09**	"	**THUE**

20. Tourist and tourist-related activities in 2003

DL03

(Applicable to enterprises involving in tourist and tourist-related activities)

	Code	Unit	Quantity
A	B	C	1
20.1. No. of tourist units	**01**	Unit	**SO_COSO**
In which: No. of travel tourist units	02	"	**CS_HDLH**
20.2. No. of tour-organized visitors	**03**	visitor	**LKHACH**
In which: - No. of international tourists	04	"	**LKHACH_Q**
- No. of domestic tourists	05	"	**LKHACH_T**
- No. of Vietnamese tourists traveling abroad	06	"	**LKHACH_V**
20.3. No. of serviced days for tour-organized visitors	**07**	person.day	**NKHACH**
In which: - No. of serviced days for international tourists	07	"	**NKHACH_Q**
- No. of serviced days for domestic tourists	08	"	**NKHACH_T**
- No. of serviced days for Vietnamese tourists traveling abroad	09	"	**NKHACH_V**
20.4. Revenues	**10**	VND million	**DTHU**
In which: - From international tourists	11	"	**DTHU_Q**
- From domestic tourists	12	"	**DTHU_T**
- From Vietnamese tourists traveling abroad	13	"	**DTHU_V**
In which: Expenditures in name of visitors	15	"	**CP_KHACH**
20.5. VAT and import/export tax payable	**16**	"	**THUE**

21. Other services in 2003

DV03

	Code	No. of units till year end (unit)	Space for business till year end (m2)	Revenues (VND million)	VAT, export, import tax payable (VND million)
A	B	1	2	3	5
Total	01	**DV11**	**DV12**		
- Science and technology service	02				
- Property business and consultancy	03				
- Education and training	04				
- Health care	05				
- Sport and culture	06				
- Personal and community services	07				**DV74**

22. List of units governed by enterprise

DS03

Name of branches/sub-units	Tax code	Address	Province code	Major activity	Industrial code	No. of employees till 31/12/03 (person)	Net revenue (VND million)
A	B	C	D	E	G	1	2
	MA_THUE		**TINHCN**		**NGANH_KD**	**LAO_DONG**	**DOANH_THU**

CP03

23. Production/business costs by factors in 2003

Unit: VND million

Cost factors	Code	Amount
A	B	1
Total	01	**CP1**
1. Materials, fuels, tools and spare parts	***02***	
In which: Fuel	03	
2. Labor costs	**04**	
In which: - Salary/wage	05	
- Payments to social insurance	06	
- Payments to health care insurance	07	
- Trade union's fee	08	
3. Depreciation of fixed assets	**09**	
4. External service costs	**10**	
In which: - Electricity	11	
- water	12	
- Transportation	13	
- Post office	14	
- Research	15	
- Insurance	16	
5. Other in-cash costs	17	
a. Daily Subsistence Allowance (DSA)	**18**	
In which: residential allowance and travel allowance	19	
b. Expenditures for meetings/workshops	20	
In which: payments to lecturers/presenters	21	
c. Other incomes of employees	22	
d. Contributions to higher management levels	23	
e. Tax, fees and charges considered as taxes	24	
In which: + Land tax	25	
+ Natural resource tax	26	
+ Capital tax	27	
+ Exercise tax	28	
+ Fees/charges as taxes	29	
f. Other in-cash expenditures	30	
6. Payments to lottery winners (applicable to lottery services)	31	**CP31**

7. Other questions (Tick "X" to appropriate cell and number to indicate *yes* or *no*):

a. Is there any secondary income source of employees included in costs of materials? (Code 02, item – production/business costs by factors) ?	01	1....Yes, go to b 2....No, go to c	C7A
b. Value (*VND million*)	02		C7B
c. Are there any materials provided by orders for processing or construction during the year	03	1....Yes, go to d 2....No, go to f	C7C
d. Value *(VND million)*	04		C7D
e. Is item "d" included in aforesaid item – production/business costs by factors?	05	1....Yes, 2....No,	C7E
f. Do your enterprise hire outsiders as outsource for material processing?	06	1....Yes, go to g 2....No, go to h	C7F
g. Value *(VND million)*	07		C7G
h. Is item "g" included in aforesaid item production/business costs by factors?	08	1....Yes, 2....No,	C7H
i. Do your enterprise enter product-based contracts with laborers ?	09	1....Yes, 2....No,	C7I
j. Difference in percentage between actual contract revenues and planned contract revenues (%)?	10		C7J
k. Did enterprise borrow money for business	11	1....Yes, go to l 2....No, go to o	C7k
l. What is interest payment	12		C7l
m item "l" included in aforesaid item – production/business costs by factors?	13	1....Yes, go to n 2....No, go to o	C7m
n. do enterprise count the interest payment to any item in production/business costs by factors?	14	1....Yes, item4. external service purchasing 2....No, Other cash-cost	C7n
o. Did enterprise receive any subsidy from the goverment	15	1....Yes, go to p 2....No, go to q	C7o
p. What is the subsidy value (VND million)	16		C7p
q. Did enterprise gave bonus to employee that draw from enterprise profit	17	1....Yes, go to r 2....No, go to s	C7q
r. What is the value of bonus (VND million)	18		C7r
s. For private enterprise, is the wage of enteprrise owner calculated based on the suggested level by tax authority?	19	1....Yes, go to t 2....No, gend	C7s
t. What the value for this wage?	20		C7t

Surveyor
(Sign with full name)

Table designer
(Sign with full name)

Date... Month.... 2004
Director/Enterprise owner
(sign and seal)

CHAPTER 4: WHERE DOES MONEY COME FROM? – THE FINANCING OF FINANCIALLY CONSTRAINED SMALL BUSINESSES

4.1 Introduction

Investment is important to firm growth, especially small and medium-sized enterprises (Giordani, 2015). When internal fund alone is insufficient to support investment, it is necessary for SMEs to seek for external financing. In emerging countries, where financial markets are not fully functioning, bank loans are well recognized as the most popular external financing source to SMEs, for example in China (Zheng & Zhu, 2013) and Vietnam (Leung, 2009).[11] However, it is stylised from the previous findings that SMEs generally gain insufficient access to bank loans because of the asymmetric information and agency problems (Ayyagari et al., 2010; Bhattacharjee & Han, 2014; Didier & Schmukler, 2013). The fact that SMEs in emerging countries achieved persistently high investment rate (Ding et al., 2013) and remarkable economic growth despite the lack of bank financing is a puzzle to the entrepreneurship literature (Guariglia et al., 2011).

This study provides a possible explanation for this puzzle by proposing that entrepreneurs' self-finance is an important but overlooked financing source.[12] Entrepreneurs' self-finance is additional finance which may be entrepreneurs' saving or accumulated wealth from previous years' dividend pay-outs from their own firms or other businesses. Vietnam General Statistics Office reports that entrepreneurs' self-finance together with bank loans (even insufficient) are

[11] In comparison with other emerging external financing alternatives seeding new venture such as venture capital, angel funds, crowdfunding, peer-to-peer funding, and microcredit, etc. (Bruton et al., 2015)

[12] The existing financing hierarchy literature examining financing strategy of small businesses in emerging countries largely overlooks the role of entrepreneurs' self-finance in small businesses' investment, presumably because it is empirically difficult to distinguish between informal finance and entrepreneurs' self-finance. Informal finance defined by Ayyagari et al. (2010) and Allen, Qian, and Qian (2005) is everything that is not bank financing e.g., borrowing from friends and family, and can be recorded either as a liability or as an equity to the firm. This nature of informal finance isolates it from the financing hierarchy literature which generally establishes a clear pecking order among financing sources.

important financing sources to private SME investments in Vietnam.[13] Given the crucial role of the two financing sources in funding young and small firm investment, it is of substantial importance for policymakers, practitioners, and researchers to understand when, why, and to what extent entrepreneurs make use of self-finance and bank loans for new investment projects.

Research concerning the effects of financial constraints on firm investments largely excludes the entrepreneurial sector i.e., private young and small companies (Du & Mickiewicz, 2016) , although this sector is more likely to suffer from severe financial constraints compared to, for example, the state sector, the foreign sector, and listed private firms with strong political relations (Nguyen & Dijk, 2012). [14] Thus, the role of entrepreneurs' self-finance in reducing financial constraints for young and small businesses are not fully appreciated in the extant entrepreneurship literature. Having appropriate understanding about this entrepreneurial financing activity, however, is essential because small business sector is typically the key contributor to emerging economies (Urbano & Aparicio, 2016).

In addition, research concerning financial constraints keeps focusing on the linkages between financial constraints and firm total investments. This relationship found to have a U-shape, which means that for sufficiently low levels of internal fund, a further decrease of internal funds leads to an increase in firm investments. Given that entrepreneurs' self-finance and bank loans in the context of emerging countries account for a large proportion of investments, they may be a U-shaped function of financial constraints as well. Understanding better the exact nature of

[13] From the census of the Annual Enterprise Survey conducted by the Vietnam General Statistics Office from 2000 to 2012, it is found that entrepreneurs' self-finance and bank loans on average account for more than 90% of total investment value.

[14] This strand of literature has long focused on examining the "correct" sign of the coefficient of cash flow variable in an investment equation. Fazzari et al. (1988) initially find that firms that are more likely to face financial constraints display a high sensitivity to cash flow. However, Kaplan and Zingales (1997) in contrast, report that firms appearing less financially constrained are more sensitive to cash flow. To make sense of these contradictory findings, Guariglia (2008) provides an empirical explanation showing that it is the difference in choosing criteria used to identify financially constrained firms by Fazzari et al. (1988) and Kaplan and Zingales (1997) causes inconsistent results. Cleary et al. (2007) moreover suggest a theoretical model to account for the contradiction by presenting that investment is a U-shaped function of cash flow. For more information about the debate, please refer to the Appendix 3.2.

these financing sources, and the possible mechanism of their impact on firm investment is crucial to facilitate the entrepreneurial sector. However, the linkages between financial constraints and the use of entrepreneurs' self-finance and bank loans remain unexplored.

To address these issues, this study closely investigates the use of entrepreneurs' self-finance and bank loans for new investments of Vietnamese SMEs. Using the census data comprising more than 215,000 Vietnamese private SMEs from 2000 to 2012, this study demonstrates that entrepreneurs' self-finance and bank loans are a U-shape function of financial constraints. Specifically, for sufficiently low degrees of internal funds, a further decrease of internal funds leads to an increase in the use of entrepreneurs' self-finance and bank loans for making investments.

One important feature of this U-shape financing sources for investment is that firms with significant financial constraints problem (financially distressed firms) use both bank loans and entrepreneurs' self-finance significantly more than other firms. The banks decision to fund financially distressed firms is based on their expectation that additional investments will improve firm ability to repay debts, and will increase their payoffs by liquidising the firms if they default (Cleary et al., 2007). The entrepreneurs funding decision is rooted from their expectation to increase the firm ability of repaying debts, and to hope that conditions may improve, thereby increasing the value of equity claims – a gamble for resurrection (Bhagat, Moyen, & Suh, 2005).

Given that banks and entrepreneurs appear to fund the most financially constrained firms, a corresponding question is that whether financially constrained older and larger firms are able to raise more entrepreneurs' self-finance and bank loans than the younger and smaller ones. If this is the case, then firm age and size can be considered as important competitive advantages for financially constrained firms. It means that firms could deliberately stay in financial constraints situation for a long time to obtain more capital from entrepreneurs and banks. As a result, the

next research question addressed in this study is: whether firm age and size could help older and larger financially constrained firms to raise more finance from entrepreneurs and bank loans.

To analyse this research question, we examine the interaction of financial constraints with firm age and size. In consistent with previous findings (Allen, Qian, & Qian, 2012; Rahaman, 2011), this study demonstrates that when becoming older and larger, firms healthy in cash flow gradually reduce the amount of entrepreneurs' self-finance. However, in the case that their cash flow performance is less healthy, older and larger firms will raise more entrepreneurs' self-finance to make new investment than the younger and smaller ones do. We employ the entrepreneurship utility theory to explain this finding. The theory proposes that running older and larger businesses provide entrepreneurs with higher utility (from wealth, power, and prestige, etc.) (Douglas & Shepherd, 2000; Ruan, Yin, & Frangopol, 2015). Therefore, to maintain the current level of utility, entrepreneurs are willing to invest more capital into the financially constrained old and large ventures. The more financially constrained the firms are, the more capital it received from entrepreneurs.

On the contrary, old and large firms with unhealthy cash flow cannot raise more bank loans than firms with healthy cash flow. The reason is that banks consider healthy cash flow as an important reduction of asymmetric information and agency costs (Ayyagari et al., 2010). The healthier cash flow performance, the more bank loans firms could obtain.[15]

In summary, this study examines the use of entrepreneurs' self-finance and bank loans of young and small businesses according to their degrees of financial constraints. By doing so, this study makes both important theoretical and empirical contributions to the entrepreneurship and investment literatures. It demonstrates that the conventional models investigating corporate investment was not properly applied into the context of entrepreneurship since entrepreneurs' self-finance has not been successfully modelled. Key findings of this chapter highlight that in

[15] Except for the situation of financial distress. Financially distressed firms can raise more bank loans because helping these firms to make investments is the only way to clear debts.

weak institutional and underdeveloped financial environments, entrepreneurs are the main and persistent financing source for SME investments. Therefore, policies encouraging entrepreneurial activity are important not only for seeding new ventures but also for improving the survival and growth of the incumbent ventures.

4.2 Theoretical framework

This section is to discuss theoretical arguments for the propositions related to SME financing strategy. We will show that under plausible assumptions, investment funded by bank loans is a U-shaped function of internal fund – a measure of (internal) financial constraints (Cleary et al., 2007; Guariglia et al., 2011).[16] Firms that are most abundant and most scarce in internal fund (the least and the most financially constrained firms) use bank loans to make investments significantly more than firms with average degrees of financial constraints.

The motivation for banks to fund the most financially constrained firms is that making investment is the only way for firms to generate revenues and repay debts (Cleary et al., 2007). This is different from the motivation to fund the least financially constrained firms in the sense that banks regard healthy internal fund as a reduction in asymmetric information and agency costs, thereby giving firms with healthy internal fund more access to bank loans (Rahaman, 2011).

In addition, we will demonstrate that most likely being financially constrained (i.e., financially distressed) firms use entrepreneurs' self-finance to make investment significantly more than the others to keep their businesses alive. Entrepreneurs make this risky investment decision because they hope that should conditions improve; the additional equity claims will increase values. This is a gamble for resurrection behaviour (Bhagat et al., 2005).

[16] Guariglia (2008) distinguishes internal financial constraints from external financial constraints. The internal financial constraints is a financially constrained condition which is due to the insufficient internally generated funds (e.g. cash flow). The external financial constraints is a financially constrained condition which is due to asymmetric information which translate firms in difficulties in obtaining external funds.

This study also shows that firm age and size can moderate financial constraints by raising more entrepreneurs' self-finance. This can be explained by the fact that running older and larger businesses provides entrepreneurs with greater utility (from wealth, power, prestige, and independence, etc.) (Douglas & Shepherd, 2000, 2002), thereby motivating them to pour more capital to save their financially distressed ventures.

Because the theoretical framework of this chapter is built upon the theory of Cleary et al. (2007). We will summarise the theoretical model of before introducing our model setting.

Cleary et al. (2007) provides a static model to explain for the U-shape investment curve in which more financially constrained firms make less investments than less financially constrained firms. However, as the level of financial constraints reaches to a certain level, these extremely constrained firms (financially distressed firms) will make more investment than their less financially constrained counterpart.

This U-shaped function of investment on financial constraints rely on three assumptions. First, external funds are more expensive than internal funds. Therefore, firms will make use of internal funds (e.g., cash flow) to finance new projects, and only seek for external loans when internal funds have burned out. Second, the costs of internal and external funds are endogenous to firm financial health and the profitability of investment plans. Third, Cleary et al. (2007) particularly assumes that investment is scalable, which is a continuous rather than discrete decision. This assumption is more realistic than the conventional discrete assumption in which firms either make investment or not.

Based on these assumptions, Cleary et al. (2007) shows that there are two effects which determine the shape of investment to be a U-shape function of internal funds. The first and obvious effect is the cost effect of investment. Simply, higher investment will require firms to make more bank loans. This consequently will lead to higher repayment duty. Moreover, in the case firms are default, there is a risk of being liquidated and taken over by the lenders.

Therefore, based on the first assumption, firms will make more investment when they have more internal funds. This effect suggests a positive relationship between cash flow and investment: a reduction in cash flow leads to a drop of investment. This financing behaviour could delay or restrict firms from realising their investment opportunities but prevent them from higher borrowing, higher repayment, and higher risk of default.

The second and less obvious effect is the revenue effect. This effect highlights the consequence or the result of investments. Specifically, larger investment projects generate higher levels of cash flow, which not only benefits the firms directly but also reduce the marginal cost of debt-finance investment. Higher revenue income will help firms to repay debts made in the past. In addition, from the view point of the lenders, they will take over the firms and enjoy full revenue income if the firms default. Other things equal, banks will be willing to invest in financially distressed firms to help them make more investments. This decision on the one hand is coupled with a hope that firms will be able to repay their debts when they earn more cash from investment revenue; on the other hand, banks will have a chance to take over firms with low liquidation price in case firms fail to realise their projects. Therefore, the revenue effect suggests a negative relationship between cash flow and investment: a reduction in cash flow will trigger an increase investment (funded by banks).

The U-shaped investment curve is a result of the interaction between the two effects for firms in different levels of financial constraints. Specifically, we consider the group of firms which are cash flow rich but insufficient to finance their optimal investments. In this case, they will borrow a small amount of money from banks to make up the capital gap. Now, in the case they suffer from a small decrease of cash flow, if they decide to borrow more from banks, the must make more payment and incur a larger expected liquidation loss. If they decide to reduce investment by a small amount, as long as it is close to the optimal level, firms will find that the foregone revenue is smaller than the costs of making more loans. This line of argument

suggests that when firms earn more cash, they will naturally make more investment. In other words, the relationship of cash flow and investment is positive for cash flow rich firms.

As the level of cash flow decreases, firms will consequently contract their investments but at the same time need to make more bank loans, and thus face higher burden of repayment and higher risk of default. Below a certain point of cash flow availability at hand, these firms will face severe financial difficulties (being financial distressed). For these firms making investments is the only way to generate cash to repay debts without being liquidated. Other things equal, banks will have incentive to fund this type of firms because they understand that financing these firms' new projects is the only way to take back capital they invested in the firms previously. They also benefit in the case that the firms default by taking over their assets with low liquidation price. Thus, for financially distressed firms, the revenue effect – the need for cash generated by investment is stronger than the cost effect – the costs incurred by making additional loans. This result suggests a negative relationship between cash flow and investment.

In this study, we further extend Cleary model by suggesting that banks are not the only external financing source that firms could rely on when they are financially distressed. In our model, we consider entrepreneurs' self-finance as an alternative external financing source to financially constrained firms. Below, we introduce the basic conditions for the model, before formally proving the propositions.

Model setting

The initial setup in this study is built upon the model of Cleary et al. (2007). Assume a risk-neutral firm invests a positive amount $I \geq 0$ which generates revenue $F(I, \theta)$, where θ is a proxy for market demand, a random variable has p.d.f. $\omega(\theta)$, and c.d.f. $\Omega(\theta)$. The variable takes values in $[\underline{\theta}, \bar{\theta}]$. The higher market demand, the higher the revenue, and higher marginal revenue on each unit of additional investment: F_{θ} and $F_{I\theta}$ are both positive.

The total investment includes three funding sources: (1) bank loans I_b, (2) entrepreneurs' self-finance I_s, and (3) the current internal fund of the firm W. Thus, the total new investment is $I = I_{\mathrm{b}} + I_{\mathrm{s}} + \mathrm{W}$.

$\mathrm{F}(\cdot)$ is a strict concave function, and the profit $\left[E\left(\mathrm{F}(I,\theta)\right) - I\right]$ has a unique maximum $\bar{\mathrm{I}}$. A firm that does not invest earns no revenue $\mathrm{F}(0,\theta) = 0$. Similarly, it gains no revenue in the worst market demand scenario $\mathrm{F}(I,\iota\theta) = 0$. In this case, if the firm borrowed bank loans to make investments, it would default.

The firm has internal fund W which can be positive or negative (e.g., cash flow). If $W < \bar{\mathrm{I}}$, the firm is financially constrained, thus it will call for bank loans an amount of $I - I_{\mathrm{s}} - W$ and/or from entrepreneurs' self-finance an amount of $I - I_{\mathrm{b}} - W$ to make the highest possible investment *I*. The banks and the entrepreneurs are risk-neutral, but the banks cannot observe the revenue $\mathrm{F}(I,\theta)$, due to asymmetric information.

The firm has to make repayment D_b to the bank. If it fully repays D_b, it can continue operating. If the firm fails to do so, it has to sell part of its assets to make up D_b. Thus, the probability of being liquidated is a function of the amount of the realised payment *R*. In particular, if it repays $R < D_b$ (i.e., defaults), it is allowed to continue with probability:

$$(1)\quad \beta(\mathrm{R}) = 1 - \frac{(D_b - \mathrm{R})}{\pi}$$

and it is liquidated with probability $1 - \beta(\mathrm{R})$. The term π is the non-transferable payoff to the firm if it is allowed to continue. If it is terminated, its assets are sold for a market liquidation value $\mathrm{L} < \pi$.

Define γ – a value in the $[\iota\theta, \theta']$ interval, the market condition threshold between default and solvency. Revenue generated at this scenario is just sufficient to cover the amount of repayment D_b, thus, we have:

$$(2)\quad D_b = \mathrm{F}(\mathrm{I},\gamma)$$

Finally, define entrepreneurs' minimum expected equity claim: $D_s = I_s + W$, where D_s is an exogenous (given) value of opportunity costs to entrepreneurs. This setting is to ensure that entrepreneurs only make investments when they estimate that the values of the investing projects $(I_s + W)$ are as least equal to the second-best investment option (investments elsewhere rather than the current businesses, whose value is D_s, e.g., stock markets).

The value maximization behaviour:

The firm is assumed to maximize its value net of returns paid to the banks and the entrepreneurs:

$$(3)\quad \int_{\iota\theta}^{\gamma} \left[\beta\big(F(I,\theta)\big)\pi - D_s\right]\omega(\theta)d\theta + \int_{\gamma}^{\theta'} [F(I,\theta) - D_b - D_s + \pi]\omega(\theta)d\theta$$

The first term of (3) indicates that when the market condition is below the threshold of default and solvency, the value of the firm is a proportion of the non-transferable value π according to the probability of repaying debts from its investment revenue $\beta(R) = \beta\big(F(I,\theta)\big)$ net from the equity claims of entrepreneurs D_s.[17] The second term of (3) indicates that when the market condition is above the threshold of default and solvency, the value of the firm is the sum of the revenue $F(I,\theta)$ from the investment project, and the payoff π net from repayments to the bank, and to the entrepreneurs.

or equivalent,

$$(4)\quad E\big(F(I,\theta)\big) - D_b(I,W) - D_s + \pi$$

[17] The value of equity claims could be negative in this case because $D_s = I_s + W$. If the firm has a negative internal fund, and its value is greater than the value of the additional self-finance, the expected equity claims may be negative.

Equation (4) is derived from equation (3), indicates that the firm should maximize its expected revenue from investment net from repayments to banks and to entrepreneurs in order to maximize its value.

The participation constraints

First, the participation constraint of the banks is:

$$(5)\quad \int_{\iota\theta}^{\gamma}\left(F(I,\theta)+\frac{D_b-F(I,\theta)}{\pi}L\right)\omega(\theta)d\theta+\left(1-\Omega(\gamma)\right)D_b = I-I_s-W$$

A bank only funds the firm investments if it estimates that the return from making such a decision (the left-hand side of the equation) is at least equal to the amount of loans (the right-hand side of the equation). Because market conditions change, there is uncertainty in return to the bank. The first term of (5) indicates that when the market condition is below the threshold of default and solvency, the bank will take full amount of the revenue generated from the firm investment, and a proportion of the firm assets according to the gap between the required payment D_b and the revenue $F(I,\theta)$ as the repayment for the original loans. The second term of (5) indicates that when the market condition is above the threshold of default and solvency, the bank simply takes the amount of required payment D_b from the firm investment revenue.

The participation constraint of the entrepreneurs is:

$$(6)\quad \int_{\iota\theta}^{\gamma}\left(-\frac{D_b-F(I,\theta)}{\pi}L\right)\omega(\theta)d\theta+\int_{\gamma}^{\theta'}\left(F(I,\theta)-D_b\right)\omega(\theta)d\theta = I-I_b-W$$

Similar to banks, entrepreneurs only make investment decision when they are assured that the return from investment is at least equal to the amount of capital invested. The first term of (6) indicates that when the market condition is below the threshold of default and solvency, the entrepreneurs will lose an amount of the firm assets used to make up the gap between the required payment D_b and the revenue $F(I,\theta)$. The second term of (6) indicates that when the

market condition is above the threshold of default and solvency, the return to the entrepreneurs is simply the investment revenue net from the repayment to the bank.

The main result shows that that the optimal investment in (3) under the bank participation constraint (5) and entrepreneur participation constraint (6), using (2) is a U-shaped function of internal funds. This is formally stated in the proposition 1. Proof of the proposition can be found in the Appendix 3.1.

Proposition 1: i) Under the bank participation constraint, investment is a U-shaped function of internal funds given that entrepreneurs' self-finance is fixed. ii) Under the entrepreneur participation constraint, investment is a U-shaped function of internal funds given that bank loans are fixed.

The results of the Proposition 1 imply that firms that are most financially constrained (financially distressed) use bank loans to make investments more than firms with average degrees of financial constraints do. We propose that banks decide to fund the most financially constrained firms because helping these firms to make investments is the only way for them to clear debts. In particular, the revenue generated from investments must eventually dominate the banks' marginal cost of providing funds (Cleary et al., 2007).

Meanwhile , the decision to fund the least financially constrained firms is due to these firms are financially healthy, thereby being less risky, and also keen to make high value-added investment projects (Carreira & Silva, 2010; Guariglia et al., 2011).

To account for entrepreneurs' self-finance for investment curve, we suggest that entrepreneurs decide to fund the most financially constrained firms because they hope that market conditions may improve in the future, and the value of additional equity claims will increase. This is a gamble for resurrection.

Meanwhile, the decision to fund the least financially constrained firms is due to these firms are keen to make high value-added investment projects which are likely to generate high returns for entrepreneurs.

One of the advantages of the Proposition 1 is that it does not restrict the pecking order between bank loans and entrepreneurs' self-finance. The entrepreneurs will decide to employ either I_s or I_b or both to make up the $I - W$ gap according to the relative costs of the two financing sources.[18] When the entrepreneurs only use bank loans to fill the investment funding gap, the model reduces to the one of Cleary et al. (2007).

The moderating effect of firm age and size on financial constraints

The liquidation value of the firm L is a function of firm age and size, i.e., older and larger firms are worth more on the liquidation market, holding all other arguments constant. Similarly, the non-transferable payoff to the current owners of the firm π is a function of firm age and size as well i.e., older and larger firms are more worth to entrepreneurs, holding all other arguments constant.

The difference $\pi - L = \mu$ can be interpreted as a private benefit that an owner-manager receives from running a private firm. The entrepreneurs may derive this amount of non-transferable utility from being independent, social status, and wealth, etc.[19] (Douglas & Shepherd, 2000). Douglas and Shepherd (2002), moreover, argue that a person who is highly tolerant to risk, hard-working, and prefers independence can always be paid enough to "bribe" her to work for someone else.

In this saying, the financial value of an entrepreneur's utility can be determined by the marginal value of income at which the entrepreneur is indifferent between working for other person and

[18] The cost of I_b is the borrowing cost (interest rate). Meanwhile, the cost of I_s is the opportunity cost by investing in other economic activities rather than the current business.
[19] Entrepreneur's payoff is non-transferable but financially measurable (Cleary et al., 2007; Douglas & Shepherd, 2002).

running her own business. It should be noticed that the older and larger the current business is, the higher the marginal value of incomes should be offered to "bribe" the entrepreneur because the utility derived from owning the large and old businesses is higher than owning the small and young ones. This argument is summarised in the following equation:

$$(7)\ \pi(A,S) = \mu(A,S) + L(A,S)$$

Recall that the firm's objective is to maximize its value:

$$E\big(F(I,\theta)\big) - D_b(I,W) - D_s + \pi(A,S)$$

replace D_s by its value derived from (6):

$$D_s = \int_{\theta}^{\gamma} \left(-\frac{D_b - F(I,\theta)}{\pi(A,S)} L\right) \omega(\theta) d\theta + \int_{\gamma}^{\theta'} \left(F(I,\theta) - D_b\right) \omega(\theta) d\theta + W$$

The firm then maximizes:

$$\left(-\frac{L}{\pi(A,S)}\ \Omega(\gamma) + \Omega(\gamma)\right)\Big(\big(E(F(I,\theta)\big) - F(I,\gamma)\Big) + \pi(A,S) - W$$

The first term is positive, thus to maximize the firm value, an entrepreneur must: (1) maximize the second term $E(F(I,\theta) - F(I,\gamma)$, which is the difference between the expected revenue from investment and the debts repayments to the bank; (2) maximize the non-transferable payoff $\pi(A,S)$, and (3) minimize the required capital W employed in operation.

The link between the entrepreneur's payoff and the firm value ensures that the entrepreneur must maximize the firm value if she wants to maximize her non-transferable payoff. In other words, to maximize π, the entrepreneur has to maximize L, according to equation (7). When the firm is financially distressed, its liquidation value L will decrease and thus will lower the level of utility obtained from running the firm.

In order to remain at the current level of utility, the entrepreneur has to recover the firm value by injecting more capital with a hope for resurrection. Additionally, it is noteworthy that the private utility value μ is also an increasing function of firm age and size. Therefore, entrepreneurs have stronger motivation to invest in larger and older businesses when they are under financial distress situation.

Meanwhile, according to equation (5), bank funding decision is made based on firm repayment ability only. This condition implicitly indicates that older and larger firms cannot obtain more bank loans if their ability of repaying D_b is not sufficiently high to meet the condition specified in equation (5). In other words, because bank funding is involved with nothing more than firm ability of repaying debts, it could be proposed that firm age and size cannot moderate financial constraints by raising more bank loans.[20] These arguments establish the proposition below:

Proposition 2: When making new investments, more financially constrained old and large firms are able to raise more entrepreneurs' self-finance (but not bank loans) compared to the less financially constrained old and large ones.

4.3 Data and methodology

4.3.1 Data source

This chapter employs the census data from the Annual Survey on Enterprises compiled by the Vietnam General Statistics Office (GSO), covering a thirteen-year period of 2000 to 2012. The dataset provides comprehensive and rich firm-level information for manufacturing, mining, and service industries. It comprises the business population of registered firms with at least 10 employees in all ownership sectors, and a random sample of microenterprises with less than 10 employees.

[20] In fact, older and larger SMEs make more investment because of $I_b(A, S)$ and $I_s(A, S)$. Investment may improve their ability to repay debts since it is initially assumed that $F_I > 0$. However, revenue is simultaneously determined by market conditions: $F(I, \theta)$ .Therefore, older and larger firms do not absolutely guarantee lower default risk and higher probability of repaying debts to the banks.

To clean the data, all of firms with negative total assets, fixed assets, depreciation and employees are dropped, so are for those whose fixed assets are greater than total assets. Similarly, firms reporting negative investments or missing values are also deleted. Specifically, there are 4 observations with negative investments, and 8,886 observations that have negative total assets, fixed assets, depreciation or employees. These observations are dropped out of the sample. The final sample includes 791,889 firm-year observations. The outliers are controlled by censoring the top and bottom 1% of observations in each of the study variable. To serve the purpose of this study, we focus only on the entrepreneurship sector i.e., young, private, and small companies – definition by Du and Mickiewicz (2016) as they are the sector that severely suffers from financial constraints.[21]

4.3.2 Variables and estimating equations

- *Sources of investment funding*

According to the propositions developed the in previous section, the primary dependent variables of interest in this study are the two financing sources for firm new investment projects: entrepreneurs' self- finance and bank loans that firm i makes in year t, normalised by total capital stock E_{it}/K_{it} and B_{it}/K_{it} respectively. Capital stock is the number of total capital that firms report at the end of each accounting year. Total capital is the sum of total liabilities and owner equity. Capital stock is equal to total assets since they are two aspects of a fortune. It should be noted that entrepreneurs' self-finance is net from any informal, semiformal borrowings; and bank loans are net from government subsidies. On average, the two sources

[21]This study applies the SME definition by the Vietnam Enterprise Law. According to the Vietnam Enterprise Law, there are 4 types of firms in terms of sizes. Microenterprises are firms operating with less than 10 employees. Small enterprises are firms having 10 to 200 employees and total registered capital less than 20 billion VND (approximately 1 million USD). Medium enterprises are firms having 200-300 employees and total registered capital less than 100 billion VND (approximately 5 million USD). And large enterprises are firms operating with more than 300 employees and 100 billion VND registered capital. Capital is the first criterion in categorization. The firm population of interest in this study is the group of firms with at least 10 employees and total capital less than 100 billion VND.

account for more than 90% of total investment value made by Vietnamese private young and small firms in the examined period.

One of the advantages of this study is that: instead of making use of the balance sheet to generate investment variables (Cull & Xu, 2005; Ding et al., 2013; Driffield & Pal, 2001; Lang, Ofek, & Stulz, 1996), the dataset used in this thesis particularly allows examining investment by information directly reported by the surveyed firms. Thus, the estimates are expected to suffer from less measurement biases and accounting manipulations, thereby being more robust and consistent.[22]

- *Internal financial constraints*

Following Cleary (1999) and Guariglia (2008), this study uses cash flow, normalised by total capital $\left({CF_{it}}/{K_{it}}\right)$, as a proxy for the degrees of internal financial constraints. Firms with higher levels of cash flow are less likely financially constrained. In the original work, Cleary et al. (2007) split their sample into two groups, one with positive cash flow observations and the other one with negative cash flow observations. They argue that that firms with negative cash flow are more financially constrained than firms with positive cash flow. Thus, they expect that more financially constrained firms (negative cash flow group) will have higher cash flow - investment sensitivity.

Building on this setting, Guariglia (2008) when examining whether cash flow has a differential impact on the investment of firms with different degrees of internal/external financial constraints further improve Cleary's two-group classification. Specifically, the author divides

[22] Primarily suggested by Fazzari and Petersen (1993), then advanced by Ding et al. (2013) and Baños-Caballero, García-Teruel, and Martínez-Solano (2014), working capital is now widely considered as a complementary source for fixed assets investment in the context of financial constraints. In order to incorporate this line of literature to sufficiently capture the intrinsic mechanism in which entrepreneurs make investment decision, the dependent variables comprise four types of investment: [1] construction of factory and building, [2] machinery and other fixed productive assets purchase, [3] technology upgrade and update spending, and [4] additional net working capital investment.

cash flow into three groups. The first group includes firms with negative cash flow, identical to Cleary's method. However, Guariglia split firms with positive cash flow into two sub-groups. Medium group includes firms that have the cash flow to capital ratio falls below the 75th percentile of the distribution of the corresponding ratios (of all firms operating in the same industry in one year). High group includes firms that has the cash flow to capital ratio falls above the 75th percentile of the distribution of the corresponding ratios (of all firms operating in the same industry in one year). This classification is more advanced in capturing the difference between the most and the least financially constrained firms.

Building on previous settings, in this study we further develop Guariglia three-group classification into four groups. We focus on the group of firms that have negative cash flow performance. These firms although suffer from cash flow loss, they are not necessarily at the same level of financial constraints. Therefore, we further divide firms with negative cash flow into two groups: a group of firms with negative cash flow and suffering from negative profitability (earn accounting loss), another group of firms includes those with negative cash flow but gain positive profitability.

This deliberate classification is based on suggestions from the accounting literature that some firms have negative cash flow but they are not necessarily in a financial distress situation (Bhagat et al., 2005; McLaney & Atrill, 2010). The reason is that they may strategically keep profits in terms of receivables and short-term financial investments rather than cash for the sake of future development (D'Espallier, Huybrechts, & Schoubben, 2014; Teal & Sivarama Krishnan, 2014).

Our four-group classification is appropriate in the context of Vietnam because young and small businesses in emerging countries have strong incentive to keep cash in terms of short-term investments or receivables at least for two reasons. First, this strategy helps firms to efficiently make use of their free cash flow but not being fixed into long-term commitments. Second, being cash-flow poor may help them to avoid bureaucracy, corruption, and harassment from local

officials. This hypothesis also holds for firms in the US as Cleary et al. (2007) note that the number of firms with negative cash flow in their sample is significantly high (23% of total observations). The number is lower in the UK, which is 13% of total observations but still noticeable (Guariglia, 2008). Thus, it is important to understand in the group of negative cash flow, which firms really face financial difficulties and which ones deliberately holds its cash flow performance below the even point for the sake of future development.

Based on the previous settings, this study proposes a four-group classification to define degrees of firm financial constraints using both cash flow and profitability criteria. Specifically, the following mutually exclusive dummy variables are constructed to capture the degrees of financial constraints:

(i) DISTRESSED_{it}, equal to 1 if firm i has a negative cash flow to capital ratio $\left({CF_{it}}/{K_{it}}\right)$ *and* a negative profit to capital ratio $\left({P_{it}}/{K_{it}}\right)$ at time *t*, and equal to 0 otherwise. Firms in *Distressed* group are most financially constrained because they have negative cash flow and earn economic loss.

(ii) POTENTIAL_{it}, equal to 1 if SME i has a negative cash flow to capital ratio $\left({CF_{it}}/{K_{it}}\right)$ *and* a positive profit to capital ratio $\left({P_{it}}/{K_{it}}\right)$ at time *t*, and equal to 0 otherwise. Even though having a negative cash flow, firms in *Potential* group are less financially constrained than firms in Distressed group because they earn economic gain.

(iii) MEDIUM_{it}, equal to 1 if firm i has a positive cash flow to capital ratio $\left({CF_{it}}/{K_{it}}\right)$ which falls below the 75$^{\text{th}}$ percentile of the distribution of the corresponding ratio. Firms in *Medium* group have positive cash flow thereby being less financially constrained than firms in *Potential* group.

(iv) LOW_{it}, equal to 1 if firm i has a positive cash flow to capital ratio $\left({}^{CF_{it}}/_{K_{it}}\right)$ which falls above the 75th percentile of the distribution of the corresponding ratio. Firms in *Low* group are most healthy in cash flow; therefore, they are least financially constrained.

Following the recent literature of firm investments (Angelini & Generale, 2008; Ding et al., 2013; Du & Girma, 2012; Rahaman, 2011), assuming firms simultaneously consider using bank loans and entrepreneurs' self-finance to make investments, this study suggests the following reduced-form equations:

$$(\mathbf{8})\left({}^{B_{it}}/_{K_{it}}\right) = \beta_0 + \beta_1\left({}^{E_{it}}/_{K_{it}}\right) + \beta_2\left({}^{F_{it-1}}/_{Assets_{it-1}}\right) + \beta_3(A_{it}) + \beta_4(A_{it})^2 + \beta_5(S_{it-1}) + \beta_6(S_{it-1})^2 + \overrightarrow{(C)}'\alpha + \left[\overrightarrow{(C)}'\times(A_{it})\right]\delta_1 + \left[\overrightarrow{(C)}'\times(A_{it})^2\right]\delta_2 + \left[\overrightarrow{(C)}'\times(S_{it-1})\right]\tau_1 + \left[\overrightarrow{(C)}'\times(S_{it-1})^2\right]\tau_2 + \mu_{it}$$

$$(\mathbf{9})\left({}^{E_{it}}/_{K_{it}}\right) = \beta_0 + \beta_1\left({}^{B_{it}}/_{K_{it}}\right) + \beta_2\left({}^{F_{it-1}}/_{Assets_{it-1}}\right) + \beta_3(A_{it}) + \beta_4(A_{it})^2 + \beta_5(S_{it-1}) + \beta_6(S_{it-1})^2 + \overrightarrow{(C)}'\alpha + \left[\overrightarrow{(C)}'\times(A_{it})\right]\delta_1 + \left[\overrightarrow{(C)}'\times(A_{it})^2\right]\delta_2 + \left[\overrightarrow{(C)}'\times(S_{it-1})\right]\tau_1 + \left[\overrightarrow{(C)}'\times(S_{it-1})^2\right]\tau_2 + \mu_{it}$$

$$\mu_{it} = v_i + v_j + v_g + v_t + e_{it}$$

where $\left({}^{B_{it}}/_{K_{it}}\right)$ is firm investments funded by bank loans normalised by total capital, $\left({}^{E_{it}}/_{K_{it}}\right)$ is firm investments funded by entrepreneurs' self-finance normalised by total capital, $\overrightarrow{(C)}'$is a column vector with elements including the four degrees of financial constraints including *Low, Medium, Potential*, and *Distressed* (*Medium* is taken as the reference group); (A_{it}) and (S_{it-1}) are firm age and (lagged) firm size variables respectively.[23] The error term

[23] Due to the data limitation, this study cannot include borrowing costs related variables (e.g. interest rate). However, the difference in the interest rates among firms are implicitly controlled by other

constitutes five components: v_j is an industry-specific component; v_g is geographical location-specific; v_t is a time-specific; v_i, a firm-specific effect; in addition to an idiosyncratic component e_{it}.

Proposition 1 suggests that investment sourced from bank loans, and investment sourced from entrepreneurs' self-finance are a U-shaped function of internal fund. Therefore, we expect that alpha, the coefficients associated with vector C, which contains four dummy variables representing the four levels of financial constraints, will behave in this pattern: the coefficients associated with *Distressed* (most financially constrained firms) and *Low* (least financially constrained firms) will be positive and precisely determined. Because the pre-determined benchmark is the *Medium* group, the positive and significant coefficients associated with *Distressed* and *Low* group indicate that the most and the least financially constrained firms use bank loans and entrepreneurs' self-finance significantly more than firms with an average level of financial constraints.

Proposition 2 proposes that firm age and size could moderate financial constrains by attracting more entrepreneurs' self-finance, but not bank loans. To test this proposition, we set up interaction terms of the four financial constraint dummies with firm age and size in both equations. We expect that in equation (8) – the bank loan equation – the coefficients associated with interaction terms (i.e., delta 1, delta 2, tau 1, and tau 2) will be insignificant. If this is the case, we have sufficient evidence to conclude that firm age and size cannot moderate financial constraints by raising bank loans.

Meanwhile, we expect that in equation (9) – the entrepreneurs' self-finance equation – the coefficients delta 1, delta 2, tau 1, and tau 2 will be precisely determined. Moreover, the interaction terms of age squared and size squared with *Distress* should be positive to evidently

variables such as firm age, size, cash flow performance, as well as industry and regional dummies (Cull & Xu, 2005).

conclude that older and larger financially distressed firms can raise more entrepreneurs' self-finance than their less financially distressed counterparts.

We estimate both equations using a lump-sum modelling. An advantage of this modelling is that, instead of estimating investment equations on split-samples, it includes dummies for different levels of financial constraints in regression equations (Cleary et al., 2007). This method is to avoid problems of endogenous sample selection, to gain degree of freedom, and to take into consideration that SMEs can continuously switch their levels of internal financial constraints (Guariglia, 2008). Moreover, this method also allows investigating possible moderating effects of firm age and size on different financial constraints groups by examining the corresponding interaction terms.[24]

The above specifications may encounter several econometric issues. The first issue is that time-invariant unobserved firm-specific characteristics (fixed effects) such as productivity, management, etc. and any possible measurement error are likely correlated with the explanatory variables. In addition, the panel has a short dimension (T=13), and a large number of observations (N=216,067).

To address the foregoing issues, this study applies the system general method of moment (SGMM) estimator proposed by Blundell and Bond (1998). The method uses moment conditions which state that the regressors are orthogonal to the errors, and SGMM estimations are consistent if the coefficients meet these moments.

Specifically, because the explanatory variables in our regressions are weakly exogenous (e.g., reverse causal effect), we make use of the GMM estimator, which use lagged values of X to instrument for the current values of X (X is a vector of weakly exogenous variables). When using instrumental variables (IVs), it is important to check for the validity and relevant of the

[24] Before running regressions for each financing source, the model of Cleary et al. (2007) is replicated, the U-shaped total investment curve in the sample being used is confirmed.

IVs. Specifically, it is essential to check whether the assumptions (1) level residuals are serially uncorrelated and (2) IVs are exogenous are satisfied. To check for the autocorrelation, we make use of the Arellano and Bond (1991) AR test for the difference equation. This test is based on an MA(1) process in which output variable depends linearly on the current and a past value of a stochastic term.

AR(1): Normally always significant because:

$\Delta u_{it} = u_{\mathrm{it}} - \boldsymbol{u_{it-1}}$

$\Delta u_{it-1} = \boldsymbol{u_{it-1}} - u_{it-2}$

By nature, the difference of the error terms in two consecutive periods are correlated because they have the same error term u_{it-1}.

AR(2): Need to be insignificant to conclude that there is no serial correlation.

$\Delta u_{it} = u_{it} - u_{it-1}$

$\Delta u_{it-2} = u_{it-2} - u_{it-3}$

If Δu_{it} and Δu_{it-2} are not correlated, then X_{it-2} and u_{it}, u_{it-1} are uncorrelated. Meanwhile, X_{it-2} is used as instrument for ΔX_{it} in difference equation. In difference equation of ΔX_{it} the error term is:

$\Delta u_{it} = u_{it} - u_{it-1}$

which is uncorrelated with the instrument X_{it-2} if AR(2) is insignificant. When this condition is met, we conclude that the instruments are valid.

And only then, the moment for the difference equation:

$\mathrm{E}(\Delta x_{it-s} \Delta v_{it}) = 0 \qquad$ for $s \geq 2, \;\; t = 3,4, \ldots, T$

are feasible."

The validity of SGMM hinges on two specification tests: a second-order autocorrelation test of AR (2) in the transformed equations to examine whether the level equations are serially correlated at order 1; and the Hansen (J) test of the overall validity of the instruments. Because weakly exogenous variables may introduce endogeneity to our model, in difference equations, to ensure the moment:

$$E(\Delta x_{it-s}\Delta v_{it}) = 0$$

feasible (i.e. the difference of the weakly exogenous variables and the difference of the error are uncorrelated), s must be greater than 2 ($s \geq 2$), so that the first period to begin with is t+3 ($t = 3,4, \dots, T$). In other words, in difference equation, to make sure the explanatory variables and the error terms are uncorrelated, we use the lags from 2 to 5 years of (level) explanatory variables as instruments for the difference.

Meanwhile, the moment for the level equation is:

$$E(\Delta x_{it-s}v_{it}) = 0$$

For this moment to be feasible, s must be greater than 1 ($s \geq 1$). Since Δx_{it-s} is instrumented for the (level) weakly exogenous variables, this difference term must be uncorrelated with the current error term v_{it}. The IV:

$$\Delta X_{it-1} = X_{it-1} - X_{it-2}$$

is uncorrelated with the current error term. Therefore, we use the difference of weakly exogenous variables from 1 to 3 periods as instruments for those variables in level equation.

- *Control variables*

Firm age: Previous studies suggest that firm age is an important source of heterogeneity in firm investments (Anderson, Duru, & Reeb, 2012; Ding et al., 2013; Tsai, Chen, Lin, & Hung, 2014). Older firms can reduce the liabilities of new comers by accumulating financial,

managerial, and social capital. Long operation period also helps these firms to establish trackable performance records, which are crucial when applying for external loans. Therefore, this study takes into account firm age as an important factor affecting firm investments. In this study. *Age* is the number of years since firm i is established in year t, (A_{it}). We expect that firm age will have a positive effect on both financing sources of investment. The reason is that old firms will have more social capital, and thus may find it easier to gain access to bank loans than young firms do (Du et al., 2015). Moreover, entrepreneurs running old firms may have more wealth to make investments thanks to cumulated dividend pay-outs in the past years.

Firm size: The conventional Gibrat's law asserts no correlation between firm size and growth, which is found valid for large firms in developed countries where financial markets are well-structured and financial constraints is not a significant problem to SME investments (Angelini & Generale, 2008). However, several recent studies in emerging economies suggest a negative relationship between the two variables: small firms grow faster than large firms thanks to their entrepreneurial innovation (Daunfeldt & Elert, 2013). Since size is one of the most important firm characteristics that may have impact on firm investments (Aidis, Estrin, & Mickiewicz, 2012), this study controls the effect of firm size using the variable *Size* which is measured in natural log of the number of employees firm i hires in year t, (S_{it}). In line with the effects of firm age, we expect that firm size will have a similar positive impact on both financing sources of investment. Large firms may have more connection (both formal and informal) with banks and credit institutions (Cenni, Monferrà, Salotti, Sangiorgi, & Torluccio, 2015) thanks to the reduction of asymmetric information and established performance record. This relationship allows them to gain more access to bank loans in comparison with small firms. Moreover, large firms are more likely to raise capital form entrepreneurs' self-finance because entrepreneurs running large firms enjoy higher profitability and income, and are more likely to have income from other sources to make investments (Audretsch & Keilbach, 2004).

Asset structure: *Asset structure* is the fixed assets firm i owns in year t normalised by total assets $\left({}^{F_{it}}/_{Assets_{it}}\right)$, serving as collaterals for bank loans. It is a proxy for asymmetric reduction between the lenders and the firms (Du et al., 2015). The higher the level of fixed assets, the easier young and small firms could gain access to bank loans. Thus, it is expected that asset structure, as a measurement of collateral providing capability of borrowing firms, will be positively correlated with investments sourced from bank loans, but will not be correlated with investments sourced from entrepreneurs' self-finance.

Investment opportunity: In the extant literature, investment opportunities of listed firms are proxied by average q (Bond, 2003; Bond & Reenen, 2007; Ding et al., 2013; Guariglia, 2008). For unlisted firm, some authors use firm age and revenue size (real sales) as valid control variables (Ayyagari et al., 2010; Cleary et al., 2007; Rahaman, 2011), others interact industry dummies with year dummies to indirectly account for time-varying demand shocks at industry level (Brown & Petersen, 2009; Duchin, Ozbas, & Sensoy, 2010; Guariglia et al., 2011). Following the literature, this study controls for investment opportunity by using the variables including firm age, labour size, and their squared terms. The use of labour size instead of revenue size as a proxy for investment opportunity could remarkably mitigate accounting manipulations. This approach is especially appropriate in the context of weak accounting regulations in Vietnam (Athukorala, 2006). Moreover, the inclusion of the squared terms of age and size variables could also help to reduce the investment opportunity biases.[25] In the section of robustness test, we include sales growth as an additional control for investment opportunity. It is expected that firms will raise more capital from bank loans and entrepreneurs' self-finance when there are signals of investment opportunities. As long as the estimated net present value

[25] D'Espallier and Guariglia (2015) identify three measures of investment opportunities suitable for unlisted firms. They then estimate firm-varying investment-cash flow sensitivities (ICFS) from reduced-form investment equations that include these measures, and compare them with those derived from a model that does not control for investment opportunities. They find that all models yield similar ICFS estimates. Their findings suggest that the ICFS of SMEs do not simply reflect investment opportunities and conclude that the investment opportunities bias may therefore have been overstated in previous literature.

of the new projects are positive, firms will raise finance from either source to make investments.

Productivity: The industrial economic literature suggests that unobserved productivity is an underlying factor that brings about firm heterogeneity (Ferguson, 1988; Nickell, 1978). In this empirical study, following the extant corporate finance literature, differences in firm productivity are controlled by the fixed effect in regressions (Baños-Caballero et al., 2014; Ferrando & Mulier, 2013; Rahaman, 2011). In the section of robustness test, we control for productivity by adding labour productivity into both financing source equations. It is expected that labour productivity will be negatively correlated with both financing sources. The reason is that as labour productivity increases, firms gain more profit per employees; therefore, they will be less eager to make new investments either using bank loans for entrepreneurs' self-finance. In other words, investment and productivity are substitutes for gaining higher profitability. Therefore, when firms could increase productivity by applying advanced system and innovation etc. they will find no need to build up new projects to realise investment opportunities.

Regional factors: Because of the 1996 decentralisation program, each region in Vietnam can establish its own economic environments and execute its own regulation arrangements.[26] To account for the geographical and socioeconomic differences across spaces, a set of regional dummies are included as control variables in this study.

Industry specific time-invariant factor: Each industry has its own characteristics that will have significant impact on firm financing decision. For example, Rajan and Zingales (1998) show that firms operating in industries that highly dependent on capital (e.g., high-tech, biological industries) will have different financing behaviour in comparison with firms operating in less capital-intensive industries (e.g., trading, restaurant industries). Therefore, to control for these time-invariant industry specific features, we add a set of two-digit industry

[26] The next two empirical studies are designed to particularly investigate the effects of local governance differences across spaces in Vietnam.

dummies. This setting could eliminate the effects of operating industry on financing source decision.

Time-variant business circles and macro-economic condition changes: The conditions for firms to raise finance either from bank loans or from entrepreneurs' self-finance may change significantly every year. For example, the event that Vietnam joins WTO in 2007 may bring SMEs higher chance to gain access to bank loans thanks to the gradually opening financial market. Other example is that the financial crisis in 2008 also put several firms into financial difficulties, thereby affecting their financing decision. We control for these macro-economic condition fluctuations using a set of year dummies. The inclusion of time dummies could reduce the effects of business circle and all time-variant factors that may have impact on firm financing decision.

- *Key summary statistics*

Table 4.1 presents some basic summary statistics. The mean of entrepreneurs' self-finance $\left({E_{it}}/{K_{it}}\right)$ is relatively high, more than 17% of total capital, compared to merely 4% of total capital investments funded by bank loans $\left({B_{it}}/{K_{it}}\right)$. This indicates that on average SMEs in Vietnam must rely largely on entrepreneurs' self-finance to make investments. Moreover, the average firm age is quite young, slightly above 7 years old. This is associated with a rather small firm size, around 40 employees. The level of fixed assets to capital stock is also relatively low, at 26% of total capital, which is reasonable because the sample is comprised of both industrial and service firms.

Table 4.1: Summary statistics (21)

Variable	Observations	Mean	SD	Min	Max
Bank loans investment (B_{it}/K_{it})	210,697	0.04	0.09	0.00	0.58
Entrepreneurs' self-finance investment (E_{it}/K_{it})	210,697	0.10	0.16	0.00	1.00
Firm age (A_{it})	210,697	7.43	5.48	1.00	41.00
No. of employees (S_{it})	210,697	40.20	44.46	10.00	300.00
Cash flow to capital ratio (CF_{it}/K_{it})	210,697	0.11	0.18	-0.58	0.99

Fixed asset to total assets ratio ($F_{it}/Assets_{it}$)	210,697	0.26	0.25	0.00	0.95
Profitability ($Profit_{it}/K_{it}$)	210,697	0.02	0.09	-0.50	0.43
Labour productivity($Revenue_{it}/Labour_{it}$)	210,697	708.69	1504.02	0	10273.9

Note: The summary statistics are reported for observations included in the main regressions. All variables are constructed using the Vietnam General Statistical Office (GSO) Annual Enterprise Survey from 2000 to 2012.

To provide initial support for the theoretical predictions, this section reports the statistics for the four sub-groups of firms classified by internal financial constraints (Table 4.2). The analysis is of total 210,697 firm-year observations, nearly 66% are classified in *Medium* group. There are about 21% and 7% of the observations in *Low* group and *Distressed* group, and the rest 6% in *Potential* group.

Not surprisingly, *Distressed* firms are the youngest, smallest, and least capital-intensive. They experience the lowest and negative cash flow, followed by *Potential* group. Moreover, *Distressed* is the only group in which firms are loss-making. Interestingly, the use of entrepreneurs' self-finance for investment by firms in *Distressed* group is considerably higher than that by firms in the less financially constrained groups, while the use of bank loan by *Distressed* firms is not proportionally lower than others. In fact, bank loan investment to capital ratio for *Distressed* firms are higher than *Potential* firms that are less financially constrained.

As defined, firms in *Low* group are most healthy in cash flow, and in parallel their normalised fixed asset is also the highest reflecting partially the age, size and collateral advantages to other groups. They are also the most profitable ones. The investments funded by bank loans of these firms (3.6% of total capital) are significantly higher than that used by firms in *Potential* group.

In general, simple statistics reveal that firms that are least financially constrained and the most financially constrained use more bank loans and entrepreneurs' self-finance than other firms. These financing behaviours of firms may signal that investment funded by bank loans is a U-shaped function of financial constraints. To formally test the causal effect of financial constraints on firm financing decisions, we turn to the empirical analysis.

Table 4.2: Mean statistics of dummies of financial constraints (22)

Variable	Distressed	t-test difference between Distressed and Medium	Potential	t-test difference between Distressed and Medium	Medium	Low	t-test difference between Distressed and Medium
No. of observations	14,561		11,605		139,112	45,419	
Percentage (%)	6.91		5.51		66.02	21.56	
Bank loans investment (B_{it}/K_{it})	0.036	0.000	0.024	0.000	0.039	0.045	0.000
Entrepreneurs' self-finance investment (E_{it}/K_{it})	0.142	0.000	0.122	0.000	0.093	0.092	0.002
Firm age (A_{it})	5.410	0.000	6.176	0.000	6.863	10.112	0.000
No. of employees (S_{it})	32.98	0.000	38.368	0.004	37.259	51.982	0.000
Cash flow to capital ratio (CF_{it}/K_{it})	-0.117	0.000	-0.095	0.000	0.066	0.354	0.000
Fixed asset to total assets ratio ($F_{it}/Assets_{it}$)	0.204	0.000	0.180	0.000	0.218	0.416	0.000
Profitability to capital ratio (P_{it}/K_{it})	-0.124	0.000	0.025	0.000	0.010	0.078	0.000

Note: The table provides the mean statistic for the 4 groups of financial constraints. The summary statistics are based on the observations included in the main regressions. *Distressed* indicates SMEs have a negative cash flow to capital ratio and a negative profit to capital ratio. *Potential* indicates SMEs have a negative cash flow to capital ratio and a positive profit to capital ratio. *Medium*, SMEs have a positive cash flow which falls below the 75th percentile of the distribution of the corresponding ratio. *Low*, SMEs have a positive cash flow which falls above the 75th percentile of the distribution of the corresponding ratio. All values are deflated to 2010 price.

4.4 Empirical results

Estimation results are reported in Table 4.3 and Table 4.4. Specification tests suggest no serious problem with the model setting. The first and second columns in both tables report estimation results using the OLS and FE estimators. The last three columns report estimation results using the GMM estimator. Column 3 reports the result of the baseline model without interaction terms, and the last two columns include the moderating effects of firm age and size.

Table 4.3: Investments sourced from bank loans (23)

	OLS No moderate	*FE No moderate*	*GMM No moderate*	*GMM Size moderate*	*GMM Age moderate*
Entrepreneurs' self-finance	-0.0289***	-0.0289***	-0.254***	-0.253***	-0.255***
	(0.00153)	(0.00157)	(0.0939)	(0.0944)	(0.0952)
Asset structure	0.0469***	0.0462***	0.0234***	0.0235***	0.0235***
	(0.00110)	(0.00117)	(0.00141)	(0.00141)	(0.00141)
Age	-0.00152***	-0.00151***	-0.00254***	-0.00255***	-0.00266***
	(9.41e-05)	(0.000101)	(0.000473)	(0.000478)	(0.000475)

$(Age)^2$	2.51e-05***	2.49e-05***	4.79e-05***	4.91e-05***	6.12e-05***
	(2.80e-06)	(3.08e-06)	(1.05e-05)	(1.06e-05)	(1.21e-05)
Size	-0.0124***	-0.0123***	-0.0272***	-0.0274***	-0.0276***
	(0.00205)	(0.00216)	(0.00740)	(0.00767)	(0.00751)
$(Size)^2$	0.00149***	0.00147***	0.00279***	0.00297***	0.00284***
	(0.000282)	(0.000298)	(0.000774)	(0.000836)	(0.000785)
Distressed	0.00216**	0.00211**	0.00811***	0.0144	0.0136**
	(0.000870)	(0.000871)	(0.00293)	(0.0235)	(0.00600)
Potential	-0.00841***	-0.00846***	-0.00716***	-0.0316*	-0.00502
	(0.000833)	(0.000839)	(0.00119)	(0.0168)	(0.00344)
Low	-0.000343	-0.000346	0.00187**	0.0238**	0.00263
	(0.000601)	(0.000625)	(0.000824)	(0.0121)	(0.00191)
Distressed × Size				-0.00137	
				(0.0126)	
Potential × Size				0.0130	
				(0.00969)	
Low× Size				-0.00885	
				(0.00674)	
Distressed × $(Size)^2$				-0.000188	
				(0.00171)	
Potential × $(Size)^2$				-0.00161	
				(0.00134)	
Low × $(Size)^2$				0.000675	
				(0.000898)	
Distressed × Age					
Potential × Age					-0.00122
					(0.000939)
Low_{it} × Age					-0.000461
					(0.000670)
Distressed × $(Age)^2$					0.000173
					(0.000293)
Potential × $(Age)^2$					3.24e-05
					(4.08e-05)
Low × $(Age)^2$					1.40e-05
					(2.55e-05)
Observations	210,697	210,697	210,697	210,697	210,697
R^2	4.8	5.7			
AR2 (p value)			0.43	0.41	0.42
Hansen(J) (p value)			0.05	0.06	0.06

Note: The dependent variable in all specifications is bank loans funded investments. Two-digit industry dummies, 13 year dummies and 6 region dummies are included in each regression. Standard errors and test statistics are asymptotically robust to heteroskedasticity. The estimator is SGMM (*xabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications.

Table 4.4: Investments sourced from entrepreneurs' self-finance (24)

	OLS No moderate	*FE No moderate*	*GMM No moderate*	*GMM Size moderate*	*GMM Age moderate*
Bank loans	-0.0816***	-0.0841***	0.130	0.141	0.147
	(0.00433)	(0.00442)	(0.248)	(0.251)	(0.249)
Asset structure	0.0214***	0.0106***	-0.00178	-0.00197	-0.00194
	(0.00172)	(0.00188)	(0.00612)	(0.00617)	(0.00613)
Age	-0.00469***	-0.00488***	-0.00471***	-0.00473***	-0.00449***
	(0.000153)	(0.000170)	(0.000365)	(0.000370)	(0.000426)
$(Age)^2$	9.87e-05***	0.000107***	0.000103***	0.000103***	0.000108***
	(4.29e-06)	(5.00e-06)	(7.19e-06)	(7.44e-06)	(1.10e-05)
Size	-0.0933***	-0.0886***	-0.0727***	-0.0724***	-0.0727***
	(0.00339)	(0.00365)	(0.00447)	(0.00532)	(0.00452)
$(Size)^2$	0.00972***	0.00914***	0.00721***	0.00733***	0.00722***
	(0.000454)	(0.000493)	(0.000578)	(0.000714)	(0.000584)
Distressed	0.0350***	0.0318***	0.0286***	0.133***	0.0535***
	(0.00192)	(0.00192)	(0.00209)	(0.0377)	(0.00522)
Potential	0.00693***	0.00639***	0.00622**	0.0238	0.0228***
	(0.00181)	(0.00184)	(0.00293)	(0.0344)	(0.00588)
Low	0.00445***	0.00357***	0.00347***	-0.0266	0.00121
	(0.000888)	(0.000942)	(0.00106)	(0.0183)	(0.00277)
Distressed × Size				-0.0492**	
				(0.0217)	
Potential × Size				-0.0105	
				(0.0194)	
Low× Size				0.0176*	
				(0.00972)	
Distressed × $(Size)^2$				0.00479	
				(0.00299)	
Potential × $(Size)^2$				0.00149	
				(0.00265)	
Low × $(Size)^2$				-0.00246**	
				(0.00125)	
Distressed × Age					-0.00539***
					(0.00108)
Potential × Age					-0.00336***
					(0.00102)
Low × Age					0.000600
					(0.000399)
Distressed × $(Age)^2$					0.000122***
					(4.13e-05)
Potential × $(Age)^2$					8.52e-05**
					(3.82e-05)
Low× $(Age)^2$					-3.10e-05***
					(1.15e-05)
Observations	210,697	210,697	210,697	210,697	210,697
R^2	5.7	6.8			
AR2 (p value)			.054	.064	.110

Hansen(J) (p value)	.231	.238	.012

Note: The dependent variable in all specifications is investment sourced from entrepreneurial capital. Two-digit industry dummies, 13 year dummies, and 6 region dummies are included in each regression. Standard errors and test statistics are asymptotically robust to heteroskedasticity. The estimator is SGMM (*xabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null the instruments are valid and there is no misspecification.

Proposition 1 argues that investments sourced from bank loans and entrepreneurs' self-finance are a U-shaped function of financial constraints. To validate the empirical result of this proposition, we will examine the coefficients associated with the four financial constraint dummies in specifications reported in both Table 4.3 and Table 4.4. The precisely determined coefficients of the financial constraints dummies in both equations indicate that they have significant impact on firm investments. The coefficients of the *Distressed* variables are positive and statistically significant (refer to columns 3 in both Tables 4.3 and 4.4). In comparison with firms in *Medium* group (the reference group), this result indicates that firms that are most financially constrained use bank loans and entrepreneurs' self-finance significantly more than firms with the average financial constraints degrees to make investments.

This finding supports the Proposition 1 arguing that both entrepreneurs and banks appear to finance investments of the *most* financially constrained firms (financially distressed firms). However, it is noteworthy that the coefficients of the *Distress* variable in the bank loan regressions is much smaller than those in the entrepreneurs' self-finance regressions. According to column 3 in Table 4.4, financially distressed firms only use bank loans that are 0.81% of total capital more than firms in *Medium* group. Meanwhile, the difference between the 2 group in entrepreneurs' self-finance is 2.87%.

This result suggests that relative to bank loans, financially distressed firms are likely to use entrepreneurs' self-finance to fund their investment projects. There are two reasons to explain for the minority of bank loans in the financing portfolio. Fist, private SMEs in Vietnam are discriminated by the state-owned financial system. Banks do not have strong incentives to fund the private sector, especially small business because these firms do not fit into the political

strategy of state-owned banks. Second, in financial distress situation, it is more difficult and takes more time for SMEs to receive cash disbursement from supporting banks because of the severe asymmetric information and agency problems between getting-loss firms and lenders. In addition, borrowing costs are usually high in this case to serve as a premium for the extra risks that lending banks must bear when making loans to financial distressed firms. In general, the combination of the above difficulties will make bank loans a less attractive source of financing for financially distressed firms.

Meanwhile, entrepreneurs' self-finance used by financial distressed firms is almost 4 times higher than bank loans (2.87% in comparison with 0.81%). This result indicates that financial distressed firms largely rely on their own entrepreneurs' self-finance to make investments. This behaviour can be explained, on the one hand, by the fact that entrepreneurs are more willing (in comparison with banks) to save the ventures. The reason is that entrepreneurs could derive a premium, owner-specific utility from running their own businesses; thereby being more eager to pour money into the financial distressed ventures and gamble for resurrection. On the other hand, the fact that distressed firms have limited access to external finance, which is also costly for them, will force entrepreneurs using their own saving as the main source of financing.

For the least financially constrained firms (firms in *Low* group), the precisely determined coefficients of the *Low* variable indicate that they make investments significantly more than firms in the *Medium* group (refer to columns 3 in both Tables 3.3 and 3.4). Moreover, the magnitude of the effects is stronger for entrepreneurs' self-finance than for bank loans. The coefficients of the *Low* variable in the regression of entrepreneurs' self-finance (0.35% - Table 4.4) is twice of the one in the regression of bank loans (0.18% - Table 4.3). This indicates that firms that are healthy in cash flow prefer entrepreneurs' self-finance to bank loans for making investments.

This financing behaviour may be due to the following two reasons. First, cash-flow rich firms usually find it is easy to make investments and will be more likely to invest in high value-

added, long-term, and large-scale projects. These projects usually result in high profitability in the future. Therefore, entrepreneurs with an aim to keep as much profitability as possible from those projects will be reluctant to ask for loans from external lenders, who will share the fruitful profits with them in the case of success, and will take over their businesses in the case of failure. In addition, from the working psychology literature, it is now well known that some entrepreneurs of SMEs are unwilling to share their control rights with other stakeholders as a method to maximise their entrepreneurship utility (Douglas & Shepherd, 2000; Elston & Audretsch, 2011; Fossen, 2011). This behaviour includes hesitancy, averseness and delay in seeking for external financing.

It should be noted that cash-flow rich firms will find it easier to gain access to bank loans in comparison with cash-flow poor firms. However, the fact that cash-flow rich firms remain using more entrepreneurs' self-finance indicates that they deliberately use self-finance to fund investment projects, and avoid using bank loans as much as possible. In general, we suggest that because entrepreneurs want to fully enjoy financial and psychological returns from running independent businesses, they will stay away from bank loans as much as they can.

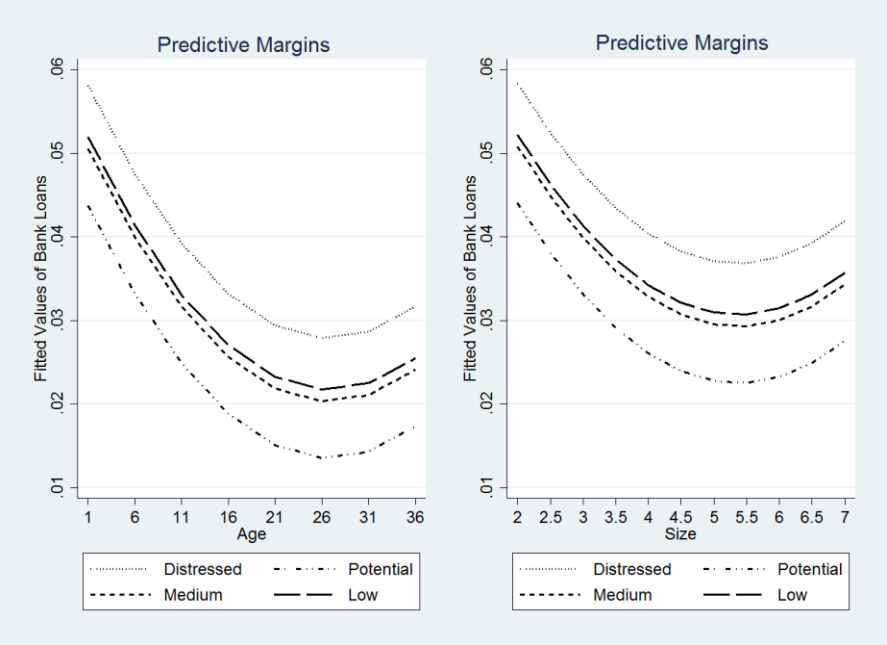
However, key finding is that in entrepreneurs 'self-finance and bank loan equations, the coefficients of *Low* and *Distressed* variables are positive and significant. This indicates that the most and the least financially constrained firms use both entrepreneurs 'self-finance and bank loans more than firms with average level of financial constraints (the *Medium* group). Therefore, the Proposition 1 is fully supported.

Proposition 2 suggests that more financially constrained old and large firms can raise more entrepreneurs' self-finance compared to their less financially constrained counterparts. To investigate the moderating effects of firm age and size on financial constraints, let's examine the interaction terms of firm age and size variables and their squared terms with the financial constraints dummies in both specifications of bank loans investment and entrepreneurs' self-finance investment. The most interesting result is that the coefficients of the interaction terms

are mostly precisely determined in the entrepreneurs' self-finance equation but are statistically insignificant in the bank loan equation (refer to columns 4 and 5 in both Tables 4.3 and 4.4). This initially indicates that firm age and size can moderate the degrees of financial constraints probably by raising more entrepreneurs' self-finance but cannot help to raise more bank loans.

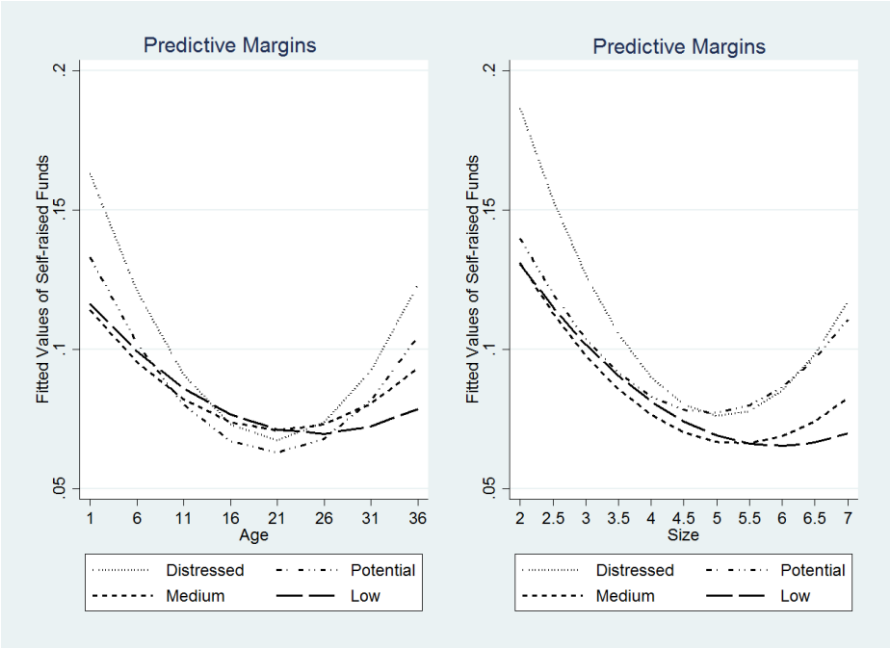
To investigate the moderating effects in detail, this study provides Figure 4.1 and 4.2 which graphically present the predictive margins of bank loan investments and entrepreneurs' self-finance investments on financial constraints dummies by different values of firm age and size.

Figure 4.1: Investments from bank loans: the role of firm age and size (5)



Note: This figure illustrates the predictive margin of investments sourced from bank loans made by four distinct groups of firms: *Distressed, Potential, Medium,* and *Low*. The left figure is for different values of firm age. The right figure is for different values of (log) number of employees, a proxy for firm size.

Figure 4.2: Investments from entrepreneurs' self-finance: the role of firm age and size (6)



Note: This figure illustrates the predictive margin of investments sourced from entrepreneurs' self-finance made by four distinct groups of firms: *Distressed, Potential, Medium,* and *Low*. The left figure is for different values of firm age. The right figure is for different values of (log) number of employees, a proxy for firm size.

Figure 4.1 shows no moderating effect of firm age and size on firm financial constraints (the slops of the 4 dummies remain regardless changing values of age and size). In the figure, firms in *Distressed* and *Low* groups make use of bank loans significantly more than firms in *Potential* and *Medium* groups. This confirms the Proposition 1 arguing that banks have incentives to fund the most and the least financially constrained firms. It is important to notice that the difference of bank loans between any two groups is constant over time. This pattern indicates that on average, firms are not able to obtain more bank loans unless they change their internal financial constraints degrees (cash flow performance). For example, the level of bank loans used by firms in *Potential* and *Medium* groups are always lower than the level of bank loans used by firms in *Low* and *Distressed* group.

It should also be noticed that the coefficients of the interaction terms between *Low* with $(Age)^2$ and Size variables are negative and significant in the bank loan equation. This result indicates

that firms in the *Low* group with healthy internally generated funds tend to reduce the level of bank loans as they grow up. This finding is not contradicted with the key argument that old and large firms that are financially constrained cannot use their age and size advantage to raise more bank loans.

By contrast, Figure 4.2 presents the important role of firm age and size in moderating financial constraints (the slopes of the 4 dummies change with values of age and size). The figure shows that when firms are newly established, entrepreneurs' self-finance is a U-shaped function of financial constraints because firms in *Distressed* and *Low* group invest more than firms in *Medium* groups. In other words, firms that are most financially constrained and firms that are least financially constrained invest significantly more than firms with average degrees of financial constraints. However, in contrast to the results on bank loans, when becoming older and larger, firms that are more financially constrained always receive more entrepreneurs' self-finance to make investment. On the right-hand sides of the two graphs in Figure 4.2, more financially constrained older and larger firms can raise more entrepreneurs' self-finance compared to their less financially constrained counterparts. This finding therefore supports the argument of the Proposition 2 that older and larger firms can moderate their financial constraints by raising more entrepreneurs' self-finance to make investments.

In terms of the control variables, the coefficients of entrepreneurs' self-finance in bank loan equation, and the coefficients of bank loans in entrepreneurs' self-finance equation are negative. This indicates that the two financing sources are substitute. In other words, as firms use more one of the two financing sources, they will automatically reduce financing from the other source.

The regression coefficients of the asset structure variable in bank loan equation (Table 4.3) are positive and statistically significant. This is consistent with the expectation that the higher the level of fixed assets, the more bank loans firms could obtain. This variable becomes statistically insignificant in the equation of entrepreneurs' self-finance indicating that there is no agency

problem for entrepreneurs when raising money from their own saving. Therefore, it could be concluded that the use of fixed assets as a proxy for collateral is appropriate.

Finally, the coefficients of firm age and size are negative and statistically significant while their squared terms are positive and statistically significant in both financing equations. This demonstrates the U-shaped pattern of firm age and size on bank loans and entrepreneurs' self-finance, which means that for a sufficiently young and small firm, an increase in its age and size will decrease its investment sourced from both bank loans and entrepreneurs' self-finance. However, after certain points of age and size, the amount of capital sourced from both bank loans and entrepreneurs' self-finance starts increasing.

Empirically, using the coefficients of the variables firm age, size and their squared terms, we calculate the corresponding turning points (which is equal to the coefficients of age/size divided by two times the coefficients of the corresponding squared terms). For age, firms start to increase their investment sourced from bank loans from the age of 29 years old, and from 23 years old for investment sourced from entrepreneurs 'self-finance. The reason for the 6-year gap between the two sources may be that firms need time to reduce asymmetric information and establish a well-tracking record to successfully gain access to bank loans. In terms of size, firms start to increase their investment sourced from bank loans when they bypass the labour size of approximately 220 employees, the number for entrepreneurs' self-finance is only 120. This once again, supports the hypothesis that firms easily raise entrepreneurs' self-finance in comparison with bank loans. It is noteworthy that firms keep monotonically increasing investment in values as they grow older and larger. The U-shaped function of investment on firm age and size are valid for investment as a ratio of capital. Appendix 4.3 provides details of explanation for this U-shaped function of firm age and size.

4.5 Robustness checks

4.5.1 Financial constraints are classified by industry-year

Following Guariglia (2008), we classify financial constrained firms on the basic of industry-year. This method considers the fact that the level of cash flow could be industry specific. For capital-intensive industries, cash flow may stand for a large composition of total capital compared with the corresponding ratio in labour-intensive industries. Therefore, the same amount of cash flow reduction may signal significant financial constraints in some industries while it may just be a temporary reduction of liquidity in other industries. Moreover, degrees of financial constraints may also change by business circles within an industry. Industry-specific time-variant factor such as technology updating, the ratio of new entry, etc. may also affect cash flow generation of incumbent firms. Therefore, we double check our results by ranking financial constraint degrees on the basic of cash flow to capital ratio for firms operating in the same industry and in the same year. Table 4.5 presents the regression results.

Table 4.5: Financial constraints classified by industry-year (25)

VARIABLES	BANK LOANS			ENTREPRENEURS' SELF-FINANCE		
	(1)	(2)	(3)	(4)	(5)	(6)
Entrepreneurs' self-finance	-0.254***	-0.253***	-0.252***			
	(0.0939)	(0.0943)	(0.0950)			
Bank loans				0.126	0.135	0.144
				(0.247)	(0.249)	(0.249)
Assets structure	0.0226***	0.0225***	0.0225***	-0.00106	-0.00122	-0.00119
	(0.00141)	(0.00141)	(0.00142)	(0.00586)	(0.00587)	(0.00585)
Age	-0.00259***	-0.00259***	-0.00254***	-0.00467***	-0.00470***	-0.00438***
	(0.000469)	(0.000475)	(0.000466)	(0.000377)	(0.000379)	(0.000419)
Age squared	4.86e-05***	4.96e-05***	6.00e-05***	0.000102***	0.000103***	0.000104***
	(1.04e-05)	(1.06e-05)	(1.20e-05)	(7.31e-06)	(7.50e-06)	(1.16e-05)
Size	-0.0274***	-0.0255***	-0.0277***	-0.0728***	-0.0739***	-0.0728***
	(0.00740)	(0.00781)	(0.00750)	(0.00449)	(0.00538)	(0.00455)
Size squared	0.00279***	0.00273***	0.00286***	0.00724***	0.00761***	0.00724***
	(0.000775)	(0.000863)	(0.000785)	(0.000577)	(0.000727)	(0.000586)
Distressed	**0.00873*** **	0.0187	0.0146**	**0.0283*** **	0.132***	0.0535***
	(0.00291)	(0.0234)	(0.00601)	**(0.00212)**	(0.0377)	(0.00525)
Potential	**-0.00633*** **	-0.0270	-0.00365	**0.00606** **	0.0218	0.0230***
	(0.00120)	(0.0168)	(0.00346)	**(0.00279)**	(0.0342)	(0.00576)
Low	**0.00406*** **	0.0346***	0.00823***	**0.00129**	-0.0250	-0.000557
	(0.000686)	(0.0109)	(0.00171)	**(0.00131)**	(0.0184)	(0.00321)
Distressed*Size		-0.00323			-0.0480**	
		(0.0126)			(0.0217)	
Potential*Size		0.0111			-0.00898	
		(0.00971)			(0.0193)	
Low*Size		-0.0136**			0.0165*	
		(0.00614)			(0.00956)	
Distressed*Size squared		3.18e-05			0.00457	
		(0.00170)			(0.00299)	
Potential*Size squared		-0.00139			0.00121	

		(0.00134)			(0.00265)	
Low*Size squared		0.00127			-0.00247**	
		(0.000831)			(0.00122)	
Distressed*Age			-0.00128			-0.00548***
			(0.000946)			(0.00109)
Potential*Age			-0.000537			-0.00346***
			(0.000675)			(0.00103)
Low*Age			-0.000393			0.000434
			(0.000273)			(0.000404)
Distressed*Age squared			3.21e-05			0.000125***
			(4.11e-05)			(4.15e-05)
Potential*Age squared			1.42e-05			8.86e-05**
			(2.56e-05)			(3.83e-05)
Low*Age squared			-9.99e-06			-2.29e-05**
			(8.68e-06)			(1.14e-05)
Observations	210,697	210,697	210,697	210,697	210,697	210,697
AR (2)	0.42	0.41	0.47	0.05	0.05	0.11
Hansen (J)	0.03	0.02	0.03	0.21	0.24	0.13

Note: Two-digit industry dummies, 13 year dummies and 6 region dummies are included in each regression. Standard errors and test statistics are asymptotically robust to heteroskedasticity. The estimator is SGMM (*xabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags.AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications.

In general, the results support both proposition 1 and 2. Specifically, most financially constrained and least financially constrained firms use both bank loans and entrepreneurs' self-finance significantly more than firms with average degrees of financial constraints. Moreover, firm age and size could moderate financial constraints by raising entrepreneurs' self-finance but not by bank loans. The significant and positive coefficients associated with the interaction terms between *Distress* and firm age and size variables and their squared terms in the entrepreneurs' self-finance equation provide evidence that entrepreneurs appear to pour more money in financially distressed ventures when they are sufficiently old and large.

4.5.2 Labour productivity

Productivity is an important factor that could affect firm investment decision. Firm with high level of productivity may find there is no need to make substantial investments because the current operational system is sufficiently efficient and effective. In the main empirical settings, we assume that a firm productivity is time-invariant and individual firm-specific which could be control by the difference method of the GMM estimator.

To set more insights, we remove this assumption and directly control for productivity by including the labour productivity variable. This variable is the ratio of net revenue to the number of employees. We expect that when labour productivity is high, firms will make less investments, which will signal by a negative coefficients of labour productivity in regressions. The results are presented in Table 4.6. The coefficients of labour productivity variable are negative and precisely determined which confirm our expectation that productivity and investment are substitute.

Table 4.6: Results with labour productivity (26)

VARIABLES	BANK LOANS			ENTREPRENEURS' SELF-FINANCE		
	(1)	(2)	(3)	(4)	(5)	(6)
Entrepreneurs' self-finance	-0.253***	-0.252***	-0.251***			
	(0.0938)	(0.0942)	(0.0949)			
Bank loans				0.126	0.135	0.143
				(0.247)	(0.249)	(0.249)
Assets structure	0.0222***	0.0221***	0.0221***	-0.00191	-0.00207	-0.00203
	(0.00141)	(0.00141)	(0.00141)	(0.00582)	(0.00583)	(0.00581)
Age	-0.00253***	-0.00254***	-0.00249***	-0.00457***	-0.00460***	-0.00428***
	(0.000460)	(0.000465)	(0.000456)	(0.000374)	(0.000376)	(0.000416)
Age squared	4.74e-05***	4.85e-05***	5.88e-05***	0.000100***	0.000101***	0.000102***
	(1.02e-05)	(1.04e-05)	(1.18e-05)	(7.26e-06)	(7.45e-06)	(1.16e-05)
Size	-0.0275***	-0.0256***	-0.0278***	-0.0733***	-0.0742***	-0.0732***
	(0.00744)	(0.00784)	(0.00753)	(0.00450)	(0.00539)	(0.00457)
Size squared	0.00280***	0.00273***	0.00286***	0.00726***	0.00763***	0.00726***
	(0.000777)	(0.000864)	(0.000786)	(0.000578)	(0.000727)	(0.000586)
Distressed	**0.00869*** **	0.0184	0.0145**	**0.0283*** **	0.132***	0.0534***
	(0.00290)	(0.0234)	(0.00599)	**(0.00212)**	(0.0377)	(0.00525)
Potential	**-0.00628*** **	-0.0265	-0.00383	**0.00617****	0.0228	0.0227***
	(0.00121)	(0.0168)	(0.00344)	**(0.00279)**	(0.0342)	(0.00576)
Low	**0.00405*** **	0.0349***	0.00829***	**0.00126**	-0.0245	-0.000412
	(0.000685)	(0.0109)	(0.00171)	**(0.00130)**	(0.0184)	(0.00321)
Distressed*Size		-0.00312			-0.0479**	
		(0.0125)			(0.0217)	
Potential*Size		0.0110			-0.00934	
		(0.00971)			(0.0193)	
Low*Size		-0.0137**			0.0162*	
		(0.00614)			(0.00957)	
Distressed*Size squared		1.85e-05			0.00455	
		(0.00170)			(0.00299)	
Potential*Size squared		-0.00138			0.00124	

		(0.00134)			(0.00265)	
Low*Size squared		0.00128			-0.00243**	
		(0.000830)			(0.00122)	
Distressed*Age			-0.00126			-0.00545***
			(0.000944)			(0.00109)
Potential*Age			-0.000492			-0.00337***
			(0.000671)			(0.00103)
Low*Age			-0.000406			0.000406
			(0.000272)			(0.000404)
Distressed*Age squared			3.17e-05			0.000124***
			(4.11e-05)			(4.15e-05)
Potential*Age squared			1.31e-05			8.64e-05**
			(2.55e-05)			(3.83e-05)
Low*Age squared			-9.66e-06			-2.22e-05*
			(8.66e-06)			(1.14e-05)
Labour productivity	**-5.01e-07****	**-4.99e-07****	**-4.99e-07****	**-1.08e-06*****	**-1.08e-06*****	**-1.07e-06*****
	(1.95e-07)	(1.95e-07)	(1.95e-07)	**(3.69e-07)**	**(3.68e-07)**	**(3.64e-07)**
Observations	210,697	210,697	210,697	210,697	210,697	210,697
AR (2)	0.47	0.43	0.45	0.06	0.06	0.09
Hansen (J)	0.05	0.07	0.04	0.22	0.25	0.11

Note: Two-digit industry dummies, 13 year dummies and 6 region dummies are included in each regression. Standard errors and test statistics are asymptotically robust to heteroscedasticity. The estimator is SGMM (*xabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications.

4.5.3 Other measure of financial constraints

Guariglia (2008) argues that financial constraints could be classified into two broad categories: internal financial constraints and external financial constraints. The former is concerned with the availability of internal fund (e.g. cash flow, retained earnings, etc.); while the latter is related to access to external finance (firm age, firm size, etc.). Moreover, Guariglia (2008) finds that these two types of financial constraints have different effects on firm investments.

We thus conduct a robustness test of our hypotheses using firm age and firm size as alternative measures of financial constraints. We rank firm financial constraints by their age and size (also on the basic of industry-year). Specifically, firms that have their age/size in the first quartile of the respective distributions by industry-year label *Distressed*; firms that have their age/size in the second quartile of the respective distributions by industry-year label *Potential*; for the third quartile, it is *Medium*, and for the highest quartile, *Low*. Table 4.7 and Table 4.8 present the regression results.

Table 4.7: Results with external financial constraints (firm age) (27)

VARIABLES	BANK LOANS			ENTREPRENEURS' SELF-FINANCE		
	(1)	(2)	(3)	(4)	(5)	(6)
Entrepreneurs' self-finance	-0.250***	-0.251***	-0.248***			
	(0.0852)	(0.0852)	(0.0854)			
Bank loans				0.171	0.168	0.176
				(0.245)	(0.243)	(0.246)
Assets structure	0.0236***	0.0237***	0.0236***	-0.00359	-0.00340	-0.00371
	(0.00125)	(0.00125)	(0.00125)	(0.00607)	(0.00605)	(0.00607)
Age	-0.00261***	-0.00260***	-0.00270***	-0.00523***	-0.00523***	-0.00515***
	(0.000476)	(0.000476)	(0.000509)	(0.000350)	(0.000345)	(0.000478)
Age squared	4.89e-05***	4.87e-05***	5.58e-05***	0.000115***	0.000115***	0.000126***
	(1.06e-05)	(1.06e-05)	(1.31e-05)	(6.76e-06)	(6.68e-06)	(1.26e-05)
Size	-0.0247***	-0.0402***	-0.0251***	-0.0445***	-0.0648***	-0.0450***
	(0.00484)	(0.00931)	(0.00490)	(0.00535)	(0.0124)	(0.00541)
Size squared	0.00230***	0.00416***	0.00237***	0.00410***	0.00690***	0.00417***
	(0.000517)	(0.00120)	(0.000524)	(0.000633)	(0.00167)	(0.000641)
Distressed	0.00363	-0.0429**	0.00308	0.0252***	0.0874**	0.0326***
	(0.00226)	(0.0197)	(0.00327)	(0.00153)	(0.0370)	(0.00345)
Potential	-0.00226**	0.00429	-0.00193	0.00727***	0.000430	0.0112***
	(0.000914)	(0.0194)	(0.00205)	(0.00149)	(0.0292)	(0.00318)
Low	0.00627***	-0.0379**	0.00667***	0.000342	-0.0879***	-0.00104
	(0.000741)	(0.0181)	(0.00173)	(0.00182)	(0.0251)	(0.00315)
Distressed*Size		0.0231*			-0.0465**	
		(0.0119)			(0.0228)	
Potential*Size		-0.00847			0.00304	
		(0.0117)			(0.0176)	
Low*Size		0.0227**			0.0478***	
		(0.00987)			(0.0137)	
Distressed*Size squared		-0.00238			0.00820**	
		(0.00182)			(0.00346)	
Potential*Size squared		0.00194			-0.000347	

		(0.00176)			(0.00260)	
Low*Size squared		-0.00276**			-0.00625***	
		(0.00133)			(0.00184)	
Distressed*Age			0.000264			-0.00137**
			(0.000368)			(0.000611)
Potential*Age			-0.000241			-0.000909*
			(0.000376)			(0.000545)
Low*Age			4.71e-05			0.000518
			(0.000287)			(0.000429)
Distressed*Age squared			-1.92e-05			2.48e-05
			(1.31e-05)			(2.24e-05)
Potential*Age squared			1.93e-05			3.35e-05*
			(1.48e-05)			(1.98e-05)
Low*Age squared			-9.11e-06			-3.16e-05**
			(8.93e-06)			(1.28e-05)
Observations	210,697	210,697	210,697	210,697	210,697	210,697
AR (2)	0.31	0.32	0.32	0.32	0.32	0.32
Hansen (J)	0.05	0.06	0.05	0.05	0.07	0.05

Note: Two-digit industry dummies, 13 year dummies and 6 region dummies are included in each regression. Standard errors and test statistics are asymptotically robust to heteroscedasticity. The estimator is SGMM (*xabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications.

Table 4.8: Results with external financial constraints (firm size) (28)

VARIABLES	BANK LOANS			ENTREPRENEURS' SELF-FINANCE		
	(1)	(2)	(3)	(4)	(5)	(6)
Entrepreneurs' self-finance	-0.280***	-0.278***	-0.282***			
	(0.0896)	(0.0903)	(0.0958)			
Bank loans				0.137	0.147	0.178
				(0.244)	(0.246)	(0.245)
Assets structure	0.0237***	0.0237***	0.0237***	-0.00310	-0.00333	-0.00404
	(0.00127)	(0.00127)	(0.00127)	(0.00608)	(0.00612)	(0.00610)
Age	-0.00321***	-0.00320***	-0.00358	-0.00534***	-0.00530***	-0.0260***
	(0.000580)	(0.000582)	(0.00627)	(0.000594)	(0.000598)	(0.00860)
Age squared	5.85e-05***	5.85e-05***	8.94e-05	0.000106***	0.000107***	0.00157***
	(1.18e-05)	(1.19e-05)	(0.000414)	(1.17e-05)	(1.17e-05)	(0.000579)
Size	-0.0279***	-0.0337***	-0.0269***	-0.0694***	-0.0732***	-0.0660***
	(0.00679)	(0.00808)	(0.00690)	(0.00427)	(0.00713)	(0.00426)
Size squared	0.00290***	0.00371***	0.00279***	0.00686***	0.00760***	0.00647***
	(0.000711)	(0.000928)	(0.000719)	(0.000556)	(0.000939)	(0.000555)
Distressed	0.00175	-0.000199	0.0625**	0.0113***	0.0529**	0.114***
	(0.00164)	(0.0138)	(0.0278)	(0.00201)	(0.0215)	(0.0429)
Potential	-0.00186**	-0.0274**	-0.0210**	-0.00169	-0.0123	-0.0124
	(0.000892)	(0.0118)	(0.0119)	(0.00139)	(0.0190)	(0.0198)
Low	0.00516***	-0.00811	-0.0135	0.0111***	-0.0345**	-0.101***
	(0.00152)	(0.0119)	(0.0235)	(0.00169)	(0.0164)	(0.0319)
Distressed*Size		0.00105			-0.0213*	
		(0.00783)			(0.0124)	
Potential*Size		0.0151**			0.00709	
		(0.00676)			(0.0107)	
Low*Size		0.00794			0.0276***	
		(0.00688)			(0.00896)	
Distressed*Size squared		-0.000135			0.00244	

		(0.00110)			(0.00173)	
Potential*Size squared		-0.00211**			-0.00111	
		(0.000933)			(0.00146)	
Low*Size squared		-0.00113			-0.00398***	
		(0.000930)			(0.00118)	
Distressed*Age			-0.0402**			-0.0949***
			(0.0162)			(0.0259)
Potential*Age			-0.000483			-0.0114*
			(0.00404)			(0.00584)
Low*Age			0.00234			0.0254***
			(0.00626)			(0.00864)
Distressed*Age squared			0.00625**			0.0167***
			(0.00299)			(0.00500)
Potential*Age squared			3.65e-06			0.00198*
			(0.000732)			(0.00106)
Low*Age squared			-7.33e-05			-0.00156***
			(0.000414)			(0.000580)
Observations	210,697	210,697	210,697	210,697	210,697	210,697
AR (2)	0.21	0.21	0.23	0.21	0.22	0.21
Hansen (J)	0.04	0.05	0.04	0.04	0.05	0.05

Note: Two-digit industry dummies, 13 year dummies and 6 region dummies are included in each regression. Standard errors and test statistics are asymptotically robust to heteroscedasticity. The estimator is SGMM (*xabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications.

Using this classification method, we re-run both bank loans and entrepreneurs' self-finance regression and find that the results are consistent with the main results when using cash flow to rank financial constraints. In general, the most and the least financially constrained firms use both bank loans and entrepreneurs' self-finance to make investments significantly more than firms with average degrees of financial constraints. Moreover, old and large financially distressed firms also use more finance from both sources to make investments. We thus conclude that our propositions are supported throughout different methods used to classify financial constraints.

4.5.4 The 2008 financial crisis

The 2008 financial crisis hits Vietnam severely. After the crisis, the banking system suffered from considerable nonperforming loans. This situation may alter bank lending behaviour and may affect firm investment financing strategy. Therefore, it is important to test the validity of the propositions before and after the crisis. Table 4.9 and 4.10 presents the regression results on split sample: before 2009 and after 2009.

Table 4.9: Results on split sample by financial crisis (29)

VARIABLES	BANK LOAN EQUATION					
	BEFORE CRISIS			AFTER CRISIS		
	(1)	(2)	(3)	(4)	(5)	(6)
Entrepreneurs' self-finance	0.0536	0.0546	0.0444	-0.347**	-0.348**	-0.344**
	(0.141)	(0.141)	(0.141)	(0.143)	(0.143)	(0.144)
Assets structure	0.0322***	0.0320***	0.0320***	0.0211***	0.0212***	0.0211***
	(0.00244)	(0.00242)	(0.00243)	(0.00188)	(0.00188)	(0.00188)
Age	-0.00117	-0.00117	-0.00156	-0.00249***	-0.00253***	-0.00256***
	(0.00103)	(0.00103)	(0.00108)	(0.000588)	(0.000594)	(0.000588)
Age squared	2.10e-05	2.11e-05	3.31e-05	4.65e-05***	4.82e-05***	6.03e-05***
	(2.23e-05)	(2.25e-05)	(2.58e-05)	(1.32e-05)	(1.33e-05)	(1.53e-05)
Size	0.0110	0.00988	0.0101	-0.0367***	-0.0341***	-0.0371***
	(0.0147)	(0.0186)	(0.0146)	(0.00991)	(0.00965)	(0.0101)
Size squared	-0.00119	-0.00103	-0.00109	0.00380***	0.00366***	0.00387***
	(0.00153)	(0.00203)	(0.00152)	(0.00103)	(0.00104)	(0.00105)
Distressed	0.000394	-0.0446	-0.00332	**0.0124****	0.0564	0.0213**
	(0.00296)	(0.0303)	(0.00639)	**(0.00496)**	(0.0350)	(0.00945)
Potential	-0.00876***	-0.0169	-0.0112***	**-0.00310**	0.0650	-0.00643
	(0.00107)	(0.0221)	(0.00305)	**(0.00308)**	(0.0519)	(0.00791)
Low	-0.00518***	0.0196	-0.00820**	**0.00474*****	0.0381***	0.00791***
	(0.00144)	(0.0291)	(0.00409)	**(0.00116)**	(0.0144)	(0.00245)
Distressed*Size		0.0237			-0.0204	
		(0.0181)			(0.0176)	
Potential*Size		0.00490			-0.0369	
		(0.0121)			(0.0290)	
Low*Size		-0.0126			**-0.0145***	
		(0.0158)			(0.00789)	
Distressed*Size squared		-0.00283			0.00195	
		(0.00257)			(0.00229)	
Potential*Size squared		-0.000697			0.00473	
		(0.00158)			(0.00390)	

Low*Size squared		0.00150			0.00131	
		(0.00206)			(0.00105)	
Distressed*Age			0.00108			-0.00218*
			(0.00104)			(0.00130)
Potential*Age			0.000435			0.000877
			(0.000668)			(0.00138)
Low*Age			0.000619			-0.000173
			(0.000646)			(0.000339)
Distressed*Age squared			-4.89e-05			7.48e-05
			(3.45e-05)			(5.31e-05)
Potential*Age squared			-5.09e-06			-4.10e-05
			(2.83e-05)			(3.98e-05)
Low*Age squared			-1.94e-05			-1.63e-05
			(1.92e-05)			(1.00e-05)
Observations	60,748	60,748	60,748	149,949	149,949	149,949
AR (2)	0.21	0.22	0.21	0.21	0.22	0.21
Hansen (J)	0.15	0.16	0.15	0.15	0.15	0.15

Note: All specifications are estimated using SGMM. Two-digit industry dummies, 13 year dummies and 6 region dummies are included in each regression. Standard errors and test statistics are asymptotically robust to heteroscedasticity. The estimator is SGMM (*xabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications.

Table 4.10: Results on split sample by financial crisis (30)

VARIABLES	ENTREPRENEURS' SELF-FINANCE EQUATION					
	BEFORE CRISIS			AFTER CRISIS		
	(7)	(8)	(9)	(10)	(11)	(12)
Bank loans	0.739	0.772	0.735	-0.0104	-0.00277	0.00130
	(0.784)	(0.798)	(0.785)	(0.269)	(0.271)	(0.270)
Assets structure	-0.0293	-0.0298	-0.0291	0.00500	0.00489	0.00496
	(0.0254)	(0.0257)	(0.0254)	(0.00572)	(0.00578)	(0.00572)
Age	-0.00600***	-0.00594***	-0.00600***	-0.00402***	-0.00406***	-0.00390***
	(0.00127)	(0.00130)	(0.00159)	(0.000351)	(0.000355)	(0.000404)
Age squared	0.000131***	0.000131***	0.000139***	8.81e-05***	8.92e-05***	9.64e-05***
	(2.53e-05)	(2.60e-05)	(3.68e-05)	(6.81e-06)	(7.04e-06)	(1.08e-05)
Size	-0.105***	-0.127***	-0.104***	-0.0657***	-0.0619***	-0.0661***
	(0.00970)	(0.0123)	(0.00972)	(0.00574)	(0.00618)	(0.00581)
Size squared	0.0106***	0.0135***	0.0106***	0.00652***	0.00622***	0.00658***
	(0.00126)	(0.00163)	(0.00126)	(0.000718)	(0.000816)	(0.000728)
Distressed	0.0161***	0.0552	0.0365***	**0.0332*** **	0.159***	0.0591***
	(0.00383)	(0.0748)	(0.00912)	**(0.00258)**	(0.0454)	(0.00647)
Potential	0.00699	-0.0797*	0.0133	**-0.00110**	0.0206	0.00118
	(0.00727)	(0.0449)	(0.0107)	**(0.00437)**	(0.0811)	(0.0118)
Low	0.00129	-0.148***	-0.00963	**0.00529*** **	0.0134	0.00650*
	(0.00493)	(0.0420)	(0.00953)	**(0.00138)**	(0.0203)	(0.00332)
Distressed*Size		-0.0162			-0.0600**	
		(0.0431)			(0.0258)	
Potential*Size		0.0429*			-0.0150	
		(0.0244)			(0.0445)	
Low*Size		0.0816***			-0.00248	
		(0.0232)			(0.0107)	
Distressed*Size squared		0.00106			0.00603*	
		(0.00585)			(0.00354)	

Potential*Size squared		-0.00469			0.00236	
		(0.00333)			(0.00593)	
Low*Size squared		-0.0105***			9.75e-06	
		(0.00298)			(0.00137)	
Distressed*Age			**-0.00456****			**-0.00568*****
			(0.00205)			**(0.00132)**
Potential*Age			**-0.00149**			**-0.000224**
			(0.00132)			**(0.00193)**
Low*Age			**0.00202***			**7.01e-05**
			(0.00112)			**(0.000436)**
Distressed*Age squared			**9.70e-05**			**0.000142*****
			(8.05e-05)			**(5.09e-05)**
Potential*Age squared			**5.03e-05**			**-1.04e-05**
			(5.00e-05)			**(5.63e-05)**
Low*Age squared			**-6.26e-05***			**-1.97e-05***
			(3.26e-05)			**(1.20e-05)**
Observations	60,748	60,748	60,748	149,949	149,949	149,949
AR (2)	0.54	0.54	0.54	0.54	0.54	0.54
Hansen (J)	0.04	0.04	0.04	0.04	0.03	0.04

Note: All specifications are estimated using SGMM. Two-digit industry dummies, 13 year dummies and 6 region dummies are included in each regression. Standard errors and test statistics are asymptotically robust to heteroscedasticity. The estimator is SGMM (*xabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications.

The regression results indicate that the main arguments of the proposition 1 and 2 remain valid for the sub-sample after the crisis. Specifically, after 2009, the least and the most financially constrained firms started to get more finance from bank loans and from entrepreneurs to make investments. Before the crisis, this financing pattern is not obvious. Although there is evidence that the most financially constrained firms use entrepreneurs' self-finance significantly more than firms with average level of financial constraints, there is no such a conclusion in terms of bank loans before 2009.

For the firm age and size moderation effects, the results after the crisis provide sufficient evidence to support proposition 2 that old and large firm in financially distressed situation can raise entrepreneurs' self-finance, but not bank loans to make investments. This result does not hold before the crisis.

One explanation for the invalidity of the propositions in the period before the crisis is that transactions between banks and firms in this period is mostly based on informal relationship (Nguyen & Rose, 2009). Therefore, lending decisions are made rather arbitrarily and loosely rather than rigorously based on arm-length, economic-driven principles. This lending behaviour would eliminate the explanatory power the propositions in this period. However, after the crisis, banks started to apply international accounting standard and strictly revise their lending system. Firms also become more realistic and prudent in financing their new investments. These changes force all participants when making investments become more rational and follow a pre-determined financing pattern which could be drawn by our propositions. This would explain for the improved explanatory power of the model in the period after the global crisis.

4.6 Discussion

4.6.1 Link to the extant literature

Findings in this chapter make important contribution to the discussions of several extant literatures. This chapter furthers arguments of Ayyagari et al. (2010) concerning the effects of informal finance. The dominant view is that informal finance plays a complementary role to

formal financial system by serving the lower end of the market. Due to the lack of data, informal finance was defined as "everything else except for bank loans" in literature (Allen et al., 2012). Employing this definition, Ayyagari et al. (2010) find that informal finance can facilitate firm growth better than formal banks in developing countries. However, the mechanism of this faster growth effect is not clearly explained. In this chapter, we demonstrate that entrepreneurs' self-finance, as the main source of informal finance, provides entrepreneurs incentives to innovate, to reform operational structure with a hope to overcome financial difficulties and improve firm performance. This entrepreneurial incentive theory could explain for the better performance of firms largely rely on informal finance.

Similarly, our findings in this chapter support Beck et al. (2014) who find that access to informal finance is positively associated with the decision to become entrepreneur, the initial investment for microenterprises, and sales growth of microenterprises. Therefore, it could be concluded that informal finance including self-finance is the key financing sources for entrepreneurs of new ventures, who find it is difficult or even impossible to gain access to external funds.

Nonetheless, the extant literature also points out that bank loans are important to firm performance. Demetriades, Du, Girma, and Xu (2008) find that Chinese banking system has helped to support growth of both firm value added and TFP. Their results show that firms with bank loans tend to grow faster in regions with greater banking sector development. The empirical results in this chapter also support this point of view as it is shown that older and larger firms, if they are cash flow healthy, they tend to reduce entrepreneurs 'self-finance and switch to bank loans as their primary financing sources (Rahaman, 2011). More specifically, Guiso, Sapienza, and Zingales (2004) find that financial development enhances the probability an individual starts his own business, favours entry of new firms, increases competition, and promotes growth. However, these effects are weaker for larger firms, which can more easily raise funds outside of the local area.

Concerning the corporate financing literature, our study is strongly linked to Du and Girma (2012), who control for the endogeneity of financing sources, find that firm size plays an important role in the way financial structure affects the growth process. Specifically, domestic bank loans are more effective for bigger firms, while self-raised finance is more beneficial to smaller firms' growth. Our findings extends Du and Girma (2012) by highlighting that entrepreneurs' self-finance is more important than bank loans, not only from the perspective of growth performance, but also from the aspect of eliminating financial constraints for investments.

The key message in this chapter is to emphasise the important role of entrepreneurs' self-finance to firm investment financing. However, when positioning this result into a broader context of entrepreneurship literature, it is noteworthy that entrepreneurs' self-finance is important for newly established firms, and firms without performance-tracking record only. In other words, entrepreneurs' self-finance is an alternative external financing source for firms with high asymmetric information and agency problems. In the long-run, to facilitate firm growth, a well-developed external financial market is definitely in need (O'Toole & Newman, 2016).

Besides contributions to the financing source literature, this chapter also build in the literature of entrepreneurial risk attitude. The empirical finding that entrepreneurs invest a large share of their wealth in their own firms, despite comparably low returns and high risk, has become known as the private equity premium puzzle. To solve this puzzle, Fossen (2011) argue that because external finance is costly and difficult to access, entrepreneurs are thus forced to use their own capital to make investments as business opportunities may not come twice. This situation make entrepreneurs become less risk-averse and appear to invest large share of their private wealth in their ventures.

Douglas and Shepherd (2002) offer another theoretical explanation. They propose that this risky investment behaviour is in fact to maximise entrepreneurs' utility. This utility is a function of

being independent, innovative, etc. Findings in this chapter strongly support this entrepreneurial utility theory. They show that when firms are financially distressed, the older and larger they are, the more capital entrepreneurs invest in them.

This chapter, moreover, raises several important discussions to the financial constraint literature. We are aware that recent literature of financial constraints takes into account the fact that firms may use working capital to reduce financial constraints (Ding et al., 2013; Fazzari & Petersen, 1993). We thus incorporate working capital into the conventional investment variable to capture the possible effects of working capital on investments. In addition, by considering the effects of internal financial constraints (cash flow) vs. the effects of external financial constraints (firm age and size) this study extends the investment model of Guariglia (2008) to explain firm financing sources. It is noteworthy that this study is not concentred around investment-cash flow sensitivity as in the conventional literature. Instead, we classify firms into ex-ante degrees of financial constraints and examine their investment financing strategy. This research setting alters the current research question from "how to identify financially constrained firms" to "how financially constrained firms finance their investments", which we believe is a more interesting and important research question to ask.

4.6.2 Contributions and implications

The main objective of this study is to model SME investment financing strategy. It demonstrates that financial constraints is important in the use of bank loans and entrepreneur's self-finance for new investment projects. The existing modelling analysing SME investments largely focuses on new financial alternatives such as venture capital, equity issuance (IPO), and crowdfunding, etc. This study fills the gap in literature by concentrating on the context where these advanced financing alternatives are less popular.

In this study, we find that two key financing sources, i.e., bank loans and entrepreneurs' self-finance are a U-shaped function of financial constraints. Least financially constrained and most

financially constrained firms appear to raise more bank loans and entrepreneurs' self-finance to make investments than firms with average degrees of financial constraints.

This finding particularly highlights the role of entrepreneurs in financing young and small firm investments and demonstrates that more financially constrained firms are more likely to use entrepreneurs' self-finance to support their new investment projects. This finding is consistent with the gamble for resurrection hypothesis suggested by Bhagat et al. (2005) arguing for such a behaviour by citing to the hope of entrepreneurs that business conditions will improve and will increase the values of their equity claims. This theory suggests that equity claimants, who are protected by limited liability, have incentive to invest in riskier projects. This study moreover supports the argument of Guariglia et al. (2011) that well developed external capital markets may not always be needed for fast economic growth because there are other sources of funding available.

In addition, results in this study confirms Cleary et al. (2007) argument that banks have incentives to fund financially distressed firms because making new investments is the only way for these firms to generate cash and repay debts to the banks. What new in this study is that this hypothesis is confirmed valid in the context of emerging country. We believe that investigating this research question in the context of less developed economies is important because the entrepreneurship sector in these countries is given less access to bank loans due to the institutional biases; as a consequence, they may be more financially constrained (Ayyagari et al., 2010). It follows that for some small, young, and private firms, intentionally staying financially constrained may be a strategy to raise more bank loans. Yet, this is not an optimal outcome for the whole economy and for firms themselves. The reason lies in the fact that firms that are more financially constrained likely raise bank loans with higher costs because of the agency costs and asymmetric information problem (Fazzari, Hubbard, & Petersen, 2000). Moreover, it is noteworthy that excessive bank loans may yield lower returns to firm

investments as Driffield and Pal (2001) find evidence to support this hypothesis in the 1997 Asian crisis.

We also find that firms that are severely financially distressed can rely on entrepreneurs' self-finance to make investments if they are sufficiently old and large. This finding is consistent with the entrepreneurship utility theory. The theory proposes that entrepreneurship as a utility maximising response (Burmeister-Lamp, Lévesque, & Schade, 2012; Douglas & Shepherd, 2000, 2002). Older and larger businesses bring about higher level of utility (power, prestige, etc.) because they allow entrepreneurs to better utilise individual-specific entrepreneurial ability. Although maintaining these firms can maximise entrepreneurs' utility, whether this is beneficial to the whole economic system or not is an on-going debate issue. The key argument is concerned with the probability of recovering, since they may have a chance to become "zombie" SMEs which conduct no productive or profitable investments (Fukuda & Nakamura, 2011; Imai, 2016).

In addition to important contributions to the economics of entrepreneurship research, this study also provides several implications for policymakers in emerging countries, especially in Vietnam. We propose that the contributions of the entrepreneurship sector could be further improved if governments successfully alleviate financial constraints problems. It is the financial constraints that restricts private small and young firms from gaining sufficient access to bank loans. As being highlighted, this problem leads to a situation that some firms are forced to make sub-optimal investments. Unlike SMEs in developed countries, where financial constraints principally stems from asymmetric information problem and agency costs, Vietnamese SMEs face "systematic" financial constraints problem due to the intrinsic institutional bias against the private sector (Nguyen & Dijk, 2012). Only when private young and small firms are provided with sufficient access to external finance, they can make high value-added investment projects, which benefit the development of the whole economy.

In addition, this chapter shows that firms that are in the middle of the U-shape (i.e., firms with average degrees of financial constraints) invest significantly less than other firms. The reason is that they do not gain sufficient funding interests from both banks and entrepreneurs. This is a circumstance that needs governments to play a role. For example, local governments could subsidise firms that have achieved a particular size with profitable business plans. This policy could improve their abilities to realise investment opportunities and to make higher value-added investment projects.

Moreover, given that entrepreneurs' self-finance is an important financing source, it is essential to provide a rewarding structure aiming to encourage entrepreneurial investments. This is particularly crucial in emerging countries that significantly rely on the young and small business sector to grow. This chapter calls for a more entrepreneurship-friendly policy to nurture and support local entrepreneurial activities. In the context of emerging economies, alternative financing sources are largely underdeveloped and unpopular; this shortcoming could significantly prevent SMEs to gain sufficient finance to grow. However, as long as entrepreneurs are confident in governmental policies (e.g. property rights), they may be more willing to make investments using their self-finance capital. Therefore, this study subscribes to the arguments of Ayyagari et al. (2010) and Zouhaier (2012) that policies reducing transaction costs and transaction risks could significantly increase reinvestment rates and the use of additional entrepreneurs' self-finance.

Last but not least, it is important to emphasise two key limitations of this study. While this study focuses on the relativeness between bank loans and entrepreneurs' self-finance, other financing sources may also have significant contributions. Because venture capitalists gradually internationalise their operations (Dai, Jo, & Kassicieh, 2012), and an increasing proportion of venture capital is streaming to emerging countries (Ahlstrom & Bruton, 2006), including Vietnam (Scheela & Dinh, 2004), future research may want to extend the theoretical model proposed in this study to other external funding sources. By doing so, we are able to draw a

larger picture about the financing heterogeneity across firms with differed degrees of financial constraints. Future research may also want to test the validity of the theoretical framework in other ownership sectors such as state-owned and foreign-owned enterprises. The comparison of financing strategy among ownership sectors is important to create an even playing-field which is argued as a crucial determinant to the performance of the whole economy (Du & Mickiewicz, 2016; Jiang & Zeng, 2014).

4.7 Conclusion

Chapter 4 links firm investments with firm financial constraints degrees. However, unlike previous studies, this chapter investigates firm investments using financing sources, i.e., investment sourced from bank loans, and investment sourced from entrepreneurs' self-finance.

Using the census data on SME population in Vietnam, and employing the GMM technique to control for possible endogeneity, this chapter finds that investments sourced from bank loans and entrepreneurs' self-finance are a U-shaped function of financial constraints. The most and the least financially constrained firms raise bank loans and entrepreneurs' self-finance significantly more than firms with average degrees of financial constraints to make investments. Moreover, this chapter also finds that old and large firms appear to raise more entrepreneurs' self-finance when they are in financial distress situation.

This chapter thus highlights the importance of entrepreneurs as an active source of financing to small businesses, especially to the financially distressed firms. It proposes that entrepreneurs seem to take risky investments with a hope that market conditions may change and will increase their equity claims.

In terms of bank loans, this chapter proposes that it is the second important external financing source to small firms in emerging country. It is, however, interesting to notice that banks do not only lend money to firms with healthy cash flow performance but also fund financially distressed firms.

Given the importance of entrepreneurs' self-finance and bank loans in facilitating SME investments, this study proposes that governments in emerging countries should alleviate lending discrimination against the private sector, and introduce proper regulations to improve entrepreneurial investments.

Appendix 4.1: Proof of the U-shaped function of investment on internal fund.

i) The U-shaped function of investment on internal fund under the bank's participation constraint:

To maximize (3) under the constraints of (5) and (2), we set up a Lagrange equation, and take first-order conditions in terms of I and γ.

$$(A1)\ E\big(F_I(I,\theta)\big) - F_I(I,\gamma) + \lambda\left\{\int_{\iota\theta}^{\gamma}\left[F_I(I,\theta) + \left(\frac{F_I(I,\gamma) - F_I(I,\theta)}{\pi}\right)L\right]\omega(\theta)\mathrm{d}\theta + \big(1-\Omega(\gamma)\big)F_I(I,\gamma) - 1\right\} = 0$$

$$(A2)\ -F_\theta(I,\gamma) + \lambda\left[1 - \frac{\pi - \mathrm{L}}{\pi}\Omega(\gamma)\right]F_\theta(I,\gamma) = 0$$

in which F_I and F_θ are first-order differentiation of I and θ on the revenue function; and $F_I(I,\gamma) = D$. Re-organise (A2) to get λ:

$$(A3)\ \lambda = \frac{1}{\left[1 - (\frac{\pi - \mathrm{L}}{\pi})\Omega(\gamma)\right]}$$

Substituting (A3) into (A1), solving for the endogenous equation, we obtain the optimal investment $\bar{\mathrm{I}}$ and the market condition γ. They are solutions to the system:

$$(A4)\ g(I,\gamma,\mathrm{W}) = \left[1 - (\frac{\pi - \mathrm{L}}{\pi})\Omega(\gamma)\right]E\big(F_I(I,\theta)\big) + \frac{\pi - \mathrm{L}}{\pi}\int_{\iota\theta}^{\gamma} F_I(I,\theta)\omega(\theta)\mathrm{d}\theta - 1 = 0$$

$$(A5)\ q(I,\gamma,\mathrm{W}) = \int_{\iota\theta}^{\gamma}\left(F(I,\theta) + \frac{F(I,\gamma)-F(I,\theta)}{\pi}L\right)\omega(\theta)\mathrm{d}\theta + \big(1-\Omega(\gamma)\big)F(I,\gamma) - I - I_s + W = 0$$

To examine the U-shaped function of investment on internal fund, we take partial derivatives of g(·) and q(·) in terms of its arguments, W, I and γ respectively.

$$g_I = \left[1 - (\frac{\pi - \mathrm{L}}{\pi})\Omega(\gamma)\right]\ E\big(F_{II}(I,\theta)\big) + (\frac{\pi - \mathrm{L}}{\pi})\int_{\iota\theta}^{\gamma} F_{II}(I,\theta)\omega(\theta)\mathrm{d}\theta$$

$$q_I = \int_{\theta}^{\gamma} \left(F_I(I,\theta) + \frac{F_I(I,\gamma) - F_I(I,\theta)}{\pi} L \right) \omega(\theta) d\theta + \big(1 - \Omega(\gamma)\big) F_I(I,\gamma) - 1$$

$$g_\gamma = -\omega(\gamma)\left(\frac{\pi - L}{\pi}\right)\{E\big(F_I(I,\theta)\big) - F_I(I,\gamma)\}$$

$$q_\gamma = \left[1 - \left(\frac{\pi - L}{\pi}\right)\Omega(\gamma)\right] F_\theta(I,\gamma); \qquad g_W = 0; \qquad q_W = 1$$

in which, F_{II} is the second-order derivatives of revenue function $F(\cdot)$ on investment; and $[\Omega(\gamma)]' = \omega(\gamma)$. Applying multivariate chain rule differentiation rule on both $g(\cdot)$ and $q(\cdot)$, we have:

$$(A7)\ \ I_W = \frac{\big(g_W q_\gamma - q_W g_\gamma\big)}{(g_I q_\gamma - q_I g_\gamma)} = \frac{-g_\gamma}{(g_I q_\gamma - q_I g_\gamma)}$$

Using $g(\cdot) = 0$ to manipulate q_I, we get:

$$q_I = -\left[1 - \left(\frac{\pi - L}{\pi}\right)\Omega(\gamma)\right]\{E\big(F_I(I,\theta)\big) - F_I(I,\gamma)\}$$

It is obvious that $q_I g_\gamma$ is positive because they share an identical term $\{E\big(F_I(I,\theta)\big) - F_I(I,\gamma)\}$ and that $\omega(\gamma)\left(\frac{\pi - L}{\pi}\right)$ and $\left[1 - \left(\frac{\pi - L}{\pi}\right)\Omega(\gamma)\right]$ are strictly positive. Meanwhile, $g_I < 0$ because $F_{II} < 0$ (over-investment harms the firm's revenue); $q_\gamma > 0$ because $F_\theta > 0$ (better market conditions always result in higher revenue). Thus, the denominator of (A7) is strictly negative, implying that the slope of I_W depends solely on $-g_\gamma$, or in particularly on $E\big(F_I(I,\theta)\big) - F_I(I,\gamma)$.

To prove that the slope of I_W has a minimum, we need to show that $I_{WW} > 0$ at $I_W = 0$. Applying multivariate chain rule to differentiate $g(\cdot) = 0$ and $q(\cdot) = 0$ twice with respective to W, we obtain:

$$g_{IW} I_W + g_I I_{WW} + g_{\gamma W}\gamma_W + g_\gamma \gamma_{WW}$$

$q_{IW}I_W + q_I I_{WW} + q_{\gamma W}\gamma_W + q_\gamma \gamma_{WW}$

where $I_W = 0$, we have

$$(A8)\ \ I_{WW} = -\frac{(g_{\gamma W}q_\gamma - q_{\gamma W}g_\gamma)\gamma_W}{g_I q_\gamma - q_I g_\gamma} = -\frac{g_{\gamma W}q_\gamma \gamma_W}{g_I q_\gamma - q_I g_\gamma}$$

The second equality follows from the fact that when $I_W = 0$, $g_\gamma = 0$ (when an increase in W does not induce the firm to investment more, the first-order condition $g(\cdot)$ becomes indifferent to a change in default risk (γ). Furthermore, we have:

$$(A9)\ \ g_{\gamma W} = g_{W\gamma} = g_{I\gamma}I_W + g_I I_{W\gamma} + g_{\gamma\gamma}\gamma_W + g_\gamma \gamma_{W\gamma} = g_{\gamma\gamma}\gamma_W$$

The first, second and last terms of (A9) are eliminated because $I_W = 0$, $g_\gamma = 0$. From (A9), the second-order condition (A8) can be rewritten as:

$$(A10)\ \ I_{WW} = -\frac{g_{\gamma\gamma}q_\gamma(\gamma_W)^2}{g_I q_{\gamma W} - q_I g_\gamma}$$

The denominator is, again, negative. The term $(\gamma_W)^2$ and q_γ are positive. Thus, the condition has the same sign as $g_{\gamma\gamma}$,

$$(A11)\ \ g_{\gamma\gamma} = -\omega'(\gamma)\left(\frac{\pi - L}{\pi}\right)\{E(F_I(I,\theta)) - F_I(I,\gamma)\} + \omega(\gamma)\left(\frac{\pi - L}{\pi}\right)F_{I\theta}(I,\gamma)$$

which is positive because at $I_W = 0$, $\{E(F_I(I,\theta)) - F_I(I,\gamma)\}$ vanishes.

Moreover, we have:

$$I_W = (I_b + W)_w = I_{bw} + w_w = I_{bw} + 1$$

$$(A12)\ I_{WW} = (I_{bw} + 1)_w = I_{bww}$$

ii) The U-shaped function of investment on internal fund under the entrepreneur's participation constraint:

Similar to the case of the bank loans, we set up the Lagrangian, after eliminating λ, we have:

$$(A12)\ \ q(I,\gamma,\mathrm{W}) = -E\big(F_I(I,\theta)\big) + \int_{\theta}^{\gamma} F_I(I,\theta)\omega(\theta)\mathrm{d}\theta = 0$$

and the second condition is now the participation constraint of the entrepreneur, which is:

$$(A13)\ \ k(I,\gamma,\mathrm{W}) = \int_{\theta}^{\gamma}\left(-\frac{\mathrm{D}_b - \mathrm{F}(\mathrm{I},\theta)}{\pi}L\right)\omega(\theta)\mathrm{d}\theta + \int_{\gamma}^{\theta}\left(\mathrm{F}(\mathrm{I},\theta) - \mathrm{D}_b\right)\omega(\theta)\mathrm{d}\theta - \mathrm{D}_s + \mathrm{W} = 0$$

To examine the slope of investment, we take partial derivatives of $\mathrm{q}(\cdot)$ and $\mathrm{k}(\cdot)$ in terms of its arguments, W, I and γ respectively.

$$q_I = E\big(F_{II}(I,\theta)\big) - \int_{\theta}^{\gamma} F_{II}(I,\theta)\omega(\theta)\mathrm{d}\theta$$

$$k_I = \left(\frac{L}{\pi}\Omega(\gamma) + 1 - \Omega(\gamma)\right)\Big(E\big(F_I(I,\theta)\big) - F_I(I,\gamma)\Big)$$

$$q_\gamma = -\omega(\gamma)\big\{E\big(F_I(I,\theta)\big) - F_I(I,\gamma)\big\}$$

$$k_\gamma = \left[\left(\frac{\pi-\mathrm{L}}{\pi}\right)\Omega(\gamma) - 1\right]F_\theta(I,\gamma); \qquad g_W = 0; \qquad k_W = 1$$

Applying multivariate chain rule on both $q(\cdot)$ and $k(\cdot)$, we have:

$$(A14)\ \ I_W = \frac{\left(q_W k_\gamma - k_W q_\gamma\right)}{\left(q_I k_\gamma - k_I q_\gamma\right)} = \frac{-q_\gamma}{\left(q_I k_\gamma - k_I q_\gamma\right)}$$

We can see that $q_I k_\gamma > 0$ because both q_I and k_γ are negative. Meanwhile, $k_I q_\gamma$is negative because $\frac{L}{\pi}\Omega(\gamma) + 1 - \Omega(\gamma)$is positive and they share a common term $E\big(F_I(I,\theta)\big) - F_I(I,\gamma)$. Thus, the denominator of (A14) is positive overall. The sign of I_W depend on $-q_\gamma$ or in particular the term $\big[E\big(F_I(I,\theta)\big) - F_I(I,\gamma)\big]$.

To prove that the slope of I_W has a minimum, we need to show that $I_{WW} > 0$ at $I_W = 0$. Applying multivariate chain rule to differentiate $g(\cdot) = 0$ and k$(\cdot) = 0$ twice with respective to W, like the case of bank loans, we obtain:

$$I_{WW} = -\frac{q_{\gamma\gamma} k_\gamma (\gamma_W)^2}{q_I k_{\gamma W} - k_I q_\gamma}$$

The denominator is positive. The term $(\gamma_W)^2$ is positive. And the term k_γ is negative. Thus, the condition has the same sign as $q_{\gamma\gamma}$,

$$(A15)\ \ g_{\gamma\gamma} = -\omega'(\gamma)(\{E(F_I(I,\theta)) - F_I(I,\gamma)\} + \omega(\gamma)(F_{I\theta}(I,\gamma)$$

which is positive because at $I_W = 0$, $\{E(F_I(I,\theta)) - F_I(I,\gamma)\}$ vanishes.

Moreover, we have:

$$I_W = (I_s + W)_w = I_{sw} + w_w = I_{sw} + 1$$

$$(A16)\ I_{WW} = (I_{sw} + 1)_w = I_{sww}$$

Appendix 4.2: Sources of debate about the sensitivity of financial constraints-investment

When firms face endogenous required rate of return from external investors, they may not be able to raise as much finance as they desire, so that there is a funding gap between demand and supply. In micro-econometric research on investment decisions, there has been an ensuing debate on the appropriate methods to identify and quantify this funding gap according to firm characteristics. We propose that the divergence in the arguments and findings in literature may be due to three issues: (1) financial constraints classification methods; (2) econometric models; and (3) specification and estimation methods.

- Classification of the unobserved financial constraints

Fazzari et al. (1988)-FHP categorize firms according to their dividend pay-out ratio and find that financially constrained firms (i.e., firms with low pay-out ratios) hold a high investment-cash flow sensitivity. This finding is confirmed by several other authors: Carpenter, Fazzari, and Petersen (1998) on inventory investments; Carpenter and Petersen (2002a) on R&D investments; Nickell and Nicolitsas (1999) on employment investments; and Carpenter and Petersen (2002b) as well as Guariglia et al. (2011) on asset growth in general.

However, this strand of literature has been challenged since Kaplan and Zingales (1997)-KZ critique. They theoretically argue that profit maximizing behaviour do not result in a monotonic relation between financial constraints and investment-cash flow sensitivity. In particular, they further categorize (using FHP sample, according to FHP criteria) most financially constrained firms by liquidity ratio, as well as other indicators on the availability of internal funds, and find that *less* financially constrained firms are *more* sensitive to cash flow.

The debate became heated after responses of Fazzari et al. (2000) to KZ to argue for the usefulness of the investment-cash flow sensitivity, and then, Bond and Reenen (2007) responsive critiques on the static model with no adjustment cost adopted by KZ. Recently, the contradict findings were synchronized by Guariglia (2008) using a theoretical model of Cleary et al. (2007). Specifically, the contradict conclusions in the two groups can be explained simply by different ways which are employed to measure financial constraints.

In fact, FHP and papers with similar findings rely on firm age, firm size, bond rating, and dividend pay-out ratio, etc. to identify degrees of financial constraints. According to Guariglia (2008), these criteria are proxies of information asymmetric problem restricting firms from gaining access to external finance. On the other hand, studies in line with KZ classify firms by indicators related to levels of internally generated funds. These can be regarded as proxies of degrees of internal financial constraints.

In their empirical investigations, Guariglia (2008) and Cleary et al. (2007), using panels of U.K (1993-2003) and U.S (1980-1999) firms, find evidence to support arguments that internal and external financial constraints have different effects on the investment-cash flow relationship.

- Micro-econometric models

A non-trivial difficulty in analysing investment-cash flow econometric models is to isolate investment opportunity from the cash flow variable. A financially constrained firm can only be identified when a change in cash flow that convey no new information about profitability gives rise to higher level of investment spending. As a result, debate also originates from the degrees of efficiency in which a model successfully controls for investment opportunity.

This section briefly reviews two groups of popular econometric models in investment: (1) structural models (Q model, Abel and Blanchard model, and Euler equation) rooted from the classical general factors demand model, and (2) reduced-form models (accelerator model, partial adjustment model, error correction model).

First, Q model relates the unobserved shadow value of capital (marginal q) to the observed market-to-book (average) q ratio (Brainard & Tobin, 1968; Tobin, 1969). The model specifies a strictly convex adjustment costs as a symmetric quadric functional form, therefore it conveniently and explicitly controls for investment opportunity without requiring any functional form for the gross production function.

Nonetheless, performance of the Q model is generally dissatisfying in practice (Bond & Reenen, 2007; Ding et al., 2013). This is not surprising due to its strong underlying assumptions: perfect competition and constant returns to scale; share prices are immune from rational bubbles, and quadric function of adjustment costs. In addition, Q approach is not applicable for unlisted firms.

In an endeavour to fix the shortages of the Q model, Abel and Blanchard (1986) propose an alternative approach in which the shadow value of capital is directly estimated. Specifically, an

auxiliary econometric model is used to predict the future marginal revenue products of capital. Although the model relaxes the assumptions of perfect competition and constant returns to scale, its efficiency is considerably discounted by the inaccuracy of the auxiliary model and the remains of quadric function of adjustment costs.

Since explicit controls for investment opportunity as in the above models appear to be inadequate, Abel (1980) proposes the Euler equation approach, which avoids the need to parameterize the expectation-formation process. Specifically, this model use one-step ahead realized investment values to control for expected future profitability. Nonetheless, empirical results applying Euler model have been mixed (Bond, 2003; Bond & Meghir, 1994; Bond & Reenen, 2007; Hubbard, Kashyap, & Whited, 1995).

Finally, the class of reduced-form models directly relies on dynamic econometric specifications to derive the optimal adjustment behaviours. Accelerator model, partial adjustment model, and error correction model are constructed on different complexity degrees of adjustment process specifications. Since reduced-form models are *empirical* generalizations of the classic static factor demand function (Bond & Reenen, 2007; Nickell, 1978), it is subject to intrinsic biases in estimated parameters (Lucas Jr, 1976).

- Specification and Estimation

In terms of technical perspective, possible sources of different conclusions in the literature include (1) the stochastic error terms specification, and (2) estimation methodology.

Specifically, the q variable is naturally endogenous because current socks to adjustment costs will affect the current period net revenue, and thus the current value of firms. Moreover, the idiosyncratic, time-varying component of adjustment cost shocks may be serially correlated as well. Similarly, the forecast error in Euler equation is certainly correlated with the one period lead investment. Bond and Reenen (2007) suggest that Euler model setting may be

inappropriate without long-time series data. Likewise, reduced-form equations equally suffer from the serial correlation problems due to their explicit dynamic specifications.

For that reason, OLS will give upward biased estimates, and within estimator (fixed effect) will give downward biased estimates. Bond (2002) and Roodman (2009) argue that difference-GMM (Arellano & Bond, 1991) and system-GMM (Blundell & Bond, 1998) properly fit into the dynamic nature in the investment models. Nonetheless, the use of lagged values as instruments for endogenous variables is indeed a trade-off between *relevance* and *validity*. Deeper lags may significantly moderate the serial correlation problems, but they are less correlated to the instrumented variables. Greene (1991) and Wooldridge (2010) stress that when instruments available are weak, the GMM estimators exhibit considerable finite sample biases.

Appendix 4.3: The U-shaped investment on firm age and size

The investment pattern along with the growing process

To extend our discussion about the investment strategy of small businesses with respect to firms' growth, we propose that investment I is a function of firms' age and size: $I(\mathrm{A}, \mathrm{S})$, holding other arguments fixed. This function is typically a strictly convex function, i.e., younger and smaller businesses make investment disproportionally lower than their established counterparts. There are two main explanations for this pattern of the investment curve. First, it is well-documented by empirical studies that SMEs are inferior in gaining access to external finance due to the asymmetric information and agency problems (Aidis et al., 2012). In other words, smaller and younger firms face more severe financial constraint problem, which restricts them to make the optimal level of investment. In contrast, older and larger firms are able to reduce asymmetric information problem and agency costs because they have established a trackable performance history, as well as being able to provide sufficient collaterals to external lenders (Du et al., 2015). They moreover have accumulated adequate social capital (e.g.,

relationship with local banks, suppliers, and customers) which allows them to gain more access to external financing sources compared to younger and smaller firms (Cenni et al., 2015; Gambini & Zazzaro, 2013; Zhou, 2013). In addition, some entrepreneurship styles may deny making use of external loans to avoid defusing their control power to external investors, as a means to increase their non-transferable payoff π (Schwienbacher, 2007). The businesses run by this type of entrepreneurs have to make sub-optimal investment, which is disproportionally lower than the established firms.

On the contrary, total capital $K(\mathrm{A}, \mathrm{S})$ is a strictly concave function of firms' age and size i.e., younger and smaller firms increase their total capital (equivalent to total assets) disproportionally faster than their established counterparts. This fact is recently demonstrated by the rejection of the Gibrat's law in several empirical studies (Angelini & Generale, 2008; Daunfeldt & Elert, 2013). The law asserts that firms' size and growth are independent and that firms' size distribution is stable over time and approximately log-normal. Daunfeldt and Elert () reject the law by showing that small firms grow faster than large firms because innovation, an important determinant of firms' growth, is a specific characteristic of entrepreneurial ventures (small businesses). Angelini and Generale (2008) suggest another explanation which highlights that financial constraint plays little role in determining the firm size distribution. We subscribe to their argument by demonstrating from the Proposition 1 that both the banks and the entrepreneurs have incentives to fund severely financially constrained firms. As a result, younger and smaller firms are able to make investment (although not at optimal level) and grow faster than older and larger firms, regardless of the limited access to external financing due to their age and size liabilities.

Base on previous findings about the pattern of firms' investment and firms' development, we demonstrate that the standardized investment variable widely used in empirical studies: I/K is a U-shaped function of firms' age and size. Proposition 2 formally states this argument. Proof of the proposition can be found in the Appendix 2.

***Proposition A1*:** When investment (I) is a strictly convex function of firms' age and size, and total capital (K) is a strictly concave function of firms' age and size, the standardized investment I/K is a U-shaped function of firms' age and size.

Proof of the proposition A1:

For simplicity, denote $\mathrm{I}'(\mathrm{A},\mathrm{S})$ and $\mathrm{K}'(\mathrm{A},\mathrm{S})$ are first partial derivatives of $\mathrm{I}(\cdot)$ and $\mathrm{K}(\cdot)$ either in terms of age or size. Similarly, $\mathrm{I}''(\mathrm{A},\mathrm{S})$ and $\mathrm{K}''(\mathrm{A},\mathrm{S})$ are their second-order differentiations. To examine the slope of I/K, we take partial derivatives of the ratio (omitted arguments):

$$(A16)\quad \left(\frac{I}{K}\right)' = \frac{I'K - IK'}{K^2}$$

The denominator is positive, thus (9) takes on the sign of its numerator. All K, K', I, and I' are non-negative functions, therefore, the slope of investment curve after normalized depends on the difference:

$$(A17)\quad I'K - IK'$$

When the firm is young/small, $K \approx I$, and $K' > I'$(cumulative capital increases with a faster rate than investment flow), (10) is more likely to take on negative sign. In contrast, when the firm has grown up, $K \gg I$, and $K' < I'$, the slope is more likely to take on positive sign.

To prove that I/K has a minimum, it is necessary to show that $\left(I/K\right)'' > 0$ at $\left(I/K\right)' = 0$. First, set the first-order derivative equalled to zero, we have:

$$(A18)\quad I'K = IK'$$

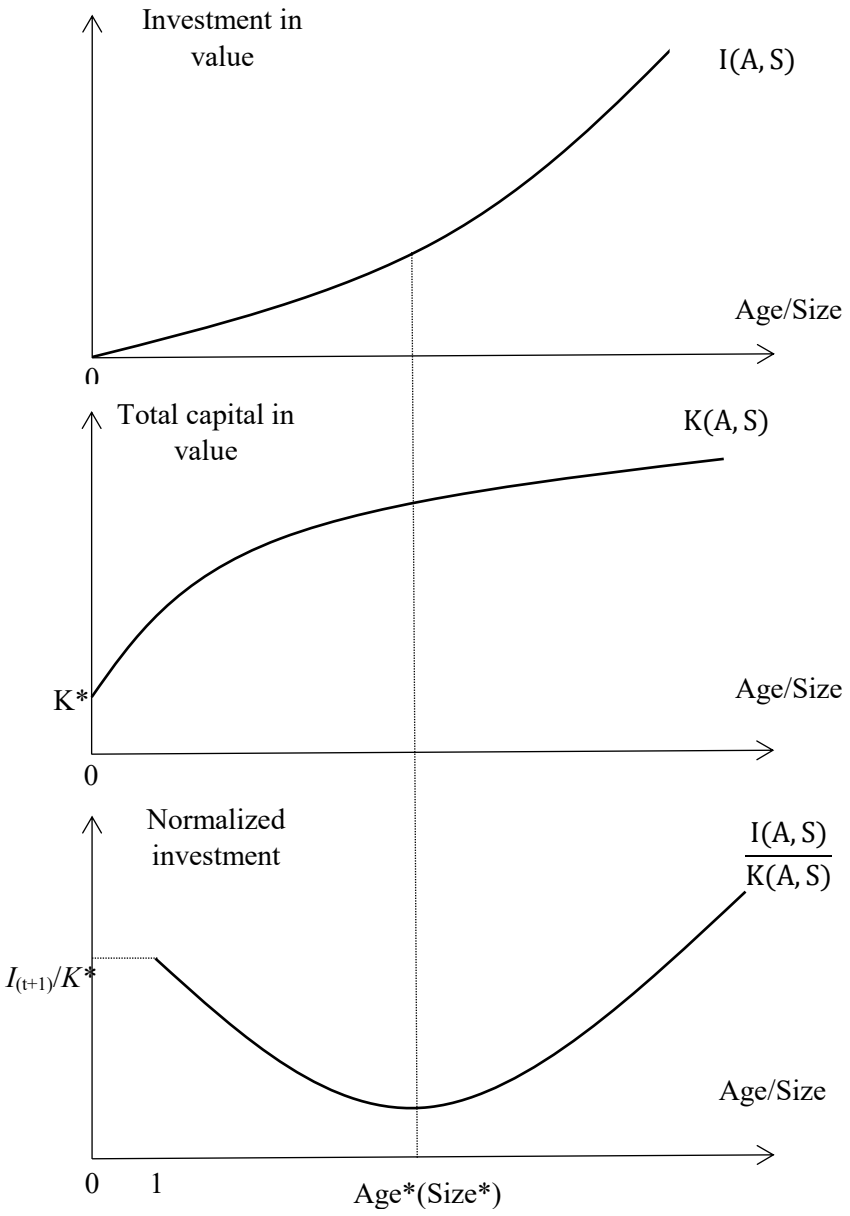
The second-order derivative is:

$$(A19)\quad \left(\frac{I}{K}\right)'' = \left(\frac{I'K - IK'}{K^2}\right)' = \frac{(I''K - IK'')K^2 - (I'K - IK')2K'K}{K^4}$$

where $(K^2)' = 2K'K$. Substituting (A18) into (A19), the sign of (A19) solely depends on:

$(A20)(I''K - IK'')$

The first term of (A20) is positive because I'' and K are positive functions. The second term is negative because I is positive and K'' is negative by construction. Thus, (A20) is strictly positive overall. Therefore, $^{I}/_{K}$ has a U-shape.



Appendix 4.4: Correlation matrix of variables

	(1)	(2)	(3)	(4)	(5)	(6)
Bank loans investment (1)						
Entrepreneurs' self-finance investment (2)	-0.037					
Firm age (3)	-0.021	-0.090				
Number of labours (4)	0.021	-0.067	0.189			
Cash flow (5)	0.034	-0.037	0.294	0.139		
Assets structure (6)	0.247	0.098	0.109	0.084	0.344	
Profitability (5)	-0.028	-0.001	0.122	0.048	0.565	0.059

Note: The correlation coefficients are reported for observations used in the main regression. All coefficients are significant at 1%.

Appendix 4.5: Total investment as a U-shape of financial constraints

VARIABLES	INVESTMENT
Distressed	0.165**
	(0.0763)
Potential	-0.0557
	(0.0480)
Low	0.0807***
	(0.0137)
Net revenue	4.08e-08**
	(2.08e-08)
Firm age	-0.00325***
	(0.000243)
Firm size	-0.0279***
	(0.000948)
Observations	210,697
AR (2)	0.58
Hansen (J)	0.02

Note: The dependent variable in all specifications is total investments. Two-digit industry dummies, 13 year dummies and 6 region dummies are included in each regression. Standard errors and test statistics are asymptotically robust to heteroscedasticity (*xabond2* in Stata). The estimator is SGMM. The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications

CHAPTER 5: WHICH LOCAL GOVERNANCE INFLUENCE SMALL AND MEDIUM-SIZED ENTERPRISE INVESTMENTs, AND HOW FINANCIAL CONSTRAINTS MODERATE THE RELATIONSHIP

5.1 Introduction

It is generally agreed that entrepreneurial activities play key roles in economic growth (Baumol, 1968; Baumol & Strom, 2007; Bruton, Ahlstrom, & Li, 2010; S. Estrin, Mickiewicz, & Stephan, 2013). Entrepreneurs who focus on innovation in their production have incentives to rearrange resources combination to improve economic efficiency, and promote economic growth (Andersen, 2012; Becker, Knudsen, & Swedberg, 2012; Carlsson et al., 2013).

At the same time institutions are crucial for entrepreneurship (de Jong, Tu, & van Ees, 2012; Fraser et al., 2015). This field of research has greatly advanced our knowledge on many fronts, e.g., it shows that the quality of national institutions influences domestic entrepreneurial activities. Specifically, certain formal (e.g., property right protection) and informal institutions (e.g., individualism) may facilitate the self-employment intention of entrepreneurs, the establishment of nascent start-ups and their growth aspirations (Acemoglu & Johnson, 2005; Anokhin & Schulze, 2009; Estrin, Korosteleva, & Mickiewicz, 2013).

Despite significant contributions, the extant literature does not tell us much about the effects of local governance on local entrepreneurship. Local governance forces are theoretically argued to be easily amended and improved in the short-term (d'Agostino & Scarlato, 2015; Green & Moser, 2013; Moodysson & Zukauskaite, 2014; Pur & Moore, 2010); higher level of institutions take time to change (Baumol & Strom, 2007; Williamson, 2000). Therefore, in comparison with the cross-national formal and informal institutions, research of local governance arrangements is expected to provide better understanding about how to effectively facilitate local entrepreneurship in the short and medium- terms. While there are a few studies in regional entrepreneurship using the lens of institutional theory, most of them have yet to

identify which particular local governance forces are important to local SME investments. SME investments – an organizational financial decision generally accepted as one of the most important determinants to economic growth, especially in emerging economies (Allen et al., 2005; Anwar & Nguyen, 2011; Federici & Caprioli, 2009), but has yet to attract adequate research interests.

In addition, local governance arrangements are potentially of remarkable impact on local entrepreneurship relatively to the national broad configurations (Green & Moser, 2013; Moodysson & Zukauskaite, 2014; Rodríguez-Pose, 2013). The reason is that entrepreneurial activities, due to their small scales at the beginning, are often geographically bounded to local markets, which are strongly shaped by policies and the governance quality of local governments.

Moreover, previous works usually examines well-established corporations in economies with strong institutional environments rather than investigates more financially constrained SMEs in weak institutional environments (Ding et al., 2013; Guariglia, 2008; Guariglia & Liu, 2014). Given that financing is crucial to SMEs, whether gaining sufficient finance or not will determine the behaviours of entrepreneurs in structuring their business plans. Therefore, the investment decision of firms that are more financially constrained may be very different from firms that are less financially constrained. The former may pay much attention to survival due to their weakness in financial capability; the latter however may seek growth and expansion thanks to their financial strength (Guariglia & Liu, 2014). Distinct operational strategies between the two may imply that they need different sets of local governance arrangements. However, there is little knowledge of which local governance forces are more important to each type of firms.

In order to address these important gaps in literature, this study seeks to determine the impact of local governance on SME investments. This research objective is comprised of two research questions. First, which governance forces influence local SME investment decisions? And

second, which particular governance forces influence more financially constrained and less financially constrained SME investments respectively?

In order to provide meaningful insights into the above questions, this study combines the institutional and financial constraints theories to examine the differing effects of several key local governance forces on local SME investments. The proposed hypotheses are empirically tested in the context of Vietnam using the multi-level modelling method on a large and representative dataset of nearly 145,000 SMEs grouped in 63 regions (provinces) between 2006 and 2012.

By doing this analysis, this study makes significant theoretical and empirical contributions to the literature investigating SME investments. First, it demonstrates that local governance should be the subject of studying for literature concerned with enhancing entrepreneurship in the short and medium-terms. The reason is that institutions of governance involving local policies and the quality of local government which are more flexible and easily improved. Empirical findings in this chapter provide solid support that local governance arrangements significantly influence local SME investment decisions. The results imply that local governments are able to foster productive entrepreneurship by enhancing their regulatory enforcement and governance quality.

This study also develops a theoretical framework incorporating the factor of financial constraints and highlighting its importance in moderating the relationship between local governance and SME investments. It is proposed that the effects of local governance are not homogeneous across firms, but changing depending on degrees of financial constraints. Empirical results demonstrate that, when making investments, more financially constrained firms benefit from formal governance, while less financially constrained firms are better off from informal governance.

The formal governance forces are concerned with formal policies such as legal enforcement, market-access regulations, and local economic regulations; the informal forces are related to informal policies and the quality of governance such as governmental transparency, leadership proactivity, and freedom from corruption. An intuitive explanation for this result is that less financially constrained (cash-flow rich) firms are more active in economic activities; thus, they are more likely to be in the radar screen of local authorities (Du & Mickiewicz, 2016). Since they are the target of corruptive officials, improvements of local informal governance will prevent them from rent-seeking, unproductive activities (e.g., entertaining politicians), and will provide them with more incentives and resources (e.g., time, and effort) to make investments. Meanwhile, improvements of formal governance forces, such as legal enforcement, regulations concerning access to local market, and business matchmaking services are more important for financially constrained SMEs because these regulations are important to set up fundamental transaction and operation activities. Given their financial difficulties, cash-flow poor firms will gain more benefits when local formal governance system improves. Because these improvements reduce transaction costs and provide them more business opportunities, cash-flow poor firms are more likely to make investments.

The rest of the chapter proceeds as follow. The following section presents the theoretical background and hypotheses related to the effects of formal and informal governance on SME investments, and the moderating role of financial constraints. Then, the next section introduces the data, methods, and econometric specifications to test the proposed hypotheses. The empirical results are reported subsequently. The final section discusses the implications of the key findings and conclude with suggestions for future research.

5.2 Theory and hypotheses

This study employs the new institutional theory to explain the relationship between local governance and local entrepreneurship. It is important to review the history and literature

related to the institutional economics before describing the theory of Williamson which is the foundational framework for our study.

5.2.1 Institutional theory

- The development of the institutional theory

The raise of the institutional theory originates from the disappointment of the neo-classical economic theory that completely ignores the role of context and non-financial factors in the economic processes. According to North (1990), by applying the neo-classical economic theory, we do not need to distinguish between the real world and the decision maker's perception of it, and we can predict the choices that will be made by a rational decision maker entirely from our knowledge. Hence, it is the dissatisfaction with theories that venerate efficiency but downplay social forces as motives of organizational action gave rise to the *old institutionalism* (Barley & Tolbert, 1997).

Leading by Thorstein Veblen, Wesley Mitchell, and John R. Commons Veblen, the old perspective of institutional theory attempts to overturn and replace neoclassical theory (Veciana & Urbano, 2008). Meanwhile, new institutional perspectives build on, modify, and extend neoclassical theory to permit it to come to grips and deal with an entire range of issues heretofore beyond its ken (DiMaggio & Powell, 1991; North, 1990). The first emerged branch is the *new institutional economics* pioneered by (North, 1990, 2006) stemming primarily from the transaction costs approach of Coase (1937) and Williamson (1975). New institutional economics focuses on understanding the role of man-made institutions in shaping economic behaviour and, in particular, in reducing transaction costs (Minniti & Lévesque, 2008).

In order to study the institutional effects in economics, North (1990) primarily offer a framework of two dimensions: formal forces (i.e. political and judicial rule, economics rules and contracts) and informal forces (i.e. traditions, customs, societal norms and templates). In a linkage to entrepreneurship study, to North (1990) and recently North (2006), property rights are

fundamental to individuals and organizational investments because they are all rational agents with positive expectation on future incomes.

Baumol (1990), moreover, contends that different set of institutions can influence the allocation of different entrepreneurial activities. Therefore, if an economy wishes to increase the proportion of productive activities and reduce rent-seeking ones, it must offer a set of institutions that reward higher rate of return to the former than the latter (Murphy, Shleifer, & Vishny, 1993).

In consistent with North and Baumol, Williamson (2000) further extend the analytical framework to four dimensions: informal institutions, formal institutions, governance (functioning legal system for defining contract law and enforcing contracts), and resource allocation (prices and quantities alignment). His framework extends the conventional focus to the structure and the interaction between formal and informal institutions to get right transaction costs conditions (i.e. governance), and right marginal conditions (i.e. resource allocation).

It is the increasing rationalisation in the new institutional economics theory inducing another theoretical perspective that appreciates the individual cognitive force in the analytical models. The *new organizational institutionalism* (DiMaggio & Powell, 1983, 1991) is another branch in institutional theory positioning at a neutral between the old perspective and the economic perspective (Veciana & Urbano, 2008). This school of thought focusing on organizational isomorphism (i.e. why organizations are familiar in their operations and behaviors) argues that the principal driving force of a social agent is the effort to achieve legitimacy and stability in uncertain situations. Thus, this view argues that instead of acting under rules or based on obligation, agents act because of their cognitions and conceptions. In a linkage to entrepreneurship study, Scott (1995) formulizes institutional forces into three categories: regulative pillar (regulations, policies, rules and laws), cognitive pillar (frames or conceptions of reality), and normative pillar (norms, values, and beliefs).

In comparison with many other theoretical lenses to study entrepreneurship[27], institutional theories, due to their power in explaining the *process* of being entrepreneurs and the entrepreneurship decisions (which is exogenous and thus important) rather than finding *professional attributes* of entrepreneurs (which is largely endogenous and thus less important), are widely employed by many empirical researchers.

- Empirical findings

Literature has extensively applied both new institutional economics and new organizational institutionalism theories[28] principally to find an optimal match between sets of institutions and a certain type of entrepreneurial activity. In the line of the new institutional economics, several works have confirmed a positive association between entrepreneurial activities and regulatory institutions, to name some, property rights (Acemoglu & Johnson, 2005; Estrin et al., 2013; Johnson, McMillan, & Woodruff, 2002; Lu & Tao, 2010), taxations (Davidsson & Henrekson, 2002; Henrekson, 2007), wage-setting institutions (Davidsson & Henrekson, 2002; Klapper, Laeven, & Rajan, 2006), level of market freedom (Aidis et al., 2012), financial institutions(Bowen & De Clercq, 2008; Nguyen et al., 2006), and barriers to entry (Demirguc-Kunt, Love, & Maksimovic, 2006; Lee, Florida, & Acs, 2004).

In terms of informal institutions, which is argued to act as a substitute or replacement to formal institutions when they are weak (Ahlstrom & Bruton, 2006; Helmke & Levitsky, 2004), the impacts of corruption (Anokhin & Schulze, 2009; Bowen & De Clercq, 2008), culture differences (Ahistrom & Bruton, 2002; Wennekers, Van Wennekers, Thurik, & Reynolds, 2005), clientelism

[27] Minniti and Lévesque (2008), in their survey of recent development in entrepreneurship study, suggest that institutional theory is one of the five principles in the new heterodox mainstream of economics. The others are "bounded rationality"-limited cognitive abilities that constrain human problem solving; "rule follower"-human behaviour is responsiveness to both incentives and its rule following nature; linkages between economics and cognitive psychology; and the evolutionary nature of economic phenomena.
[28] Since the two perspectives are distinct in several philosophical views and assumptions, Bruton, Ahlstrom, and Li (2010) stress that it is important to acknowledge the particular theoretical stream applied to the study. Considering the availability of the accessible data, the new institutional economics perspective is the most appropriate to our exercises.

and patrimonialism (Helmke & Levitsky, 2004), and regional autonomy (Aidis & Adachi, 2007) have been found significant to the rate and type of entrepreneurial activities.

On the other hand, in the line of the new organizational institutionalism, Scott (1995) three pillars framework is the most well-known analytical tool (Bruton et al., 2010); and two of the most popular topics effectively exploiting his framework are the impacts of culture on entrepreneurial activities and entrepreneurs' cognition process. Culture, in particular, is argued as one important means by which both normative and cognitive structures are transmitted (DiMaggio & Powell, 1991). Thus, a diverse culture facilitates the influx of a particular kind of human capital that promote innovation and accelerate information flow, leading to the higher rate of new firms formation (Lee et al., 2004; Mitchell et al., 2002).

At the same time, social security and collectivism are found negatively affects the supply of entrepreneurship; meanwhile individualism and uncertainty avoidance culture, in turns, are more likely to produce high ambitious entrepreneurs (Hessels, Thurik, & Van Gelderen, 2008; Mueller & Thomas, 2001). Finally, the other branch of literature under the new organizational institutionalism focuses on the third pillar-cognitive to explain why entrepreneurs in one country have more competitive advantages over the ones in other countries.

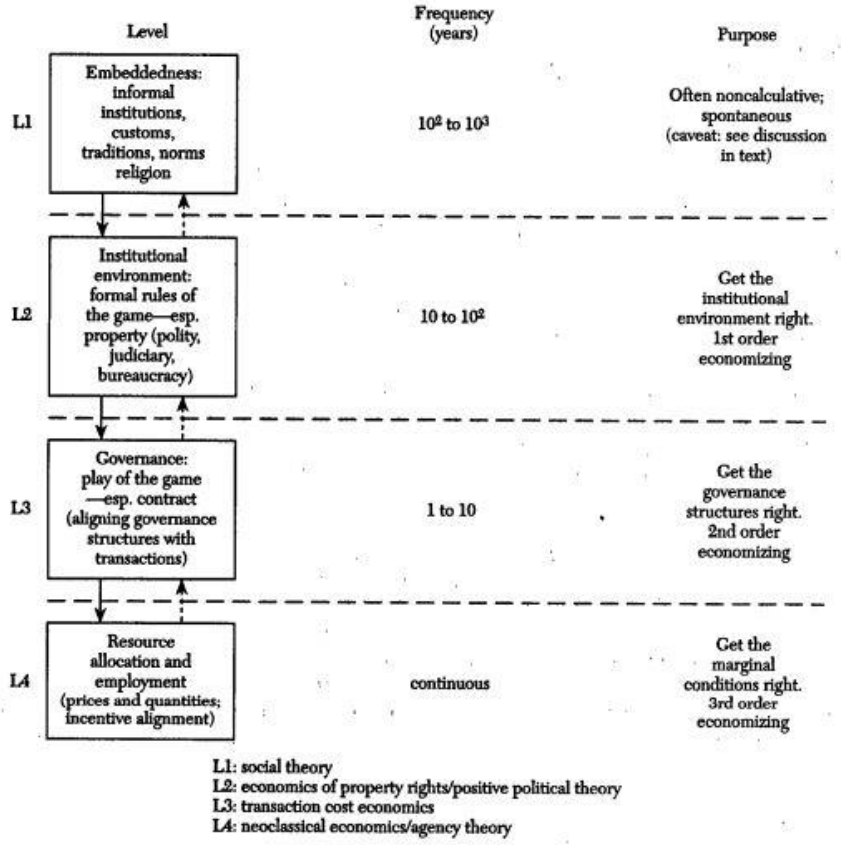
It is now generally accepted that cognitive patters direct entrepreneurs' abilities to identify novel opportunities (Baron, 2007); and entrepreneurial cognition is, in turns, a product of their perception of knowledge, prior education, experience, and entrepreneurial intentions and alertness (Busenitz, Gómez, & Spencer, 2000; Krueger Jr & Reilly, 2000; Shane, 2000).

- William framework

Institutional theory was significantly expanded by Williamson (2000). He suggests a four-pillar institutional framework, and calls for a movement from studying what institutions are important to entrepreneurship to exploring how institutions affect entrepreneurship. Figure 5.1 presents the theoretical framework of the economics of institutions by Williamson. The first level is

defined as all embedded non-financial factors in society such as informal institutions, customs, traditions, norms, and religions. At this level of institutions, it takes long time to change these factors as Williamson expects a period from 100 to 1000 years. Moreover, he also emphasises that these factors are often non-calculative and spontaneous. However, in recent literature, scholar have tried to develop tools to measure the strength and effectiveness. For example, World Bank (2015) creates the World Governance Indicator to measure several informal institutional factors across nations.

Figure 5.1: Williamson institutional theory (7)



Williamson puts institutional environment– the formal rules of the game at the second level of the framework. He particularly highlights the property rights in this level because it is strongly associated with entrepreneurial incentive, and thus economic performance. To change formal institutions, he estimates a timeframe from 10 to 100 years. In comparison with informal

institutions, formal institutions are easily measured to calculate their influence on entrepreneurship (Estrin et al., 2013).

The third level is concerned with governance – the play of the game. At this level, Williamson particularly emphasises the role of formal rules execution and implementation. Formal rules will not be fully valid or may even fail to express their power in then the executing system is poor and incomplete. He argues that a constructive governance structure obviously reshapes entrepreneurial incentives and positively influences economic outcomes.

In the case of Vietnam, governance quality appears to matter more. The reason is that in country with weak formal institutions, the role of local governments become important since they have room to arbitrarily interpret central laws or even to create their own regulations. Each province also has the power to launch their own governance system that best fit into their local situations. For this reason, we particularly interested in studying the effects of local governance on local entrepreneurship in the context of Vietnam.

The final level of the institutional economics framework is resource allocation and employment. At this level, Williamson focuses on the price and quantities structure. Conditions that lead to the equilibrium in production and input markets will significantly affect entrepreneurial incentives. At this level, it is most important to get the marginal conditions right to align entrepreneurial incentives. Because factors at this level are continuous, it is difficult to empirically measure them. Moreover, in comparison with governance, resource allocation arrangements are more related to market efficiency rather than concerning the effectiveness of governments. Therefore, this level is out of the scope and research topic of this study.

Based on the third level of Williamson (2000) theoretical framework, next section provides arguments and suggests possible channels that local governance including legal enforcement, market-access regulations, economic regulations, corruption, and informal polices influence local SME investments. In addition, it also introduces financial constraints as a moderator of

local governance effects and proposes that the distribution of local governance effects on investments is dependent on firm-level financial constraints.

5.2.2 Formal governance: Legal enforcement

A stable and inclusive legal institutional environment promotes resource-seeking intentions, value-adding behaviours, and productive interactions among agents in an economy, thus beneficial to entrepreneurial activities (Baumol & Strom, 2007; Henrekson, 2007). In general, an economic legal system is constructed by two components, property rights institutions (measuring the risk of expropriation by the government) and contracting institutions (measuring the ease and reliability of contract enforcement) (Acemoglu & Johnson, 2005).

In corporate investment literature, property rights protection is widely investigated in the conventional investment models as an important explanatory variable. Johnson et al. (2002), in the context of Eastern European countries, find that weak property rights discourage firms from making new investment projects, even when bank loans are available. In the context of China, Cull and Xu (2005) confirm that property rights are indeed a significant predictor of firm investment decisions. However, the authors also highlight that the availability of bank loans is also associated with more investment. McMillan and Woodruff (2002) conjecture that the overwhelming importance of property rights may not hold as economic transition progresses. This is because the need of making (short-term) investments from domestic young and small firms are relative strong in transitioning environments (de Jong et al., 2012).

Meanwhile, the contracting enforcement are expected to have stronger impact on SME investments than the risks of appropriation considering the modest economic size of SMEs (Du & Mickiewicz, 2016; Meyer et al., 2006). For instance, Li and Zahra (2012) propose that contract regulations affect venture capital activities, thus influence the establishment and growth of young and small businesses. Estrin et al. (2013) find that weaker property rights and contracting institutions negatively affect the growth aspiration to increase employment of

entrepreneurs. Additionally, Li, Vertinsky, and Li (2014) suggest that uncertainty in the reliability and effectiveness of legal institutions discourages cross-border venture capital investments and negatively affect entrepreneurship.

In general, past research has reached to a consensus that the completeness of legal system is positively associated with new venture establishments, firm performance, and growth. This study builds on this proposition and further argues that local governance involving with legal enforcement is critical to SME investments. Given that national laws and policies may not be exercised properly without effective and inclusive local governance arrangements (Moodysson & Zukauskaite, 2014), it is arguably reasonable to expect that local governance forces concerned with better executing property rights and contracting protections will encourage local SME investments incentives. Formally, this is summarised in the following hypothesis:

H1a: In a given region, improvements of local governance concerning legal enforcement will be positively associated with local SME investments.

5.2.3 Formal governance: Market-access regulations

Market-access, a measure of the local regulations openness for SMEs to gain access to land and operation licenses, is another key dimension of local governance. This is because land access, the security of tenure, and the easiness to approach and obtain appropriate operation permits are considered crucial to SME activities (Deininger, Jin, & Nagarajan, 2009; Makino & Tsang, 2011). In particular, Pincus (2009) in the context of Vietnam proposes that land-access right is regarded as a rare resource, and is one of the most important factors influencing entrepreneurs' intention of opening a new business. Additionally, Meyer et al. (2006) argue that in developing countries, where institutions are biased towards the state sector, granting private firms access to land, land-use and operation permits are dependent on the discretionary actions of the authorities. Since these resources are essential to SMEs, it is expected that the openness of local

regulations concerned with land, land-use rights, and operation permits will significantly enhance local SME investments.

This leads to the following hypothesis:

H1b: In a given region, improvements of local governance concerning market-access regulations (about land, land use, and operation permits) will be positively associated with local SME investments.

5.2.4 Formal governance: Economic regulations

Economic environment concerns with production resources availability, abundance, quality, and price from which entrepreneurs can obtain, internalise, add values, and make profits. In the context of entrepreneurship, young and small firms usually face high transaction costs in gaining access to resources e.g., human capital and business opportunities, due to their age and size liabilities. However, local governance could alleviate asymmetric information by shaping the supply and demand of these resources to benefit local entrepreneurship sector (Baumol & Strom, 2007).

This study proposes that appropriate settings of local governance arrangements could reduce transaction costs, provide SMEs with more access to local human resource and to gain business opportunities. Past research suggests that regulations may be of contradictory effects on the demand and supply of human resource. On the demand side, Stel, Storey, and Thurik (2007) suggest that rigid wage-setting and over-strict labour market regulations have negative effects on the rate of nascent entrepreneurship and young businesses establishments. This is because higher costs of hiring and firing reduce labour demand, thus, entrepreneurial intentions. This finding is confirmed in both industrialised economy (Sweden) and emerging economy (Vietnam) (Davidsson & Henrekson, 2002; Nguyen, 2013). However, on the supply side of human resources, regulations that increase the quantity of labour (e.g., immigration laws) and the quality of human resource (e.g., the availability of educational or skill training centres) often

give rise to new venture establishments (Cooke & Lin, 2012; Lee et al., 2004; Nguyen, Truong, & Buyens, 2011). This study pays attention to the governance arrangements facilitating the supply of human resource because labour availability is an important determinant of firm investments (Cooke & Lin, 2012). It is expected that local governance enhancing the quality and quantity of local human resource will enhance local SME investments.

Similarly, local governance concerning business support activities reduces transaction costs by promoting agglomeration establishments (e.g., industrial zones), local trade fairs, and other types of business matchmaking. Meyer and Nguyen (2005) and Cheng and Kwan (2000) use the levels of agglomerations as a proxy for transaction costs reduction to argue for the higher foreign direct investment (FDI) in some particular regions in Vietnam and China. Miika, Lingyun, Matti, and Pekka (2012) propose that trade fairs indeed yields significant information needed for SMEs to proceed with internationalisation. Thus, in the light of the previous findings, this study proposes that local governance forces aiming to reduce transaction costs in local economic environments by facilitating local business agglomerations, trade fairs, and business matchmaking will stimulate local SME investments.

The next hypothesis is formulated as follows:

H1c: In a given region, improvements of local governance concerning economic regulations (about human resources and local business support) will be positively associated with local SME investments.

5.2.5 Informal governance: Freedom from corruption

Informal governance in this study refers to the quality of governance and informal policies of local governments (Helmke & Levitsky, 2004). According to the established theoretical frameworks (North, 1990; Williamson, 2000), it is widely acknowledged that informal institutions are social embeddedness, at the root of the behavioural process. Ahlstrom and Bruton (2006) argue that when formal institutions are weak or incomplete, informal “codes of

conduct" can act to supplement or replace them, especially in the transition economies such as China (Ahlstrom, Bruton, & Lui, 2000), Russia (Ahistrom & Bruton, 2002), and Vietnam (Makino & Tsang, 2011). Following this strand of arguments, this study proposes that informal governance forces are implicitly regulated by unwritten policies, and rather a political credo of local governments. Informal governance including the quality of governance and unofficial policies of local governments can reshape the rewarding structures which influence local SME investment decisions.

For example, local governmental freedom from corruption is particularly an important informal governance force because it directly links to property rights protection, which in turns influences SME investment incentives. Estrin et al. (2013) suggest that corruption is more serious for new firms than incumbents while Murphy et al. (1993) argue that the negative effects of corruption are more detrimental for high-growth and large entrepreneurship than those merely are in their livelihood. Despite different findings, the extant literature is consensus on a hypothesis that corruption can be regarded as a tax imposing higher transaction costs on firm operations (Anokhin & Schulze, 2009). Therefore, better control for corruption is associated with rising levels of innovation and productivity. Tonoyan, Strohmeyer, Habib, and Perlitz (2010) propose that in order to reduce the likelihood of entrepreneurs engaging in corruption, it is important to improve the efficiency of the financial and legal enforcement (i.e., governance). Additionally, since corruption acts like a progressive tax (Hunt & Laszlo, 2012), higher levels of corruption significantly reduces returns to firm investments. Therefore, it is expected to see a positive linkage between local governance forces aiming to mitigate governmental freedom from corruption and SME investments. Formally, it is summarised as:

H1d: In a given region, improvements of local governance concerning governmental freedom from corruption will be positively associated with local SME investments.

5.2.6 Informal governance: Informal policies

In addition to corruption, this study further proposes that informal governance including bureaucratic compliance, administration transparency and leadership proactivity are other important forces that may influence local SME investments (Caetano & Caleiro, 2009; Helmke & Levitsky, 2004). Bureaucratic compliance indicates how much time firms waste on satisfying local authorities' (unofficial) requirements, as well as how often and for how long firms must shut their operations down for informal inspections by local governmental agencies. Administration transparency primarily concerns with whether entrepreneurs have access to the proper planning and legal documents necessary to run their businesses. Leadership proactivity principally measures the creativity and cleverness of local authorities in designing and implementing policy providing initiatives for private sector development. These informal arrangements are embedded in local norms and "codes of conduct", and vary significantly across regions.

The extant research suggests a positive causality of informal policies on economic performance. Caetano and Caleiro (2009) propose that in governance system, transparency is most important to attract FDI. Nguyen and Dijk (2012) argue that the perceived improvements of local public policies can help mitigate corruption and stimulate economic growth. Helmke and Levitsky (2004) stress that informal governance, including transparency and corruption influence firm growth even stronger than the formal forces.

In sum, based on the previous findings, it is expected that local informal governance will encourage SME investments if they are structured to reduce transaction costs and to properly reward entrepreneurial productive activities. This leads to the following hypothesis:

H1e: In a given region, improvements of local governance concerning informal policies (about bureaucratic compliance, administration transparency and leadership proactivity) will be positively associated with local SME investments.

5.2.7 The role of financial constraints in moderating governance effects

Since internal and external funds are not perfectly substituted, some firms, especially the young and small ones, suffer from financial constraints (Fazzari et al., 1988).[29] A financially constrained firm can be thought of as a firm whose investment spending would rise (or fall) if its retained earnings increases (or decreases). More rigorously, a firm is considered as financially constrained if a windfall increase in the supply of internal fund (i.e., a change in capital which conveys no new information about the profitability of current investment) results in a higher level of investment spending (Bond & Meghir, 1994).

This section aims to explain why some SMEs gain more benefits from a set of governance arrangements than the others, according to degrees of financial constraints. A possible mechanism underlying this proposition is concerned with the differed investment incentives between the two groups of firms. According to the financial constraints theory, less financially constrained firms are more active in economic activities compared to the more financially constrained ones (Nickell & Nicolitsas, 1999). The reason is that the availability of internal finance represents a particular binding constraint on firm operations (Guariglia & Liu, 2014). Previous findings demonstrate that less financially constrained firms are more likely to make investments in higher value-added projects such as R&D in new products (Guariglia & Liu, 2014); in employment expansion (Nickell & Nicolitsas, 1999); and in fixed assets expansion (Guariglia et al., 2011). In addition, firms with healthy cash flow performance may in fact find it easier to obtain external finance as it is perceived as less risky by lenders. The reason is that healthy cash flow can be regard as a reduction of agency costs, and a proof of entrepreneurs' commitments on their projects (Guariglia, 2008). For this reason, less financially constrained

[29] Under the perfect capital market assumption, Modigliani and Miller (1958) irrelevant theorem suggests that a firm's capital structure is uncorrelated with its value. This argument, in turns, implies a perfect substitution between internal capital (e.g. retained earnings, cash flow) and external funds (e.g. bank loans, equity issues). Thus, a firm's investment and financing decision are independent of each other. In other words, an increase in the availability of cash flow (i.e. internal fund) cannot be seen as an indicator for new investment; the only determinant of investment is the price at which the firm obtains funds. However, in practice, transaction costs, asymmetric information and agency costs together depreciate the validity of the theorem (Aivazian, Ge, & Qiu, 2005; Bond & Meghir, 1994; Veciana & Urbano, 2008).

firms may have more finance to make large-scale and long-term projects. Moreover, it is stylised that less financially constrained firms likely to be large and old firms (Carreira & Silva, 2010).[30] Thanks to their experiences, social capital, and managerial skills, etc., less financially constrained firms are more likely and more able to involved in bigger investment projects.

Since being more likely to conduct large-scale and long-term investment projects, less financially constrained firms may be more sensitive to the informal governance forces for the following reasons. First, because of their large investments, politicians and administrators are more likely to seek contact with cash-flow rich firms. Allen et al. (2005) argue that while small and cash-flow poor firms are less likely to be involved in inner circle of the informal network with local authorities, it is more likely for large companies to establish relationships with local governments. This translates to a fact that entrepreneurs of less financially constrained (i.e., cash-flow rich) firms must spend more time and efforts to rent-seeking and unproductive activities such as pleasing and entertaining local authorities (Du et al., 2015). Therefore, we expect that as local informal governance environment improves, i.e., less corruptive behaviours from local authorities, more transparency in public administration, and more active leadership would reduce the burdens of building and maintaining informal relationships with local governments, and thus would give entrepreneurs more resources (e.g., capital and time) to invest and manage new projects.

Second, less financially constrained firms are more likely to make investment projects that sometime fall outside or in the "grey" side of the existing formal regulation frameworks. These investment activities may include R&D investments, build large factories, apply for operating licences in new industries, etc. This situation gives local administrators room to arbitrarily

[30] This fact can be verified using the census data of Vietnam SMEs. According to the simple statistics in chapter 3, the least financially constrained firms are on average 9.7-year-old, and their employment size is 58.2 employees. Firm age and size decrease as financial constraints increases. The most financially constrained firms are on average 4.1-year-old, and their employment size is 29.5 employees.

decide which projects to could be approved, and which ones could not be, even though these projects are not dissimilar.

In addition, non-transparent governance may also present in the form that local authorities intentionally prioritise some specific firms that can obtain valuable information before others, depending on their "back-door" relationships. These issues of the informal governance arrangements once again provide entrepreneurs with incentives to participate in rent-seeking and unproductive activities to obtain productive resources, which they would rather not conduct in a stronger institutional environment. Therefore, when informal governance arrangements improve, less financially constrained firms will more appreciate than more financially constrained ones. More financially constrained firms are in the process of building their fundamental resources and capabilities base. In this initial phrase, they usually rely largely on their private network rather than on political connections (Du & Mickiewicz, 2016). For this reason, local informal governance including corruption, transparency, and leadership proactivity may be less relevant to their investment decision.

Third, from the corruption behaviour literature, it is noteworthy that local governments face time and attention constraints (Jain, 2001). Large transactions are more attractive; thus, cash-flow rich firms are more likely in their radar screen. Therefore, less financially constrained firms are expected to be more sensitive to local informal governance forces than the cash-flow poor firms, which principally are less attractive to corruptive officials.

On the contrary, more financially constrained firms may be more sensitive to local formal governance arrangements. The reason is that these forces are the fundamental to their operation and development. For example, better legal enforcement protects small firms from contracting default, thus encourages them to make more investments (Beck, Demirgüç-Kunt, & Maksimovic, 2008). Market access and economic regulations provide firms with productive resources such as land and labours to expand their operations. Moreover, these formal

governance arrangements also help firms to reduce transaction costs by providing matchmaking services (e.g., trade fairs).

Cash-flow poor firms are usually small, young, and suffer from financial difficulty, they are unlikely make large-scale and long-term investment projects that require tailored consideration and specific approval from local authorities. In contrast, what they need is basically a conducive institutional infrastructure representing in the form of functional legal enforcement system, opened-access to local market regulations, and supportive economic regulations. Meanwhile, cash-flow rich firms principally have accumulated sufficient resources for their investments and usually pay little effort to couple with fundamental regulations compared to cash-flow poor firms. For this reason, it is expected that more financially constrained (cash-flow poor) firms are more sensitive to local formal governance arrangements than the less financially constrained (cash-flow rich) ones.

For example, Ahlstrom et al. (2000) argue that the negative effects of corruption are more detrimental for high-growth and large entrepreneurship than those merely are in their livelihood. High-growth and large firms are in good performance; thus, they are usually rich in cash-flow, i.e., less financially constrained. Therefore, it could be expected that the effects of local informal governance (e.g., corruption, and non-transparency) are more severe on more financially constrained firms than they are on the less financially constrained ones.

The following hypothesis formally summarises these arguments:

H2a: Less financially constrained firms will make more investments when local informal governance forces, including freedom from corruption, and informal policies improve.

H2b: More financially constrained firms will make more investments when local formal governance forces, including legal enforcement, market-access regulations, and economic regulations improve.

5.3 Data and methodology

5.3.1 Data

To test the proposed hypotheses, this study proposes Vietnam as an appropriate context. Vietnam economic and institutional structures are ideal for the exercise because of the two following reasons. First, Vietnamese entrepreneurial sector is currently the boost for the economic transition (Anwar & Nguyen, 2011), but they may be severely financially constrained due to the weaknesses and shortcomings of the banking system. Second, there is significant variation across individual firms, regions and across time in variables of interest to methodologically facilitate and improve the reliability of econometric estimations.

Specifically, the empirical models rely on a combination of two datasets. The first is the Annual Survey on Enterprises of Vietnam General Statistics Office (GSO). It is a thirteen-year panel from 2000 to 2012 including several firms-level information for all of manufacturing, mining, and service sectors. However, the study period in this chapter is seven years, from 2006 to 2012, to match with the availability of the second dataset, the Provincial Competitiveness Index (PCI)[31], which are first conducted for a sample of regions in 2005 and then for all of 63 Vietnamese provinces and municipal cities from 2006. The survey is a product of the collaboration between Vietnam Chamber of Commerce (VCCI) and the U.S Agency for International Development (USAID). Generally, PCI is an overall provincial institutional index, a weighted average of the other 9 sub-indices, each measures a particular dimension of the formal and informal regional governance forces. Definition and summary statistics of the indices are presented in Table 5.1.

[31] PCI is based on a rigorous survey of the perceptions of more than 10,000 domestic firms and 1,600 foreign invested enterprises about local economic governance and the business environment across Vietnam. From 2013, there is an additional sub-index i.e. Policy Bias. Details of items measured in each indicator, methodology, and data collection information please visit www.eng.pcivietnam.org.

Table 5.1: Governance index definition and summary statistics (31)

Variable	Definition	Mean	S.D.	Min.	Max.
Legal institutions	Measure the confidence in provincial legal institutions; whether firms regard provincial legal institutions as an effective vehicle for dispute resolution, or as an avenue for lodging appeals against corrupt official behaviour. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the better the institutions.	4.60	1.16	2.00	7.34
Entry costs	Measures the differences in entry costs for new firms across provinces (for example, length of business registration in days, etc.). The indicator is two-digit value, ranging from 1 to 10, the higher the score, the lower the entry costs.	7.95	0.96	4.96	9.60
Land access	Combine two dimensions of the land problems confronting entrepreneurs: how easy it is to access land and the security of tenure once land is acquired. The variable is two-digit value, ranging from 1 to 10, the higher the score, the better the access.	6.33	0.92	3.04	8.84
Time costs	Measures how much time firms waste on bureaucratic compliance, as well as how often and for how long firms must shut their operations down for inspections by local regulatory agencies. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the better the access.	5.85	1.19	2.64	8.93
Business supports	Measures provincial services for trade promotion, provision of regulatory information to firms, business partner matchmaking, provision of industrial zones or industrial clusters, and technological services for firms. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the better the support.	4.57	1.44	1.40	9.62
Labour training	Measures the efforts by provincial authorities to promote vocational training and skills development for local industries and to assist in the placement of local labours. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the better the training.	4.96	1.01	1.84	9.60
Corruption	Measures how much firms pay in informal charges, how much of an obstacle those extra fees pose for their business operations, whether payment of those extra fees results in expected results or "services," and whether provincial officials use compliance with local regulations to extract rents. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the lower the charges (corruption).	6.48	0.80	4.52	8.62

Transparency	Measures whether firms have access to the proper planning and legal documents necessary to run their businesses, whether those documents are equitably available, new policies and laws are communicated to firms and predictably implemented. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the more transparent.	5.79	0.97	2.15	8.85
Leadership proactivity	Measures the creativity and cleverness of provinces in implementing central policy, designing their own initiatives for private sector development, and working within sometimes unclear national regulatory frameworks to assist and interpret in favour of local private firms. The indicator is two-digit value, ranging from 1 to 10, the higher the score, the more proactive.	5.05	1.46	1.39	9.39

Note: Studying panel encompasses all of 63 provinces and municipal cities in Vietnam in the period 2006-2012, obtained from the Provincial Competitiveness Index (PCI) dataset.

5.3.2 Variables and summary statistics

To clean the data, all of firms with negative total assets, negative fixed assets, depreciation and employees are dropped, so do for those firms whose fixed assets are greater than total assets. Similarly, firms with negative investments or missing values are also deleted. The outliers are controlled for by censoring the top and bottom 1% of observations in each variable. This study then selects only small and medium-sized companies as observations according to the Law on Enterprises of Vietnam.[32] The final sample in regressions constitutes 144,935 SMEs in 7 years.

- *Dependent variable*

The dependent variable is firm investments measured by the ratio of total investments firm *i* makes in year *t* to total assets in the same period.[33] The role of SME investments in emerging

[32] According to the Vietnam Enterprise Law, there are 4 types of firms in terms of sizes. Microenterprises are firms operating with less than 10 employees. Small enterprises are firms having 10 to 200 employees and total registered capital less than 20 billion VND (approximately 1 million USD). Medium enterprises are firms having 200-300 employees and total registered capital less than 100 billion VND (approximately 5 million USD). And large enterprises are firms operating with more than 300 employees and 100 billion VND registered capital. Capital is the first criterion in categorization.

[33] Both variables Investment and Cash flow are normalised by total capital. Using ratios instead of values is theoretically necessary and very common in the investment literature (Aivazian et al., 2005; Carpenter

countries has a sound theoretical base derived from the endogenous growth theory (Acs & Sanders, 2013; Aghion & Howitt, 1998; Giordani, 2015; Wesselbaum, 2015). [34] The linkage between SME investments and economic growth is also empirically confirmed in several contexts (Beck et al., 2014; Watson & Wilson, 2002; Zhang, Venus, & Wang, 2012). Therefore, it is important to understand the influence of local governance on local firm investments in order to improve economic growth (Zhou, 2013, 2014).

Primarily suggested by Fazzari and Petersen (1993), then advanced by Ding et al. (2013) and Baños-Caballero et al. (2014), working capital is now widely considered as a complementary source for fixed assets investment in the context of financial constraints. To incorporate this line of literature to sufficiently capture the intrinsic mechanism in which entrepreneurs make investment decision, the dependent variables comprise four types of investment: (1) construction of factory and building, (2) machinery and other fixed productive assets purchase, (3) technology upgrade and update spending, and (4) additional net working capital investment.

- *Independent variables*

Following convention in investment literature (Aivazian et al., 2005; Carpenter & Petersen, 2002b; Ding et al., 2013; Driffield & Pal, 2001; Fazzari & Petersen, 1993), this study estimates financial constraints with an inclusion of the cash flow variable in an investment equation. *Cash flow,* measured by the ratio of total cash flow generated by firm *i* in year *t* to its total capital stock in the same period. The inclusion of the cash flow variable in a reduced form equation is

& Petersen, 2002b; Ding et al., 2013; Driffield & Pal, 2001; Fazzari & Petersen, 1993; Guariglia, 2008; Guariglia et al., 2011; Lang et al., 1996), and can be seen as a required normalization.

[34] Endogenous growth theory proposes that, in the long-run investment in innovation, and technical knowledge are significant contributors to economic growth (Aghion & Howitt, 1998). Meanwhile, entrepreneurship is characterised by innovative activities that provide new value-added products and services to the society (Acs & Sanders, 2013; Baumol & Strom, 2007).

theoretically argued valid to account for financial constraints when investment opportunities are properly controlled (Bond & Meghir, 1994; Kaplan & Zingales, 1997).[35]

To assess the importance of local governance, this study employs several indices of the PCI dataset. There are 9 sub-indices measuring different aspects of local governance institutions for each province in Vietnam. Since the dataset is primarily conducted to serve political administration purpose, its design is empirical-driven, which is not directly appropriate for research purpose. In practice, governments pay more attention to understand specific governance forces that have impact on local private sector rather than to conceptualise them into to a theoretical framework that could be generalised into other contexts. The 9 sub-indices are thus, rather specific and tailor-made to the context of Vietnam. Thus, employing these indices as a proxy for local governance could reduce the reliability of the study because it could not be replicated using other datasets. In addition, because some of the indices measure the same governance forces, redundant information may devaluate the validity of the research due to potential multicollinearity.

For the above reasons, we seek to improve the generalisability of the study using Cronbach alpha. This method combines items internally consistent are into a single variable to reduce redundant information and alleviate potential multicollinearity. By doing this, Cronbach alpha could also group indices specific to the context of Vietnam into more general variables which could be re-test in other contexts.[36]

Cronbach alpha measures of the internal consistency of a scale (a variable constructed by grouping other variables). Its value varies in the range from 0 to 1, with 0 means no correlation among the grouping variables, and 1 presents perfect consistency among grouping variables.

[35] Its underlying rational is that if a firm is financially constrained, the level of investment expenditure is hindered to the level of cash flow; thus, holding information about expected future profitability constant, a windfall change in cash flow will have a positive effect on the level of investment. In other words, a positive and significant coefficient of cash flow variable in a model controlled for the investment opportunities can be interpreted as an indicator of the degree of financial constraints.
[36] Correlation matrix between pairs of PCI indicators are presented in the Appendix 4.1.

Internal consistency indicates the level of consistence among grouping variables, i.e., whether they represent the same concept, or that whether one general variable could represent all of them.

Cho and Kim (2015) show that if the items in a test are correlated to each other, the value of alpha increases. However, a high coefficient alpha does not always mean a high degree of internal consistency. The reason is that alpha is also affected by the length of the test. If the test length is too short, the value of alpha is reduced. Thus, to increase alpha, Cho and Kim (2015) argue that more related items testing the same concept should be added to the test. Within the availability of the PCI dataset, we make use of the correlation matrix to group the 9 sub-indices in a way that satisfies the following two requirements: (1) the grouped variables are theory-based on well-developed concept in institutional literature. By doing this, we assure the generalisability of the study; and (2) the grouping variables are empirically correlated. We make use of the correlation matrix (presented in Appendix 5.1) to select the most correlated variables. Highly correlated indices are grouped into one variable if they are theoretically consistent.

The steps of combination are as following. First, we decide to keep two variables: corruption and legal enforcement as they are in the original dataset. The reason is that the two variables are theoretically-grounded factors that are most important to entrepreneurship. Legal enforcement is the central of formal governance forces (Hasan, Wachtel, & Zhou, 2009). It is crucial in determining entrepreneurs' incentives and behaviours. As legal enforcement is concerned with contract enforcement and risk of expropriation, it is directly linked to property rights, which are found to hold substantial influence on investment decision (Johnson et al., 2002). Firms may choose to stop investing even when bank loans are available if they feel their property rights are not secured.

Meanwhile, corruption is the central of informal governance. Corruption may re-shape incentives of entrepreneurs because it poses several negative effects on SMEs. In a corruptive environment, entrepreneurs are required to invest more time and effort in rent-seeking and

unproductivity activities. In addition, corruption is indirectly linked to property rights as well. Entrepreneurs will have unsecured property rights when local officials keep asking for increasing value for each bribery transactions.

For the other 7 indices, we group them into 3 variables. Specifically, land access and entry cost indices are items indicating the openness of local governments for local private sector to gain access to local markets. Local market-access is a well-developed concept in the literature of international business. This variable is to measure the accessibility of a local market (Tran et al., 2009). From the governance perspective, it concerns with the length of business registration in days, percentage of firms that need additional licenses/permits, how easy it is to access land and the security of tenure once land is acquired. The two variables have the correlation coefficient is 0.23 and the Cronbach alpha of the combined variable – the market-access variable is 0.68.

Second, we combine business support and labour training indices into one measure of local economic environments, named economic regulations. The economic regulations variable measures provincial services for trade promotion, provision of regulatory information to firms, business partner matchmaking, provision of industrial zones or industrial clusters, and technological services for firms, as well as the efforts of local authorities to promote vocational training and skills development for local industries and to assist in the placement of local labour. The concept of economic regulations is popular in entrepreneurship literature when studying factors influencing entrepreneurial capital (Hall & Jones, 1999; Stenholm, Acs, & Wuebker, 2013). The two sub-indices: business support and labour training are highly correlated (correlation coefficient is 0.59). The combined variable – economic regulations has a high Cronbach alpha as well (0.74). This result indicates that the two indices are strongly related, and thus supports the combination.

Finally, we combine three indices: bureaucratic compliance (time cost index), administration transparency and leadership proactivity into a single scale, named informal policies. The three

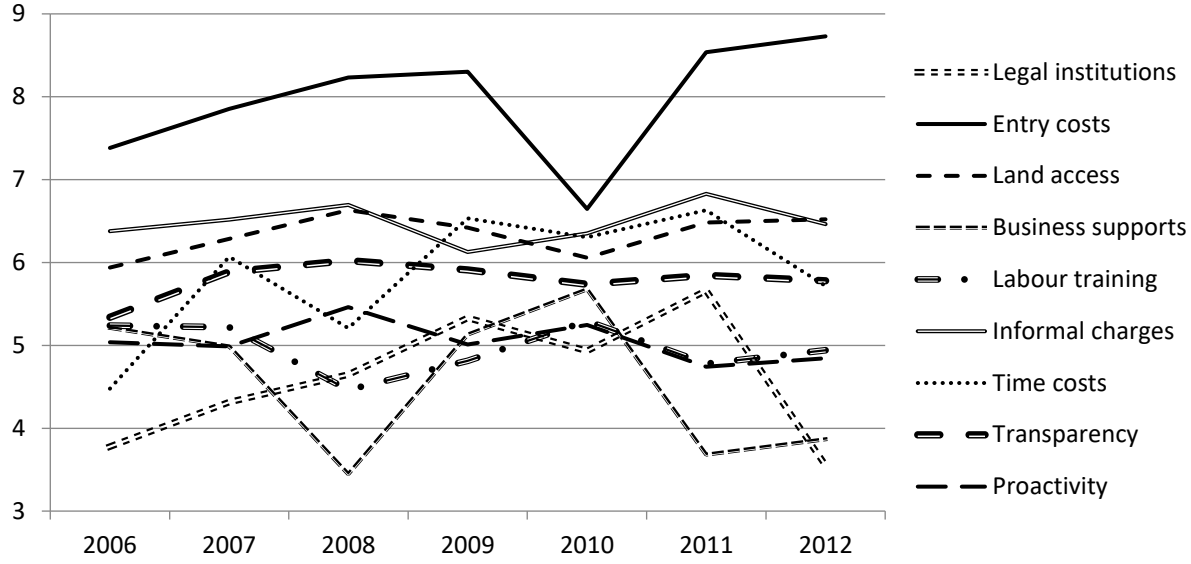
indices share a similar characteristic that they are informal and unwritten governance forces. For this reason, we combine them into one informal governance variable. This variable is concerned with access to the planning and legal documents, whether those documents are equitably available, whether new policies and laws are communicated to firms and predictably implemented, how much time firms waste on bureaucratic compliance, how often and for how long firms must shut their operations down for inspections by local regulatory agencies, and the creativity of provinces in implementing central policy, designing their own initiatives for private sector development. Empirically, the proactivity and transparency indices are highly correlated (correlation coefficient is 0.47), the correlation coefficient for the bureaucratic compliance and transparency is 0.31. And 0.27 for the correlation coefficient of proactivity and bureaucratic compliance. The Cronbach alpha of their combination is 0.67.

It has been well documented that a unidimensional test does not necessarily have a higher alpha than the multidimensional test (Cho & Kim, 2015). Considering the fact that the length of items (sub-indices) is rather short in this study, in addition to the pre-determined structure of the datasets, we could only combine 2 to 3 indices to construct one governance variable. Therefore, the Cronbach alphas at approximately 0.7 is acceptable (Bonett & Wright, 2015).[37]

Figure 5.2 presents the mean averages of the 9 governance indices from 2006 to 2012. Although there is a slight upward tendency in general, there is significant differences in the pathway of each index. Zhou (2014) suggests that some governance forces may be negatively correlated because local governments may prioritise certain governance forces to the others, depending on their local specific circumstances.

[37] Thus a more rigorous view of alpha is that it cannot simply be interpreted as an index for internal consistency of a test (Bonett & Wright, 2015; Cho & Kim, 2015).

Figure 5.2: The mean averages of the governance indices (8)



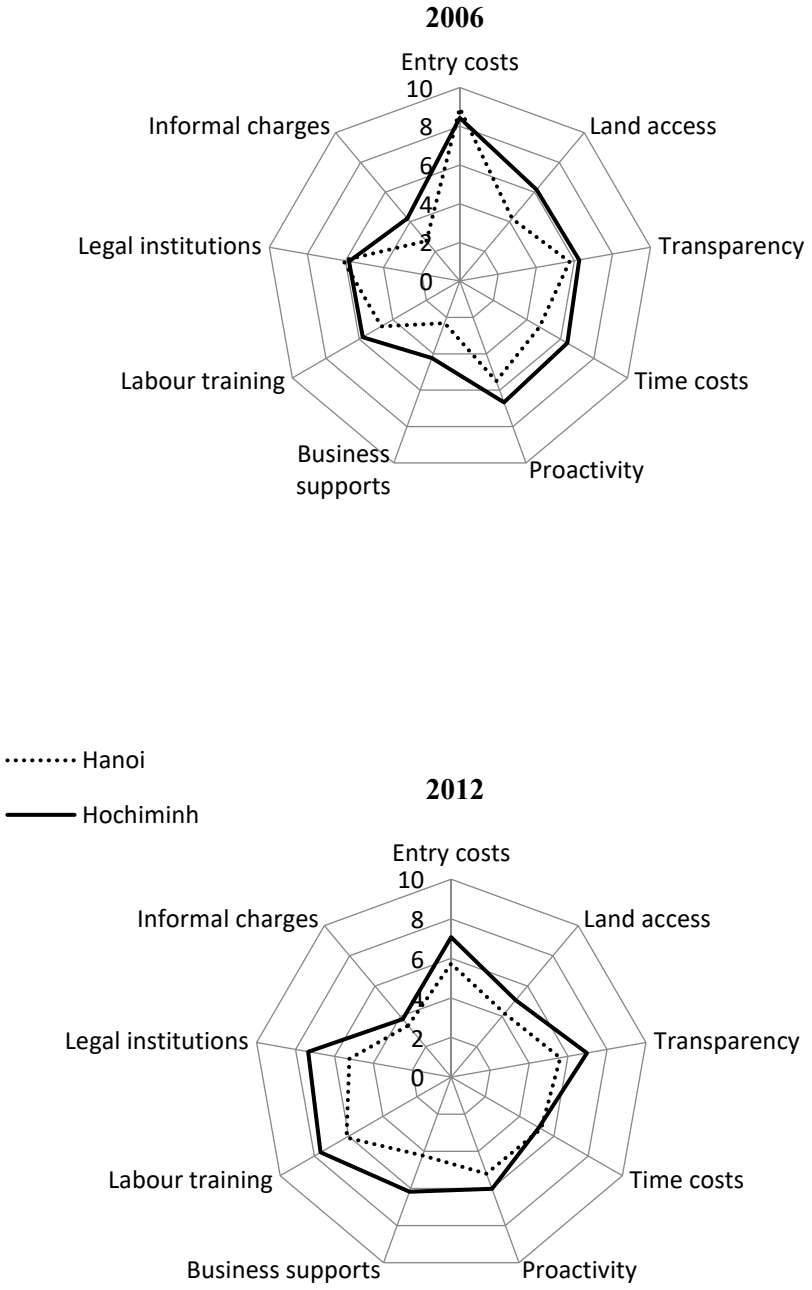
In Figure 5.2, entry costs index with the highest score overall, was on an increasing trend in contrast to the legal institutions with the lowest score, was shrinking in 2012. This can be explained by the fact that local governments are competing to increase the number of enterprises by reducing entry thresholds, but they are not paying much attention to help firms grow by improving the quality of legal enforcement (Bich Tran, Grafton, & Kompas, 2008; Meyer et al., 2006). Other indices, except for the business support with large variance, indicate gradual and stable improvements over time.

Moreover, it is worthy to pay attention to the significant drop of the entry cost variable in 2010. This could be explained by the fact that Vietnam was hit severely by the recent global crisis (which affects the Vietnamese economy since 2009) (Leung, 2015). To reduce the number of non-performing firms (zombie firms), and restrict the establishment of underqualified firms, governments may have to lift the entry costs in 2010. This is one of the temporary administrative technique to immediately take back control of the economic system. Since 2011, as the crisis has gradually eliminated, government started to reduce entry costs. This is shown by the significant improved performance of the entry cost variable in 2011 in Figure 5.2.

Besides entry costs, legal institutions also had a significant shrink, but it was in the year 2012. This reduction may be due to the five-year tenure scheme of leadership appointment in 2011. In Vietnam, local leadership is appointed by the central government every 5 years. New leaders may change, amend and adjust the current regulation system immediately when they are in position. This could significantly affect local legal institutional frameworks. Chien et al. (2012) highlight that in Vietnam, the soft power (i.e. informal power) of local leadership is larger than their official power. Therefore, a universal change of leadership across the country may make local legal institutional system temporarily instable after the year of appointment. However, it is expected that the variable will recover when the leadership gradually stabilise in the following years.

In addition, a close investigation in governance forces across provinces indicates a significant heterogeneity. For example, Figure 5.2 compares the two largest municipal cities: Hanoi (the capital and second largest economic city), and Hochiminh (the largest economic city) in 2006 and 2012. Hanoi was overall outperformed by Hochiminh city in every dimension in 2006. However, in 2012, the capital achieved significant improvements in the entry costs and legal institutions indices. Hochiminh city, however, completely shaped its governance arrangements, from focusing on legal institutions and labour training to focusing on entry costs and leadership proactivity. This simple exercise illustrates the complexity and dynamic of the governance changes across time and regions. It is expected that this significant variation will influence local SME investments.

Figure 5.3: The governance indicators of Hanoi and Hochiminh city (9)



- *Control variables*

In order to properly identify financial constraints, it is necessary to control for investment opportunity in a reduced form investment equation. Conventionally, investment opportunities are proxied by marginal q (Bond, 2003; Bond & Reenen, 2007; Ding et al., 2013; Guariglia, 2008). For unlisted firm, some authors use firm age and size as valid proxies (Ayyagari et al., 2010; Rahaman, 2011), others interact industry dummies with year dummies to indirectly account for time-varying demand shocks at industry level (Brown & Petersen, 2009; Duchin et al., 2010; Guariglia et al., 2011).

This study controls for investment opportunity using several variables found to significantly influence investment in literature: (1) *Sale growth* defined as the percentage change of net revenue between two consecutive periods to account for investment opportunity; (2) *Age* is measured as the number of years since firm *i* being established in year *t*; and (3) *Size* is measured in natural log of the number of employees firm *i* hires in year *t*. Definitions and summary statistics of variables are presented in Table 5.2 below.

Table 5.2: Definition and summary statistics of variable (32)

Variable	Definition	Observations	Mean	S.D.	Min.	Max.
Investment	Total investments firm *i* makes in year *t* divided by total capital stock in the same period, deflated to 2010 price using official GDP deflators.	139,107	0.14	0.19	0.00	1.11
Cash flow	Cash flow generated by firm *i* in year *t* divided by total capital stock in the same period, deflated to 2010 price using official GDP deflators.	139,107	0.16	0.21	-0.58	0.99
Sales revenue growth	The percentage change of sales revenue between two consecutive periods.	139,107	0.02	0.95	-5.21	4.55
Age	Number of years since establishment	139,107	8.65	5.44	1.00	33.00
Size	Natural log of the number of employees that firm *i* hires	139,107	46.57	49.77	10.00	300.00

	in year *t* (report here the number of employees)					
Legal enforcement	A dimension of formal governance: measures the quality of the local contracting governance and the risks of expropriation. *Legal enforcement* variable is the percentage change of the legal institutions indicator in two consecutive periods.	139,107	-0.07	0.35	-0.88	0.92
Market-access regulations	A dimension of formal governance: measures the quality of the local markets openness. *Market-access regulations* variable is a standardised combination of the percentage change in land access and entry costs indicators.	139,107	0.02	0.37	-1.15	0.79
Economic regulations	A dimension of formal governance: measures the quality of the local economic environments. *Economic regulations* variable is a standardised combination of the percentage change in labour training and business supports indicators.	139,107	0.52	0.90	-2.58	2.29
Corruption	A dimension of informal governance: measures the freedom from corruption of local officials. *Corruption* variable is the percentage change of the informal charges indicator in two consecutive periods.	139,107	0.00	0.14	-0.50	0.54
Informal policies	A dimension of informal governance: measures the quality of unofficial polices. *Informal policies* variable is a standardised combination of the percentage change in time costs, transparency, and leadership proactivity indicators.	139,107	0.22	0.27	-1.08	1.20

Note: The summary statistics are reported based on the observations used in the main regressions. Firm-specific variables are obtained from the Annual Enterprises Survey of the Vietnam General Statistical Office. Governance variables are generated from the Provincial Competitiveness Index (PCI) dataset. Studying period is 2006-2012.

5.3.3 Econometric models

Building on the recent literature studying SME financial constraints (Ding et al., 2013; Guariglia, 2008; Guariglia et al., 2011), this study proposes the following baseline empirical specification to test the relevant hypotheses:

$$(\mathbf{1})\left(I_{igt}/K_{igt}\right) = \beta_0 + \beta_1(A_{igt}) + \beta_2(S_{igt-1}) + \beta_3(G_{igt-1}) + \beta_4\left(CF_{igt-1}/K_{igt-1}\right) + \beta_5(Governance_{gt}) + \beta_6\left[Governance_{gt}\times\left(CF_{igt-1}/K_{igt-1}\right)\right] + \mu_{igt}$$

$$\mu_{igkt} = v_i + v_j + v_t + v_g + e_{igt}$$

The subscript *igt* represents individual effects. Specifically, i denotes an individual firm, g a province, and t a particular year. Thus, $\left(I_{igt}/K_{igt}\right)$ is the ratio of investment to total capital an individual firm *i* in province *g* makes in year *t*. (A_{igt}) represents firm age, (S_{igt-1}) firm size, (G_{igt-1}) sale growth, and $\left(CF_{igt-1}/K_{igt-1}\right)$ is the ratio of cash flow to total capital. The firm size, sale growth and cash flow variables are lagged one period to control for the potential endogeneity.

The subscript *gt* indicates the regional effects. The governance variable: $(Governance_{gt})$ is a vector of 5 individual governance forces of province *g* in year *t*. The performance of the coefficients associated with governance variables will be investigated to test the validity of the hypotheses H1a to H1e. If local governance improvement is positive associated with local entrepreneurial investments, we expect that β_5 will be positive and statistically significant. Finally, the interaction terms $Governance_{gt}\times\left(CF_{igt-1}/K_{igt-1}\right)$ represents the nonlinear effect. The performance of the coefficients associated with this interaction terms will show whether the hypothesis H2 is supported or not. In particular, β_6 is expected to be positive when cash-flow increase strengthens governance effects (i.e., cash-flow rich firms are more sensitive to local governance). Meanwhile, β_6 is expected to be negative when cash-flow increase weakens governance effects (i.e., cash-flow poor firms are more sensitive to local governance).

The random part in equation (1) comprises two terms: v_g is regional residuals, and e_{igt} is individual residuals. This study also controls for the time-specific v_t and industry specific v_j components by including corresponding dummies. Following Klapper et al. (2006), and McMullen, Bagby, and Palich (2008) each governance variable is entered into separate regressions to control for multicollinearity. Then, there is a regression including all governance variables to compare the changes in their signs and significance levels. Details of the correlations between pairs of governance variables are presented in Table 5.3. The correlation matrix for pairs of PCI indices are presented in Appendix 5.1. And the correlation matrix for all variables in this chapter is presented in Appendix 5.2.

Table 5.3: Correlation matrix of the governance variables (33)

	(1)	(2)	(3)	(4)	(5)
Legal enforcement (1)					
Market-access regulations (2)	-0.275				
Economic regulations (3)	0.126	0.155			
Corruption (4)	0.187	-0.247	-0.073[(a)]		
Informal policies (5)	0.271	-0.419	0.002[(a)]	0.042[(a)]	

Note: (a) indicates that the coefficient is *not* significant at 5% level.

The modelling in this chapter is multilevel as there are variables at both provincial and individual firm levels. To address unobserved heterogeneity within the context of cross-provinces and cross-firm dataset, we employ the multilevel estimator (command *xtmixed* in Stata) to obtain consistent coefficients. Multilevel estimator considers the fact that some individual firms in the dataset may share similar characteristics because they locate in the same provinces. To control for this hierarchical structure, the multilevel estimator employs both fixed effects and random effects. The fixed effects are analogous to standard regression coefficients and are estimated directly. The random effects are not directly estimated but are summarised according to their estimated variance and covariance. The random effect is helpful to analyse the variance of the coefficients in details, and thus improve the robustness of the estimated coefficients. There are two types of random effects, i.e., random intercept and random slope. Because this study is about the effects of local governance on local SMEs investment on

average, the random intercept technique was employed accordingly. The random slope technique is more appropriate when one wants to study in detail the differences among provinces by time.

Specifically, in this chapter, individual firms are set on level one, and provinces are on level two. This setting allows us to control for clustering of the observations first by firm, and second, within a province. Failure to do so would lead to biased results (Estrin et al., 2013). The specification tests in all regressions indicate that the choice of multilevel modelling is justified: the random intercepts are all statistically significant.

Besides the multilevel, we also use GMM estimator as a robustness check for the consistency of the findings. The conventional GMM methods could control for both unobserved firm-specific heterogeneity and the possible endogeneity of the independent variables. The results of GMM are reported in the robustness check section.

5.4 Empirical results

Empirical results are presented in Table 5.4 for the direct effect and Table 5.5 for the nonlinear effect. Regressions for each governance variable are reported separately in columns (1) to (5), the last column reports the regression including all governance variables. The random effect parameters in all specifications indicate that there are significant differences across provinces, and that the use of the multi-level estimator is appropriate.

In Table 5.4, the coefficients of all of governance variables are positive and significant, except for the legal enforcement variable. However, in Table 5.5, when controlling for the nonlinear effect, the coefficient of legal enforcement variable become double in magnitude and precisely determined. This indicates that the difference between the more and the less financially constrained SMEs in terms of their responses to legal enforcement force is significant, thus the specification with the nonlinear interaction terms is more appropriate (Bond & Reenen, 2007; Guariglia & Liu, 2014).

The positive and significant coefficients of governance variables including legal enforcement, market-access regulations, economic regulations, corruption, and informal policies presented in both tables indicate that hypotheses 1a, 1b, 1c, 1d, and 1e are strongly supported. This result provides evidence that local governance forces, both formal and informal arrangements, could introduce incentives for entrepreneurs to make investments. The consistency in the signs and the significance levels of all governance variables in separate and join specifications confirms the robustness of the findings.

To examine the economic importance of the governance effects, we deliberately analyse the coefficient of each governance variable (Table 5.5). Among the 5 governance forces, market-access regulations are most economically important to local SME investments. If the indicators of market-access regulations improve by 1%, investment will increase by 2.5% of total capital, holding all other parameters constant. This finding indicates that land, land-use rights, and operation permits are crucial for local SMEs when considering new projects. The access to land, the security of tenure is in fact an essential issue in the context of Vietnam since land by law definition is a state property, corporations only allowed to rent land for a contracted period. The issue of land-use certificate, however, is troublesome and bureaucratic. Similarly, the application procedures for operation permits and licences are also difficult and inconsistent. There is room for officials to treat each application arbitrarily, especially when entrepreneurs apply in new industries, to expand their operations in other provinces, and to apply for export/import licences. Although that land and operation permits are important resources to all firms in general, SMEs due to their liabilities, are less likely to obtain these resources using "back-door" relationships; thus, they will appreciate when regulations concerning market-access become more open and entrepreneurial-friendly.

Informal policies are the second important governance force to local SMEs with 1.35% of total capital increase in investment if the indicators improve by 1%, holding all other parameters constant. Recall that informal policies is concerned with local leadership proactivity,

administration bureaucracy, and transparency. These policies are not officially executed but off-the-record affect local SMEs. Given that SMEs are not welcome by the incumbents of the informal network between politicians and corporations, they are inferior in gaining access to productive information, assistant services, and avoiding bureaucratic intervention. For this reason, when local informal policies become more entrepreneurial-friendly, SMEs appear to make more investments.

Corruption follows by 1.2% of total capital increase in investment for each percentage of improvement, which is insignificantly lower than the effect of informal policies. The similar effects of corruption and informal policies indicate that the two informal governance forces are equally important to local SME investments.

Finally, legal enforcement and economic regulations are less economically influential on local SME investments with 0.7% and 0.4% of total capital increase in investment for 1% improvement of respective governance forces. These two forces are less economically important to SME investment in comparison with other governance arrangements because they are governance forces to consider in post-investment stage. Legal enforcement matters when firms encounter contract defaults and disputes with stakeholders in the investment process. Economic regulations concerning labour quality and quantity, which are not the main concerning factors in a country with redundant workforce.

It is noteworthy that even though the important weigh of each governance force is different depending on the incentive mechanism that it influences the behaviour of local entrepreneurs, they are all statistically significant. In other words, local governance improvements, either in formal or in informal forces are significantly positively associated with more SME investments.

Table 5.4: Regression results of local governance effects on SME investments (34)

	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.00122***	-0.00122***	-0.00122***	-0.00122***	-0.00122***	-0.00122***
	(0.000110)	(0.000110)	(0.000110)	(0.000110)	(0.000110)	(0.000110)
Size	-0.0283***	-0.0283***	-0.0283***	-0.0283***	-0.0283***	-0.0283***
	(0.000747)	(0.000747)	(0.000747)	(0.000747)	(0.000747)	(0.000746)
Cash flow	0.0115***	0.0114***	0.0115***	0.0115***	0.0115***	0.0117***
	(0.00335)	(0.00335)	(0.00335)	(0.00335)	(0.00335)	(0.00335)
Sale growth	0.00287***	0.00292***	0.00304***	0.00286***	0.00288***	0.00307***
	(0.000509)	(0.000509)	(0.000510)	(0.000509)	(0.000509)	(0.000510)
Legal enforcement	0.00355					0.00357
	(0.00269)					(0.00276)
Market-access regulations		0.0169***				0.0181***
		(0.00452)				(0.00467)
Economic regulations			0.0198***			0.0194***
			(0.00300)			(0.00303)
Corruption				0.0154***		0.0116***
				(0.00328)		(0.00335)
Informal policies					0.00351***	0.00355***
					(0.00125)	(0.00126)
Industry control	Yes	Yes	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes	Yes	Yes
Observations	139,107	139,107	139,107	139,107	139,107	139,107
No. of provinces	63	63	63	63	63	63
Log likelihood	40,985	41,025	40,896	40,965	41,235	40,889
Sigma v_g	0.040***	0.040***	0.040***	0.039***	0.040***	0.040***
Sigma e	0.182***	0.182***	0.182***	0.182***	0.182***	0.182***
Constant	0.317***	0.316***	0.317***	0.317***	0.319***	0.318***
	(0.00618)	(0.00618)	(0.00618)	(0.00617)	(0.00626)	(0.00629)

Notes: Dependent variable is a ratio of total investments firm *i* make in year *t* divided by total capital stock in the same period. All specifications are estimated using multilevel modelling (*xtmixed* in Stata). In specifications (1) to (5), governance variables are estimated separately to control for possible multicollinearity; specification (6) estimates all of them together. The figures reported in parentheses are asymptotic standard errors. Standard errors and test statistics are asymptotically robust to heteroskedasticity. Cash flow, firm size and sale growth variables are lagged one period to control for possible endogeneity. * indicates significance at the 10% level; ** indicates significance at the 5% level; *** indicates significance at the 1% level.

Table 5.5: Regression results of the nonlinear interaction effects (5)

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Age	-0.00123***	-0.00123***	-0.00123***	-0.00122***	-0.00122***	-0.00124***
	(0.000110)	(0.000110)	(0.000110)	(0.000110)	(0.000110)	(0.000110)
Size	-0.0283***	-0.0282***	-0.0282***	-0.0283***	-0.0283***	-0.0281***
	(0.000747)	(0.000746)	(0.000747)	(0.000747)	(0.000747)	(0.000746)
Cash flow	0.00978***	0.0120***	0.0196***	0.0114***	0.00936**	0.0138***
	(0.00342)	(0.00335)	(0.00380)	(0.00335)	(0.00390)	(0.00428)
Sale growth	0.00282***	0.00309***	0.00291***	0.00291***	0.00285***	0.00307***
	(0.000509)	(0.000510)	(0.000508)	(0.000509)	(0.000509)	(0.000511)
Legal enforcement	0.00649**					0.00527*
	(0.00283)					(0.00292)
Legal enforcement×Cash flow	-0.0273***					-0.0187**
	(0.00768)					(0.00786)
Market-access regulations		0.0259***				0.0233***
		(0.00324)				(0.00340)
Market-access regulations×Cash flow		-0.0416***				-0.0262***
		(0.00782)				(0.00954)
Economic regulations			0.00537***			0.00459***
			(0.00131)			(0.00136)
Economic regulations×Cash flow			-0.0157***			-0.00904**
			(0.00314)			(0.00382)
Corruption				0.0143***		0.0163***
				(0.00535)		(0.00555)

Corruption×Cash flow				0.0183*		0.0156*
				(0.0195)		(0.0198)
Informal policies					0.0139***	0.00989***
					(0.00361)	(0.00373)
Informal policies×Cash flow					0.0102**	0.00771*
					(0.00939)	(0.0104)
Industry control	Yes	Yes	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes	Yes	Yes
Observations	139,107	139,107	139,107	139,107	139,107	139,107
No. of provinces	63	63	63	63	63	63
Log likelihood	41,008	41,035	41,058	41,015	41,122	41,145
Sigma v_g	0.040***	0.039***	0.040***	0.040***	0.039***	0.040***
Sigma e	0.182***	0.182***	0.182***	0.182***	0.182***	0.182***
Constant	0.317***	0.316***	0.317***	0.316***	0.321***	0.320***
	(0.00617)	(0.00615)	(0.00624)	(0.00617)	(0.00621)	(0.00630)

Notes: Dependent variable is a ratio of total investments firm *i* make in year *t* divided by total capital stock in the same period. All specifications are estimated using multilevel modelling (*xtmixed* in Stata). In specifications (1) to (5), governance variables are estimated separately to control for possible multicollinearity; specification (6) estimates all of them together. The figures reported in parentheses are asymptotic standard errors. Standard errors and test statistics are asymptotically robust to heteroskedasticity. Cash flow, firm size and sale growth variables are lagged one period to control for possible endogeneity. * indicates significance at the 10% level; ** indicates significance at the 5% level; *** indicates significance at the 1% level.

Hypothesis 2 tests whether SMEs in different degrees of financial constraints response differently to local governance. The negative and precisely determined coefficients of the interaction terms between legal enforcement, market-access regulations, and economic regulations with the cash flow variable indicate that when financial constraints decrease (firms are richer in cash-flow), the effects of formal governance will reduce.[38] This means that formal governance forces benefit the more financially constrained SMEs more than the less financially constrained ones. Meanwhile, the positive and significant coefficients of the interaction terms between corruption and informal policies with the cash flow variable show that when financial constraints decrease (firms are richer in cash-flow), the effects of informal governance will improve. In other words, when making investment less financially constrained SMEs are better off from informal governance compared to their more financially constrained counterparts, and vice versa for the formal governance.

Since less financially constrained SMEs are more likely to conduct economic activities, they will have more incentives to make investments when local officials are less corruptive, administration are more transparent, and local leadership are more supportive to their operations. In contrasts, more financially constrained SMEs struggling with financial difficulties will find it is appealing to make investments when local fundamental formal governance system improves. This improvement gives them more access to local market, better protects them from contracting defaults, and provides them with productive resources (e.g., land, labours, operation licences, etc.). These results indicate that the hypothesis testing the nonlinear interactions of financial constraints and local governance is strongly supported.

[38] The positive and precisely determined coefficients of the cash flow variable suggests that an increase (drop) in cash flow is associated with an increase (drop) in investment. This positive association indicates that the levels of investment is dependent on the levels of cash flow, which implying the degrees of financial constraints. The more a firm reliance on its cash flow to make investments, the more financially constrained it is. Therefore, an increase in cash flow (in an investment equation) could be interpreted as an increase of financial constraints.

To examine which governance forces are more economically moderated by financial constraints, we deliberately study the performance of the interaction terms. To see the magnitude of the effects clearly, we present them in Figure 5.3 to 5.7. The three levels of cash flow chosen to illustrate the effects are 0% of cash flow over capital ratio, 25% of cash flow over capital ratio, and 50% of cash flow over capital ratio. Firms in the first group are most financially constrained (cash-flow poor), firms in the second group are moderately financially constrained, and firms in the last group are least financially constrained (cash-flow rich) among the three.

Figure 5.3 to 5.7: Predictive margins by financial constraints degrees (10)

Figure 5.3: Legal enforcement

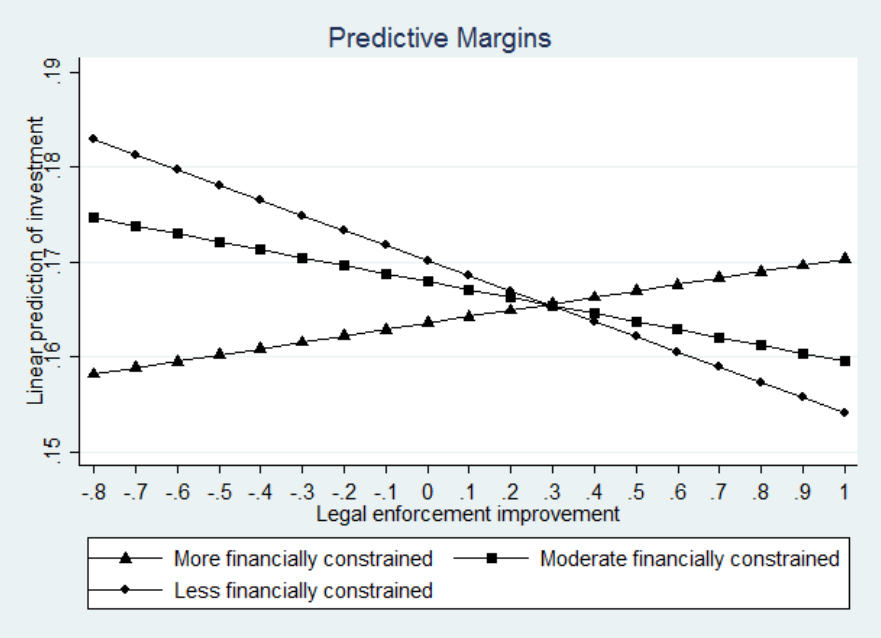


Figure 5.4: Market-access regulations

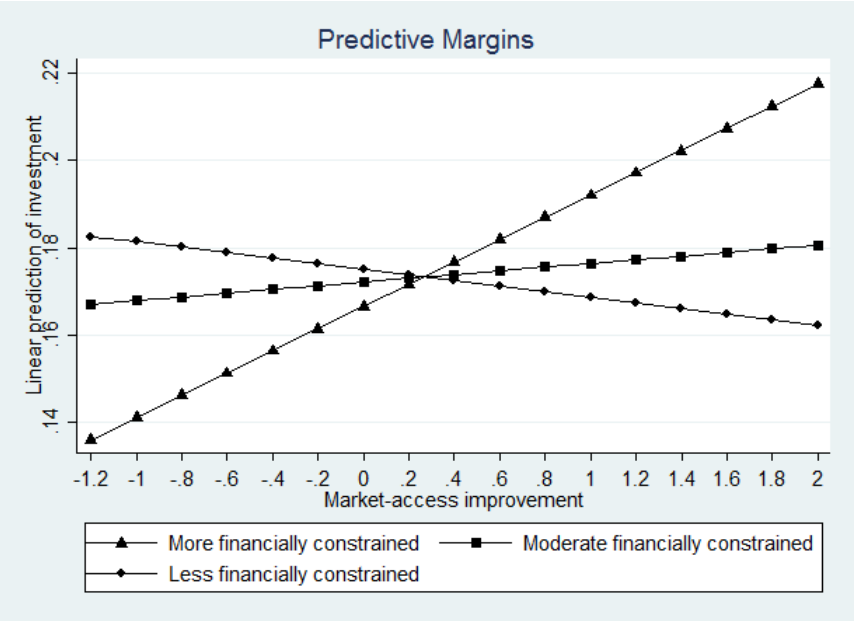


Figure 5.5: Economic regulations

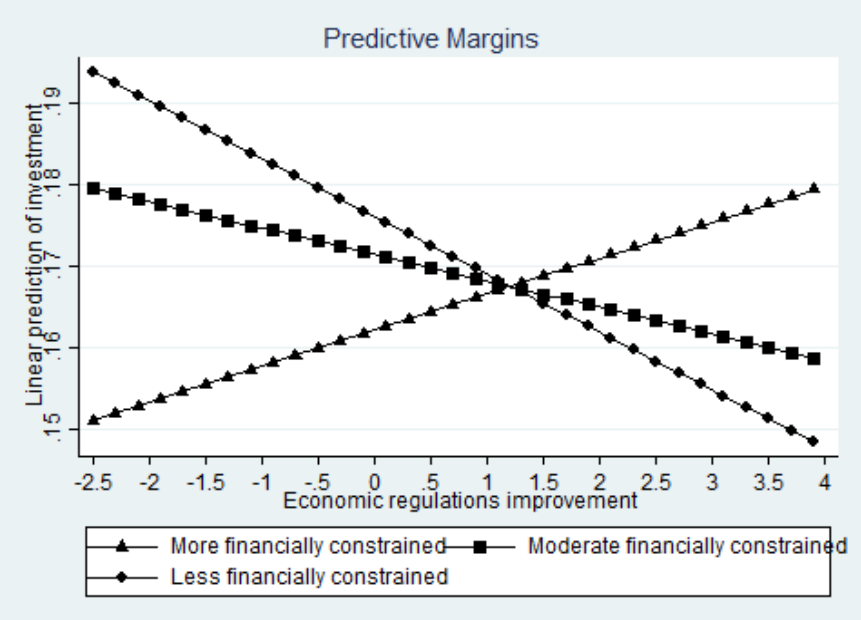


Figure 5.6: Corruption

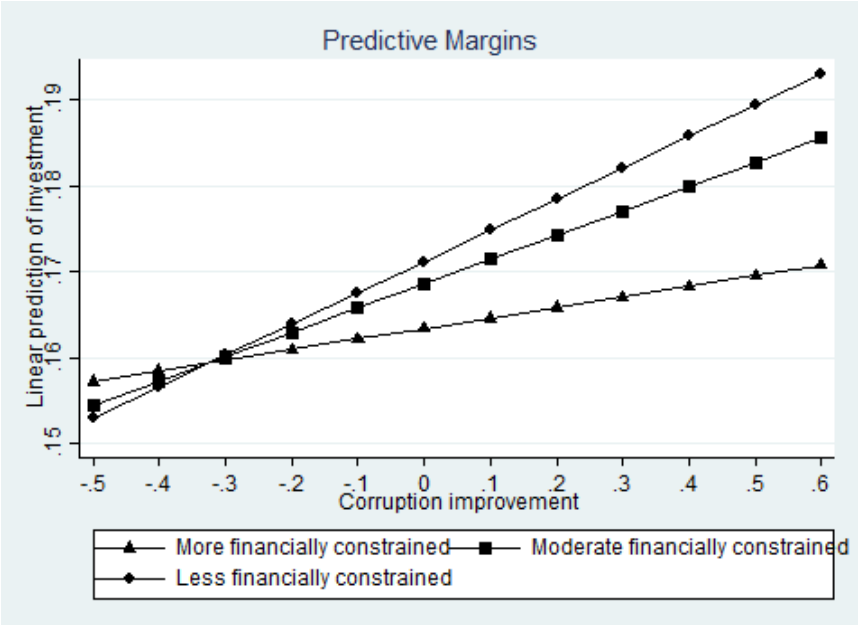


Figure 5.7: Informal policies

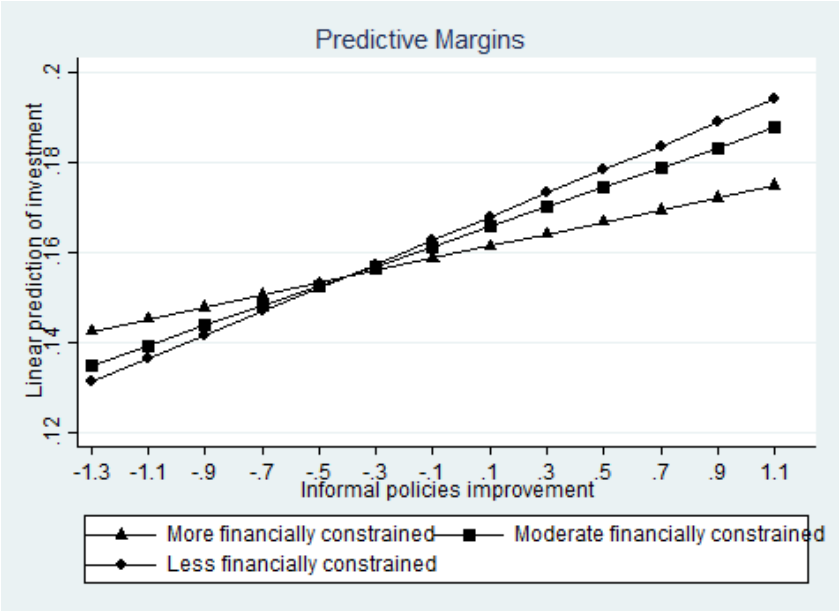


Figure 5.3 to 5.7 demonstrate that more financially constrained firms will make more investments for each improvement of local formal governance forces including legal enforcement, economic regulations, and market-access regulations. Once again, the effect of market-access regulations is strongest in comparison with the effects of legal enforcement and economic regulations. This suggests that in the context of Vietnam, more financially constrained firms will make more investments when they have more access to local land, land-use certificate, and operation permits. Because legal enforcement and economic regulations do not immediately affect investment decisions as they are post-investment factors, more financially constrained firms should be less economically sensitive to these forces at the time of making investments. What immediately matters for them is access to resources necessary for making investments such as land, land-use rights and operation permits.

On the contrary, it is interesting to notice, from the Figure 5.3 to 5.5, that cash-flow rich firms will make *less* investments when the formal governance arrangements improve. This could be explained by the fact that they may lose their competitive advantage in a more even-playing field. Improvements of the fundamental institutional settings may bring more benefits to cash-flow poor firms than the cash-flow rich firms. For example, when local market-access regulations are more entrepreneurial-friendly, cash-flow poor firms can obtain operation permits, import/export licences at lower cost and less efforts. This imposes a threat on the market size and operation scope of cash-flow rich firms. Similarly, improvements of legal enforcement and economic regulations allow cash-flow poor firms – usually small and young – to enjoy fair treatments from courts. Thus, in the short-term the raise of investments made by cash-flow poor firms may curtail the investment opportunities of cash-flow rich firms. However, more research is need to confirm whether this phenomenon lasts in the long-term or not.

Meanwhile, Figure 5.6 and 5.7 illustrate that less financially constrained firms will make more investment for each improvement of local informal governance forces including corruption and

informal policies. Corruption has a stronger effect because the slopes of the margin curves are steeper than the ones of the informal policies. This finding indicates that in the context of Vietnam, corruption is the governance force that has a crucial influence on less financially constrained firm (cash-flow rich firms) than informal polices do. This could be explained by the fact corruption makes the investment process unproductive, sluggish, and more financial demanding. These factors directly link to the motivation of entrepreneurs when making investment decision. Informal policies such as leadership proactivity or administration transparency, in the context of cash-flow rich firms, are less economically important because these forces are not directly linked to financial issues of investment projects.

Finally, it is noteworthy from Figure 5.6 and 5.7 the that unlike the formal governance, informal governance including corruption and informal policies have positive influence on both less and more financially constrained firms. In other words, despite different sensitivity levels, all firms are beneficial from improvements of informal governance arrangements.

Regarding the control variables, their coefficients perform consistently with previous findings in the corporate finance literature. The positive and significant coefficients of the sale growth variable indicate that firms will make more investments if there are signal of business opportunities. The positive association between variables controlling for investment opportunities (e.g., sales growth) and firm investment is popular in literature and support the investment theory, stating that firms will make investments to maximise its value whenever there are feasible investment opportunities (Bond & Reenen, 2007). The magnitude of the coefficients associated with sales growth variable varies insignificantly in different specifications. In general, the effect is around 0.3% of total capital investment for each 1% increase in sales revenue between two consecutive years.

Given that investment opportunities are controlled by the inclusion of the sales growth variable, the coefficients of the cash flow variable could be interpreted as degrees of financial constraints (Bond & Reenen, 2007; Guariglia & Liu, 2014). The coefficients of cash flow variable in all

specifications are positive and precisely determined. This indicates that financial constraints are significant in the context of Vietnamese SMEs. The coefficients now represent the sensitivity of investment on the availability of internal funds (i.e., cash flow). The effect is around 1% increase in investment for each 1% increase in cash flow (both measured as a ratio of total capital). This approximately one-by-one sensitivity level indicates that financial constraints is indeed a severe problem to private small businesses in Vietnam. The result thus confirms previous findings showing that SMEs in developing countries encounter difficulties in gaining sufficient finance to fund their operations and investment projects (Sarath & Pham, 2015; Tran & Santarelli, 2014).

Regarding the negative coefficients of firms age and size, it could be explained by the finding in the previous chapter that investment (as a ratio of capital) is a U-shaped function of firm age and firm size. In other words, firms will make less investments when they become slightly older and larger. However, after a turning point, an additional increase in firm age and size will induce firms to make more investments. This result is due to the different acceleration speed of capital stock and investment flow. Appendix 4.3 discusses this issue in detail. Moreover, this chapter also conducts an explorative exercise on firms categorised into manufacturing and service industries. The results are reported in Appendix 5.3.

5.5 Robustness checks

This section provides several robustness tests for the results found in this chapter. Conducting robustness check is a necessary post-analysing task to improve the reliability of the empirical findings (Balcaen & Ooghe, 2006). First, we use GMM estimator instead of the multilevel estimator to re-run the baseline regression equations. Second, in additional to internal financial constraints (i.e., cash flow) we use external financial constraints indicators (i.e., firm age, and size) to test whether they are important moderating factor to local governance effects as well.

Finally, we test our baseline specifications before and after the 2008 financial crisis. This test will show the relative importance of local governance in two fundamentally different periods.

5.5.1 GMM estimator

Multilevel estimator could appropriately cluster observations that locate in the same province in one group. By controlling for the multilevel structure of the dataset (setting random intercepts to different groups), this technique could improve the reliability of the estimated coefficients. However, to control for unobserved firm-specific heterogeneity and endogeneity of the right-hand side variables, the conventional GMM is more superior. The regression results with GMM technique is reported in Table 5.6.

Table 5.6: Results using GMM estimator (35)

VARIABLES	**INVESTMENT**				
	(1)	(2)	(3)	(4)	(5)
AGE	-0.00181***	-0.00180***	-0.00181***	-0.00181***	-0.00180***
	(0.000168)	(0.000168)	(0.000169)	(0.000168)	(0.000168)
SIZE	-0.0178***	-0.0180***	-0.0177***	-0.0179***	-0.0180***
	(0.00391)	(0.00391)	(0.00392)	(0.00391)	(0.00391)
Cash flow	0.0175***	0.0175***	0.0174***	0.0176***	0.0175***
	(0.00394)	(0.00394)	(0.00395)	(0.00395)	(0.00395)
Revenue growth	0.00203***	0.00202***	0.00202***	0.00197***	0.00198***
	(0.000125)	(0.000125)	(0.000125)	(0.000124)	(0.000126)
Legal enforcement	0.00419*				
	(0.00244)				
Corruption		0.00863**			
		(0.00434)			
Market-access regulations			0.00392*		
			(0.00235)		
Informal policies				0.0109***	
				(0.00297)	
Economic regulations					0.00133
					(0.000934)
Observations	139,107	139,107	139,107	139,107	139,107
AR (2)	0.14	0.15	0.14	0.15	0.15
Hansen (J)	0.01	0.01	0.01	0.01	0.01

Notes: Dependent variable is a ratio of total investments firm *i* make in year *t* divided by total capital stock in the same period. The estimator is SGMM (*xtabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications. The figures reported in parentheses are asymptotic standard errors. Standard errors and test statistics are asymptotically robust to heteroskedasticity. Cash flow, firm size and sale growth variables are lagged one period to control for possible endogeneity.

The performance of the control variables is in general consistent with the results estimated using the multilevel estimator. More important, the coefficients of the governance variables are all positive and precisely determined. This finding indicates that when controlling for unobserved firm-specific heterogeneity and possible endogeneity, the effects of local governance on local firm investment remain statistically significant.

5.5.2 External financial constraints

Guariglia (2008) documents that there are two types of financial constraints, i.e., internal financial constraints (availability of internal funds) and external financial constraints, i.e., difficulty in accessing external funds (e.g., bank loans). This chapter is mainly about the moderating effects of internal financial constraints (the availability of cash flow) on the distribution of local governance. However, it is interesting to examine whether and how external financial constraints moderate governance effects. This exercise is particularly important in the context of Vietnam, where SMEs are generally financially constrained due to the shortage of access to bank loans because of the discrimination of the financial system.

Following literature, we use firm age and firm size as proxies for the reduction of asymmetric information agency costs between firms and external lenders. For this reason, larger and older firms could obtain more external loans, thereby being less financially constrained. To analyse the moderating effects of external financial constraints on the local governance, we interact firm age and size with each governance variable. Results of this exercise is reported in Table 5.7

Table 5.7: Results by external financial constraints (36)

	Multi-level	Multi-level	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM	GMM
	(1)	(2)	(3)	(6)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age	-0.00146***	-0.00119***	-0.00193***	-0.00183***	-0.00174***	-0.00183***	-0.0162***	-0.000825	-0.000672	0.00292***	-0.000812	-0.000375
	(0.000131)	(0.000105)	(0.000171)	(0.000169)	(0.000169)	(0.000169)	(0.00388)	(0.000780)	(0.000788)	(0.00112)	(0.000789)	(0.000788)
Size	-0.0251***	-0.0264***	-0.0160***	-0.0172***	-0.0178***	-0.0179***	-0.0221***	-0.0240***	-0.0238***	-0.0276***	-0.0227***	-0.0245***
	(0.000680)	(0.000835)	(0.00392)	(0.00392)	(0.00390)	(0.00391)	(0.00405)	(0.00111)	(0.00112)	(0.00145)	(0.00112)	(0.00113)
Cash flow	0.0100***	0.0113***	0.0163***	0.0172***	0.0174***	0.0175***	0.0173***	0.0156***	0.0146***	-0.00369	0.0154***	0.0131**
	(0.00324)	(0.00324)	(0.00395)	(0.00395)	(0.00394)	(0.00394)	(0.00396)	(0.00546)	(0.00549)	(0.00690)	(0.00550)	(0.00549)
Revenue growth	0.00309***	0.00335***	0.00186***	0.00201***	0.00194***	0.00198***	0.00175***	0.00249***	0.00249***	0.00421***	0.00236***	0.00263***
	(0.000507)	(0.000508)	(0.000554)	(0.000553)	(0.000553)	(0.000553)	(0.000559)	(0.000619)	(0.000621)	(0.000694)	(0.000621)	(0.000620)
Legal	0.0145***	0.0286***	0.00589*					0.0192***				
	(0.00349)	(0.00596)	(0.00345)					(0.00601)				
Legal*age	-0.00128***		-0.00120***									
	(0.000236)		(0.000239)									
Legal*size		-0.00705***						-0.00677***				
		(0.00145)						(0.00149)				
Market-access	0.0300***	0.0757***		0.0117***						0.0633***		
	(0.00404)	(0.00733)		(0.00338)						(0.00628)		
Market-access*age	-0.00120***			-0.000855***								
	(0.000284)			(0.000250)								
Market-access*size		-0.0162***								-0.0169***		
		(0.00182)								(0.00160)		
Informal policies	0.00191	0.0120***				0.00264**						0.0101***
	(0.00163)	(0.00307)				(0.00123)						(0.00220)
Informal policies*age	9.47e-05					-0.000141*						
	(0.000110)					(7.76e-05)						
Informal policies*size		-0.00251***										-0.00243***
		(0.000726)										(0.000530)
Corruption	0.00641	0.00393					0.0230**		-0.00401*			
	(0.00708)	(0.0139)					(0.00893)		(0.00222)			
Corruption*age	0.00127**						0.00233***					

	(0.000557)						(0.000620)					
Corruption*size		0.00342							0.00149***			
		(0.00354)							(0.000568)			
Economic regulations	0.00694	-0.0273***			0.00883***						0.0317***	
	(0.00447)	(0.00785)			(0.00328)						(0.00619)	
Economic*age	0.000527*				-0.000574**							
	(0.000312)				(0.000239)							
Economic*size		0.0110***									-0.00775***	
		(0.00194)									(0.00154)	
Observations	139,107	139,107	139,107	139,107	139,107	139,107	139,107	139,107	139,107	139,107	139,107	139,107
R2	0.09	0.09										
AR (2)			0.09	0.09	0.10	0.09	0.10	0.10	0.09	0.09	0.09	0.09
Hansen (J)			0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.001	0.002

Notes: Dependent variable is a ratio of total investments firm *i* make in year *t* divided by total capital stock in the same period. The estimator is SGMM (*xtabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications. The figures reported in parentheses are asymptotic standard errors. Standard errors and test statistics are asymptotically robust to heteroskedasticity. Cash flow, firm size and sale growth variables are lagged one period to control for possible endogeneity. In multi-level estimations, intercepts of regional levels are significant.

In general, the coefficients of governance variables are positive and significant using either multilevel estimator or GMM estimator. The exceptions are the coefficients of corruption and informal governance in column 2 and 9. This may be the result of multicollinearity in estimation. Nonetheless, it is generally reasonable to conclude a key message that better local governance quality significantly facilitates local SME investments.

Regarding the interact terms between governance variables and firm age/firm size variables, it is interesting to notice that their performance is consistent with the performance of the interact terms between governance variables and cash flow variable. Specifically, more financially constrained firms are more sensitive to formal governance forces while less financially constrained firms are more sensitive to informal governance forces. This finding indicates that, likewise the internal financial constraints, external financial constraints moderate the distribution of local governance effects in the same way.

The only difference is that firm age and size seem to have an opposite direction of impact on informal policies compared to the impact of cash flow. Firms that are more *externally* financially constrained are more sensitive to informal policies. This finding could be explained by the fact that externally financially constrained are young and small, so they are inferior in gaining access to productive information, to avoid interruptions from local officials, and to obtain benefits from local proactive leadership in comparison with large and old firms. Therefore, improvements of informal policies concerning bureaucracy, transparency, and proactivity of local leaders may bring young and small firms with more resources and confidence to make investments. Meanwhile, large and old firms usually have strong relationship with local authorities, thereby being superior in overcoming non-transparency administration, and avoiding harassments from local officials. Therefore, they are less sensitive to local informal policies.

5.5.3 Financial crisis

The 2008 financial crisis hits Vietnam economy severely (Leung, 2015). From 2009, the central government had to execute several administrative and financial policies to eliminate the negative impact of the crisis. One of the policies is the decision to assign more power for local governments to select the most appropriate methods that could efficiently help local businesses (Hoang, 2016). Therefore, the impact of local governance on local entrepreneurial sector may significantly different between the two periods. Table 5.8 presents the regression results before and after the crisis.

Table 5.8: Results on split sample by financial crisis (37)

VARIABLES	BEFORE CRISIS		AFTER CRISIS	
	(1)	(2)	(3)	(4)
Age	-0.00151***	-0.00154***	-0.00118***	-0.00121***
	(0.000249)	(0.000250)	(0.000103)	(0.000103)
Size	-0.0356***	-0.0355***	-0.0232***	-0.0230***
	(0.00154)	(0.00154)	(0.000632)	(0.000632)
Cash flow	0.0116*	0.0489***	0.00975***	0.0221***
	(0.00657)	(0.0155)	(0.00284)	(0.00658)
Revenue growth	0.00428**	0.00428**	0.00292***	0.00287***
	(0.00171)	(0.00171)	(0.000513)	(0.000514)
Legal	0.0142	0.0187	0.00344	0.00412
	(0.0176)	(0.0179)	(0.00302)	(0.00316)
Legal×Cash flow		-0.0386		-0.0139*
		(0.0282)		(0.00780)
Market-access	0.0511***	0.0549***	0.0193***	0.0213***
	(0.0184)	(0.0187)	(0.00302)	(0.00333)
Market×Cash flow		-0.0249		-0.0118
		(0.0235)		(0.00930)
Economic regulations	0.00263	0.00287	0.00598***	0.00796***
	(0.00506)	(0.00513)	(0.00183)	(0.00191)
Economic×Cash flow		-0.00210		-0.0177***
		(0.00587)		(0.00416)
Corruption	-0.144***	-0.134***	0.0137***	0.00726
	(0.0496)	(0.0505)	(0.00473)	(0.00542)
Corruption×Cash flow		-0.0848		0.0469***
		(0.0824)		(0.0177)
Informal policies	-0.0196	-0.0301	0.00844**	0.00861**
	(0.0258)	(0.0262)	(0.00364)	(0.00428)
Informal×Cash flow		0.0981**		-0.00557
		(0.0445)		(0.0147)
Observations	20,197	20,197	118,910	118,910
R2	0.12	0.11	0.21	0.21

Notes: Dependent variable is a ratio of total investments firm *i* make in year *t* divided by total capital stock in the same period. The estimator is fixed effect (*reghdfe* in Stata) controlling for multilevel structure of the dataset. The figures reported in parentheses are asymptotic standard errors. Standard errors and test statistics are asymptotically robust to heteroskedasticity. Cash flow, firm size and sale growth variables are lagged one period to control for possible endogeneity.

It is interesting to notice that before the crisis, improvement of corruption (less corruptive behaviour from local officials) is associated with *less* entrepreneurial investment. This counter-intuitive finding could be explained by the fact that in the three years from 2006 to 2008, Vietnam experienced a peak in its economic development in the history with annual two-digit GDP growth rate (Leshkowich, 2015). This phenomenal growth was largely achieved by the lift in investment rate. Pincus (2009) observed that in the 2006-2008 period, investment was one of the main activities from individuals to large corporations. Due to the high demand for making investments, firms should bribe officials with higher value to get approval for investment proposals. Therefore, when local officials are forced to stop receiving bribe (e.g., in the case that the total registered investments have reached the quota, or there was an inspection from central governments), investments of local entrepreneurial sector subsequently contracts.

However, this phenomenon alleviated immediately after the crisis. In the post-crisis period, most small businesses struggled from achieving new investment opportunities (Nguyen Thi Tue et al., 2014). Thus, the less corruption from local officials, the more money, time, and efforts they could assign in seeking and making new projects. This leads to a positive association between improvement in corruption and SME investments.

5.6 Discussion

5.6.1 Link to the extant literature

This chapter is an extension of the previous chapter, which analyses the effects of local governance on local SME investments. This chapter furthers the discussion from SME investment to SME growth performance, as growth is the goal of young and small businesses. By doing this, this chapter contributes to the entrepreneurship literature in several ways. We broaden the discussion of Estrin et al. (2013) from focusing only on national institutions to local governance quality. They focus primarily on the influence of corruption, property right and government activity at national level on entrepreneurial growth aspirations. In our study, we go

in-depth into the nature of local governance quality, especially from the aspect of informal governance forces, to explain local SME performance.

Our study augments their work in three dimensions. First, we remove conventional assumption that national configurations are of identical effects on all entrepreneurial businesses within a country. Instead, we propose the surrounding local governance structure is more important to local SME performance. Second, we focus on informal governance forces, i.e., corruption, transparency, and proactivity; these institutions are theoretically more influential on entrepreneurs' incentives and behaviours, especially in emerging countries where the formal institutional system remains incomplete and under-developed. Third, we aim to explain SME revenue growth performance which is the outcome of a governance structure rather than entrepreneurial growth aspirations – an expected value of performance.

In the literature of corruption, our study confirms findings of Tonoyan et al. (2010) that the likelihood for entrepreneurs to engage in corruption is influenced by the lower efficiency of financial and legal institutions, and the lack of enforcements at local level. Based on Nguyen and Dijk (2012), we find that corruption hampers the growth of the private sector, but it is not detrimental for the non-private sectors. Thus, we agree with them that the negative effects of corruption originate from the fact that it favours the non-state sectors at the expense of the private sector.

In the literature of governance institutions, our study is more complete in comparison with previous ones as we consider the entire informal governance arrangements including not only corruption, but also administration transparency and leadership proactivity. Concerning transparency, our work is most related to Du and Mickiewicz (2016). Our findings are consistent with their arguments that entrepreneurs in opaque institutional environment are more likely to spend time and resources on influence (rent-seeking) activity rather than on productive activities. Du and Mickiewicz (2016) use the unfair distribution of subsidies in China as a proxy for weak transparency. In our paper, we directly measure transparency using items such as

whether policy and information are evenly distributed, whether similar entrepreneurs are treated in the same way by officials, etc. Our findings, consistent with Du and Mickiewicz (2016), strongly support the general institutional theory that transparency is positively associated with firm performance.

In addition, we advance the extant literature by proposing a new measurement of local governance, i.e., the leadership proactivity variable. Considering local governance from several perspectives, we response to the call of La Porta, Florencio, Shleifer, and Vishny (1999), Rothstein and Teorell (2008), and Thomas (2010) to study the quality of governance more completely from a broader theoretical view point, and pay more attention to understand how other governance arrangements rather than corruption affect entrepreneurship. We intend that it is the entire governance system that matters, and that focusing only on one aspect of the system would bias our understanding about the nature of local governance. Together with Holmberg, Rothstein, and Nasiritousi (2009), we suggest that the theory behind this argument is that only with a high quality of government (QoG) can a country reap the benefits of economic growth and social development.

This study is also closely linked to the regionalism literature, which argues that part of the modern issues related to growing problems is more likely to occur at regional/local level, and that seem to require some sort of regional solution (Parks & Oakerson, 2000). Our findings are consistent with Fritsch and Wyrwich (2014) in the case of Germany, as they show that regional differences regarding the level of self-employment and new business formation tend to be persistent for a long period, despite abrupt and drastic changes in the political-economic environment. They claim that this pronounced persistence demonstrates the existence of regional entrepreneurship culture that once established, tends to be long-lasting.

Our work, more importantly, further argues that regions historically accompanied with low level of entrepreneurial culture (i.e., less social acceptance and support for private businesses) could overcome this disadvantage and nurture entrepreneurship. The solution we provide is

through local governance. By making commitments to improve governance structure, local authorities could produce an incentive effects like the effects of the pro-entrepreneurial culture. We thus propose that even though history plays a crucial part in determining the level of entrepreneurial capital in a region, it is not that we are entirely passively dependent on the history.

In the context of Vietnam, our study provides new insights into the current stage of the country' development and shortcomings that it should mitigate to maintain its growth. We agree with Hidenobu and Lai Thi Phuong (2012) that Vietnamese government have achieved some of their goals in terms of fund mobilisation and corporate financing. However, there remains several limitations of the economic reforms, such as the opaque relationship between state-controlled companies and government banks, financial restrictions on investment activities, and inactive investment of companies that are state-controlled.

Khuong (2015) suggests that the main causes behind the growth disparity between Vietnam and China are governance-related factors, namely government effectiveness, regulatory quality, administrative reforms, state-owned enterprise reforms and policy experimentation efforts. Findings in this chapter strongly support this view. Therefore, we are with Leung (2015) to recommend that deep structural reforms, particularly in governance quality, state-owned enterprises, and public services are necessary to lift Vietnam long-term growth, and to provide an attractive environment for entrepreneurs to develop and make contributions.

5.6.2 Contributions and implications

In this chapter, we presented several exercises concerning the effects of local governance on SME investments. There are two key hypotheses proposed: the first is the direct effects of local governance on local SME investments; and the second is the moderating effects of financial constraints on local governance forces. To provide insights for these hypotheses, this study

relies on two theories: the new institutional economics theory in the entrepreneurship literature, and the financial constraints theory in the corporate investment literature.

Specifically, this study is constructed based on the theoretical frameworks of Williamson (2000) about the importance of governance arrangements to facilitate entrepreneurship performance. It augmented the theory by distinguishing formal governance forces from informal governance forces. Formal governance is concerned with official regulations published by local governments such as legal enforcement, market-access regulations, and economic regulations. Informal governance forces include unwritten rules such as freedom from corruption, and informal policies. This study proposes that formal and informal governance forces may have differed impact on local SME investments. By highlighting the fact that local governance is multidimensional (Ye, 2009), this study provides richer insights about the possible mechanism that local governance arrangements could influence local entrepreneurship.

Using a large and representative dataset of SMEs and local governance quality in the context of Vietnam, and employing the multi-level modelling, we found strong supports for the hypotheses concerning the effects of formal and informal governance on SME investments. Legal enforcement, market-access regulations, economic regulations, corruption, and informal polices are important governance forces determining local SME investment decisions. This finding implies that understanding of local governance arrangements instead of general institutional configurations is crucial to facilitate local SME investments in particular, and entrepreneurial activities in general.

This study makes several notable contributions to the entrepreneurship literature. It proposes a switch in research topic, moving away from the "input" of institutions – what governments deliver to the "output" of institutions – how governments deliver policies, i.e., governance quality in order to investigate how to improve local entrepreneurship. Results of this study support the findings of La Porta et al. (1999) that large governments do not necessarily restrain entrepreneurial activities because government size only measures the "input" of institutions; it

is the quality of exercising published policies and regulations that influences the activeness of entrepreneurs. This study also echoes the proposition of Rothstein and Teorell (2008) that merely absence of corruption is not sufficient to facilitate entrepreneurship; the whole governance structure including formal and informal forces instead will determine.

Another contribution made by this study is the throughout investigation into the distribution of local governance effects along firm-level financial constraints. We suggest that degrees of financial constraints can determine which local governance forces are more important to firm investments. More financially constrained firms are usually young, small, and try to earn their livelihood by making small and continuous investments. For this reason, if there is better fundamental formal infrastructure to facilitate firm daily operations such as better legal enforcement, opened access to local market, and conducive economic regulations, they will have more chance to make investments. Less financially constrained firms, however, are usually old, large, and healthy in cash flow, thereby more likely investing in high value-added and long-term projects. For this reason, they are more sensitive to the quality of informal governance such as corruption and leadership supports when making investment decisions.

The results found in this chapter have important implications for policymakers. Higher levels of institutions take time to change (Williamson, 2000). Therefore, it is justifiable to pay more attention to improve local governance arrangements to facilitate local entrepreneurship in the short and medium-terms. However, it should be noticed that governance is multi-dimensional, and each dimension has a distinct effect on local entrepreneurship. Thus, understanding of local entrepreneurial features is necessary for authorities to successfully prioritise governance forces in order to achieve economic growth.

Policymakers concerned to encourage SME investments should take into account the financial constraint degrees of local SMEs. Less financially constrained firms need a playing-field which is transparent, non-corrupt, and proactive. These governance forces are embedded in local informal “codes of conduct” and norms. Meanwhile, more financially constrained SMEs need

formal supports such as legal enforcement, market-access regulations and economic regulations. Findings in this study suggest that there is no uniform formula to improve economic performance across regions within a country; it is the economic and cultural characteristics that determine the most appropriate governance structure for each region.

This study has some important limitations that one might wish to contribute in further research. Although employing a large and representative dataset, this is a country-specific study. Therefore, it is important for generalisability to build in the proposed theoretical framework and retest it in other contexts. Moreover, the time horizon of the dataset is quite short: the studying period is restricted by the availability of the Provincial Competitiveness Index dataset (which is first fully conducted in 2006). Thus, it is of significant contribution to undertake a similar analysis on a longer time frame with the expansion in the number of countries. This research setting also allows one to empirically compare the relative importance between local governance and national institutions.

5.7 Conclusion

Chapter 4 examines the influence of local governance arrangements on local SME investment decisions. This chapter employs the census of enterprises in Vietnam and a set of provincial governance data to examine which local governance forces influence local SME investments. Moreover, this chapter proposes that the distribution of local governance effects is dependent on firm-level financial constraints.

This chapter confirms that improvements in both formal governance forces (legal enforcement regulations, economic regulations, and market-access regulations), and informal governance forces (freedom from corruption, and informal policies) remarkably facilitate local SME investments. In addition, this chapter suggests that financial constraints could be an important factor moderating the distribution of local governance effects. Formal governance improvements have stronger effects on more financially constrained firms than they have on the

less financially constrained firms. Meanwhile, informal governance improvements have stronger effects on less financially constrained firms than they have on the more financially constrained firms.

Based on these findings, this chapter proposes that it is justifiable to pay more attention to local governance structures to enhance local entrepreneurship in the short and medium-terms. In emerging countries, formal and informal institutional frameworks are typically incomplete and underdeveloped; the role of local governance are often more important, and have direct influence on local young and small firms. For this reason, governments should pay more resources to improve their local governance arrangements – the "play of the game" to facilitate local entrepreneurial activities.

Appendix 5.1: Correlation matrix between pairs of PCI indicators

Table 5A1: Correlation matrix between pairs of PCI indicators (38)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Entry costs (1)								
Land access (2)	0.228							
Transparency (3)	0.204	0.159						
Time costs (4)	0.133	0.165	0.305					
Informal charges (5)	0.198	0.434	0.240	0.222				
Proactivity (6)	0.102	0.352	0.469	0.268	0.400			
Business supports (7)	-0.296	-0.236	0.307	0.161	-0.202	0.202		
Labour training (8)	-0.002[(a)]	-0.047[(a)]	0.418	0.225	0.072[(a)]	0.319	0.588	
Legal institutions (9)	0.094	0.154	0.200	0.421	0.187	0.251	0.100	0.125

Note: (a) indicates that the coefficient is *not* significant at 5% level.

Appendix 5.2: Correlation matrix of variables

Investment (1)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cash flow (2)	0.001								
Revenue growth (3)	0.008	0.021							
Firm age (4)	-0.068	0.252	-0.032						
Number of labours (5)	-0.050	0.204	0.061	0.172					
Legal enforcement (6)	0.088	0.037	-0.035	-0.022	0.044				
Market regulations (7)	0.016	-0.106	0.027	-0.075	-0.026	0.117			
Economic regulations (8)	-0.036	-0.053	-0.044	-0.068	-0.035	0.181	0.523		
Corruption (9)	-0.012	0.005	0.114	0.013	0.009	-0.049	0.081	-0.002	
Informal policies (10)	-0.045	0.077	-0.076	0.035	-0.032	0.010	-0.208	0.141	-0.058

Note: Correlation coefficients are reported for observations used in the main regressions. All coefficients are significant at 1%.

Appendix 5.3: Local governance effects on manufacturing and service industries

Entrepreneurs operate in service and manufacturing industries may be influenced by different governance forces when they make investment decisions. The extant literature suggests that firms in manufacturing industries are strongly affected by long-term factors considering their substantial initial setup costs compared to the average lower setup-costs in service industries (Benhabib, 2003; Fitjar & Rodríguez-Pose, 2015; Iravani, Van Oyen, & Sims, 2005). For this reason, this study examines the effects of local governance on the two industry groups respectively. This exercise is important in the sense that it provides understanding about the linkages between local economic structures and governance structures, thus associate local governments to facilitate local entrepreneurship sector.

Table 3A1 and 3A2 exhibits the regression results. The main findings indicate that SMEs operating in both service and manufacturing industries consider corruption, market-access regulations, and informal policies as important governance forces when making investments. An interesting point is that, the coefficients on legal enforcement variable are positive and precisely determined only for manufacturing group. In contrasts, the coefficients on economic regulations are only positive and significant for service group.

This can be explained by the theory of incomplete contracts which holds that SMEs in manufacturing industry are more vulnerable to non-contractible relationship-specific investments and hold-up problems (Aghion & Holden, 2011; Walker, 2015). Thus, improvements in local contracting regulations will encourage their investments. Meanwhile, economic regulations concerning local business matchmaking activities organised by local governments are obviously more decisive to service SMEs.

Finally, the patterns of the interaction terms for the manufacturing groups follow exactly findings in the baseline models, i.e., more financially constrained manufacturing SMEs are better off from

informal forces while less financially constrained manufacturing SMEs gain benefits from formal forces. In contrasts, financial constraints is mostly trivial in specifications for service SMEs, except for the economic regulations: less financially constrained service SMEs benefit more from the economic regulations.

Table 5A1: Regression results of local governance effects by industries: manufacturing (39)

	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.00142***	-0.00224***	-0.00142***	-0.00225***	-0.00141***	-0.00140***
	(0.000151)	(0.000131)	(0.000152)	(0.000131)	(0.000151)	(0.000151)
Size	-0.0235***	-0.0237***	-0.0233***	-0.0241***	-0.0235***	-0.0231***
	(0.000931)	(0.000785)	(0.000933)	(0.000784)	(0.000931)	(0.000933)
Cash flow	0.00813**	-0.00356	0.0172***	-0.00326	0.00504	0.00444
	(0.00400)	(0.00344)	(0.00430)	(0.00344)	(0.00475)	(0.00502)
Sale growth	0.00429***		0.00439***		0.00431***	0.00440***
	(0.000992)		(0.000992)		(0.000992)	(0.000992)
Legal enforcement	0.0205***					0.0200***
	(0.00512)					(0.00524)
Legal enforcement×Cash flow	-0.0551***					-0.0461***
	(0.0116)					(0.0119)
Market-access regulations		0.0129***				0.0342***
		(0.00397)				(0.00510)
Market access regulations×Cash flow		-0.0601***				-0.0505***
		(0.00747)				(0.0109)
Economic regulations			0.00338			0.000899
			(0.00206)			(0.00214)
Economic regulations ×Cash flow			-0.0152***			-0.00207
			(0.00376)			(0.00442)
Corruption				0.0241***		0.00612
				(0.00770)		(0.00936)
Corruption×Cash flow				0.0643***		0.0691***
				(0.0229)		(0.0259)
Informal policies					0.0181***	0.0167**
					(0.00661)	(0.00674)
					0.0249**	0.0146

Informal policies ×Cash flow					(0.0118)	(0.0126)
Industry control	Yes	Yes	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes	Yes	Yes
Observations	59,305	59,305	59,305	59,305	59,305	59,305
No. of provinces (regions)	63	63	63	63	63	63
Log likelihood	12,898	12,835	12,836	12,847	12,874	12,845
Sigma v_g	0.033***	0.032***	0.033***	0.032***	0.033***	0.033***
Sigma e	0.186***	0.194***	0.186***	0.194***	0.186***	0.186***
Constant	0.300***	0.305***	0.299***	0.305***	0.300***	0.305***
	(0.00660)	(0.00598)	(0.00669)	(0.00600)	(0.00659)	(0.00693)

Notes: Dependent variable is a ratio of total investment firm *i* make in year *t* divided by total capital in the same period. All specifications are estimated using multilevel modelling (*xtmixed* in Stata). In specifications (1) to (5), governance variables are estimated separately to control for possible multicollinearity; specification (6) estimates all of them together. The figures reported in parentheses are asymptotic standard errors. Standard errors and test statistics are asymptotically robust to heteroskedasticity. Cash flow, firm size and sale growth variables are lagged one period to control for possible endogeneity. * indicates significance at the 10% level; ** indicates significance at the 5% level; *** indicates significance at the 1% level.

Table 5A2: Regression results of local governance effects by industries: service (40)

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Age	-0.00117***	-0.00117***	-0.00118***	-0.00116***	-0.00116***	-0.00118***
	(0.000124)	(0.000124)	(0.000124)	(0.000124)	(0.000124)	(0.000124)
Size	-0.0256***	-0.0255***	-0.0256***	-0.0256***	-0.0255***	-0.0256***
	(0.000764)	(0.000764)	(0.000764)	(0.000764)	(0.000764)	(0.000764)
Cash flow	0.00906**	0.0115***	0.0201***	0.00989***	0.0109**	0.0190***
	(0.00357)	(0.00355)	(0.00411)	(0.00352)	(0.00424)	(0.00468)
Sale growth	0.00234***	0.00250***	0.00241***	0.00240***	0.00235***	0.00255***
	(0.000566)	(0.000567)	(0.000566)	(0.000566)	(0.000566)	(0.000568)
Legal enforcement	0.000178					-0.000937
	(0.00315)					(0.00323)
Legal enforcement×Cash flow	-0.0114					-0.00285
	(0.00894)					(0.00922)

Market-access regulations		0.0149***				0.0122***
		(0.00360)				(0.00371)
Market access regulations×Cash flow		-0.0273***				-0.00605
		(0.00913)				(0.0114)
Economic regulations			0.00654***			0.00641***
			(0.00153)			(0.00156)
Economic regulations ×Cash flow			-0.0166***			-0.0155***
			(0.00349)			(0.00437)
Corruption				0.0170***		0.0168***
				(0.00607)		(0.00629)
Corruption×Cash flow				0.000896		-0.00392
				(0.0233)		(0.0237)
Informal policies					0.0132***	0.00882**
					(0.00401)	(0.00415)
Informal policies ×Cash flow					-0.00444	0.00366
					(0.0116)	(0.0130)
Industry control	Yes	Yes	Yes	Yes	Yes	Yes
Year control	Yes	Yes	Yes	Yes	Yes	Yes
Observations	79,802	79,802	79,802	79,802	79,802	79,802
No. of provinces (regions)	63	63	63	63	63	63
Log likelihood	28,333	28,307	28,452	28,318	28,365	28,359
Sigma v_g	0.043***	0.043***	0.044***	0.043***	0.043***	0.044***
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Sigma e	0.180***	0.180***	0.180***	0.180***	0.180***	0.180***
Constant	0.305***	0.303***	0.306***	0.304***	0.304***	0.308***
	(0.0151)	(0.0150)	(0.0151)	(0.0151)	(0.0151)	(0.0152)

Notes: Dependent variable is a ratio of total investments firm *i* make in year *t* divided by total capital in the same period. All specifications are estimated using multilevel modelling (*xtmixed* in Stata). In specifications (1) to (5), governance variables are estimated separately to control for possible multicollinearity; specification (6) estimates all of them together. The figures reported in parentheses are asymptotic standard errors. Standard errors and test statistics are asymptotically robust to heteroskedasticity. Cash flow, firm size and sale growth variables are lagged one period to control for possible endogeneity. * indicates significance at the 10% level; ** indicates significance at the 5% level; *** indicates significance at the 1% level.

Appendix 5.4: Regression results on separate governance variable

VARIABLES	INVESTMENT						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	-0.00180***	-0.00180***	-0.00180***	-0.00180***	-0.00176***	-0.00177***	-0.00178***
	(0.000168)	(0.000168)	(0.000168)	(0.000168)	(0.000170)	(0.000169)	(0.000170)
Size	-0.0180***	-0.0181***	-0.0181***	-0.0179***	-0.0186***	-0.0187***	-0.0184***
	(0.00390)	(0.00390)	(0.00392)	(0.00391)	(0.00394)	(0.00393)	(0.00394)
Cash flow	0.0176***	0.0176***	0.0176***	0.0175***	0.0177***	0.0178***	0.0177***
	(0.00394)	(0.00394)	(0.00395)	(0.00394)	(0.00395)	(0.00395)	(0.00395)
Revenue growth	0.00197***	0.00198***	0.00199***	0.00198***	0.00206***	0.00200***	0.00198***
	(0.000554)	(0.000553)	(0.000553)	(0.000553)	(0.000554)	(0.000553)	(0.000553)
Entry costs	0.00591						
	(0.00619)						
Business support		0.00391**					
		(0.00191)					
Labour training			0.00575*				
			(0.00349)				
Transparency				0.00667			
				(0.00438)			
Land access					0.00326***		
					(0.000694)		
Time costs						0.00396***	
						(0.000759)	
Proactivity							0.00194***
							(0.000467)
Observations	139,107	139,107	139,107	139,107	139,107	139,107	139,107
AR (2)	0.38	0.38	0.38	0.37	0.38	0.38	0.39
Hansen (J)	0.03	0.03	0.03	0.01	0.03	0.03	0.02

Notes: The figures reported in parentheses are asymptotic standard errors. Standard errors and test statistics are asymptotically robust to heteroskedasticity. Cash flow, firm size and sale growth variables are lagged one period to control for possible endogeneity.

CHAPTER 6: LOCAL GOVERNANCE AND ENTREPRENEURSHIP SECTOR: THE ROLE OF FIRM AGE, SIZE, OWNERSHIP AND INFORMAL INSTITUTIONS

6.1 Introduction

Institutions are weak when they are less universal, and this is why in a country with weak institutions, there is a wider variation in governance quality across spaces, compared to a country with strong institutions, where the governance environments are more homogenous (Efendic et al., 2015). This becomes more obvious as shifting from a standard context of the mainstream developed economy, and investigate the alternative socialist environments (Aidis, 2005). In socialist-oriented economies e.g., China and Vietnam, business environments are partially shaped by the market systems, but remain subject to the interventions of governments. The systematic issue lies in the fact that these economies have yet to achieve a stable institutional equilibrium (Efendic et al., 2015). As a result, there is pronounced uncertainty induced by the lack of transparency in their political and economic transitions, which allow local governance and informal institutions (cultural settings) to play a remarkable role in establishing local business environments.

Vietnam, due to its late and different transformation compared to China, is a more salient context in which the power of local governance arrangements and informal institutions remains stronger, and more influential on local business environments (Cooke & Lin, 2012). This study, therefore, focuses on investigating various dimensions in governance quality of local governments including freedom from corruption, governmental transparency and leadership proactivity, and the possible mechanism of their impact on local entrepreneurship.[39]

[39] It is widely acknowledged that corruption in Vietnam is severe. Vietnam ranks 119th out of 175 countries in the 2014 Global Corruption Report. According to the Report, it is expected that institutional improvements concerning governance quality would induce faster and more stable economic growth for the nation. Source: http://www.transparency.org/cpi2014/results

Meanwhile, growth is what ultimately matters for SMEs (Guariglia et al., 2011). This chapter thus employs the economic perspective of the institutional theory to study how local governance arrangements affect local young and small firm growth performance. According to North (1990), institutions are humanly devised constraints (rules and conventions) that shape the context in which entrepreneurs operate. Formal rules (e.g., constitutions, laws, economic regulations, property rights and contracts) are regarded as explicit instruments of the in-depth informal conventions (e.g., values, norms, traditions, codes of conduct, customs). However, both formal and informal institutional forces – the "rule of the games" need not being automatically in effectiveness without the presence of appropriate governance structures – the "play of the games" (Williamson, 2000). Given that local governance strongly reshapes economic incentives and behaviours of local entrepreneurs contextually, it is important to better understand the possible mechanisms of their impact on SME growth performance.

Specifically, this study proposes that governance quality related to freedom from corruption, administration transparency, and leadership proactivity in planning and implementing public policies are important determinants of SME growth.[40] The reason is that inclusive governance arrangements provide proper incentives and reduce transaction costs for young and small businesses. Considering the age, size, and ownership liabilities of SMEs, forming appropriate incentive and transaction structures is crucial for their survival and development (Davidsson & Henrekson, 2002; Stenholm et al., 2013). In the absence of conducive governance arrangements at

[40] Freedom from corruption is concerning the acts in which the power of public office is used as a rent-seeking tool for personal benefits that contravenes the rules of the game (Jain, 2001). Administration transparency is related to the uneven distribution of resources (e.g. capital, information) among economic agents that are not dissimilar (Du & Mickiewicz, 2016). Proactivity in governance emphasises the creativity, flexibility and cleverness of local governments to interpret and implement central policies, as well as to design their own initiatives for entrepreneurship sector development are of crucial influence on local young and small businesses. Nonetheless, this important dimension of local governance – leadership proactivity – is largely ignored in the extant literature.

local environments, well-developed formal rules from the central governments may become devaluated, and fail to exert full impact on local small and young businesses (Pur & Moore, 2010).

This study also proposes that local governance effects are stronger on small and young firms than be on the large and old ones. This proposition is coupled with the resource-based view hypothesis (Coase, 1937) that young and small businesses generally lack sufficient resources (e.g., capital, political connections, information) to overcome adversities in local business environments. In contrast, old and large businesses typically face relatively lower set-up costs of building governmental connections, and of lobbying for productive resources (Du & Mickiewicz, 2016), thereby gaining less benefits from local governance improvements.

It is further postulated that the effects of local governance are stronger on private SMEs than be on the state-owned and foreign-owned ones. The reason is that in weak institutional environments, state-owned SMEs can easily establish political connections with public administrations (Nguyen & Dijk, 2012), thus being less affected by intrusive local governments; meanwhile, foreign-owned SMEs can rely on their financial, managerial and ownership advantages (Delaunay & Torrisi, 2012) to easily gain access to productive resources compared with the private ones. [41] As a result, poor governance imposes less burdens on their growth performance.

While looking at the current quality of local governance, this study also accounts for the fact that SMEs performance may be characterised by long-term culture persistence. To account for this effect, this study utilises a historical event that is exogenous to the growing process of SMEs in Vietnam. The 1954 Geneva Conference partitions the country into two states, North and South Vietnam. The former was supported by China and the Soviet Union, whereas the latter was supported by the U.S. (Makino & Tsang, 2011). Although in 1975 the North Vietnamese army

[41] In Vietnam, for example, provinces are competing severely for FDI. Therefore, foreign-invested enterprises usually suffer from less unproductive interventions from local governments, and are able to enjoy several preferential policies (Chien & Kezhong, 2012; Varamini & Vu, 2007).

captured the South and the Socialist Republic of Vietnam was established, unifying the two states, this study reveals that after four decades of reunification the South remains pro-entrepreneurial as compared to the North. In addition, given the less pro-entrepreneurial culture in the North of Vietnam, it is expected that the effects of local governance in the North is more significant than be in the South. In other words, the quality of governance becomes more important where it needs to compensate for the lack of entrepreneurial culture.

This study examines a panel of more than 300,000 SMEs operating in 63 provinces of Vietnam during the 2006-2012 period. The results of this analysis provide solid support for the positive effects of local governance on SME growth. This finding makes contributions by providing greater consideration on the impact of surrounding contexts on firm performance. The extant research has paid little attention to the surrounding environments in which entrepreneurs directly interact with to obtain economic incentives and business opportunities (Welter, 2011; Zahra & Wright, 2011), implicitly assuming that the broad general institutional configurations are of homogenous effects on the whole entrepreneurial sector (Du & Mickiewicz, 2016). In addition, this study represents one of the first attempts to address the effects of local leadership proactivity on SMEs performance. In weak institutional environments, the flexibility, creativity and cleverness of local authorities to assist local entrepreneurial sector are important to alleviate the negative influence of corruption and administrative opacity.

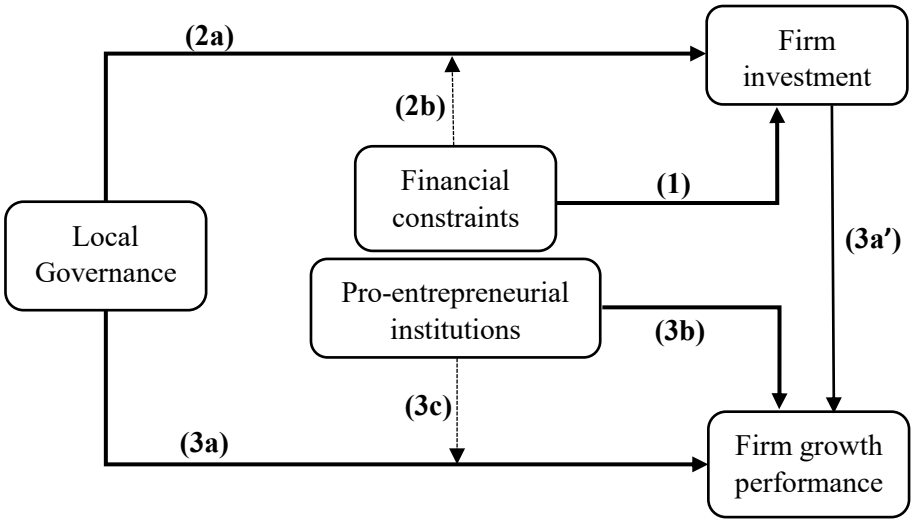
The results in this study also highlight the persistence of informal institutions by showing that pro-entrepreneurial culture tends to maintain once being established, regardless of a complete transformation of political regime. Moreover, by examining the heterogeneity among SMEs with different age, size, and ownership characteristics, the analytical framework proposed in this study compliments the existing research regarding the entrepreneurial sector as a monotonous set (Beck et al., 2008).

This study suggests several important implications for policymakers, especially for local governments in emerging economies. They reinforce previous calls for governments to better understand their local-specific institutional characteristics in order to effectively assist local entrepreneurial sector (Li & Zahra, 2012). Key finding in this study implies that SMEs performance is strongly influenced by local governance quality which can be amended and improved in the short and medium-term. Moreover, local governance could help SMEs to grow in regions embedded with culture less accommodating to entrepreneurship. This finding indicates that the appropriate platform for authorities to approach local entrepreneurship should be the local governance, rather than the central general configurations (Charron & Lapuente, 2013; Parks & Oakerson, 2000; Savitch & Vogel, 2000; Ye, 2009).

6.2 Theoretical linkage of investment, performance and governance

According to the proposed theoretical framework in the introduction chapter (which is re-exhibited following), governance can influence firm growth performance through the effect of investment.

Figure 6.1: Theoretical framework (adopted from chapter 1) (11)



Notes: The solid arrows indicate the causal effects; the dot arrows indicate the moderating effects.

The last chapter has already shown that investment is a function of local governance. This section will demonstrate that revenue is also a function of local governance by showing the linkages

between firm investments and performance. The basic factors considered can be characterised by the following equation:

$$(\mathbf{1}) \quad \pi_t = p_t\left(\alpha_k K_t^{\rho} + \alpha_l L_t^{\rho}\right)^{1/\rho} - p_t^k I_t - w_t^r L_t$$

The fuction $\pi_t(\,.\,)$ is a firm revenue in period *t*. The terms p_t, p_t^k, and w_t^r are the products price, capital price, and labour price (wage) respectively. The term $\left(\alpha_k K_t^{\rho} + \alpha_l L_t^{\rho}\right)^{1/\rho}$ is the production function with two inputs: capital *K*, and labour *L*, where $\rho = \left(\frac{\sigma-1}{\sigma}\right)$, and σ is the elasticity of substitution between capital and labour.

The equation of motion for the capital inputs is:

$$(\mathbf{2}) \quad K_t = (1-\delta)K_{t-1} + I_t - \Delta I_t \qquad\qquad \Delta \in (0,1)$$

The term δ is the rate of capital depreciation, assumed to be exogenous and fixed. Δ is the coefficient of negative governance effects. In "strong" governance environments, $\Delta \approx 0$, firm will make its optimal investments $K_t = (1-\delta)K_{t-1} + I_t$, however, in "weak" governance environments Δ becomes larger, firm will make investments lower than the optimal level an amount of $(I_t - \Delta I_t)$.

From equation (2), we have:

$$I_t = \frac{K_t - (1-\delta)K_{t-1}}{\varphi} \qquad\qquad \varphi = (1-\Delta)$$

Replace investment in equation **(1)** with the result above, we have:

$$\pi_t = p_t\left(\alpha_k K_t^{\rho} + \alpha_l L_t^{\rho}\right)^{1/\rho} - p_t^k \left[\frac{K_t - (1-\delta)K_{t-1}}{\varphi}\right] - w_t^r L_t$$

This equation shows that a firm revenue is a function of local governance quality φ. In "strong" governance environments, $\varphi \approx 1$ $(\Delta \approx 0)$, the capital costs of the firm is approximately

$p_t^k[K_t - (1-\delta)K_{t-1}]$. However, in "weak" governance environments, $\varphi \approx 0$ $(\Delta \approx 1)$, the capital costs of the firm $\left[\frac{K_t-(1-\delta)K_{t-1}}{\varphi}\right]$ is explosed. This effect represents the premium transaction costs generated by poor governance arrangements that will ultimately impose negative impact on revenue performance.

Given that firm performance is a function of local governance, the next section will introduce hypotheses related to the effects of several governance forces on firm revenue growth performance.

6.3 Theoretical background and hypotheses

Williamson (2000) highlights that "going beyond the rules of the game to include the play of the game was needed" to further develop institutional theories and their implications. In his terminology, institutions of governance – the third level of the new institutional economics theory plays a central role in reshaping economic actors' incentives. In this layer, transaction costs become the focus of analysis, because "although property remains important, a perfectly functioning legal system for defining contract law and enforcing contracts is not contemplated". Therefore, "to get the governance structures right" is essential to prevent rent-seeking incentives and nurture productive behaviours of entrepreneurs. It is well documented that institutions of governance in relation to entrepreneurship is more as an issue at the local government level, at which small and young businesses directly interact with and operate their daily activities (Charron et al., 2014; Charron & Lapuente, 2013; Savitch & Vogel, 2000; Ye, 2009).

In comparative entrepreneurship literature, the role of governance quality is generally discussed as a source of cross-national variation that brings about different levels of entrepreneurship development. This study in contrast, subscribes to the acknowledgement of Charron et al. (2014) that governance is more about *how* a government delivers its policies, instead of *what* a government delivers. In this saying, local governments with enforcement functions are arguably a more appropriate unit of analysis than the central governments. Specifically, it is suggested that as

moving from formal and informal institutions to the institutions of governance, the role of local policies and the quality of local governments become essential to account for local entrepreneurship performance (Zhou, 2014). For this reason, this chapter examines how local governance and local policies influence local entrepreneurship performance, and how the effect is moderated by several factors, including firm age, size, ownership, and pro-entrepreneurial culture.

6.3.1 Local governance and SME performance

It is well documented in literature that countries with high quality of governance perform better in several economic and social criteria, such as lower income inequality and poverty, higher environmental sustainability, better education and health, higher levels of subjective happiness, and lower civil conflict (see Charron et al. (2014)). Despite its significant role in explaining economic performance, the concept of governance quality remains underdeveloped in regional entrepreneurship research. Literature concerning enhancing entrepreneurship has exclusively relied on national-level variation of formal and informal institutions as firm performance determinants (Du & Mickiewicz, 2016). This field of research completely ignores the more important role of local contexts and surrounding environments that also shape the formation of incentives, and behaviours of entrepreneurs.

This study follows the arguments of Rothstein and Teorell (2008) that a key feature of governance quality, based on a specific normative and behavioural criterion, is *impartiality* in the delivery of public services. Impartiality implies the process of how public authority power is exercised, which is strongly concerned with the freedom from governmental corruption. Corruption is the abuse or misuse of public authority by government officials and politicians to serve their private interests by taking advantage of social benefits (Jain, 2001). Previous findings indicate that corruption negatively affect economic growth, foreign direct investment, the enforcement of formal regulations, and the establishment of functioning financial institutions (Anokhin & Schulze, 2009; Mo, 2001; Nguyen & Dijk, 2012; Seyoum, 2011).

There are at least three types of reasons for the influence of corruption on SME performance. One of these explanations could be that corruption gives rise to delays or impose constraints on entrepreneurs in gaining access to productive resources. According to North (1990), cumbersome bureaucracies may postpone the distribution of permits and licenses, thereby slowing down the process through which new ventures could be established and technological advances could be applied. Moreover, bureaucratic governments may create thresholds to information in order to protect market shares or the privileges of particular interest groups, e.g., state-owned enterprises, and large private enterprises with strong political connections (Caetano & Caleiro, 2009). Additionally, in emerging countries, specifically in Vietnam and China, financial markets are principally under the control of a few state-owned institutions, whose operational strategies are intrinsically biased against the private sector (Du & Girma, 2012; Goujon, 2006); this naturally creates rooms for financial officers to arbitrarily approve proposals from applicants who bribe larger transactions, but are not dissimilar to those who do not bribe or bribe little.

A second negative effect of corruption may be the shifting of entrepreneurial efforts from productive activities to rent-seeking activities which eventually erase economic growth. In corruptive environments, entrepreneurs have to invest more time and efforts in building relational capital with local governments. find that Chinese SMEs can improve access to bank loans by adopting strategies aimed at building social capital, namely entertaining and gift giving to financial officers. Moreover, Tonoyan et al. (2010) highlight that viewing illegal business activities as a widespread business practice provides the rationale for entrepreneurs to justify their own corrupt activities. Therefore, in transition economies, where rent-seeking activities are gradually legitimated by social norms and embedded in the entrepreneurship culture, the negative effect of corruption may be more tremendous on firm performance than be in developed countries. This is because competition for productive resources by making bribe among entrepreneurs becomes more

and more severe; up to a point that the costs of these rent-seeking activities exceed the obtained benefits, economic performance of the whole entrepreneurship sector, on average, will suffer.

A third type of explanation for the negative effect of corruption on SME performance is the financial costs of bribery which will ultimately be accounted in firm production costs. Hunt and Laszlo (2012) propose that corruption could be regarded as a kind of tax; this tax is progressive over time because political capital needs reinforcing frequently due to the higher expectation of public officials after each transaction. As a consequence, if local business environments are associated with lower corruption practices, SMEs could reduce costs, improve competitive advantage, and thus economic performance.

While it is generally acknowledged that corruption is an important feature of the quality of government, Rothstein and Teorell (2008) suggest that governance quality cannot be defined solely as the absence of corruption. This study thus proposes that local administration transparency is another important governance force that significantly influence local SME performance. Transparency is typically concerning the even distribution of resources (e.g., information, capital) to economic actors that are not dissimilar. Du and Mickiewicz (2016), in the context of Chinese entrepreneurship sector, find that the non-transparency in the process of subsidies distribution gives rise to the participation in rent-seeking activities of local entrepreneurs, which then would damage the profitability of the whole private sector. In the case of Vietnam, the non-transparent distribution of planning and legal documents necessary to run businesses, or that new policies and laws being poorly communicated to firms are found negatively influence economic growth at regional level (Hansen et al., 2009). Therefore, as similar to the impact of corruption, non-transparency requires entrepreneurs to build political connections in order to obtain access to resources necessary to their operations. This strategy, however, involves allocating effort to unproductive activities which are ultimately destructive to the whole regional economic performance. As such, in regions with more

transparent communication between officials and entrepreneurs in the sense that local policies are predictably implemented without uncertainty, the performance of local entrepreneurship sector is expected to be better than the ones in regions with less transparency.

Besides corruption and transparency, the goodness of local governance also encompasses local authorities' proactivity in facilitating the establishment and development of local entrepreneurship sector (Dinh, Malesky, To, & Nguyen, 2013). This study proposes that informal policies that represent the proactivity of local leadership towards the entrepreneurship sector will give rise to better SME performance. In transition economies, where formal institutions remain weak and incomplete, there are two ways in which local authorities could proactively create an entrepreneurship-friendly business environment. One could be that being creativity and cleverness in implementing central policies, and working within sometimes unclear central regulatory frameworks to assist and interpret in favour of local private firms. Formal laws, if cleverly implemented by local governments can remarkably influence the performance of local entrepreneurship (Green & Moser, 2013). Another approach for local authorities to achieve an entrepreneurship-friendly environment is to design their own initiatives for local SMEs. In the context of Vietnam, this approach is particularly plausible thanks to the 1996 decentralization policy which allows local governments autonomy in designing their own economic environments.

In general, local governance quality including freedom from corruption, administration transparency, and leadership proactivity in planning and implementing regulations could introduce proper incentives and reduce transaction costs, thereby being expected as important determinants to SME growth performance. This line of reasoning leads to the following hypothesis:

H1: In a given region, improvements of (a) governmental transparency, (b) freedom from corruption, and (c) leadership proactivity will be positively associated with local SME revenue growth.

6.3.2 Factors moderating the effects of local governance

- *Firm age and size*

Meyer et al. (2006) observe that: "Although GDP per capital is still considerably lower than in the Asian Tiger economies[42], and the institutional framework still reflects inheritances from the central planning system, Vietnam today has a vibrant economy with small businesses springing up at every street corner". In fact, the total number of SMEs in the country keeps increasing from a relatively high number, 95% total registered businesses in 2006, to 98% in 2014.[43] However, SMEs in Vietnam on average are very young and small (Meyer et al., 2006) due to the nation's history of wars. Thus, being old and large could be considered as one of the most important competitive advantages. Therefore, it is important to investigate the potentially dissimilar implications of local governance on SMEs with different age and size.

It is widely recognized that age and size are liabilities to SMEs, constraining their access to productive resources, and also raise the costs of their economic transactions (Du & Girma, 2012; Giordani, 2015). Young and small SMEs have yet to accumulate sufficient resources, such as financial capital, social-networks, and political relations, etc., thereby being inferior to large and old firms (Allen et al., 2005). Young and small SMEs also confront with severe asymmetric information because they have yet to establish trackable operational records, and to successfully generalise trusts into their operational networks (Nguyen & Rose, 2009). For this reason, they face higher transaction costs (i.e., costs of finding, negotiating and monitoring other stakeholders) which then negatively influence their growth performance.

In transition economies with socialist-oriented market like Vietnam, institutional arrangements are intrinsically biased against the private entrepreneurial sector, thus the process of alleviating

[42] The Four Asian Tigers or Asian Dragons are the highly developed economies of Hong Kong, Singapore, South Korea and Taiwan. These regions were the first newly industrialized countries.
[43] Source: https://www.gso.gov.vn/Default_en.aspx?tabid=515

asymmetric information is more time-consuming and more difficult for private young and small firms (Pincus, 2009). Nguyen et al. (2006) suggest that in the absence of effective financial systems, banks in Vietnam face considerable uncertainties in lending to SMEs. Consequently, they employ a combination of uncertainty avoidance, and reliance on trust to make lending decisions. Similarly, Goto (2012) suggests that social capital is particularly important in the case of Vietnam, where economic transactions are usually created upon personal relations rather than arm-length principles. However, young and small SMEs are in general in short of this kind of capital (Du & Mickiewicz, 2016).

This line of reasoning leads to an expectation that if local governments are able to reduce the average transaction costs in local business environments, and grant the entrepreneurial sector better access to productive resources by ameliorating the freedom from corruption, improving administration transparency, and being proactivity in designing and implementing entrepreneurial policies, young and small SMEs, due to their age and size liabilities, will gain more benefits than the old and large ones. Hence:

H2: The effects of (a) local governmental transparency, (b) freedom from corruption, and (c) leadership proactivity are stronger on the small and young SMEs compared to the large and old ones.

- *Ownership*

Shultz et al. (2000) recognize a fact that although Vietnam's evolving reform process is gaining momentum, Vietnam's Communist Party remains its dominant control over the entire economic system. As a consequence, conflicts are inevitable and performance divergence among economic sectors can be traced to fundamental differences in their operation motivations. In particular, state-owned firms with close connections with politicians are usually established to fulfil both political and economic accountabilities (Donker, Santen, & Zahir, 2009). Nonetheless, despite the fact that

state sector is endowed with several advantages and privileges, their economic performance is not in proportion with the amount of resources they are given. Specifically, state-owned companies use about 50% of Vietnam's public investment and tap 60% of the country's bank loans, while contributing to just a third of GDP.[44] One of the explanations could be attributed to the weak agency structure which grants state-owned firms incentives to pursue other objectives (e.g., maximizing managers' benefits) rather than maximizing profitability or productivity (Nguyen & Dijk, 2012). Nonetheless, it is generally acknowledged that the close relationship between the state sector and public officials, which is perceived as corruption from the view point of non-state firms, could benefit the performance of SOEs, regardless of their inefficiency and bureaucracy (Acemoglu & Johnson, 2005).

Similarly, foreign-owned firms also possess several ownership advantages to easily overcome or avoid difficulties prevailing in local business environments. They suffer from less unproductive interventions from local governments thanks to the severe competition for foreign direct investment (FDI) among provinces. This could largely mitigate unfavourable administrative interruptions and harassments from public officials, thereby saving them from rent-seeking activities. Moreover, foreign-owned firms are granted with several financial benefits and tax exemptions as a consequence of the policy of promoting technology spillovers via FDI (Shieh & Wu, 2012a). Foreign firms, in addition, can make use of their ownership advantages to gain more access to bank loans, to obtain operation permits, investment approvals, and land-use licenses with less efforts and lower costs compared to private firms (Cung & Hua, 2013; Tsang, 2005). Considering the strong connections between the foreign sector and local governments, in addition to the fact that they have more advantages in terms of financial and managerial capital, it is expected that they are less sensitive to the quality of local governance.

[44] Source: https://www.gso.gov.vn/Default_en.aspx?tabid=515

In contrast to state-owned and foreign-owned companies, private firms, especially the entrepreneurship sector suffers from much institutional biases as well as unfavourable interventions from local governments (Santarelli & Tran, 2012). Low quality of governance such as corruption and non-transparency in subsidies could be destructive to entrepreneurs' growth aspirations, innovation, profitability, productivity, job creation, and investments (Aidis et al., 2012; Anokhin & Schulze, 2009; Davidsson & Henrekson, 2002; Estrin et al., 2013). In the context of Vietnam, Nguyen and Dijk (2012) find that corruption hampers economic growth because it favours the state sector at the expense of the private sector. In line with this argument, it is expected that private SMEs, with much inferiority in competing with state-owned and foreign-owned SMEs, will be more responsive to improvements in governance quality of local governments.

Considering the ownership advantages of the state and foreign sector in comparison with the private sector, formally we have:

H3: The effects of (a) local governmental transparency, (b) freedom from corruption, and (c) leadership proactivity are stronger on private SMEs compared to state-owned and foreign-owned ones.

- *Informal institutions*

Informal institutions are norms, culture, and code of conducts embedded in the cognitions of a society. These unwritten "rules of the game" are the root of formal institutions, e.g., laws and regulations, and affect behaviour of economic actors (Williamson, 2000). The complementary role of informal institutions due to the incompleteness of formal institutions is particularly important in emerging countries where the formal institutions remain weak and underdeveloped (Zhou, 2013). Since the important role of informal institutions, the link between them and entrepreneurial activities is gradually examined and theorised in the recent entrepreneurship literature. Helmke and

Levitsky (2004), for example, propose that informal institutions including clientelism and patrimonialism can shape even more strongly entrepreneurship performance than formal rules.

In regional entrepreneurship research, a number of empirical studies show that informal institutions differ significantly across regions within a country (Moodysson & Zukauskaite, 2014; Pur & Moore, 2010; Rodríguez-Pose, 2013). Such differences may then lead to more or less variation in local policies and governance quality which then affect local entrepreneurship activities (Fritsch & Storey, 2014). This mechanism lies in the commitment and consistency of local governments in implementing policies and governance forces that could enhance institutional trust (trust in institutions) and facilitate the generalised trust (trust in unknown individuals) among economic actors (Efendic et al., 2015). By reducing transaction costs and transaction risks, these governance forces then enable a gradual formation of a regional entrepreneurship culture which once established, tends to persist overtime (Fritsch & Mueller, 2004).

The persistence of regional entrepreneurship culture is recently investigated primarily using the case of the West and East Germany. Fritsch and Storey (2014) suggest that the social acceptance or "legitimacy" of entrepreneurship remains higher in the West than in the East, after more than two decades of reunification, because the culture of the West are ready-made more tolerant to individualism, independence and achievement. They also find significant gap in the share of persons with entrepreneurial personality traits such as extraversion, openness to experience and conscientiousness, and ability to bear risk between the two states. It is expected similar results applied in the context of Vietnam, where the South was once initialised to more pro-entrepreneurial informal institutions from 1954 to 1975, during the regime of the capitalism introduced by the U.S. This study subscribes to the arguments of Fritsch and Wyrwich (2014) that regional culture of entrepreneurship could be regarded as a spatially sticky characteristic, and postulate that SMEs in

the South of Vietnam, on average, perform better than SMEs in the North of Vietnam in terms of economic growth due to this particular pro-entrepreneurial culture.

In addition, consistent with the hypotheses about the moderating effects of age, size and ownership liabilities on the relationship between local governance and SME performance, this study suggests that in regions with less pro-entrepreneurial culture (the North), the impact of local governance quality is more significant. In other words, the quality of governance and leadership proactivity of local governments matter more where local informal institutions are less accommodating to entrepreneurship.

One mechanism explaining this proposition is that informal institutions are sticky features of provinces; once established, these values are difficult to erase. Therefore, it is expected that the persistence of the pro-entrepreneurial culture in the South during the last 40 years has helped local firms to achieve strong growth, and thus the marginal effects of local governance on firms in the South may be significantly lower than the marginal effects of local governance on firms in the North. This expectation is supported by the view of Williamson (2000) that good governance with strong commitments and stability over time, to some extents, may offset the weaknesses in formal and informal institutional structures. Therefore, we receive:

H4: The effects of (a) local governmental transparency, (b) freedom from corruption, and (c) leadership proactivity are stronger on SMEs in regions with initially less pro-entrepreneurial culture compared to regions with initially more pro-entrepreneurial culture.

6.4 Data and methodology

6.4.1 Data

To test the hypotheses, this study proposes Vietnam as an appropriate context. The Vietnamese history and institutions are ideal for the exercises because of the following reasons. The entrepreneurial sector is currently the boost for the nation transitioning process (Anwar & Nguyen,

2011), but their growth may be severely constrained by the weaknesses and shortcomings of the institutional frameworks. In addition, the distinct history of war and socialist political regime of the nation also allows us to examine the interesting effects of local governance and pro-entrepreneurial culture on firm growth performance.

The empirical model testing relies on a combination of two datasets which are the same as the datasets used in chapter 4. The first dataset is the Annual Survey on Enterprises of Vietnam General Statistics Office (GSO). It is a 13-year panel from 2000 to 2012 including several firms-specific information for all of manufacturing, mining, and service sectors in the economy. However, the study period is 7 years 2006-2012 to match with the availability of the second dataset, the Provincial Competitiveness Index (PCI). The Index is a product of the collaboration between Vietnam Chamber of Commerce (VCCI) and the U.S Agency for International Development (USAID). Generally, PCI is an overall provincial governance index, a weighted average of the other 9 sub-indices, each measures a particular dimension of the formal or informal governance forces.

6.4.2 Variables and summary statistics

To clean the data, all of firms with negative total assets, fixed assets, depreciation and employees are dropped, so do for firms with fixed assets greater than total assets. Similarly, firms with negative investments or missing values are also deleted. The outliers are controlled by censoring the top and bottom 1% of observations in the distribution of each study variable. Only small and medium-sized companies according to the Enterprises Laws of Vietnam are selected as the population of investigation.[45] The final sample in regressions constitutes 307,591 SMEs in 7 years.

[45] According to the Vietnam Enterprise Law, there are 4 types of firms in terms of sizes. Microenterprises are firms operating with less than 10 employees. Small enterprises are firms having 10 to 200 employees and total registered capital less than 20 billion VND (approximately 1 million USD). Medium enterprises are firms having 200-300 employees and total registered capital less than 100 billion VND (approximately 5

- *Dependent variables: revenue growth*

The dependent variable in this study is the revenue growth of SMEs, measured by the percentage changes of sale revenue between two consecutive years. Sale revenue growth is particularly interested because revenue is a measure of economic performance that could effectively reflect the short-term impact of local governance changes (de Jong et al., 2012). Other measurements of performance such as profitability and total factor productivity may represent the impact originates from the improvements of firm internal factors (e.g., innovations, human resources), which may take longer time to change (Driffield, Mickiewicz, & Temouri, 2013), and may be less affected by external governance arrangements.

Table 6.1 exhibits the definition and summary statistics of the variables of interest. On average, revenue growth of SMEs is around 6% per year in the study period. However, the large standard deviation and a wide range between the minimum and the maximum values indicate a remarkable variation in the revenue growth performance across firms.

Table 6.1: Variables definition and summary statistics (41)

Variable	Definition	Obs.	Mean	S.D.	Min.	Max.
Sales revenue growth	The percentage change of sales revenue in two consecutive years	287,110	0.04	1.28	-12.34	12.34
Age	Years of operation since establishment	287,110	7.99	5.51	1.00	33.00
State-owned SMEs	Code "1" state-owned SMEs	287,110	0.07	0.25	0.00	1.00
Foreign-owned SMEs	code "3" foreign-owned SMEs	287,110	0.05	0.23	0.00	1.00
Fixed assets	The fixed assets, normalised by total assets	287,110	0.26	0.25	0.00	0.94
Investment	Total investment, normalised by total capital	161,503	0.15	0.19	0.00	1.09

million USD). And large enterprises are firms operating with more than 300 employees and 100 billion VND registered capital. Capital is the first criterion in categorization.

Size	Natural log of the number of employees (reported the number of employees)	287,110	43.15	39.21	10.00	300.00
Corruption	The difference of the Informal charges indicator in two consecutive years: $\text{Informal charges}_{it} - \text{Informal charges}_{it-1}$	287,110	0.06	0.84	-3.39	3.62
Transparency	The difference of the Transparency indicator in two consecutive years: $\text{Transparency}_{it} - \text{Transparency}_{it-1}$	287,110	-0.03	0.64	-2.99	3.05
Proactivity	The difference of the Proactivity indicator in two consecutive years: $\text{Proactivity}_{it} - \text{Proactivity}_{it-1}$	287,110	-0.21	1.11	-5.46	6.18

Note: Studying panel encompasses all of 63 provinces and municipal cities in Vietnam in the period 2006-2012. Governance variables are obtained from the Provincial Competitiveness Index (PCI) dataset. Firm-level variables are obtained from the Annual Enterprises Survey of the Vietnam General Statistical Office. All values are deflated to 2010 price.

- *Independent variables: local informal governance forces*

For the freedom from corruption and administration transparency, this study uses two indices in the PCI dataset: Informal Charges and Transparency. Informal charge is a measure of how much firms pay in informal charges (bribe), how much of an obstacle those extra fees pose for their business operations, whether payment of those extra fees results in expected results or "services," and whether local officials use compliance with local regulations to extract rents. Transparency is a measure of whether firms have access to the proper planning and legal documents necessary to run their businesses, whether those documents are equitably available, whether new policies and laws are communicated to firms and predictably implemented, and the business utility of the provincial webpage. In order to measure the proactivity of local governmental policies towards their entrepreneurship sector, this study makes use of the Proactivity of Provincial Leadership index, which is a measure of the creativity and cleverness of provinces in implementing central policy,

designing their own initiatives for private sector development, and working within sometimes unclear national regulatory frameworks to assist and interpret in favour of local private firms.[46]

The governance variables used for empirical tests are the difference between two consecutive years of the three indices in order to measure the changes in each governance force. This measurement approach can effectively reduce the regional time-invariant characteristics. In addition, from the theoretical perspective, the difference method provides information about the change of governance (instead of the static level) which strongly reshape entrepreneur incentives (North, 1990).

According to Table 6.1, change in freedom from corruption, with positive mean, is the only governance force that gains improvement during the studying period. The other two governance forces: transparency and proactivity with negative means indicate the slowing-down of the renovation process. This result is consistent with the recognition of Nguyen et al. (2013a) that Vietnamese government is losing its momentum in improving the nation's economic environments. However, within the country, there is significant variation among provinces represented by a wide range of the minimum and maximum values as well as the large standard deviation values of the governance variables.

- *Control variables*

Following literature in entrepreneurship, this study includes covariates found to significantly influence small and young firm performance into the regressions. They are firm age, size, and ownership. Firm age is measured as the number of years since a firm was established. Size is measured in natural log of the number of employees a firm hires in a particular year. On average, SMEs in Vietnam are only 8 years old with about 47 employees. The young age and small size

[46] Details of the PCI methodology are available at: http://eng.pcivietnam.org/phuong-phap-c9.html

liabilities of SMEs in Vietnam indicate that they are relatively fragile and easily influenced by external environments, including local governance arrangements.

To control for ownership sectors, this study specifies three dummies for private, state-owned and foreign-owned SMEs. Specifically, the private sector accounts for nearly 90% of total registered firms, while the state sector is 6% and the foreign sector is 4% of total firms respectively. It should be noticed that observations in this study are firm-year, therefore in regressions a firm is allowed to change its ownership structure annually according to any merge and acquisition across sectors.

According to the proposed theoretical framework in the introduction chapter, governance influences firm investments – an essential channel of firm growth. Therefore, it is important to control the effect of investment when examining the influence of governance on firm growth. This study controls for the effect of investment by including the fixed assets (normalised by total capital) variable in regressions. By doing this, the net effect of local governance on firm growth could be precisely specified.

This study also includes informal institutions variable using historical events as a proxy. In particular, the seventeenth parallel was the provisional military demarcation line between North and South Vietnam introduced by the Geneva Accords of 1954. The North state was led by the Communist Party of Vietnam while the South state was supported by the America. This specific history allows us to create a dummy variable – South which takes value 1 for provinces to the south of the seventeenth parallel from 1954-1975, and take value 0 for provinces to the north of the parallel, originally under the control of the Communist Party from the very beginning.

To obtain primary understanding about the relationship between the variables of interest, let's refer to the correlation matrix presented in Table 6.2. The positive and significant correlation coefficients between the revenue growth variable and the three governance variables: freedom from corruption, transparency, and leadership proactivity establish the foundation for the hypotheses about the

influence of local governance on SME growth. Moreover, the correlation coefficients of the South dummy with the revenue growth, age, and size variables also provide initial support for the expectation that SMEs in the South, probably with stronger pro-entrepreneurial culture, perform better in terms of revenue growth and seem to be older and larger.

Table 6.2: Correlation matrix (42)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Revenue growth (1)									
Age (2)	-0.108								
Ownership (3)	0.029	-0.244							
Assets structure (4)	0.005	0.100	-0.060						
Investment (5)	0.038	-0.245	0.017	0.145					
No. Labours (6)	0.046	0.198	0.044	0.103	-0.090				
Corruption (7)	0.106	0.004	0.016	-0.008	0.004	0.012			
Transparency (8)	0.042	0.006	-0.023	0.042	0.002	0.006	0.204		
Proactivity (9)	0.072	0.011	-0.027	0.058	0.003	0.011	0.156	0.271	
South (10)	0.009	-0.001	0.102	-0.061	-0.038	0.018	0.083	-0.049	0.051

Note: All correlation coefficients are significant at 1%.

To better observe the difference between the North and the South, we provide summary statistics and t-test for the two groups. Table 6.3 presents the results. Firms in the South performance better in terms of revenue growth even though they make less investments. This implies that firms in the South are more productivity and efficient. Firms in the North are more capital-intensive probably because they operate in manufacturing industries as a result of the history setting; firms in the South are more attracted to service industries, thereby being less capital-intensive. Firms in the South are older and larger than firms in the North. This signals that entrepreneurial capital was established first in the South. In terms of governance variables, their means for the South are larger than those for the North, which indicate that provinces in the South seek to change their governance arrangements more proactively than those in the North.

Table 6.3: t-test between North and South (43)

Variable	North	South	t-test
Observations	87,972	89,148	
Percentage	49%	51%	
Revenue growth	0.058	0.065	0.000
Age	7.832	8.037	0.000
Ownership	1.955	2.030	0.000
Fixed assets	0.289	0.266	0.000
Investment	0.162	0.148	0.000
Size	45.434	47.845	0.000
Corruption	0.006	0.120	0.000
Transparency	-0.016	-0.088	0.000
Proactivity	-0.190	-0.235	0.000

In order to formally test the proposed hypotheses, this study proposes the following empirical specifications presented in the next section.

6.4.3 Econometric models

Hypotheses about the influence of local governance on revenue growth of local SMEs are tested using a revenue function in the following reduced form:

$$(\mathbf{1})\ RG_{igt} = \beta_0 + \beta_1(A_{igt}) + \beta_2(S_{igt}) + \beta_3(O_{igt}) + \beta_4(F_{igt}) + \beta_5(Governance_{gt})$$

$$+v_j + v_t + v_i + \mu_{it}$$

The subscript *igt* represents individual effects. Specifically, i denotes an SME, g a province, and t a year. Thus RG_{igt} is the revenue growth of an individual SME i in province g in a year t. The term (A_{igt}) represents firm age, (S_{igt}) firm size, (F_{igt}) is firm fixed assets controlling for firm investments, and (O_{igt}) the ownership structure. It is worth noting that (O_{igt}) is a vector of 3

dummy variables for the state, private, and foreign sectors accordingly. The governance variable: $(Governance_{gt})$ represents forces of informal governance arrangements, i.e., freedom from corruption, administration transparency, and leadership proactivity. The specification also includes an industry-specific component v_j, a time-specific component v_t, which are controlled by corresponding dummies. The term v_i represents all time-invariant firm-level fixed effects that may influence revenue growth. Finally, the μ_{it} is the idiosyncratic error term.

In this equation, the coefficient associated with governance variables – beta 5 - is our main interest. We expect that this coefficient will be positive and precisely determined if local governance has a significant impact on local firm revenue growth. If this is the case, then hypothesis 1 will be supported.

Base on the above benchmark specification, the moderation of firm age, size, and ownership structure on the relationship between local governance and revenue growth is tested using the following augmented specifications:

$$(\mathbf{2})\ RG_{igt} = \beta_0 + \beta_1(A_{igt}) + \beta_2(S_{igt}) + \beta_3(O_{igt}) + \beta_4(F_{igt}) + \beta_5(Governance_{gt}) + \beta_6[Governance_{gt} \times (A_{igt})] + v_j + v_t + v_i + \mu_{it}$$

$$(\mathbf{3})\ RG_{igt} = \beta_0 + \beta_1(A_{igt}) + \beta_2(S_{igt}) + \beta_3(O_{igt}) + \beta_4(F_{igt}) + \beta_5(Governance_{gt}) + \beta_6[Governance_{gt} \times (S_{igt})] + v_j + v_t + v_i + \mu_{it}$$

$$(\mathbf{4})\ RG_{igt} = \beta_0 + \beta_1(A_{igt}) + \beta_2(S_{igt}) + \beta_3(O_{igt}) + \beta_4(F_{igt}) + \beta_5(Governance_{gt}) + \beta_6[Governance_{gt} \times (O_{igt})] + v_j + v_t + v_i + \mu_{it}$$

The specification (2) includes an interaction term of local governance with firm age, the specification (3) is for the interaction with firm size, and the specification (4) is the interaction with ownership dummies.

Hypothesis 2 and 3 propose that firm age, size, and ownership could moderate local governance effects in the way that younger, smaller, and private firms will be more sensitive to the effects of local governance than the older, larger, and non-private firms will be. To test the validity of this argument, we analyse the performance of the coefficients associated with the interaction terms between firm age, firm size, firm ownership dummies with governance variables. It is expected that these coefficients will be precisely determined and will take on negative sign to well conclude that the effects of local governance are stronger on young, small, private firms (as we take private firms as the benchmark).

To test the moderating effect of the pro-entrepreneurial culture on the relationship between local governance and revenue growth, this study proposes the use of the following augmented specification:

$$(\mathbf{5})\ RG_{igt} = \beta_0 + \beta_1(A_{igt}) + \beta_2(S_{igt}) + \beta_3(O_{igt}) + \beta_4(F_{igt}) + \beta_5(Governance_{gt}) + \beta_6(South_g) + \beta_7[Governance_{gt} \times (South_g)] + v_j + v_t + v_i + \mu_{it}$$

This specification includes the $(South_g)$ dummy which takes value 1 if the province is in the South of Vietnam, and also includes the interaction terms of local governance variables with the South dummy $[Governance_{gt} \times (South_g)]$. This is to capture the complementary effect between informal institutions and local governance arrangements.

In equation (5), we will analyse the performance of beta 7 – the coefficient associated with the interaction term between local governance and the South dummy. If this coefficient is negative and significant, it is concluded that local governance effects are stronger in the North than they are in the South (as South takes on value 1 if provinces locate in the South). In this case, we will have sufficient evidence to support the hypothesis 4 suggesting that local governance effects are stronger

on SMEs in regions with initially less pro-entrepreneurial culture compared to regions with initially more pro-entrepreneurial culture.

All equations are estimated using a fixed effect (FE) panel estimator[47], corrected by robust standard errors clustered to province level per year. The use of the FE estimator could, to some extent, alleviate estimation biases due to unobserved heterogeneity and potential endogeneity in the model. Hausman tests for each specification indicate the appropriateness of the panel FE over the random effect estimator. Estimated results are reported in the following section.

6.5 Empirical results

Regression results are reported in Table 6.4 and Table 6.5 Column (1) presents the result of the model including control variables only, columns (2), (3), and (4) are the results of the benchmark specification for local governance variables: transparency, freedom from corruption, and leadership proactivity respectively. Columns (5) to (7) are the results of the interaction of local governance variables with firm age, columns (8) to (10) are for the interaction with firm size, columns (11) to (13) for the interaction with ownership dummies (the reference is the private sector), and finally results of the interaction of local governance variables with the South dummy are shown in columns (14) to (17).

[47] Using the *reghdfe* routine in Stata, see (Correia, 2014). The use of the *reghdfe* is appropriate for multiple levels of fixed effects. The routine use novel and robust algorithm to efficiently absorb the fixed effects from different levels of observations, and iteratively removes singleton groups by default, to avoid biasing the standard errors.

Table 6.4: Regression results of local governance effects on revenue growth (44)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Age	-0.0699***	-0.0701***	-0.0691***	-0.0699***	-0.0613***	-0.0687***	-0.0667***	-0.0674***	-0.0691***	-0.0682***
	(0.00742)	(0.00742)	(0.00741)	(0.00742)	(0.00754)	(0.00748)	(0.00743)	(0.00744)	(0.00741)	(0.00744)
Size	0.235***	0.235***	0.234***	0.234***	0.235***	0.234***	0.234***	0.233***	0.240***	0.226***
	(0.00782)	(0.00782)	(0.00782)	(0.00781)	(0.00782)	(0.00781)	(0.00781)	(0.00781)	(0.00781)	(0.00781)
Fixed assets	0.0984***	0.0992***	0.0986***	0.100***	0.0996***	0.0982***	0.100***	0.100***	0.0994***	0.100***
	(0.0229)	(0.0229)	(0.0229)	(0.0229)	(0.0229)	(0.0229)	(0.0229)	(0.0229)	(0.0229)	(0.0229)
State-owned	-0.192***	-0.192***	-0.194***	-0.190***	-0.190***	-0.193***	-0.190***	-0.190***	-0.201***	-0.190***
	(0.0449)	(0.0449)	(0.0450)	(0.0449)	(0.0449)	(0.0450)	(0.0449)	(0.0449)	(0.0449)	(0.0449)
Foreign-owned	0.123	0.123	0.122	0.119	0.123	0.124	0.118	0.124	0.127	0.123
	(0.152)	(0.152)	(0.152)	(0.152)	(0.152)	(0.153)	(0.152)	(0.152)	(0.152)	(0.152)
Transparency		0.0133***			0.0482***			0.155***		
		(0.00361)			(0.00620)			(0.0157)		
Corruption			0.0457***			0.108***			0.373***	
			(0.00314)			(0.00591)			(0.0143)	
Proactivity				0.0208***			0.0446***			0.156***
				(0.00204)			(0.00374)			(0.00882)
Transparency × Age					-0.00427***					
					(0.000524)					
Corruption × Age						-0.00744***				
						(0.000516)				
Proactivity × Age							-0.00271***			
							(0.000312)			
Transparency × Size								-0.0410***		
								(0.00428)		
Corruption × Size									-0.0960***	
									(0.00381)	
Proactivity × Size										-0.0394***
										(0.00234)
Fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Robust SD	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Hausman p_value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	287,110	287,110	287,110	287,110	287,110	287,110	287,110	287,110	287,110	287,110
R-squared	0.238	0.238	0.238	0.238	0.239	0.238	0.238	0.240	0.238	0.239

Note: The results reported were estimated using the fixed effect panel estimator (*reghdfe in Stata*) controlling for multi-level structure of the data. The reference ownership is the private sector. The figure reported in parentheses are robust standard errors. Hausman test statistics are reported for the endogeneity of fixed effects. *** indicates significant at 1%. ** indicates significant at 5%.

Table 6.5: Regression results of local governance effects on revenue growth (cont.) (45)

	(11)	**(12)**	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**
Age	-0.0689***	-0.0689***	-0.0692***	-0.0699***	-0.0714***	-0.0693***	-0.0702***
	(0.00742)	(0.00742)	(0.00742)	(0.00742)	(0.00743)	(0.00742)	(0.00741)
Size	0.235***	0.235***	0.234***	0.234***	0.234***	0.234***	0.234***
	(0.00782)	(0.00782)	(0.00781)	(0.00782)	(0.00782)	(0.00782)	(0.00781)
Fixed assets	0.0991***	0.0985***	0.100***	0.0986***	0.0995***	0.0985***	0.101***
	(0.0229)	(0.0229)	(0.0229)	(0.0229)	(0.0229)	(0.0229)	(0.0229)
State-owned	-0.188***	-0.191***	-0.193***	-0.191***	-0.191***	-0.192***	-0.190***
	(0.0450)	(0.0449)	(0.0449)	(0.0449)	(0.0450)	(0.0449)	(0.0449)
Foreign-owned	0.123	0.133	0.115	0.126	0.125	0.127	0.123
	(0.152)	(0.152)	(0.152)	(0.152)	(0.152)	(0.152)	(0.152)
Transparency	0.0180***				0.0361***		
	(0.00397)				(0.00488)		
Corruption		0.0543***				0.0814***	
		(0.00341)				(0.00493)	
Proactivity			0.0246***				0.0330***
			(0.00220)				(0.00338)
State-owned × Transparency	-0.0310***						
	(0.0101)						
Foreign-owned × Transparency	-0.0469***						
	(0.0161)						
State-owned × Corruption		-0.0656***					
		(0.00960)					
Foreign-owned × Corruption		-0.0740***					
		(0.0120)					

State-owned × Proactivity			-0.0307***				
			(0.00673)				
Foreign-owned × Proactivity			-0.0252***				
			(0.00811)				
South				0.478**	0.463**	0.451**	0.453**
				(0.207)	(0.207)	(0.207)	(0.208)
South × Transparency					-0.0601***		
					(0.00693)		
South × Corruption						-0.0709***	
						(0.00631)	
South × Proactivity							-0.0214***
							(0.00420)
Fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Robust SD	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Hausman p_value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	287,110	287,110	287,110	287,110	287,110	287,110	287,110
R-squared	0.238	0.238	0.238	0.238	0.238	0.239	0.238

Note: The results reported were estimated using the fixed effect panel estimator (*reghdfe in Stata*) controlling for multi-level structure of the data. The reference ownership is the private sector. The figure reported in parentheses are robust standard errors. Hausman test statistics are reported for the endogeneity of fixed effects. *** indicates significant at 1%. ** indicates significant at 5%.

Hypothesis 1 proposes that improvement of local governance is positively associated with SME growth performance. To test this hypothesis, we examine the coefficients of the transparency, corruption, and proactivity variables in both Table 6.4 and 6.5. In all specifications, the coefficients associated with the three local informal governance variables are positive and precisely determined. This result confirms the hypothesis 1 that SMEs in regions with stronger local governance arrangements perform better in terms of revenue growth.

To examine the magnitude of the effects, we investigate the size of the three coefficients associated with transparency, corruption, and proactivity variables. Corruption is the governance force with the strongest effect, 1 point of improvement leads to an increase in revenue equalled to 4.5% of total capital, ceteris paribus. Proactivity follows with a revenue increase of 2.1% of total capital for each point of improvement. And the number for transparency is 1.3%.

This result is consistent with previous findings highlighting the importance of corruption to entrepreneurship (Aidis, 2005; de Jong et al., 2012). Corruption is directly linked to property rights and the risk of expropriation, thereby having strongest impact on local SMEs revenue growth performance. Specifically, severe corruption has at least two important negative effects on local SMEs. First, it distracts entrepreneurs from productive activities, and drives their working intention away from management to rent-seeking tasks such as entertaining officials, making informal relationship with key persons, etc. These activities will reduce entrepreneurial inputs and thus negatively affect firm performance consequently. In addition, corruption exerts direct financial costs to small businesses. Because officials face constraints when making bribery transactions, large briberies will easily attract their attention and will be prioritised. Therefore, entrepreneurs when competing by keeping increasing the value of bribery will hurt their business performance consequently.

Proactivity is the second economically important governance force. For each point of improvement, revenue will increase 2.1% of total capital, which is 2.4% lower than the effect of corruption. Proactivity is concerning the entrepreneurship of local leadership. Specifically, local leadership proactivity includes attitude of provincial government toward private sector, whether management is flexible within the legal framework to create favourable business environment for non-state firms, how is province's reaction to lack of clarity in central policies/documents, and are they proactive and innovative in solving new problems. This variable is not directly concerned with finance (property rights) like corruption, thereby being less immediately influential on firm revenue performance. Proactivity is more about how local government create regulations or interpret central laws that benefit local private sector. Therefore, the effects of leadership proactivity are less obvious in the short-term.

Transparency is the least important governance force among the three under analysing in this study. Its effect is only about 30% of corruption effect, and 60% of proactivity effect. Transparency measures the easiness of gaining access to planning and legal documents using local government websites, whether firms perceive that negotiations with tax authority are an essential part of doing business, whether budget documents have enough details for use in business activities, and are they published right after being approved. These governance arrangements are less economically important to firm performance in comparison with corruption and proactivity because firms could rely on their informal relationship with officials to gain access to productive information or by making bribery to corruptive officials. In addition, transparency is not directly associated with financial burdens as corruption is; it is also not linked with new business opportunities generated by proactive leadership. Transparency in contrast, is more concerned with administration and operation procedures, thus it is less economically important to firm revenue growth performance.

Hypothesis 2 proposes that the impact of local governance quality is stronger on young and small firms than on large and old firms. To examine this hypothesis, let's analyse the coefficients of the interaction terms of local governance variables with firm age in columns (5) to (7), and with firm size in columns (8) to (10). These coefficients are negative and statistically significant, suggesting that when becoming older and larger, firms are less sensitive to local governance quality. Therefore, the hypothesis 2 is confirmed.

In terms of the strength of the moderating effects, it is noteworthy that the effects of firm size on average are stronger than the effects of firm age. Corruption is the governance force that has the strongest moderating effect. To see the magnitude of the moderating effects more clearly, we present them in Figure 6.2 to 6.7. The three alternative levels of firm age chosen are 1 year, 10 years and 30 years; and 10 employees, 30 employees, and 100 employees for firm size (here we use the number of employees instead of the log of employees for the sake of interpretation). Figures 6.2 to 6.4 indicate that as local governance improvements are magnified, their effects on young firms become stronger, meanwhile their effects on old firms become weaker. This is the divergent effect of local governance on firm age which means that as local governance arrangements improve, the performance gap of old and young firms will magnify.

In contrast, Figure 6.5 to 6.7 exhibit an opposite story in which the effects of local governance on small firms gradually increase, while the effects on large firms gradually weaken. The two types of effects finally converge at one point. This convergence effect of local governance on firm size implies that as local governance improves, the performance gap of small and large firms will contract. This finding is important to policymakers because it indicates that better local governance structures can assist small firms to grow faster, thereby allowing them to achieve a convergence in performance with large firms.

Hypothesis 3 proposes that the effects of local governance are stronger on private SMEs than on non-private ones. The coefficients associated with the interaction terms between the three governance variables and the ownership dummies (private sector is the reference) are all negative and significant. (Table 6.5). This indicates that in comparison with private firms, state-owned and the foreign-owned firms are less sensitive to local governance. Therefore, hypothesis 3 is supported. To see the magnitude of the moderating effects more clearly, we refer the predictive margins in Figure 6.8 to 6.10. They indicate that corruption has the strongest effect on the private sector. Interestingly, for the state and foreign sectors, the graphs show that less corruptive and more transparent environments weaken their revenue growth performance. This finding highlights the distinct ownership advantages of the state and foreign sectors. They can cope with the corruptive and opaque environments probably using "back door" relationships with local authorities. For this reason, improvements of local informal governance may alleviate their chances of using this kind of social capital. A more even play-field thus benefits the private sector and damage the privileges of the state and foreign sectors.

Hypothesis 4 argues that governance effects are stronger in the North Vietnam than in the South. To investigate the impact of the pro-entrepreneurial culture on revenue growth, let's examine the coefficients of the South dummy and its interaction terms with local governance variables. The results are presented in Table 6.5. The positive and significant coefficients of the South dummy in all specifications indicate that firms operating in the South Vietnam perform better than firms operating in the North Vietnam in terms of revenue growth. More importantly, the negative and precisely determined coefficients of the interaction terms of the South dummy and local governance variables indicate that the effects of local governance in the North, where informal institutions are less pro-entrepreneurial, are strong than in the South. Therefore, hypothesis 4 is strongly supported.

The predictive margins of the interaction terms are presented in Figure 6.11 to 6.13. When local informal governance is weak, the gap of firm revenue growth between the North and the South is relatively large. However, as local governance improves, the gap gradually contracts principally due to the convergence of the North (most obvious in the Figure 6.11 presenting the effect of corruption). This result implies that regions with initially weak informal institutions towards entrepreneurship can facilitate their local entrepreneurship sector by giving strong commitments to local informal governance arrangements.

In terms of the control variables i.e., firm age, size, investment, and ownership we will briefly discuss their performance in comparison with findings in previous studies. Using a similar net revenue growth equation for a set of Chinese SMEs, Du and Mickiewicz (2016) find that firm age has negative effect on revenue growth but the effect of firm size is positive. This is also the pattern we find in this study. The coefficients of firm age are consistently negative and precisely determined in all specifications. Meanwhile, the coefficients of firm size are consistently positive and strongly significant in all specifications. However, it is noteworthy that the coefficients associated with firm size is much larger than the coefficients associated with firm age, on average, the positive effect of firm size is 70% stronger than the effect of firm age on revenue growth. In general, the net effect of being old and large is positive on performance. In other words, it could be concluded that old and large firms on average perform better in terms of revenue growth compared to young and small ones.

Fixed assets as a proxy for investments have consistently positive effects on revenue growth. Firms that make more investments earn higher revenue growth than firms make less investments. In the robustness check, we use investment (the dependent variable used in chapter 5) instead of capital stock and the result does not change. Therefore, we conclude that investment is an important channel of revenue growth. Especially for SMEs in emerging countries, where the level of

productivity and technology remains relatively low, relying on capital expansion to achieve a higher level of performance appears to be more plausible than improving performance by innovation or total factor productivity.

Finally, the performance of the ownership dummies is consistent with findings in previous literature (Fan, Huang, & Zhu, 2013; Lin & Bo, 2012). It is well established that state-owned firms perform worse than private firms regardless a fact that they are granted with several privileges and productive resources. This is due to the agency problem caused by the lack of efficient monitoring structure in SOEs. Thus, managers of state-owned firms have room to maximise their own benefits rather than pursuing value maximisation for the firms. This results in a relatively weak performance of SOEs in comparison with other ownership sectors. Meanwhile, foreign-owned firms in this study shows no statistically significant advance in terms of revenue performance compared to domestic SMEs. However, economically, FDI firms are slightly better than private firms. This indicates that the performance gap between foreign-owned firms and domestic private firms is gradually eliminated. Domestic firms may have successfully captured spill-overs from FDI firms in the last two decades since the open market policy was implemented (Kalra, 2015).

Figure 6.2 to 6.13: Predictive margins by age, size, ownership, and regions (12)

Figure 6.2

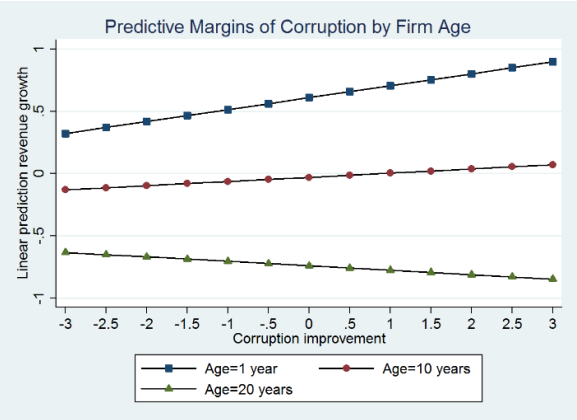


Figure 6.3

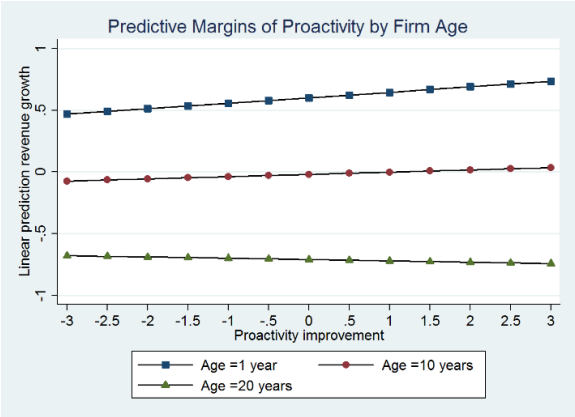


Figure 6.4

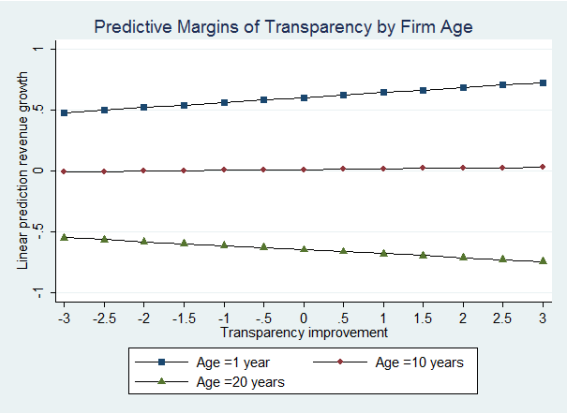


Figure 6.5

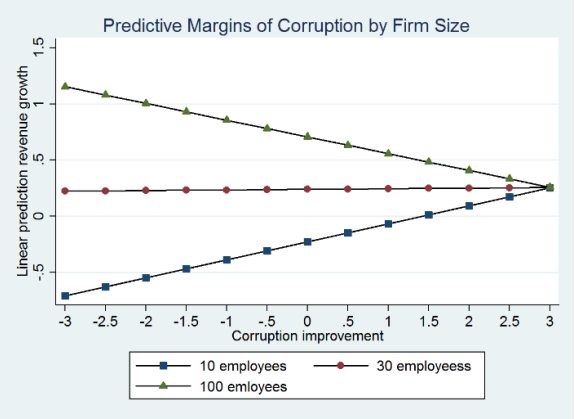


Figure 6.6

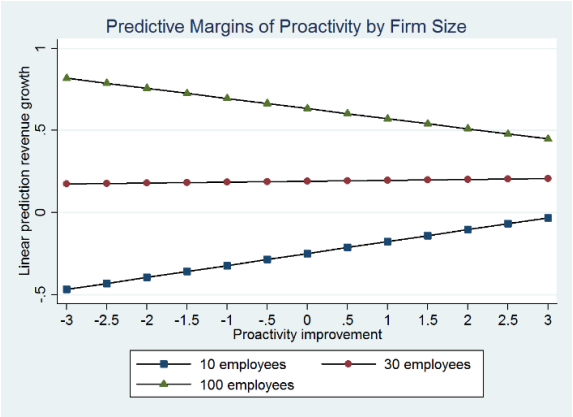


Figure 6.7

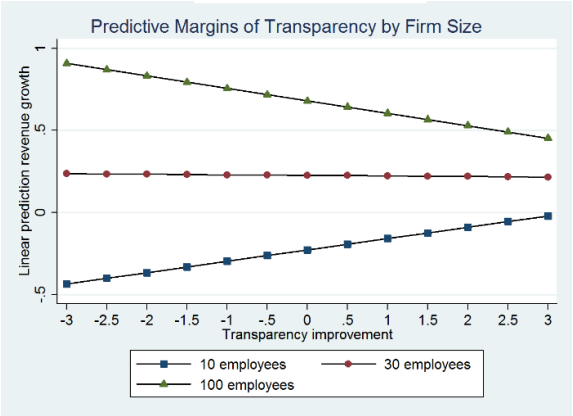


Figure 6.8

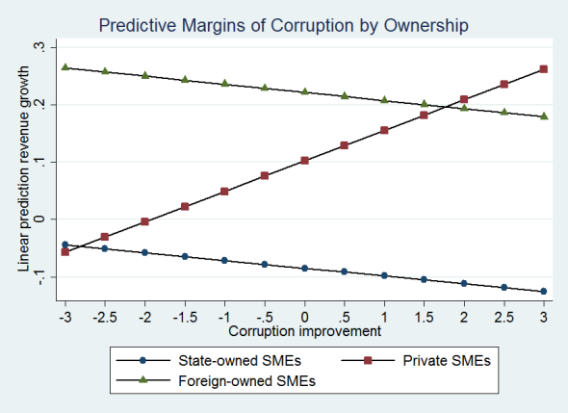


Figure 6.9

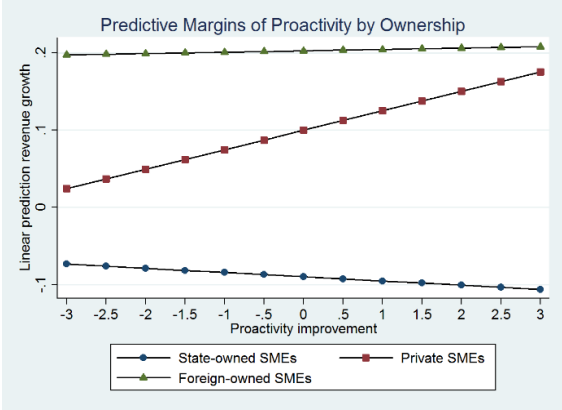


Figure 6.10

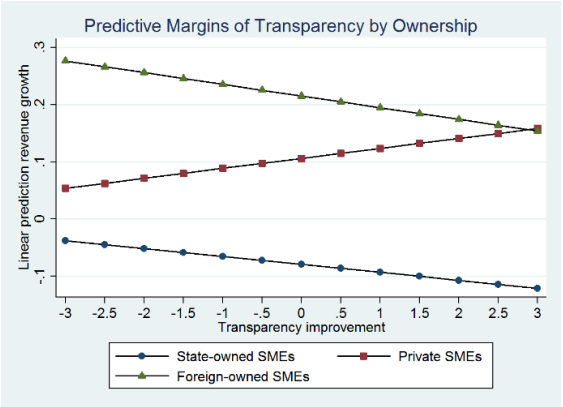


Figure 6.11

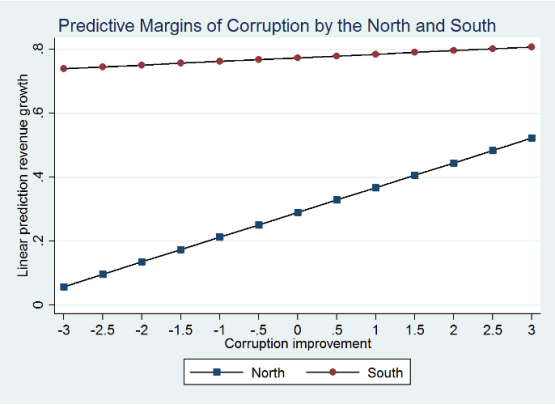


Figure 6.12

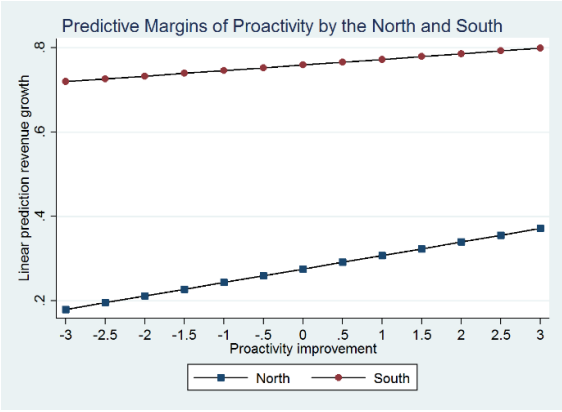
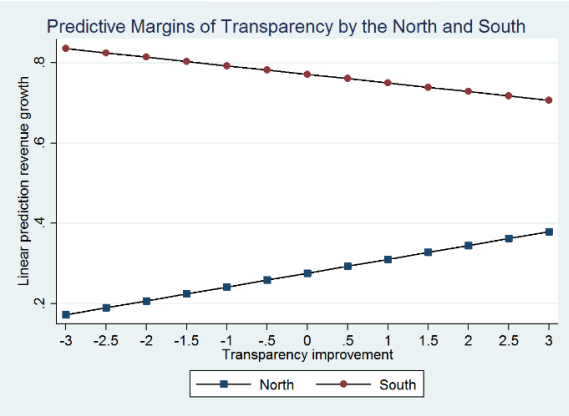


Figure 6.13



6.6 Robustness checks

6.6.1 Empirical specification

To double check the validity of the positive effects of local governance on firm performance, we include the South dummy in every specification. From the regressions testing for the difference between the North and the South of Vietnam, the coefficients associated with the South dummy are positive and precisely determined. This result indicates that South is an important variable to explain firm revenue growth performance. Therefore, to prevent the bias caused by missing relevant variables, we re-test the model including the South dummy in every specification.

We also replace the variable fixed assets as a ratio of total capital by investment variable. The use of the fixed assets variable as a proxy for investment could take into account information concerning firm level of technology or industrialisation. The reason is that this variable is a stock – which is the accumulated investments since firm establishment. In this robustness check, we directly use investment (change of capital stock) to replace the fixed assets variable. The use of investment variable may exclude some useful information but by nature, investment is a flow, which better fit into the theoretical model.

Moreover, we include a set of regional dummies. Provinces in Vietnam were grant autonomy to build their own governance and economic structure since the decentralisation 1991. To better control for regional specific time-invariant characteristics, we include a set of 6 regional dummies variables used in the previous chapter.

The results of these robustness checks are presented in Table 6.6 and 6.7. In general, the coefficients associated with governance variables remain positive and significant, indicating the strong relationship between local governance and firm performance. Therefore, it is concluded that the main hypothesis is strongly supported. In addition, the coefficients of the interaction terms between governance variables and firm age, size, and ownership dummies follow exactly the expectations of the hypotheses 2, 3 and 4. Therefore, it is evident to conclude that young,

small, and private firms are more sensitive to local governance than their large, old, and non-private counterparts are.

Table 6.6: Robustness check by alternative specification (46)

VARIABLES	REVENUE GROWTH						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Age	-0.0604***	-0.0601***	-0.0592***	-0.0599***	-0.0621***	-0.0604***	-0.0594***
	(0.00907)	(0.00909)	(0.00906)	(0.00908)	(0.00912)	(0.00909)	(0.00906)
Size	0.242***	0.241***	0.242***	0.241***	0.242***	0.241***	0.242***
	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)
Sate-owned	-0.168***	-0.169***	-0.168***	-0.167***	-0.169***	-0.169***	-0.167***
	(0.0582)	(0.0582)	(0.0582)	(0.0582)	(0.0583)	(0.0582)	(0.0582)
Foreign-owned	0.111	0.109	0.111	0.107	0.112	0.108	0.110
	(0.157)	(0.157)	(0.157)	(0.157)	(0.157)	(0.157)	(0.157)
Investment	0.639***	0.639***	0.638***	0.638***	0.639***	0.639***	0.639***
	(0.0189)	(0.0189)	(0.0189)	(0.0189)	(0.0189)	(0.0189)	(0.0189)
South	**2.040****	**2.054****	**2.019****	**2.055****	**1.996****	**2.020****	**2.000****
	(0.869)	**(0.858)**	**(0.843)**	**(0.861)**	**(0.836)**	**(0.853)**	**(0.845)**
Transparency	**0.0277*****			**0.0147*****	**0.0589*****		
	(0.00484)			**(0.00496)**	**(0.00641)**		
Proactivity		**0.0204*****		**0.0172*****		**0.0317*****	
		(0.00263)		**(0.00268)**		**(0.00435)**	
Corruption			**0.0376*****	**0.0339*****			**0.0543*****
			(0.00410)	**(0.00417)**			**(0.00596)**
South*Transparency					-0.0936***		
					(0.00958)		
South*Proactivity						-0.0204***	
						(0.00557)	
South*Corruption							-0.0355***
							(0.00783)
Observations	161,503	161,503	161,503	161,503	161,503	161,503	161,503
R-squared	0.358	0.358	0.358	0.358	0.358	0.358	0.358

Note: The results reported were estimated using the fixed effect panel estimator (*reghdfe in Stata*). The reference ownership is the private sector. The figure reported in parentheses are robust standard errors. Region dummies, industry dummies, and year dummies are included in each specification.

Table 6.7: Robustness check by alternative specification (47)

VARIABLES	REVENUE GROWTH								
	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Age	-0.0477***	-0.0553***	-0.0577***	-0.0536***	-0.0563***	-0.0593***	-0.0569***	-0.0586***	-0.0586***
	(0.00922)	(0.00904)	(0.00933)	(0.00914)	(0.00912)	(0.00909)	(0.00908)	(0.00909)	(0.00912)
Size	0.242***	0.241***	0.241***	0.239***	0.231***	0.246***	0.242***	0.241***	0.242***
	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)	(0.0101)
State-owned	-0.171***	-0.167***	-0.168***	-0.168***	-0.167***	-0.185***	-0.161***	-0.170***	-0.166***
	(0.0581)	(0.0581)	(0.0583)	(0.0581)	(0.0579)	(0.0582)	(0.0582)	(0.0581)	(0.0583)
Foreign-owned	0.111	0.106	0.114	0.113	0.118	0.106	0.112	0.105	0.119
	(0.157)	(0.157)	(0.158)	(0.157)	(0.158)	(0.158)	(0.157)	(0.157)	(0.157)
Investment	0.637***	0.637***	0.636***	0.640***	0.638***	0.638***	0.639***	0.639***	0.638***
	(0.0189)	(0.0189)	(0.0188)	(0.0189)	(0.0189)	(0.0188)	(0.0189)	(0.0189)	(0.0189)
South	**2.057****	**2.077****	**2.048****	**2.093****	**2.001****	**2.144****	**2.039****	**2.061****	**2.026****
	(0.885)	**(0.873)**	**(0.855)**	**(0.873)**	**(0.839)**	**(0.845)**	**(0.874)**	**(0.860)**	**(0.843)**
Transparency	**0.0736*****			**0.301*****			**0.0351*****		
	(0.00847)			**(0.0224)**			**(0.00529)**		
Proactivity		**0.0485*****			**0.198*****			**0.0243*****	
		(0.00490)			**(0.0121)**			**(0.00283)**	
Corruption			**0.119*****			**0.430*****			**0.0474*****
			(0.00762)			**(0.0189)**			**(0.00438)**
Transparency*Age	**-0.00565*****								
	(0.000724)								
Proactivity*Age		**-0.00315*****							
		(0.000391)							
Corruption*Age			**-0.00977*****						
			(0.000629)						
Transparency*Size				**-0.0767*****					
				(0.00591)					
Proactivity*Size					**-0.0501*****				
					(0.00314)				
Corruption*Size						-0.111***			
						(0.00489)			

Transparency*State							-0.0654***		
							(0.0131)		
Transparency*Foreign							-0.0570**		
							(0.0223)		
Proactivity*State								-0.0341***	
								(0.00843)	
Proactivity*Foreign								-0.0302***	
								(0.0112)	
Corruption*State									-0.0907***
									(0.0115)
Corruption*Foreign									-0.0740***
									(0.0162)
Observations	161,503	161,503	161,503	161,503	161,503	161,503	161,503	161,503	161,503
R-squared	0.372	0.374	0.379	0.381	0.374	0.380	0.371	0.375	0.372

Note: The results reported were estimated using the fixed effect panel estimator (*reghdfe in Stata*) controlling for multi-level structure of the data. The reference ownership is the private sector. The figure reported in parentheses are robust standard errors. Region dummies, industry dummies, and year dummies are included in each specification.

6.6.2 GMM estimator

As presented in previous chapters, GMM estimator is advanced in dealing with possible endogeneity of the right-hand side variables, as well as controlling for unobserved firm-specific heterogeneity. Thus, we re-run all specifications using the system GMM estimator as a methodological robustness check. The results are presented in Table 6.8 and 6.9 which follow exactly the pattern of the results found when using the FE estimator. Therefore, it could be concluded that the positive effects of local governance on local firm performance are robust and reliable.

Table 6.8: Results using GMM estimator (48)

VARIABLES	REVENUE GROWTH					
	(1)	(2)	(3)	(4)	(5)	(6)
Size	0.142***	0.141***	0.140***	0.142***	0.139***	0.124***
	(0.0251)	(0.0251)	(0.0251)	(0.0251)	(0.0253)	(0.0257)
Age	0.00684***	0.00689***	0.00685***	0.00689***	0.00698***	0.00680***
	(0.00116)	(0.00116)	(0.00116)	(0.00116)	(0.00117)	(0.00118)
Investment	3.130***	3.130***	3.124***	3.135***	3.149***	3.094***
	(0.0841)	(0.0841)	(0.0839)	(0.0842)	(0.0852)	(0.0854)
State-owned	-0.00487	-0.00518	-0.00396	-0.00504	-0.0104	0.00469
	(0.0134)	(0.0134)	(0.0134)	(0.0135)	(0.0136)	(0.0136)
Foreign-owned	0.145***	0.147***	0.145***	0.143***	0.158***	0.150***
	(0.0198)	(0.0199)	(0.0198)	(0.0198)	(0.0202)	(0.0200)
South	0.0748***	0.0727***	0.0691***	0.0708***	0.0526***	0.0518***
	(0.00656)	(0.00654)	(0.00650)	(0.00654)	(0.00780)	(0.00726)
Transparency	0.0236***			0.0488***		
	(0.00558)			(0.00710)		
Proactivity		0.0135***			0.194***	
		(0.00299)			(0.0189)	
Corruption			0.0320***			0.442***
			(0.00472)			(0.0410)
South*Transparency				-0.0748***		
				(0.0110)		
South*Proactivity					-0.109***	
					(0.0231)	
South*Corruption						-0.272***
						(0.0320)
Observations	161,503	161,503	161,503	161,503	161,503	161,503
AR (2)	0.15	0.17	0.15	0.15	0.15	0.16
Hansen (J)	0.07	0.07	0.06	0.07	0.06	0.06

Note: The estimator is SGMM (*xtabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications. The reference ownership is

the private sector. The figure reported in parentheses are robust standard errors. Region dummies, industry dummies, and year dummies are included in each specification.

Table 6.9: Results using GMM estimator (49)

VARIABLES	REVENUE GROWTH								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Size	0.142***	0.140***	0.137***	0.193***	0.188***	0.199***	0.142***	0.140***	0.138***
	(0.0251)	(0.0251)	(0.0250)	(0.00501)	(0.00501)	(0.00502)	(0.0251)	(0.0251)	(0.0250)
Age	0.00676***	0.00654***	0.00700***	0.00548***	0.00531***	0.00504***	0.00683***	0.00687***	0.00682***
	(0.00116)	(0.00116)	(0.00116)	(0.000947)	(0.000943)	(0.000936)	(0.00116)	(0.00116)	(0.00116)
Investment	**3.126*** **	**3.126*** **	**3.093*** **	**3.143*** **	**3.129*** **	**3.104*** **	**3.130*** **	**3.129*** **	**3.116*** **
	(0.0840)	(0.0841)	(0.0834)	(0.0842)	(0.0839)	(0.0833)	(0.0841)	(0.0841)	(0.0838)
State-owned	-0.00489	-0.00528	-0.00515	-0.0116	-0.0138	-0.0155	-0.00525	-0.00927	-0.00277
	(0.0134)	(0.0134)	(0.0133)	(0.0130)	(0.0129)	(0.0129)	(0.0134)	(0.0135)	(0.0134)
Foreign-owned	0.145***	0.147***	0.145***	0.114***	0.114***	0.116***	0.138***	0.134***	0.150***
	(0.0198)	(0.0199)	(0.0197)	(0.0150)	(0.0150)	(0.0149)	(0.0201)	(0.0204)	(0.0198)
South	**0.0748*** **	**0.0731*** **	**0.0677*** **	**0.0771*** **	**0.0726*** **	**0.0688*** **	**0.0748*** **	**0.0725*** **	**0.0687*** **
	(0.00656)	(0.00653)	(0.00648)	(0.00654)	(0.00648)	(0.00642)	(0.00657)	(0.00653)	(0.00649)
Transparency	0.0402***			0.253***			0.0298***		
	(0.00951)			(0.0240)			(0.00606)		
Proactivity		0.0290***			0.153***			0.0174***	
		(0.00543)			(0.0128)			(0.00321)	
Corruption			0.100***			0.378***			0.0401***
			(0.00822)			(0.0199)			(0.00503)
Transparency*Age	**-0.00208*** **								
	(0.000793)								
Proactivity*Age		**-0.00175*** **							
		(0.000437)							
Corruption*Age			**-0.00825*** **						
			(0.000675)						
Transparency*Size				**-0.0643*** **					

				(0.00627)					
Proactivity*Size					**-0.0394*** **				
					(0.00337)				
Corruption*Size						-0.0983***			
						(0.00513)			
Transparency*State							-0.0428***		
							(0.0166)		
Transparency*Foreign							-0.0697***		
							(0.0244)		
Proactivity*State								-0.0294***	
								(0.00961)	
Proactivity*Foreign								-0.0386***	
								(0.0126)	
Corruption*State									-0.0764***
									(0.0136)
Corruption*Foreign									-0.0594***
									(0.0172)
Observations	161,503	161,503	161,503	161,503	161,503	161,503	161,503	161,503	161,503
AR (2)	0.26	0.26	0.27	0.26	0.26	0.27	0.26	0.27	0.26
Hansen (J)	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14

Note: The estimator is SGMM (*xtabond2* in Stata). The instruments for difference equation are lagged 2 to 5 year level variables. The instruments for level equation are the difference of variables from 1 to 3 year lags. AR2 is autocorrelation test under the null that there is no autocorrelation in the transformed equations. Hansen (J) is over-identification test for the validity of the instruments, under the null that the instruments are valid and there are no misspecifications. The reference ownership is the private sector. The figure reported in parentheses are robust standard errors. Region dummies, industry dummies, and year dummies are included in each specification.

6.6.3 Financial crisis 2008

The 2008 financial crisis hits Vietnam economy severely (Pincus, 2009). From 2009, the central government employ several policies to eliminate the negative impact of the crisis on the private sector. One of the most important administrative policies is the decision to assign more power for local governments to select the most appropriate governance structure that could efficiently help local businesses to overcome difficulties (Lan Phi & Anwar, 2011). Therefore, the impact of local governance on local entrepreneurial sector may significantly different between the two periods. Table 6.10 and 6.11 presents the regression results before and after the crisis.

Table 6.10: Results on split sample by financial crisis (50)

	REVENUE GROWTH BEFORE CRISIS															
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Size	-0.139***	-0.144***	-0.146***	-0.141***	-0.134***	-0.126**	-0.145***	-0.150***	-0.143***	-0.151***	-0.134***	-0.143***	-0.144***	-0.142***	-0.148***	-0.147***
	(0.0508)	(0.0508)	(0.0508)	(0.0507)	(0.0487)	(0.0513)	(0.0508)	(0.0513)	(0.0509)	(0.0508)	(0.0499)	(0.0508)	(0.0511)	(0.0507)	(0.0509)	(0.0508)
Age	0.263***	0.263***	0.263***	0.263***	0.263***	0.262***	0.263***	0.259***	0.262***	0.270***	0.263***	0.263***	0.263***	0.263***	0.263***	0.263***
	(0.0292)	(0.0292)	(0.0292)	(0.0292)	(0.0292)	(0.0292)	(0.0292)	(0.0293)	(0.0292)	(0.0294)	(0.0292)	(0.0292)	(0.0292)	(0.0292)	(0.0292)	(0.0292)
Investment	-0.200**	-0.194**	-0.192**	-0.199**	-0.201**	-0.187**	-0.191**	-0.201**	-0.194**	-0.200**	-0.197**	-0.197**	-0.195**	-0.201**	-0.192**	-0.188**
	(0.0818)	(0.0817)	(0.0823)	(0.0824)	(0.0819)	(0.0815)	(0.0821)	(0.0818)	(0.0817)	(0.0830)	(0.0820)	(0.0817)	(0.0825)	(0.0820)	(0.0820)	(0.0825)
State-owned	0.112	0.105	0.118	0.126	0.111	0.101	0.123	0.0999	0.106	0.0770	0.105	0.104	0.118	0.114	0.111	0.125
	(0.358)	(0.360)	(0.363)	(0.360)	(0.359)	(0.361)	(0.363)	(0.363)	(0.360)	(0.365)	(0.358)	(0.360)	(0.362)	(0.358)	(0.359)	(0.365)
Foreign-owned	**0.500****	**0.501****	**0.499****	**0.498****	**0.499****	**0.498****	**0.499****	**0.500****	**0.501****	**0.500****	**0.500****	**0.501****	**0.500****	**0.499****	**0.500****	**0.499****
	(0.0447)	(0.0447)	(0.0447)	(0.0448)	(0.0446)	(0.0447)	(0.0447)	(0.0447)	(0.0446)	(0.0447)	(0.0447)	(0.0446)	(0.0447)	(0.0447)	(0.0447)	(0.0447)
South	**2.920****	**2.919****	**2.934****	**2.936****	**2.919****	**2.916****	**2.930****	**2.917****	**2.921****	**2.889****	**2.920****	**2.918****	**2.933****	**2.918****	**2.918****	**2.920****
	(0.0626)	(0.0626)	(0.0626)	(0.0627)	(0.0627)	(0.0625)	(0.0629)	(0.0625)	(0.0628)	(0.0643)	(0.0627)	(0.0625)	(0.0627)	(0.0626)	(0.0626)	(0.0631)
Transparency	**-0.0213****			**-0.0238*****	**-0.0187**			**-0.0940*****			**-0.0243****			**-0.0139**		
	(0.00887)			(0.00902)	(0.0147)			(0.0340)			(0.0102)			(0.0127)		
Proactivity		0.00224		0.00517		-0.0162			-0.0120			0.00138			-0.00603	
		(0.00692)		(0.00706)		(0.0123)			(0.0272)			(0.00761)			(0.00980)	
Corruption			0.0177	0.0187*			0.00656			0.132***			0.0159			0.000519
			(0.0112)	(0.0113)			(0.0203)			(0.0453)			(0.0124)			(0.0160)
Transparency*Age					-0.000329											
					(0.00119)											
Proactivity*Age						0.00208**										
						(0.000891)										
Corruption*Age							0.00133									
							(0.00153)									
Transparency*Size								0.0189**								
								(0.00785)								
Proactivity*Size									0.00384							
									(0.00642)							
Corruption*Size										-0.0305***						
										(0.0108)						

Transparency*State											-0.0121					
											(0.0232)					
Transparency*Foreign											0.0446					
											(0.0277)					
Proactivity*State												0.0113				
												(0.0178)				
Proactivity*Foreign												-0.0109				
												(0.0405)				
Corruption*State													0.0268			
													(0.0328)			
Corruption*Foreign													-0.0112			
													(0.0503)			
South*Transparency														-0.0148		
														(0.0171)		
South*Proactivity															0.0179	
															(0.0134)	
South*Corruption																0.0347
																(0.0228)
Observations	39,837	39,837	39,837	39,837	39,837	39,837	39,837	39,837	39,837	39,837	39,837	39,837	39,837	39,837	39,837	39,837
R-squared	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473	0.473

Note: The results reported were estimated using the fixed effect panel estimator (*reghdfe in Stata*) controlling for multi-level structure of the data. The reference ownership is the private sector. The figure reported in parentheses are robust standard errors. Region dummies, industry dummies, and year dummies are included in each specification.

Table 6.11: Results on split sample by financial crisis (51)

	REVENUE GROWTH AFTER CRISIS														
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Size	-0.00793	-0.00692	-0.00619	-0.00765	-0.0113	-0.0121	-0.0322*	-0.0155	-0.0142	-0.0206	-0.00810	-0.00782	-0.00994	-0.00676	-0.00652
	(0.0165)	(0.0166)	(0.0165)	(0.0166)	(0.0165)	(0.0165)	(0.0169)	(0.0165)	(0.0166)	(0.0165)	(0.0165)	(0.0165)	(0.0165)	(0.0165)	(0.0166)
Age	0.291***	0.291***	0.292***	0.290***	0.291***	0.291***	0.290***	0.282***	0.280***	0.288***	0.291***	0.291***	0.291***	0.291***	0.291***
	(0.0138)	(0.0138)	(0.0138)	(0.0138)	(0.0138)	(0.0138)	(0.0138)	(0.0139)	(0.0138)	(0.0138)	(0.0138)	(0.0138)	(0.0139)	(0.0138)	(0.0138)
Investment	**-0.0378**	**-0.0372**	**-0.0347**	**-0.0394**	**-0.0389**	**-0.0362**	**-0.0396**	**-0.0447**	**-0.0415**	**-0.0509**	**-0.0392**	**-0.0402**	**-0.0386**	**-0.0366**	**-0.0381**
	(0.0970)	(0.0969)	(0.0970)	(0.0970)	(0.0970)	(0.0969)	(0.0969)	(0.0969)	(0.0967)	(0.0970)	(0.0971)	(0.0970)	(0.0970)	(0.0969)	(0.0969)
State-owned	0.0264	0.0255	0.0290	0.0243	0.0265	0.0250	0.0305	0.0305	0.0298	0.0192	0.0174	0.0167	0.0300	0.0273	0.0243
	(0.159)	(0.160)	(0.159)	(0.160)	(0.159)	(0.160)	(0.160)	(0.159)	(0.160)	(0.160)	(0.159)	(0.159)	(0.159)	(0.159)	(0.160)
Foreign-owned	**0.450*****	**0.447*****	**0.449*****	**0.448*****	**0.450*****	**0.448*****	**0.452*****	**0.452*****	**0.448*****	**0.451*****	**0.449*****	**0.447*****	**0.449*****	**0.450*****	**0.449*****
	(0.0233)	(0.0233)	(0.0233)	(0.0233)	(0.0232)	(0.0233)	(0.0233)	(0.0232)	(0.0232)	(0.0233)	(0.0232)	(0.0233)	(0.0233)	(0.0233)	(0.0233)
South	**2.285*****	**2.249*****	**2.191*****	**2.308*****	**2.307*****	**2.270*****	**2.218*****	**2.391*****	**2.282*****	**2.312*****	**2.303*****	**2.261*****	**2.200*****	**2.153*****	**2.178*****
	(0.500)	(0.503)	(0.499)	(0.505)	(0.500)	(0.505)	(0.510)	(0.499)	(0.516)	(0.512)	(0.501)	(0.504)	(0.501)	(0.504)	(0.501)
Transparency	0.0478***			0.0390***	0.0608***			0.284***			0.0541***			0.0676***	
	(0.00659)			(0.00686)	(0.0120)			(0.0272)			(0.00724)			(0.00826)	
Proactivity		0.0227***		0.0186***		0.0308***			0.131***			0.0254***			0.0365***
		(0.00285)		(0.00291)		(0.00534)			(0.0118)			(0.00310)			(0.00496)
Corruption			0.00803*	0.00169			0.0441***			0.202***			0.0135***		
			(0.00435)	(0.00447)			(0.00771)			(0.0161)			(0.00463)		
Transparency*Age					-0.00151										
					(0.000962)										
Proactivity*Age						-0.000885**									
						(0.000410)									
Corruption*Age							-0.00419***								
							(0.000610)								
Transparency*Size								-0.0639***							
								(0.00674)							
Proactivity*Size									-0.0296***						
									(0.00290)						
Corruption*Size										-0.0531***					

										(0.00396)					
Transparency*State											-0.0218				
											(0.0190)				
Transparency*Foreign											-0.105***				
											(0.0276)				
Proactivity*State												-0.0125			
												(0.00973)			
Proactivity*Foreign												-0.0293***			
												(0.0103)			
Corruption*State													-0.0362***		
													(0.0120)		
Corruption*Foreign													-0.0453***		
													(0.0140)		
South*Transparency														-0.0740***	
														(0.0138)	
South*Proactivity															-0.0243***
															(0.00618)
South*Corruption															
Observations	129,410	129,410	129,410	129,410	129,410	129,410	129,410	129,410	129,410	129,410	129,410	129,410	129,410	129,410	129,410
R-squared	0.379	0.379	0.379	0.379	0.379	0.379	0.379	0.380	0.379	0.380	0.379	0.379	0.379	0.379	0.379

Note: The results reported were estimated using the fixed effect panel estimator (*reghdfe in Stata*) controlling for multi-level structure of the data. The reference ownership is the private sector. The figure reported in parentheses are robust standard errors. Region dummies, industry dummies, and year dummies are included in each specification.

Before the crisis, local governance has little influence on local SME performance. The coefficients associated with proactivity and corruption are mostly insignificant. More interestingly, the coefficients of transparency are negative and precisely determined. This result indicates that before the crisis, if local governments improve their governance transparency, this will hurt the performance of local firms. This finding is consistent with de Jong et al. (2012) arguing that in Vietnam, entrepreneurial performance is a U-shaped function of governance quality. Specifically, when governance quality improves by a small degree, firms will find it is difficult to rely on "back door" relationship to make transactions. Therefore, institutional improvement will have negative impact on firm performance in the short-term. In the long-term, when governance quality has reached to a certain high level, local firms have already familiar with arm-length transactions, which are usually lower costs than back-door relationship, the average performance of SMEs will increase again.

Their argument is evident by our regression results after the financial crisis. In this period, local governments are forced to transform their governance system, actively improve their institutional environments on the one hand by the pressure of the crisis, on the other hand by the requirements of the WTO. Thus, local governance after 2008 turns to have positive impact on local SME revenue growth performance. Moreover, the coefficients of the interactions terms between firm age, size, and ownership dummies with local governance variables follow exactly our expectation as well.

6.7 Discussion

6.7.1 Link to the extant literature

This chapter expands both financial constraint literature and entrepreneurship literature by providing meaningful insights into the influence of local governance on firm investments, and the moderating effects of financial constraints on local governance effects. It confirms the findings of Johnson et al. (2002), McMillan and Woodruff (1999), and Cull, Xu, and Zhu (2009) that secure property rights are a significant predictor of firm investments. In this chapter, we are not restricted

to property rights only but further broaden the scope of institutional factors to five dimensions, including both formal and informal forces. Unlike Johnson et al. (2002), who argue for the overwhelming role of property rights, we suggest that it is the entire governance structure that influences local SME investment decision. We show that legal enforcement, market-access regulations, and economic regulations are important formal governance forces that will shape local entrepreneurs' incentive of making investments.

In addition, our findings strongly support Goto (2012) argument that while informal institutions in emerging countries play a key role in facilitating economic transactions, without complementing formal institutions, it will constrain prospects of business growth. Specifically, we show that financially constrained firms are more sensitive to formal governance arrangements including legal enforcement, market-access regulations, and economic regulations. This results evident that hard-infrastructure is the foundation for cash-flow poor firm to make investments. Our results, moreover, expand Goto (2012) by showing that informal governance is not dependent on formal governance, but they are rather independent governance arrangements, which could directly influence local entrepreneurship. We agree with Goto (2012) that the development of formal institutions such as information sharing mechanism (in our paper which is represented by the economic regulation variable) and establishing formal sanctioning mechanisms, including effective courts (in our paper which is represented by legal enforcement variable), will prove effectiveness to stimulate business opportunities and growth.

From another perspective, Dinh et al. (2013) argue that firms receive subsidised loans are likely to use this amount of capital to invest in speculative activities such as real estate and stock market trading. Only a small proportion of these loans are used to increase productive investments. Findings in this study suggest that the most effective and plausible assistance for entrepreneurship is to improve local governance arrangements. These improvements are non-financial, so that they

are not directly linked to firm properties. They are rather concerned with incentives and behaviours of entrepreneurs, which could sustainably help SMEs to sustainably grow without a costly monitoring system.

Concerning the informal governance forces, this study shows that corruption is most essential to local SME investments. We support de Jong et al. (2012) findings that corruption harms economic growth because it favours the state sector at the expense of the private sector; and that improving local governance structure could help mitigate corruption and stimulate economic growth. We further expand recent literature examining the impact of informal governance arrangements on entrepreneurship by incorporating informal policies as an explanatory variable. While most previous studies pay much attention to corruption only, we follow La Porta et al. (1999) and propose that the quality of governance is not merely corruption but also includes other factors such as bureaucracy compliance, administration transparency, and leadership activities. By studying informal governance arrangements in a whole, we on the one hand provide useful insights into the distinct effects of different informal forces to local SME investments, on the other hand, we call for a more throughout investigation of informal governance structure to deeper understand their nature, rather than examining individual forces separately (Tonoyan et al., 2010).

This chapter is also linked to the extant literature studying entrepreneurship in Vietnam. Our empirical findings support Tran et al. (2009) that provincial governance is economically and statistically significant in explaining cross-province differences in firm performance. At provincial level, they find that 1%-point improvement in governance practice could increase the daily value-added of an average firm by an amount equivalent to nearly three times per capita GDP per day. They suggest that improvement in providing market information, more secure land tenure and labour training assistance positively affect firm performance. In contrast, weaknesses in legal enforcement, administration system could reduce firm growth. Findings in this chapter is soundly

consistent with their arguments, and lead to a consensus that local governance is an important factor of the development of the entrepreneurship sector in Vietnam.

In another perspective of local governance, our study is strongly linked to Hanh Pham and Nguyen (2013) and Tran et al. (2009). These authors argue that legal institutions are the main huddles of provincial GDP, while public administration reform exerts positive impacts on provincial GDP. Moreover, the dynamism of provincial leadership is positively influential to GDP as well. It is obvious that the focus of their study is on informal governance forces, which we found remarkably important to cash-flow rich firms in our study. While they recommend that local governments should modernise the public administration reform process, our findings allow us to make more suggestive recommendation, which is to prioritise resources to the most relevant governance forces. Because each governance force exerts different effects on local firms, especially between cash-flow rich and cash-flow poor firms, local governments should allocate resources to those governance forces that most relevant to the developmental level of local entrepreneurship sector.

At firm-level perspective, our study serves as a further empirical evidence supporting the argument of Nguyen et al. (2013a) that local institutions are essentially important for firm performance. They argue that conducive local governance helps firms to internationalise their activities (e.g. export), thus improve firm performance ultimately. In contrast to their method, we rely on the institutional theory to explain directly the effects of local governance arrangements on firm investments. However, our key message is consistent with Nguyen et al. (2013a) that improving local governance is a plausible and low cost approach to achieve higher performance of local entrepreneurship sector.

Besides economic performance, literature also links local governance to local welfare of households. Le (2014) find that in provinces with high institutional reform, the welfare of rural households improves. Our paper even though focuses on economic entities (i.e. firms), also

supports this view point. Moreover, likewise Le (2014), out study suggests that institutional reforms in Vietnam appear to be sluggish recently. Therefore, either to improve household welfare or to boost SME investments, findings in this chapter suggest that local governments will need to maintain its development and accelerating the process of reforms.

6.7.2 Contributions and implications

This chapter follows the call of Williamson (2000) to further develop the new institutional economics theory by moving down from the first and second levels – informal and formal institutions respectively to the third level –institutions of governance. By extending Rothstein and Teorell (2008), this study proposes that the quality of local governments including freedom from corruption, administration transparency, and leadership proactivity in designing and implementing entrepreneurship-friendly policies are important dimensions of local governance. While most existing studies focus on the impact of national broad institutional configuration on entrepreneurial activities, this study proposes that local governance arrangements may be of more significant influences on local entrepreneurship sector. This argument is based on observation that SMEs are typically young and small, thereby being geographically constrained to local business environments which are strongly shaped by local governance structures (Aidis, 2005; Carlsson et al., 2013).

This study also distinguishes the old versus the young, and the small versus the large SMEs to examine their potential dissimilar responses to local governance arrangements. The results, in contrast to the findings of Du and Mickiewicz (2016) in the Chinese context, suggest that local governance matter more for young and small businesses rather than old and large ones. This study makes use of the resource-based view to rationalise the findings by reasoning that young age and small size are liabilities to SMEs. In this saying, old and large ones with accumulated capital and resources can alleviate these liabilities, thereby being less responsive to local governance improvements. Furthermore, we find that the private sector, due to the institutional biases, is more

sensitive to local governance compared to the state and foreign sectors. This result is consistent with most previous findings concerning the performance of economic sectors (Driffield et al., 2013; Du & Girma, 2012; Nguyen & Dijk, 2012; Xue, 2013).

This study moreover examines the linkage between informal institutions and local governance in the sense that pro-entrepreneurial culture could moderate the influence of local governance on SME performance. The empirical results indicate that the quality of governance and leadership proactivity of local governments matter more where local informal institutions are less supportive to entrepreneurship.

This study makes important contributions to entrepreneurship literature concerned with expanding institutional theories. The theoretical framework in this chapter argue that the movement of theory towards lower levels of institutions should be accompanied with the appropriate shift in the unit of analysis. The effect of governance is more salient at sub-national levels because governance is more as a concern about how governments deliver policies, rather than what they deliver (Rothstein & Teorell, 2008). Being consistent with this argument, it is reasonable to propose that local governments are more involved in the delivering process because they are at the very end of the governance system being in charge of implementing and enforcing central policies. Empirically, findings in this study show that besides freedom from corruption and transparency, the proactivity of local authorities also play an important role in facilitating local SME performance. This study highlights that the effect of proactive policies towards local entrepreneurship sector is especially crucial in emerging countries, where institutional frameworks remains underdeveloped and incomplete. Future research on this dimension of governance could further examine its potential moderating effect on the quality of government such as freedom from corruption and transparency.

The findings in this study also suggests some important implications for policymakers in transition economies. We believe that local governments could create a more even playing field for SMEs by

focusing on improving their governance quality. Because there is a convergence effect of local governance on firm size, local authorities are able to reduce the gap of revenue growth between small and large SMEs by improving local governance quality. The findings also suggest that in regions with less initial pro-entrepreneurial institutions, local governments could help facilitate local entrepreneurship sector by giving strong commitments to improving local governance quality. To entrepreneurs, the commitment and stability in policies and governance strategies of local governments could, to some extents, introduce similar incentives and trusts as the pro-entrepreneurial culture (North, 2006; Williamson, 2000). Since informal institutions take time to change, local governance should be the alternative instruments that governments in transition economies could utilise to maintain and accelerate the development of the entrepreneurship sector, which ultimately the growth engine of the whole economy.

6.8 Conclusion

Given that SMEs in emerging countries are typically financially constrained due to the institutional bias against the private sector, this chapter builds on the findings of chapter 4, further proposes that informal governance is of important impact on local firm growth performance. Using the same dataset as in chapter 4, we find that that improvements of local governmental corruption (less corruption), transparency, and leadership proactivity are positively associated with local firm revenue growth.

Moreover, we demonstrate that young, small, and private SMEs gain more benefits from governance improvements than do the old, large, and non-private SMEs. In addition, this chapter proposes that SMEs respond differently to the incentives provided by local governance arrangements depending on the pro-entrepreneurial culture. It is validated that local governance matters more where local pro-entrepreneurial history suggests less support for entrepreneurship.

Based on these findings, this chapter suggests that local governments could create a more even playing field for SMEs by focusing on improving governance quality. Because firms that are more sensitive to local governance are usually young, small, and private; by improving local governance environments, these firms could achieve better growth performance and upgrade their size.

In addition, the findings in this chapter also suggest that in regions with less initial pro-entrepreneurial culture, local governments could also help facilitate local entrepreneurship sector by giving strong commitments to improve governance quality. To entrepreneurs, the commitments and stability of local governments could, to some extents, introduce similar incentives and trusts as same as the pro-entrepreneurial culture does. Given the importance of local governance, it is crucial to allocate more resources (e.g., finance, autonomy) for local authorities so that they can improve their own institutional structures.

CHAPTER 7: CONCLUSION

This thesis was developed based on the principles of research, seeking to provide an innovative theoretical model examining the impact of entrepreneurs' self-finance and local governance arrangements on local entrepreneurship. In addition, it conducted several novel empirical tests concerning the proposed theoretical model in the context of weak institutional environment and underdeveloped financial market – Vietnam. This chapter summarises the main findings of the thesis, reviews main contributions to the extant literature, addresses limitations of the empirical studies, and suggests possible questions for future research.

7.1 Summary of key findings

This thesis contributes to the understanding of entrepreneurship in the context of weak institutional environments and underdeveloped financial markets. It examines several research questions about how financially constrained SMEs raise funds for new investment projects, how the investment decisions and revenue growth performance are influenced by local governance arrangements, and to what extent local governance effects are moderated by firm-level financial constraints and regional-level pro-entrepreneurial culture.

In a nutshell, this thesis provides empirical evidence to demonstrate that young and small businesses in weak institutional environments are severely financially constrained. However, they are able, to some extent, to overcome financial difficulties by raising capital from entrepreneurs, instead of being dependent on other external funds. The interesting point is that, the funding decisions of entrepreneurs are not homogenous on all firms but vary according to degrees of firm-level financial constraints.

Most financially constrained and least financially constrained firms could raise more entrepreneurs' self-finance than firms with average degrees of financial constraints. Moreover, old and large firms

encountering financial distress could raise significant entrepreneurs' self-finance in comparison to those with no financial difficulties. By highlighting these results, this thesis concludes that entrepreneurs' self-finance is an important financing source for new venture in emerging countries. Entrepreneurs seem to take risky investments, even when banks are not likely to lend, entrepreneurs appear to keep pouring money into financial distressed ventures, especially the large and old ones, with a hope that market situations may improve and will increase their equity claims.

About the relation between local governance and SME investments, this thesis suggests that local governance arrangements strongly influence local entrepreneurial investments. In particular, improvements in formal governance i.e., legal enforcement regulations, economic regulations, and market-access regulations can facilitate young and small firm investments; so do for the informal governance forces i.e., corruption and informal policies. Moreover, this thesis argues that inclusive governance arrangements do not only introduce more entrepreneurial investments but also lead to better firm growth performance. The positive relationship between local governance and local entrepreneurship is hypothesised by the fact that "strong" institutions of governance significantly reduce transaction costs, transaction risks, asymmetric information, agency costs, improve trusts among entrepreneurs, and trusts in governments. These benefits thus help firms to obtain more investment opportunities and achieve better performance.

Moreover, this thesis provides several propositions about the impacts of firm-level financial constraints and regional-level pro-entrepreneurial culture on the relationship between local governance and local entrepreneurship. Chapter 4 and chapter 5 suggest that firm-level financial constraints and regional-level pro-entrepreneurial culture could moderate local governance effects. Specifically, more financially constrained firms will make more investments when local informal governance improves. In contrast, less financially constrained firms will make more investments when local formal governance improves. We also demonstrate that the effect of local governance is

stronger in regions with initially less pro-entrepreneurial culture, compared to regions where institutional history suggests more support for entrepreneurship.

7.2 Key contributions

This thesis makes several theoretical contributions to the entrepreneurship literature. First, it introduces entrepreneurs' self-finance into the conventional investment models as an active financing source. By doing that, this thesis extends the current discussion on investment modelling for young and small firms in emerging countries. Previously, investment models are set up particularly for established organizations in well-developed financial markets. Therefore, the role of entrepreneurs' self-finance is not particularly important. Switching to the context of emerging countries, this thesis calls for more research on entrepreneurs not only as a source of human capital and entrepreneurial innovation but also as a source of financial capital for young and small firms. By examining entrepreneurs' self-finance in the context of very young and small firms in Vietnam, this thesis proposes that entrepreneurs are the investors that appear to make economically risky investments. Specifically, we find that entrepreneurs keep investing in financially distressed firms, especially when these firms are old and large. This gamble for resurrection behaviour, on the one hand, could help to maintain the entrepreneurial capital and facilitate entrepreneurial innovation; on the other hand, it may generate a group of "zombie" SMEs which burden rather than contribute to economic growth.

Second, this thesis contributes to the understanding of bank loans in financing SME investments. Banks have motivations to lend the most and the least financially constrained firms. This finding highlights the role of bank loans to young and small firms in emerging countries. In addition, this

thesis reveals that the pecking order of finance is not static[48]. For example, firms abundant in cash flow also use more bank loans to make investments. This thesis makes contributions by proposing that future research examining financing strategy of SMEs should make more appropriate assumptions about the pecking order of finance.

Third, this thesis extends the recent empirical literature concerning facilitating entrepreneurship in emerging economies. It demonstrates that in countries with weak institutions, there is a significant variation in local governance quality across regions. This implies that in order to facilitate entrepreneurship, it is crucial to pay attention to local governance arrangements rather than the very broad institutional configurations. Moreover, this thesis also makes contributions by distinguishing formal governance from informal governance. Formal governance forces are the written and explicit regulations about legal enforcement and local business environments; informal governance forces are the implicit codes of conduct about local officials' corruption and unofficial policies. By examining local governance arrangements in detail, this thesis suggests that governance is multi-dimensional and each dimension may have differed effects on local entrepreneurship.

Fourth, this thesis proposes that governance effects may be moderated by firm-level financial constraints. This finding contributes to the literature using institutional economics theory to account for entrepreneurial activities by showing that institutional effects are not homogenous on every firm, but they vary according to the degrees of financial constraints. Less financially constrained SMEs are better off from local informal governance, while more financially constrained SMEs gain benefits from local formal governance when making investments. The reason is that the two groups of firms have dissimilar operation strategies, so that they may need different sets of governance

[48] The pecking order theory suggests that the financing choices of firms are ordered in a hierarchical pecking order: internal financing, followed by debts and equity. This order emerged from the asymmetric information that cause the costs of raising capital increase accordingly (Myers, 1984).

arrangements. This finding is theoretically important to future research which aims to examine the distinctive effects of formal and informal governance on local entrepreneurship sector.

Finally, besides the moderating effects of firm-level financial constraints, this thesis suggests that regional-level pro-entrepreneurial culture could also influence the relationship between local governance and local entrepreneurship. This proposition makes contribution by answering the recent call in entrepreneurship literature to examine the interlinkage between levels of institutions. We find that local governance and pro-entrepreneurial institutions are substitutive. In regions with less pro-entrepreneurial culture, local governance could help local firms to improve growth performance. This thesis highlights that if local governments give sufficient commitments to local governance arrangements, this could generate a similar positive effect as the pre-entrepreneurial culture does. In general, the significance of local governance from several perspectives identified in this thesis is important to literature concerning improving entrepreneurship activities.

7.3 Managerial and policy implications

7.3.1 Chapter 4 implications

This chapter provides several important implications for entrepreneurs and policymakers. First, for entrepreneurs in emerging countries, they must financially well-prepared to cope with discriminations from the biased financial system. Findings in this chapter show that entrepreneurs' self-finance accounts for a substantial proportion in total investment compared to other financing sources. Bank loans – the second important financing source accounts for only 4% of total capital, compared to 17% of entrepreneurs' self-finance. Policymakers should pay attention that entrepreneurs in emerging countries thus must rely largely on the own capital to boost their venture growth by making small and continuous investments.

In addition, entrepreneurs should prepare to make additional investments in the case their ventures face financial distress. This study shows that firms cannot rely on bank loans to moderate their financial constraints; meanwhile, entrepreneurs appear to pour much capital into financial distressed businesses. Being aware of this investment behaviour could help entrepreneurs to adjust their investment plans. For example, entrepreneurs could avoid making hopeless investments just to satisfy their utility – blinded investment decisions. Since entrepreneurs are psychological tied to their businesses, it is sometime difficult to admit failure (Block, Sandner, & Spiegel, 2015). This may result in a situation that entrepreneurs will keep investing regardless the fact that the possibility for resurrection is very low.

Besides implications for entrepreneurs, this study implies several non-trivial implications for policymakers concerning facilitating entrepreneurship in emerging countries. First and most important, this study shows that banks are an important financing source, but their participation in funding SME investments is not correspondingly equivalent. Bank loans are the most popular and fundamental financial source for SMEs in emerging countries. While other advanced finance suppliers seeding entrepreneurship like crowdfunding, venture capital, angel funds, etc. are largely under-developed and costly to approach, it is even more essential to build up and maintain a well-functioning bank loan market. Insights from our paper indicates that there are at least two reasons that a well-structured bank loan system could improve SME investments and performance.

First, even though entrepreneurs' self-finance accounts for a large proportion of total investment, this source of finance is very limited and is not attached with any other value-added service. While other advanced financing sources come with more value-added products such as skill training and providing platforms for entrepreneurs to expand their business opportunities, bank loans at least come with a better monitoring structure. This could help SMEs to efficiently scan their investment projects, better understand the net present values of their projects, and have a pressure of making

repayments. These attached "services" provide entrepreneurs with more possibility of success to develop their ventures.

Second, our study shows that both banks and entrepreneurs appear to reluctant to make investments in firms with average degrees of financial constraints. These firms, however, are more likely to success and to transform into "large" size compared with their financially distressed counterparts. Because of the market-based incentive structure, this type of firms fail to attract as much capital as other types of firms do. To solve this problem, governments should set up a set an artificial incentive structure to attract finance from banks. For example, a tax bonus for banks that make investments in firms with average cash flow performance but could provide plausible business plans would help to solve the problem. Another solution is that the governments could provide subsidies for these firms via an interest reduction scheme. Banks as a key player in the financial markets will act as intermediates that help the governments to achieve their subsidies for firms with average levels of financial constraints.

However, it is noteworthy that it takes time and resources to adjust an entire financial system to a higher level of development. This process, sometime, may cost an economy decades or so. In the meantime, our study provides evidence that entrepreneurs are willing to make investments using their own capital. Governments could make use of this finding to start improving their governance quality with purpose. By improving the quality of governance, governments of emerging countries could send a signal to entrepreneurs that they support entrepreneurship as well as property rights related to entrepreneurial activities. If entrepreneurs trust governments, they are more likely to make investments using their saving and self-finance. This solution could help to maintain a high level of entrepreneurs' self-finance for SMEs while the economy is waiting for a modernised financial market.

7.3.2 Chapter 5 implications

Findings in this chapter imply several important implications for policymakers and entrepreneurs. First, this chapter shows that local governance is an important factor that could facilitate local SME investments. This finding, in contrast to a large body of entrepreneurship literature, proposes for the relative importance of local governments and their governance quality. By showing that surrounding governance arrangements are of crucial influence on firm investments, this study urges governments of emerging countries to pay more attention to the role of local governance system in the process of facilitating their local entrepreneurship.

Moreover, by separating governance into formal and informal forces, this study helps policymakers to set up a framework of governance structure, in which each governance force stands for a different influential position. We define formal governance as forces that could be directly measured and are regulated explicitly in written documents. They include market-access regulations, economic regulations, and legal enforcement. Among the three, our study reveals that market-access regulations appear to be most economically influential on SME investments. This finding is noteworthy for local governments to set up a lower entry benchmark for entrepreneurs by reducing administration burdens for small businesses when they apply for permits/licenses, and to ensure SMEs have access to land and land-use rights. These are the fundamental resources for a firm to make new investment projects. If local authorities fail to provide these productive resources, firms cannot, or will not make investments even when they are not financially constrained.

Meanwhile, this study also points out that informal governance could positively affect local firm investments. Between corruption and informal polices, corruption appears to have stronger effects on local SMEs. In comparison with informal policies, corruption could affect entrepreneurial investments more seriously as it is indirectly linked to property rights, and thus could significantly eliminate local SME investment incentives. In addition, corruption increases transaction costs and requires entrepreneurs to distract from their management tasks to involve in rent-seeking activities.

Therefore, unless corruption improves (less corruptive behaviours), entrepreneurs will not be able to make sustainably profitable investments.

In addition to formal and informal governance, this chapter provides useful insights into the moderating effects of firm-level financial constraints on governance forces. This is particularly important for policymakers in emerging countries where most SMEs suffer from severe financial constraints. We show that more financially constrained firms are more sensitive to formal governance forces when making investments. Given that financially constrained firms account for a large proportion of firm population in transition economies, this study suggests that governments should allocate more resources to improve fundamental regulations and formal institutional systems. By focusing on the hard-infrastructure, these countries could help young and small businesses to make more investments and grow faster.

In addition, findings in this study suggest that informal governance has stronger influence on less financially constrained firms' investment decision. This is also another tip for governments when designing their governance arrangements. Cash-flow rich firms are usually old and large firms, which account for a small proportion of population but their contributions are non-trivial. However, these firms usually find it difficult to deal with corruption and unclear regulations when making large-scale and high value-added investment projects. Therefore, local governments should pay more attention to reduce corruption and launch a set of entrepreneurial-friendly policies, if they decide to prioritise large firm investments rather than SME investments.

This result, moreover, implies that there is no common formula for all regions to achieve high entrepreneurial investments. It is local specific characteristics that will determine which governance forces that local governments should prioritise in a certain development period. This study proposes that provinces with more cash-flow rich firms should improve informal governance first; meanwhile, provinces with more cash-flow poor firms should improve formal governance first. It is

noteworthy that resources for local governments are limited, so that being able to efficiently allocate resources to governance forces that matter more to local entrepreneurial sector could determine the success of a region/province.

7.3.3 Chapter 6 implications

Findings in this chapter make several important implications for entrepreneurs and policymakers in emerging countries. First, by showing that local governance is of significant influence on local SME revenue growth performance, this chapter suggests governments should pay more attention to local governance – how governments exercise and delivery their regulations, policies, rather than merely focus on amending, revising the very broad general configurations. Together with findings in the last chapter, which shows that local governance is of important impact on local SME investments, this chapter once again emphasises the essential role of local governance arrangements on local SMEs growth performance.

Among the three informal governance forces, i.e., corruption, administration transparency, and leadership proactivity, we demonstrate that corruption is most influential on local SME performance. This finding is consistent with the results presented in the last chapter and support findings of previous studies (Anokhin & Schulze, 2009; Bowen & De Clercq, 2008; Nguyen & Dijk, 2012). Corruption is linked to property rights as it a measure of financial loss to entrepreneurs, so that it significantly affects entrepreneurs' incentives and behaviours. Meanwhile, transparency and proactivity although having statistically significant effects on firm performance, they are economically less important because these two forces are less directly concerned with financial issues. This finding suggests that local governments should pay more resources to reduce corruptive behaviours in their local governance system. By doing this, entrepreneurs will have more incentives to improve their firm efficiency and performance. Managing corruption is a plausible and sustainable solution for a long-term development of a region/province.

Findings in this chapter also reveal that young, small, and private SMEs are more sensitive to local governance than their large, old, and non-private counterparts. This is another tip for local governments in setting their governance structure. If local governments would like to facilitate entrepreneurial innovation, to establish an active businesses environment for SMEs, they must improve their local governance structure. Unless they do so, the performance of large, old, and non-private firms remains higher than SMEs. This performance gap is the root of the un-even playing field problem in which SMEs suffer from discriminations from the surrounding governance system.

It is noteworthy that while improved governance arrangements will make local young, small, and private SMEs grow faster, it may have negative effects on the performance of large, old, and non-private firms. This negative effects, however, is insignificant and only temporary. The reason is that large, old, and non-private firms may find it unfavourable to make arm-length transactions without "back-door" or informal relationships. Less corruption, better transparency, and more proactivity may take away privileges and scare resources previously reserved for large, old, and non-private firms, forcing them to compete fairly with the entrepreneurial sector. This could temporarily hit their performance, but in the long-term, stronger informal governance system benefits all economic actors in general (Tonoyan et al., 2010).

Another important implication could be drawn from this study is the moderating effects of informal institutions on local governance. We demonstrate that in provinces with less initial pro-entrepreneurial culture (i.e., less social acceptance on private businesses), local governments could facilitate local entrepreneurship performance by improving their local governance structure. In other word, we show that governance quality and informal institutions are of similar effects on entrepreneurship. Therefore, local governments should give strong commitments to improve their local governance structure as an alternative support to the lack of the pro-entrepreneurial culture. This finding is crucially informative to local governments concerning facilitating entrepreneurship

but not historically granted a strong entrepreneurship culture in their local environment. The key message is that if entrepreneurs trust in governments that local authorities are building a governance structure that is friendly to entrepreneurship, they will be more motivated to improve their performance and expand their operations.

In general, the key policy implications drawn from this chapter could be summarised that: local governance arrangements, especially the informal forces could significantly influence local entrepreneurial performance. This effects is stronger for young, small, and private SMEs, as well as for provinces with less initial pro-entrepreneurial culture. Local governments are thus recommended to revise and improve their governance structure, especially corruption behaviours of local officials. This method could, in short- and medium-terms, facilitate local entrepreneurship without a need for a costly adjustment of the very broad general configurations.

7.4 Limitation and suggestion for future research

In this thesis, a number of limitations point to opportunities for future research. This section summarises the shortcomings and proposes research questions that could advance the findings in this thesis and make contributions to the field of entrepreneurship.

7.4.1 Chapter 4 limitations and possible future research questions

Chapter 3 links firm financial constraints with their choice of financing sources for new investments, i.e., investment sourced from bank loans and investment sourced from entrepreneurs' self-finance. It proposes that the use of bank loans and entrepreneurs' self-finance is a U-shaped function of financial constraints. Future research could explore how is the relationship of other financing sources with financial constraints. For example, it is important to study the linkage between the use of venture capital and financial constraints. Understanding of this relationship

could significantly improve the efficiency of venture capital used in the context of SMEs in emerging countries.

Examining the usefulness of alternative financing sources could also make significant contributions to the conventional theoretical models concerning organization investment behaviours. Chapter 3 extends the investment model to young and small firms by incorporating the role of entrepreneurs' self-finance. This advances our knowledge of investment decisions made by SMEs in underdeveloped financial environments. However, since the increasing popularity of alternative financing sources in emerging countries, it is important to improve the conventional theoretical models to account for the impact of the newly emerged financial alternatives on small firm investment decisions. Possible research questions could be: What are the channels that alternatives financing sources moderate small firm financial constraints? Is the use of financing sources a U-shaped function of financial constraints and why? How to successfully promote the use of alternative financing sources in emerging countries?

In addition, chapter 3 focuses only on the private sector. Future research could extent the research questions to other ownership sectors, i.e., state-own and foreign-own. It is interesting to investigate ownership sectors because firms in each sector have different operation motivations and face different (average) degrees of financial constraints. In emerging countries, private firms suffer from severe financial and institutional biases against their establishment and development. Therefore, compared to studies in developed countries, the comparison among sectors in developing countries is more theoretically important and practically meaningful to policymakers.

Moreover, although chapter 3 uses panel data to test the proposed hypotheses, the model set up in the theoretical section is purely static. It will be fruitful to examine the investment decisions of entrepreneurs with a time dimension. A dynamic model could help to explain how the motivation of entrepreneurs change with the growth of their ventures. This understanding is important to

policymakers because it could advice governments how to revise institutional frameworks that better support, nurture, and maintain entrepreneurial activities.

Last but not least, given that there may be reverse causal effect from the independent variables to investment (e.g., more investment may lead to larger firm size), this chapter employs the lagged independent variables as the instruments for the possible endogenous variables. This approach could mitigate the potential endogeneity problem. However, to improve the robustness of the results, future research could employ external instrumental variables (IV). The use of IV method with appropriate instrument variables is more valid to verify the findings in this chapter.

7.4.2 Chapter 5 limitations and possible future research questions

Chapter 4 investigates the impact of local governance on local SME investments, and how the governance effects are moderated by financial constraints. Although it is shown that firms that are more and less financially constrained are sensitive to different sets of governance forces, the concepts of "more financially constrained" and "less financially constrained" are not theoretically distinct. Future research could raise more questions concerning the definition and identification of degrees of financial constraints and their impact on the governance effects.

This chapter assembles the governance indices in term of their conceptual relatedness to generate governance variables used for the empirical testing. However, the low Cronbach alphas in the context of Vietnam may indicate that in weak institutional environments, there are more noises and unsystematic errors in measuring governance items. This provides an interesting research question for future study: to examine the factors that make governance forces in developing countries less consistent and stable.

In addition, chapter 4 provides evidence for the context of Vietnamese SMEs only. As it is widely recognised in the entrepreneurship literature, governance structures and institutional frameworks

are country-specific. They are strongly shaped by country history, political systems as well as other eco-social factors. Therefore, it is important to test the robustness of the findings in this chapter in other contexts. Future research could build in the proposed theoretical framework in this chapter and retest in other emerging countries. This will contribute to the generalisability of the findings and widen our knowledge of how local governance changes across study contexts.

Finally, the time horizon of the dataset used in this chapter is insufficiently long. The empirical testing in this chapter is restricted by the availability of the Provincial Competitiveness Index dataset (which is first fully conducted in 2006). Thus, it is of significant contributions to undertake a similar analysis using a longer timeframe with the expansion in the number of countries. This particular setting also allows a comparison of the relative importance between local governance and national institutions.

7.4.3 Chapter 6 limitations and possible future research questions

This chapter builds on the findings of the chapter 5. Chapter 6 pays attention to analysing informal governance forces because they are more important to financially constrained SMEs, which are the majority in the context of Vietnam. Therefore, as previously suggested, the findings in this chapter are country-specific. Especially in the case of Vietnam, due to the single Communist Party political regime, great power is centralised at the leader's disposal. Therefore, future research investigating informal forces of local governance may want to include a control for this crucial difference in political system.

Second, the use of the PCI indices to measure the quality of local informal governance is not completely satisfied. The survey questions focus on entrepreneurs' perceptions of local governance; therefore, survey outcomes may be subjective to the participants. Future research could carefully

design a more appropriate survey and collect primary data to retest the robustness of the results found in this chapter.

Third, with large sample size, the study easily incurs the risk of type one error. The results are statistically significant, simply because of large sample size (the weak law of large number). Therefore, to confirm the validity and the robustness of the findings in this chapter, it is important to re-test the model using other datasets. This could also improve the generalisability of the findings obtained in this chapter as well.

Last but not least, future research concerning the persistence of regional entrepreneurship culture between the South and the North of Vietnam could make use of other methods rather than using a dummy variable as in this chapter. Alternative methods that account for a number of substantial differences between the South and the North such as geographical, demographic, and economic factors could be more interesting to investigate institutional persistence.

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