THE DEVELOPMENT OF

SMALL AND MEDIUM ENTERPRISES IN VIETNAM

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ABSTRACT

Since starting her reforms in 1986, Vietnam has achieved remarkable successes and such successes have been arguably attributed to the development of the private sector, in general and the SME sector, in particular. It is easy to imagine, however, that the SME sector development could have been more successful if it has not been for such hindrance such as high production costs, poor quality of products, and low degree of innovativeness (e.g., CIEM, 2013). The causes behind them remain open questions. This dissertation attempts to address two of these issues. The first is related to the management capacity of the SMEs while the second is about the firm investment in the presence of high macroeconomic uncertainty. I find that the adoption of good business practices has a positive correlation with productivity, productivity growth, employment and employment growth. Moreover, each business practice indicator is associated with different performance indicators of different type of firms in a very different pattern. The empirical evidence further shows that good business practices are more likely to improve the performance of sole proprietorship firms than that of incorporated firms. With regard to factors that explain why some adopt better business practices while others do not, the estimation results suggest that firms having more employees with a university or college degree and firms having lower market power tend to adopt more good business practices. Relating the relationship between macroeconomic uncertainty and investments, the results shows that macroeconomic uncertainty has a negative and statistically significant effect on productive investment rate. I also find that there are heterogeneous effects of macroeconomic uncertainty on firm investment behavior. Firms without any contact in the banking sector, and without formal credits to finance their investment reduce their productive investment at the lower rate than other firms that have at least one contact in the banking sector, and/or access to bank credit. Meanwhile the estimation results also show that as macroeconomic uncertainty rises, the increase in the non-productive investment rate of firms that have at least a contact in the banking sector, or access to bank credits and/or be able to finance most of their investment by bank credit is larger than other firms. This suggests that firms in the more advantage position in terms of access to bank loans may channel a larger share of their available funds to non-productive investment during the period of high macroeconomic uncertainty.

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CHAPTER 1

INTRODUCTION

1.1 Overview

It is indisputable that the small and medium enterprise (SME) sector plays an important role in many countries, especially in developing economies where small-scale production is still dominant (Tybout, 2000). This sector generates a large number of jobs and income in many countries (Nichter and Goldmark, 2009). Mead and Liedhom (1998), for example, found that the SME sector generates nearly twice as many jobs as large private firms and the public sector combined. In many Latin American and Asian countries, micro and small enterprises employ over half the working population. ILO (2003) finds that firms with fewer than 10 workers created jobs for 58% of the total employment in Paraguay, 54% in Mexico, and 53% in Bolivia. The contribution of the SME sector to GDP varies considerably across countries. It is for example, 31% in the Dominican Republic, but it is as low as 11% in Pakistan and 13% in Kenya (Nichter and Goldmark, 2009). In any case, it should be noted that these figures do not fully capture the contribution of this sector to a country's GDP due to the widespread existence of informal firms (Gamser, 2003).

Vietnam has achieved remarkable economic growth and stability, foreign trade and investment expansion, poverty reduction, and human resource development since she started her economic reform in 1986. Such successes have been largely attributed to the development of the private sector, which in turn is dominated by a large number of SMEs, including numerous household business entities (e.g., Rand et al., 2008). The SME sector has contributed 39% of the gross domestic product (GDP) and 32% of the

total investment outlays in 2006 in this country. SMEs have also played an important role in creating jobs, maintaining the high mobility of the labor market, and narrowing the development gaps among the localities of the country. By 2005, 97% of the regular employees worked in the SME sector. Of all the registered capital, this sector accounts for 87% (Rand et al., 2008).

Since 2006, the country has been part of the World Trade Organization (WTO) which has brought about new opportunities for SME development, including easier access to imported intermediate goods as well as export markets. Participation in WTO, however, has brought intense competition to the domestic markets as well and, hence, created challenges for Vietnamese SMEs, many of which had had high production costs, poor quality of products, and a low degree of innovativeness (CIEM, 2013). While these constraints have been documented (e.g., CIEM, 2013; CIEM, DoE and ILLSA, 2014), the causes behind them remain open questions despite the SME sector's potential to be the agent of economic growth and job creation.

Empirical studies using firm level data have identified several factors that had impeded firm growth in developing economies. Nichter and Goldmark (2009) categorize such factors into four groups: (1) individual entrepreneur characteristics including owner/manager education level, work experience and household characteristics; (2) firm characteristics such as firm age, formality, and access to finance; (3) relational factors such as social and business networks; and (4) contextual factors such as the macroeconomic conditions and/or business environment. As to entrepreneurs, some recent arguments attribute the stagnated firm growth in developing countries to their poor management. A growing number of randomized experiments have been carried out in developing economies to determine if the management capacity of SMEs can be improved by training or coaching. The effect of

such experiments is mixed, however. Very few studies have found economic effects of such experiments. Such results have undermined the true impact of management practices that have been observed in developed economies. This suggests that more studies on the impact of business practices on firm growth and performance should be carried out in developing economies, using different sets of instruments or methodology.

With regards to the contextual factors, Bloom (2014) points out that compared to firms in developed economies, firms in developing economies are usually more likely to be exposed to uncertainty, including macroeconomic uncertainty. In fact, macroeconomic uncertainty not only affects the markets for outputs but also further dampens the input market imperfection in developing economies. Credit markets are usually tightened in times of crisis. This may further hinder firm's access to finance since banks are more reluctant to lend during periods of crisis.

This dissertation attempts to address two issues that have hindered the development of the SME sector in Vietnam. The first is related to management capacity, while the second is related to the causes of low and infrequent capital investment. I find that good business practices have positive and statistically significant impacts on productivity, productivity growth, employment and employment growth. The estimation results suggest that firms having a larger share of employees with university or college education and firms with lower market power, measured by the profit-cost margins, tend to have higher business practice scores. With regards to the effects of macroeconomic uncertainty on firm investment behavior, I find that macroeconomic uncertainty has a negative and statistically significant effect on the productive investment rate while it has a positive and statistically significant effect on non-productive investment rates. I also find a

significant heterogeneity effects of macroeconomic uncertainty on firm investment behavior (relating to both productive and non-productive investment) by several indicators including whether a firm has any contact in the banking sector, whether a firm can get bank credits and can use bank credits as their major source of funds to finance their investment or not.

1.2. Main findings and contributions

1.2.1. Business practices and productivity

Economists have long recognized that productivity varies considerably from firm to firm. Recent empirical studies have clearly shown that the productivity difference is observed among firms producing homogenous products such as cement (e.g., Syverson, 2004). Recently, a growing body of literature attributes this heterogeneity to differences in management. Theoretically, Lucas (1978) points out that firm size and management capacity have positive correlations. According to Bruhn et al. (2010), managerial capital affects the productivity though two channels. First, better-managed firms are more capable of improving the productivity of physical capital or labor. Second, better-managed firms can select the quantity of inputs used in the production process more appropriately.

While the important roles of management in determining firm performance have long been studied in other disciplines, it is new in economics. In their seminal paper, Bloom and van Reenen (2007) develop a measure of management practices and present evidence that the measure is closely correlated with those indicators of firm performance with which economists are familiar, such as productivity, growth, and survival by using firm-level data from Europe and the US. Bloom and Van Reenen (2010) and Bloom et al. (2012) apply the measure to firms in some emerging market economies and transition economies and find a highly significant correlation with total

factor productivity. McKenzie and Woodruff (2015) develop a similar measure suitable for firms in developing countries and also find a positive correlation between business practices and firm performance.

It seems to be useful to extend these studies in two directions. First, since the results of these studies are based on cross-section data, the analysis of panel data will help us understand the relationship between management practices and business performance better. A difficulty in doing such an analysis is that panel data sets that contain information on management practices are scarce since the measurement of management practices is relatively new in the economics literature. Second, the analysis of data from different countries will bring us a better understanding of the importance of management practices as a determinant of firm performance relative to governance, market-supporting institutions, and the degrees of infrastructure and educational development, among other factors.

Chapter 3 of this dissertation attempts to improve the analysis by using rich panel data collected from both small and relatively large firms bi-annually from 2005 to 2013 in Vietnam. The use of panel data is expected to mitigate the estimation bias problem arising from the correlation between the unobserved heterogeneity of firms and the adoption of good management practices. Three questions will be addressed in chapter 3. First, a number of studies have figured out the positive associations of the adoption of good business practices and firm performance, but only few studies look at the heterogeneity in adopting each of business practice indicators and in the correlation of each business practices and each firm performance indicator. Second, while some previous studies have found a positive correlation between the adoption of good business practices and firm performance, some others do not find such a relationship. These mixed results suggest that this relationship should be further

studied in different contexts with different sets of instruments. Third, the reason why some firms adopt good business practices while others do not is unclear, especially among micro, small and medium firms in developing economies. In this chapter, following Bloom and Van Reenen (2007) and McKenzie and Woodruff (2015), I construct a business practice score using seven business practice indicators. Fixed effects and fixed effects with instrumental variables estimators will be employed to examine to what extent these business practices explain inter-firm differences in productivity growth and what accounts for the different levels of business practice adoption among these firms.

The empirical analysis in this chapter show that the adoption of good business practices results in improvement in firm performance. On average, five (out of seven) business indicators have positive associations with firm productivity. In addition, most of selected business indicators are positively correlated with firm employment. I, however, find a heterogeneity in the associations between each business practice indicator and firm productivity and employment by firm type. The analysis also shows that each business practice indicator is associated with different performance indicators of different type of firms in a very different pattern.

The estimation results also indicate that the measured business practice score has a positive and statistically significant impact on productivity, productivity growth, employment and employment growth. These results complement empirical results in McKenzie and Woodruff (2015). I further estimate separately two groups of firms. The first group consists of household businesses and private business entities (so-called sole proprietorship firms), while the second group includes cooperative, limited company and joint stock companies (so-called incorporated firms). The empirical evidence shows a stronger effect of the business practice score on the performance of

sole proprietorship firms. With regards to factors that explain why some adopt better business practices while some others do not, the results suggest that firms having more employees with a university or college degree and firms having low market power, measured by the price-cost margins, tend to have a higher business practice score. This is in line with the theoretical predictions of Van Reenen (2011) and the empirical results of Bloom et al. (2012).

This chapter extends the literature in several aspects. First, this chapter is related to a large number of existing studies that examine the major sources of productivity differences (see Syverson, 2011). I examine how adopting business practices differs in informal and formal firms and whether the differences in the business practices adopted affect firm performance. While most of the current studies use data collected in developed economies, this chapter uses data from a lower-middle income country. Second, this chapter is also related to the growing literature on the impact of business training on firm performance. In recent years, a growing number of randomized experiments have been conducted in developing countries. Such experiments have shown that business training has a positive effect on performance, although the effects are rather weak due to a number of problems relating to the experiment design, implementation, and evaluation time frame. This chapter complements those studies by using a routinely collected dataset instead of using data collected in the framework of randomized experiments. It also supplements the current literature by examining the heterogeneity in the relationship among different business practice indicators and different firm performance indicators. Third, this chapter also attempts to explain why some firms adopt good business practices while some others do not. Such attempts are still few. Except for Bloom and Van Reenen (2007), Bloom et al. (2012) and McKenzie and Woodruff (2015), other studies using

data from developing countries are from randomized experiments, so it is rather difficult to explicitly examine this question. Using fixed effects estimators also helps to mitigate the endogeneity bias when using cross-sectional data, as in McKenzie and Woodruff (2015).

1.2. 2. Macroeconomic uncertainty and firm investment behavior

Chapter 4 examines the effects of macroeconomic uncertainty on investment behavior among SMEs in Vietnam. Recently, there has been a renewed interest in the analysis of the impact of uncertainty on firm-level investment in developing countries (e.g., Pattillo 1998; Bigsten et al. 2005; Bo and Zhang; 2002; Le et al. 2004; Demir 2009a, 2009b; Leefmans 2011; Kandilov and Leblebicioglu 2011; Bianco et al. 2013). While theoretical models offer different views on the role of macroeconomic uncertainty on firm investment (e.g., Dixit and Pindyck, 1994; Abel and Eberly, 1996; Bernanke 1983; Oi, 1961; Hartman, 1972; and Abel 1983), most empirical studies find only a negative relationship between macroeconomic uncertainty and firm investment (e.g., Bond and Meghir, 1994; Leahy and Whited, 1996; Guiso and Parigi 1999; Ghosal and Loungani, 1996; Bulan, 2005, Shaanan, 2005; Bloom, Bond and Van Reenen 2007; Baum et al., 2010). Moreover, such studies have examined the uncertainty-investment relationship in the context of developed economies. Empirical evidence on the relationship between macroeconomic uncertainty and firm investment in developing economies, especially that of SMEs, is relatively scarce, although firms in developing countries are faced with high and diverse uncertainty (Bloom, 2014). In fact, due to the highly imperfect capital market (Bigsten et al., 2005), literature related to investment in developing countries focuses on the role of access to capital in firm investment (e.g., Schiantraelli 1996; Kaplan and Zingales 1997; Demir 2009a). In general, the literature shows that both market imperfections and uncertainty are important factors affecting

firm investment decisions. Seminal papers by Aizeman and Marion (1999), Minton and Schrand (1999), and Caglayan and Demir (2014) treat these two factors together and examine their interactions in the analysis of the determinants of investment at the firm level. However, such studies are still rare.

Using the firm-level panel data of SME firms in Vietnam collected bi-annually from 2005 to 2013, a period considered as the most uncertain after Vietnam's market reform started in 1986 (CIEM, 2013), this chapter shows that macroeconomic uncertainty has a negative and statistically significant effect on the productive investment rate while it has a positive and statistically significant effect on the non-productive investment rate. The results also suggest that the negative effect of macroeconomic uncertainty on productive investment is smaller among firms that have no contacts in the banking sector, are able to access to bank loans and to finance most of their investment by bank credits than those firms that either have at least a contact in the banking sector, are more likely to access to bank loans or can finance most of their investments by bank loans. It also shows that an increase in macroeconomic uncertainty has a higher correlation with the increase in the non-productive investment rate, which is more reversible than a productive investment, among firms that have at least a contact in the banking sector or have access to bank credit or are able to finance most of their investments by bank loans. I also find that there is a heterogeneous effect of macroeconomic uncertainty by the firm's ownership type, but such an effect is rather small.

This chapter contributes to the literature in several ways. First, this chapter examines how financial condition affects firm's investment behavior. Instead of using

either a traditional approach (i.e. the cash-flow sensitivities) or direct elicitation,[1] to separate firms into credit constrained and credit unconstrained group, I, however, divide firms based on several indicators that reflect firm's advantage in access to bank loans, firm's access to bank loans and the role of bank loans in financing their investment. Secondly, this chapter extends the literature by examining the effects of macroeconomic uncertainty on small- and medium-sized firms' investments under different conditions in regard to their financial source of funding for investment. As mentioned earlier, most of the current empirical studies on investment using developing countries' data look at these issues separately,[2] mostly due to data limitations. The 10-year data span allows me to investigate the heterogeneity effects. Thirdly, this chapter is also related to the literature on the non-productive investment behavior of firms in the real sector in a developing country. While Demir (2009a, b) focuses on listed firms in Turkey and Argentina which are in their later stages of becoming developed economies, I focus on small- and medium sized firms in a developing economy in their early stages of industrialization. Moreover, to my knowledge, this study is among the few that explore the choice between productive and non-productive investment in small- and medium sized firms.

1.3. Organization of the dissertation

Chapter 2 reviews the literature related to the relationship between business practices and firm growth and the effects of macroeconomic uncertainty and credit constraints on firm investment. Chapter 2 also discusses the features of the data set used in my study and some descriptive statistics from the sample. Chapter 3

[1] While Kaplan and Zingales (1997) argued that cash-flow sensitivity does not fully reflect the firm's financial status, direct elicitation does not capture a firm's financial status but their needs of funds to further finance their investment opportunities (see more in section 3).

[2] There are some papers that examine the effect of credit constraint on firm investment during turbulent macroeconomic conditions, such as Bigsten et al. (2005). However, these papers do not explicitly quantify the effects of macroeconomic uncertainty or examine the effects of the volatility of macroeconomic variables on firm investment.

investigates the effects of the adoption of good business practices on micro and small firms' performance in Vietnam. Chapter 4 analyzes the impacts of macroeconomic uncertainty and credit constraints on firm investment. Finally, chapter 5 concludes the dissertation and discusses implications for future research and policy debates.

CHAPTER 2

LITERATURE REVIEW

This chapter reviews the literature on the obstacles for firm growth in developing economies. In doing so, I highlight the importance of (i) the adoption of standard business practices on firm productivity, especially among the small and medium firms; (ii) a stable macroeconomic environment and the accessing to credit for firm fixed asset investment.

2.1. SMEs and Binding Constraint of Enterprise Growth

Most of the firms in developing economies are small (see, e.g., Tybout, 2000; Bigsten and Söderbom, 2006; Ayyagari et al., 2007; and Nichter and Goldmark, 2009). Many studies have explored this phenomenon. They have identified several reasons for the persistence of slow growth of these firms in developing countries.

At the aggregate level, the major hurdle for firm growth is the imperfection in the factor market, which is reflected by the misallocation of resources and distortion in the factor market. Empirical evidence in developing countries have found that the misallocation of resources is attributed the productivity difference among firms across countries while market distortions hinder firms to optimally use production factors, thus explaining large differences in productivity among firms in the market (Bartlesman et al. 2009). Using firm level data in China, India and Chile, Hsieh and Klenow (2009) and Petrin and Sivandasan (2013) find that the misallocation of labor and capital inputs are the major sources of large productivity gaps between Chinese, Indian and Chilean firms.

Not only affected by the external factors, firm growth is limited due to firm-level constraints including (1) individual entrepreneur characteristics; (2) firm

characteristics; and (3) relational factors such as social and business networks. Among individual entrepreneurship characteristics, recent empirical evidence has indicated that the human capital of the firm owners/managers as well as of the employees, the shortage of managerial capital of the owners could be factors that explains the slow growth of firms. Theoretically, Lucas (1978) and Rosen (1982) models has shown that firm productivity is affected by the allocation of managerial capability within a firm as well as the allocation of factor inputs across managers of the firm.

2.2. Management and productivity

A large number of research have attempted to explore sources of firms' growth. At both macro level and micro level, standard growth theories have considered labor and capital as the major input for growth. Recently there are more evidence that managerial capital should also be considered as an input of production. Bruhn et al. (2010) propose that the managerial input can be viewed as a significant element of "intercept shifter" of the production function. In fact, this idea was initially proposed by Lucas (1978) in a model of firm size and it was then further expanded by Rosen (1982), Mundlak's (1961) (Bloom and Van Reenen, 2007; and Bruhn et al., 2010).

According to Bruhn et al. (2010), the managerial capital affects the productivity though two channels. First, better-managed firms are more capable to improve the productivity of other inputs such as capital or labor (Lucas, 1978). Second, better-managed firms can have an appropriate selection of quantity of inputs used in the production process. While the first channel is related to the effects of heterogeneity in firm productivity on output, the second channel suggests that resource constraints are function of managerial capital.

While the importance of management on firm's performance has been studied in other disciplines, it has not been widely studied in economics until recently. This, according to Bloom and Van Reenen (2010), is due to several reasons. First, economists for a long time have believed that profit maximization leads firms to minimize costs, thus firms' responses to market conditions by adjusting their management practices. Second, management is a complicated concept to measure. However, recently more and more research have attempted to estimate the impact of business practice on firm's performance. Bloom and Van Reenen (2007) construct a management practice score, which comprises of 18 management indicators in four broad areas: operations, monitoring, targets, and incentives. They relate this index with productivity using data from the UK, US, Germany and France and find that the correlation between a firm's management practice score and its total factor productivity is statistically strong and significant. Using the same management practice scores in both developed and developing countries, Bloom and Van Reenen (2010) find that the better managed firms tend to perform better and that differences in management practices explain difference in productivity and performance among firms and countries. Moreover, firms and countries usually are different in their attention to different aspects of management. They also find that firms, which face stronger product market competition, are likely to have higher management practice score and firms with higher level of human capital tend to have better management practices.

Another line of related research is to focus on how the managers can make differences by their either education or actions (e.g. Bertrand and Schoar, 2003; and Malmendier and Tate, 2009). For example, Bertrand and Schoar (2003) find that the identity of managers (particularly for CEOs) has a significant effect on firms' returns

on assets. These results reflect the performance differences that can be explained by the identity of the managers. Such results do not, however, answer the questions of what the managers do or know that affects performance. More recent works have started to explore how particular CEO practices and philosophies are tied to firm's performance.

Several recent studies suggest that management education, as well as management practices, are of lower quality in developing countries than in developed countries (Chaudhry, 2003; Bloom and Van Reenen, 2010 and Sonobe et al. 2011). Gine and Mansuri (2011) find that only 18% of Pakistani firms in their study separate the business expenditure from household expenditure and the same proportion keeps sales records. Similarly, only 27% of metalwork firms in Ghana keep their business record (Mano et al., 2012). This low rate of adoption of business practices may have caused the stagnated growth of small firms in developing countries. There has been an increase in the number of field experiments, which attempt to train small business owner in developing countries to carry out modern business practice. Through such business training, business owners are helped to improve their knowledge, and adopt business practices conducive to the success of their enterprises (McKenzie and Woodruff, 2014). Such scientific field experiments are ideal to see how the difference in adoption of business practices affects outcomes. Although such business training programs vary in length, contents, methods of training delivery and the targeted participants, major core topics such as accounting, financial planning, inventory management and marketing are still covered in most interventions (McKenzie and Woodruff, 2014).

The results from these field experiments are mixed, however. For example, Mano et al. (2012) and Gine and Mansuri (2011) find a statistically significant increase

in the survival likelihood among the firms participating in business training while Valdivia (2012) finds that the likelihood of survival declined for women-owned Peruvian firms participating in their business training. Results are also mixed when looking at business profit and sales. Some research (such as Berge et al. (2014), Calderon et al. (2012), De Mel et al. (2012) and Valdivia (2012)) find that training increases profit and revenue of the male-owned firms in the short run, but others find that training has no statistically significant effect on firms' profits or revenue is not statistically significant (e.g. Bruhn and Zia, 2013;, Gine and Mansuri, 2011; Mano et al., 2012). Similarly results are also found in Indian textiles firms. Bloom et al. (2013) implemented a randomized experiment which provided managerial support to the treated firms and within the first year, the productivity of these firms have increased by 17% and within three years, some treatment firms have opened new production facilities. The magnitude of such effects, however, is often small in absolute terms and therefore it is not easy to find a significant effect on the business performance (McKenzie and Woodruff, 2014). Even, in some cases, firms have reversed back to their old practices (Karlan et al., 2012).

Then, another question may arise: If the "standard" business practices are good for firms' performance, why don't they put such practices into operation? Bloom and Van Reenen (2007) offer three reasons why firms do not adopt the best practice: cost, agency considerations, industry heterogeneity and frictions. For example, carrying out advertising may increase the sales and to some extent help to improve productivity (when firms sell more, in the short run, they need to raise their productivity to catch up with the demand). However, if the product is homogenous, carrying out advertising will not bring any benefit while the cost may be high. Similarly, keeping an accurate accounting book involves many procedures and potentially requires firms to give up

their own long practiced customs. This process may hinder the owner/manager to change his/her accounting practice, especially when the firm size is small and the financial transaction is not huge and when the old system of reporting is perceived to work well. Using email in business also incur costs (including sunk cost, especially when not many customers and business partners adopt it). In reality, upgrading management is a costly investment and some firms may simply find that these costs outweigh the benefits of moving to better practices. However, if as long as the adopting better business practice have positive impacts on the productivity, firms will at least to continue to adopt such practice.

Another factor that affects the adoption of business practice is the product market competition. According to Bloom and Van Reenen (2007) and Van Reenen (2011), under a tough competitive environment, inefficient firms will find it difficult to exist in the market and they ultimately would be driven out of the market. Syverson (2004) finds that a tougher competition is associated with a higher average level of productivity and smaller differences in productivity among survival firms, thus firms have to increase their management efforts and to adopt new business practices and strategies to increase their productivity, and thus enhance their capability to compete with more efficient firms (Schmidt, 1997). Although carrying out such activities may incur some costs, firms operating in a highly competitive market environment may still have no other ways to do but implement better business practices.

Average education level of employees and of the managers/owners may also be associated with the adoption of better business practices. This could be because such employees are more familiar with the best practices used in their lines of works and are more supportive to implement them in their workplace. Moreover, if the production is improved due to the better management and the better use of inputs,

then having workers with high level of education is likely to have an impact on both productivity and management. In some cases, especially in production of homogeneous products, the higher level of workers' education may not translate directly to higher productivity, but through better management and better combination of inputs used in production.

In summary, theoretical and empirical evidence (especially those from developed economies) have shown that adoption of best business practice have positive effects on firm performance. Although there are some mixed results from field experiments in developing countries, they do not imply that the adoption of business practice has failed to improve firm's performance.

2.3. Uncertainty and investment

2.3.1. Uncertainty and investment

Theoretical foundation

There is an extensive literature on the relationship between investment and uncertainty. But, theoretically, how the uncertainty affects investment is inconclusive. According to the standard investment theory, firms would only invest in a project as long as the present value of expected cash flow gained from that project exceeds the total costs of investment. Thus, the value of total costs can be considered as the threshold value of investment. Although a higher degree of uncertainty may increase the threshold value of investment, and thus reduce the willingness to invest, the uncertainty-investment relationship may be more complex. This relationship may depend on the model specifications, the underlying assumptions about the risk behavior of the investor, the extent of competition in the output markets, the production technologies and the shape of the adjustment costs (Le et al., 2004).

With regards to risk behavior of the investors, Nickell (1978) argues that a risk adverse agent will invest less facing higher uncertainty, while a risk-taking agent will invest more the higher the uncertainty. Similarly, according to Nakamura (1999), uncertainty may have positive, negative or no effects on investment, depending on the tradeoff between the degree of relative risk-aversion and the elasticity of output to labor in the production function. This suggests that risk aversion discourages investment.

Hartman (1972) and Abel (1993) find that under perfect competition, constant returns to scale production function, higher uncertainty encourages firms to invest more since the marginal product of capital is a convex function of stochastic variables. However, if the assumptions of perfect competition and constant returns to scale are relaxed, the effect of uncertainty on investment is negative (Abel and Eberly, 1994; Caballero, 1991). Abel and Eberly (1999) argue that the relationship between investment and uncertainty may be represented by an inverted-U curve because of existence of two conflicting effects of uncertainty on investment: use cost effects and hangover effect. While, in the short run, an increase in uncertainty would raise the user costs of capital and thus reduce the investment, hangover effect, caused by the fact that irreversibility of the investment make disinvestment difficult, will encourage a firm to invest more than its desired levels in the long run. This may cause an inverted U-shaped between uncertainty and investment (Abel and Eberly, 1999).

Since the late 1980s, several authors have stressed the importance of investment irreversibility and the impact of this on the investment-uncertainty relationship (Bernanke, 1983; MacDonald and Siegel, 1986; Bertola and Caballero, 1994; and Dixit and Pindyck, 1994). This class of real-option theories argues that firms have a series of put-options on potential new investments. As the uncertainty is high,

the option-value of delay is also high. Thus uncertainty makes firms cautious in making decisions relating activities with high adjustment costs. However, real-option effects also depend on firm's ability to wait (Bloom, 2014). If the cost of waiting is too high, it will break the negative real-options effect of uncertainty on investment. Furthermore, real options require that actions taken now influence the returns to actions taken later so it's required that firms sell into imperfectly competitive markets and/or operate with a decreasing return to scale technology.

Empirical literature

Despite the theoretically inconclusive relationship between investment and uncertainty, the empirical studies generally have found a negative effect of uncertainty on investment, even when the irreversibility of investment is taken into account (Bo, 2001). However, comparing the findings from these studies seems to be difficult because (i) these studies use different measurements of uncertainty, (ii) different aggregate levels are used in empirical studies to explore the relationship between investment and uncertainty; (iii) investment irreversibility is also measured differently from studies to studies and (iv) it is also difficult to identify which approach is the most suitable one, except for using the firm level data. In fact, using firm level data allows one to capture idiosyncratic events that potentially affect firms' investment decision.

Although there are comparatively fewer studies for developing countries, findings from these studies are not much different from studies for developed economies. Using an accelerator investment model augmented by cash flow, and a uncertainty proxy, Lensink and Sterken (2000) find that Czech firms on average react to uncertainty positively. Bo and Zhang (2002) find that labor cost uncertainty has a positive effect on investment of collective firms in machinery industry in Liaoning

province, but it does not affect investment of state-owned enterprises. Le et al. (2004) find that uncertainty reduces investment of rice millers in the Mekong River Delta (Vietnam) in the presence of irreversibility. But the negative relationship between uncertainty and investment is not affected by degree of irreversibility. Pattillo (1998) finds that Ghanian manufacturing firms would delay their investment until the marginal revenue product of capital is equal to a firm-specific hurdle level. She further finds that a triggering hurdle level would increase as the level of uncertainty increases and that firms with more irreversible investment will reduce their investment much more than those with more reversible investment. Darku (2000) also finds that there is a negative relationship between uncertainty and investment among Ugandan firms and the effect is larger for firms with more irreversible investment. Recently, Leefmans (2011) finds that uncertainty has a significant negative effect on investment for Tanzanian medium and large firms, but not for micro and small firms. Meanwhile, for firms that have possibility to reverse their investment decision, the effect of uncertainty on investment becomes less negative.

2.3.2. Capital market imperfection and investment

Under the assumption of perfect capital market, the value of a firm is irrelevant of its capital structure (Modigliani and Miller, 1958). Firms should be indifferent between internal and external sources of funds, since they are perfect substitutes. Hence, any information related to the current liquidity of the firm should be irrelevant for investment. The presence of asymmetric information and incentive problems in the capital market, however, cause a cost wedge between internal and external funds. Jensen and Merkling (1976) point out that the conflict between firm's owner and its manager could raise the agency cost if the manager's interest is not perfectly aligned with that of owners. In this case, the manager finds it more attractive to use internal

funds to finance investment. Moreover, Jensen (1986) also indicates that shareholders and managers could conflict with each other on the use of free cash flow. Managers who prefer growth would overspend to derive more private benefits through increasing firms size, thus lead to overinvestment. Jensen and Merkling (1976) also argue that, the cost of external funds increases not only because of the conflict between managers and owners but also the conflict between banks (debt owners) and firms. The loan contract gives firms an incentive to invest suboptimally, especially in risky projects with large returns. If the project successes, firms would capture most of the gains while if the project fails, the banks would have to bear the consequences. In this case, external funds will be preferred. As long as the banks anticipate this behavior, they will demand a premium on the debt. Myers and Majluf (1984) show that if the banks are less informed than firm owners/managers about the firm's investment opportunities, they may ask for premium in order to offset for the potential losses incurring from financial lemons. This will push up the cost of external funds more than the cost of internal funds, thus firms will have to invest using their internal funds. Furthermore, Stiglitz and Weiss (1981) show that asymmetric information may cause credit rationing in the loan markets. Therefore, theoretically, for firms that face asymmetric information and incentive problem, liquidity is an important determinant of their investment decision.

A common feature of the empirical literature on the effects of asymmetric information and incentive problems is that they are based on the identification of a subset of firms for whom credit constraint is likely to be more important. Fazzari et al. (1998) argue that the investment-cash flow sensitivity should be interpreted as the evidence of credit constraint. Schiantarelli (1996), however, points out that using this indicator seems inappropriate since it does not take into account the firm's financial

status transitioned from one state to another state. Bond and Meghir (1994) and Alonso-Borrego (1994) allow firms to transit between financial states. They find that the cash-flow coefficient is wrongly signed and significant for credit constrained firms while it does not affect credit unconstrained firms' investment. Some studies portion firms by their affiliation to a business groups or by firm size. Hoshi et al. (1991), Schiantarelli and Sembenelli (1995), Cho (1995), Elston and Albach (1995) and Chirinko and Schaller (1995) find that cash flow is less sensitive for firms that are associated with a group and that group members relaxes credit constraint. With regards to firm size, Galeotti et al. (1994), Johansen (1994), and Carpenter et al. (1994) provide evidence that smaller firms are much more struggle to access to external finance.

While there are a large number of studies that look at the role of financial factors on firms' investment in matured developed economies, there is only a handful of papers that study the investment behavior of firms in developing and transitional economies. By partitioning Colombian firms based up on their accessibility to subsidized loans, Tybout (1993) finds that capital spending of the excluded firms (i.e. firms that are not able to access to subsidized loans) was constrained by the level of internal funds while firms that accessed to subsidized loans usually did not face such constraints. In Indonesia, Agung (2000) shows that small firms and private firms are among the most financially constrained firms. Similarly, for firms in transitional economies, while large firms and private-owned firms received a large amount of government subsidies, cooperative and small firms are difficult to access to the formal credit (Lizal and Svejnar, 2002). Athey and Laumas (1994) and Leaven (2003) argue that thanks to various policies that facilitate the development of the SME sectors in India and Korea, including policies enhancing a more equitable financial market, small

firms in these economies are easier to access to credit and thus they are less dependent on the internal funds for investment than the larger firms.

In the context of high uncertainty, one would also expect that the effect of financial market imperfection might intensify the effect of uncertainty. According to Aizeman and Marion (1999), nonlinear budget constraints and the consequences of capital market imperfection may lead to a negative effect of uncertainty on investment. Furthermore, Minton and Schrand (1999) assert that a higher level of cash-flow volatility increases the costs of external funds. Moreover, if the capital market is imperfect, the cost of external funds further increases. Therefore, according to Minton and Shrand (1999), the imperfect capital market further exacerbates the negative relationship between investment and uncertainty. Duchin et al. (2010) show that corporate investment declines significant during subprime mortgage credit crisis in the US and that the decline was greatest for firms having low cash reserve and/or operating in industries dependent on external finance. Similarly, results from the survey of Chief Financial Officer around the world also indicate that financial constrained firms planned to cut their investment during the crisis (Campello et al., 2010).

Overall, empirical evidence presented above have indicated that the cash flow-investment relationship under uncertainty is more sensitive for credit constrained firms than for credit unconstrained firms.

2.3.3. Portfolio choice

Financial capital market imperfection, as mention above is one of the major reason that cause the low investment rates in many developing countries. Financial liberalization, theoretically, is expected to deal with this problem. McKinnon (1973) and Shaw (1973) have pointed out that financial liberalization could help deepen the

capital market, cut the agency costs and reduce market failure due to asymmetric information and ultimately improve the efficiency. This, in turn, will boost investments and growth. However, financial liberalization may cause increasing volatility and uncertainty, financial cirisi and persistence of financial imperfection. In a more liberalized financial markets, firms will face a portfolio choice problem: they will have to choose between financial reversible investment or production asset irreversible investment. Theoretically, Tobin (1965) argues that rates of returns of each type of investment will determine how to allocate firm's portfolio. Similarly, Tornell (1990), Felix (1998) and UNCTAD (2006) also point out that high level of uncertainty will encourage firms to pour more money into reversible assets than into irreversible production assets. This prediction have been empirically tested using macroeconomic data in various OECD economies (see, e.g., Stockhammer, 2004; Crotty 2005, Dumenil and Levy, 2005; Epstein and Jayadev, 2005).

However, a few empirical evidence examines this issue in developing countries. Using firm-level data in some large emerging economies, Demir (2009a) finds that increasing availability and accessibility of alternative investment opportunities may channel a large share of firms' saving and/or earnings to short term financial asset. Using the same data, Demir (2009b) shows that firms may choose to invest in reversible short-term financial asset or to invest in irreversible long-term production assets depending on the rate of returns on each type of assets and the overall uncertainty in the economy. Moreover, increasing gaps between rates of returns on different types of investment and higher level of uncertainty reduces the production assets investment and increase the financial asset investment. The relationships are statistically significant.

2.4. Data sampling and collection

2.4.1. Sampling

The SME surveys in 2005, 2007, 2009, 2011 and 2013 included a comprehensive survey of between 2,500 and 2,800 enterprises in the same 10 provinces, namely Ha Noi, Vinh Phuc, Ha Tay, Hai Phong (Northern Vietnam), Nghe An, Quang Nam, Khanh Hoa (Central Vietnam), Lam Dong, Ho Chi Minh City, Long An and Dong Nai (Southern Vietnam). The population of private firms is derived from the Enterprise Censuses 2002-2012 and the Industrial Survey 2004-2006. Firms that do not satisfy conditions stated in the the Law on Enterprises of Vietnam were dropped from the firm population. Firms that do not formally register are also dropped from the sample. Due to lack of information regarding the nature of government and foreign investors in joint ventures firms, these firms are also excluded from the population.

Because a large number of firms in Vietnam do not formally register, that is, firms operating without a business registration license or tax code and not registered with District authorities, therefore ignoring these type of firms would not be able to capture accurate picture on the SME sector. This survey has attempted to include both registered and non-registered firms. Inclusion of both registered (formal) and non-registered firms (informal) is a unique feature of this survey. In this survey, all of non-registered firms are informal household firms. All of the informal firms included in this survey operate alongside officially registered enterprises. However, it should be noted that having a representative of non-registered firms is rather difficult. While formal firms are selected using firm population provided by the GSO, the informal firms are chosen from a list of non-registered firms provided by the local authorities. This implies that the sample of informal firms in this survey is hardly representative of the informal sector as a whole in Vietnam.

2.4.2. Implementation

The survey sample is randomly selected from the population of non-state firms, which in turns consists of lists of registered firms from the annual Enterprises Census and listed of non-registered firms provided by the local authorities. To ensure that the selected firms comprise ones with different ownership types, the survey organizers have adopted the stratified sampling strategy in each of 10 provinces. This strategy is necessary to include both sole proprietorship firms (i.e. informal firms) and incorporated firms (formal firms) in the sample. Furthermore, to replace firms that do not exist or ceased to exist but still in the lists of firms, other firms, closest to the missing firms in the lists, will be selected to substitute the missing ones. The replacement procedure will be decided on-site.

The questionnaire is rather long and complicated; the survey organizers held training courses for enumerators. Such training courses did allow enumerators to understand the questionnaires and avoid unnecessary misinterpretation of survey instruments. Moreover, such training courses also help the survey organizers to have valuable feedbacks on the questionnaire design from the enumerators.

Each year, ten survey teams in ten provinces carried out the data collection. The enumerators were from Institute for Labor Studies and Social Affairs (ILSSA), staff from provincial departments of Labor, Invalids and Social Affairs. The survey organizers, comprising project leaders from the Institute for Labor Studies and Social Affairs (ILSSA), researchers from the Department of Economics of the University of Copenhagen and the Central Institute for Economic Management, joined with the enumerators during the whole process of data collection and provided necessary guidance to the survey team. Each team was composed of one team leader (supervisor) and several interviewers, depending on the sample size in each province. The survey

was implemented from the middle of the year. In the first few months, and after training, enumerators visited the survey areas and confirmed whether firms that participated in the previous survey still existed or not. They also need to collect the list of informal firms from the local governments in order to randomly select the replacing firms, if any. The data collection at the firm level was usually started in the autumns. This task was usually carried out in three months. The major method of data collection was direct interview from personal visits to firms. The supervisors were responsible for initial checks. Random check (by the staff of survey organizers) and cross checks (among enumerators) were also adopted.

2.5. Data summary

Table 2.1 presents the sample in our data. In total, the sample includes nearly 1e,000 firm-year. In each year, there are about 2500 firms, except in 2005, the number of firm was 2,811 firms. Table 2.2 presents the distribution of firms by province. With regards to industry, firms are selected in the whole spectrum of industries, based upon 2-digit Vietnam industry classification standard. In this dissertation, due to small sample size, I re-categorized firms into seven industries, including agriculture-related industry, light industry, wood/furniture industry, chemical industry, non-metal production industry, heavy industry and other industry. Table 2.3 presents the distribution of firms by industry.

Firms that exit the market or decline to continue their participation in the survey account for about 20% of total firms. These firms are replaced by other firms, selected randomly from the list of firms compiled by the local authority and from the list of firms provided by the GSO. While the rows of the table present the entering time, the columns report the exit time. For example, there are 2,821 firms entering the survey in 2005. Among these firms, 538 firms exited in 2007, 430 firms exited in 2009

and so on. To replace exited firms, 352 firms started to join the survey in 2007. The figures for 2009, 2011 and 2013 were 553, 454, and 469, respectively. Table 2.4 compares major indicators of survival firms and firms that exited the survey. It is little surprised that exited firms seem to outperform the survival firms in most of performance indicators including total revenue, productivity, firm size (in terms of both employment and capital). But in terms of labor productivity, there is not different between exit firms and survival firms. For other indicators that are of interest in this dissertation such as business practice scores, investment rates, survival firms are also worse than exit firms, suggesting that exit firms may leave the survey purposely. This may cause a downward bias in the estimation results, thus such results should be interpreted cautiously.

CHAPTER 3

HOW DO BUSINESS PRACTICES AFFECT MICRO AND SMALL FIRMS' PERFORMANCE IN VIETNAM? A PANEL DATA ANALYSIS

3.1. Introduction

It is widely known that productivity varies considerably, even among firms producing homogenous products such as cement (Syverson, 2004). Recently, a growing body of literature attributes this heterogeneity to differences in management. Using firm-level data from Europe and the US, Bloom and Van Reenen (2007) and Bloom et al. (2012) find a strong and statistically significant correlation between management practices and total factor productivity. However, Bloom et al. (2012) argue that the management practices that are measured may not be suitable for small firms although they are common among relatively large firms.

To deal with this issue, McKenzie and Woodruff (2015) constructed a business practice score that seems more suitable for firms in developing countries and find a positive correlation between their measure of business practices and firm performance. Due to data limitations, McKenzie and Woodruff (2015), however, could not solve the endogeneity issue in their estimations. There may be time-invariant unobserved factors that have effects on both the adoption of business practices and firm performance. This chapter attempts to extend this line of research by using rich panel data collected from both small and relatively large firms from 2005 to 2013 in Vietnam (see, CIEM, DoE and ILSSA, 2010, 2014; CIEM, DoE, ILSSA and UNU-WIDER,

2012; Rand et al., 2008; Rand and Tarp, 2007).[3] The dataset contains five dummy variables indicating whether or not the firm uses emails in business activities, advertises, has accounting books, is a member of at least one business association, and has training activities for workers. It also contains two indicators representing a firm's market selections and input purchasing decisions: the percentage of output sold in, and the percentage of input purchased from, other provinces and international markets. I use fixed effect estimators to examine to what extent these business practices explain inter-firm differences in productivity and firm growth and what accounts for the different levels of business practices adopted among these firms. I also construct a business practice score and examine its association with firm performance, following Bloom and Van Reenen (2007) and McKenzie and Woodruff (2015).

The empirical analysis shows that that there is a heterogeneity in adopting business practices among firms. Moreover, I also find that the way in which business practice indicators are associated with firm performance indicators are very heterogeneous. The estimation results indicate that the business practice score, an aggregated indicator, has a positive and statistically significant impact on productivity, productivity growth, employment and employment growth. These results complement the results in McKenzie and Woodruff (2015), who use cross-sectional data of small firms in Bangladesh, Chile, Ghana, Kenya, Mexico, Nigeria and Sri Lanka to examine the relationship between firm performance and business practice scores calculated from 26 business practice indicators. This chapter uses panel data to mitigate the problem of potential endogeneity biases, which is not covered in McKenzie and Woodruff (2015). I further separately estimate the effects of the adoption of business practices

[3] CIEM stands for the Central Institute for Economic Management (Vietnam); DoE stands for the Department of Economics at the University of Copenhagen (Denmark); ILSSA stands for the Institute for Labor Studies and Social Affairs (Vietnam), and UNU-WIDER stands for the World Institute for Development Economic Research of the United Nations University.

on each groups of firms. The first group consists of household businesses and private business entities (so-called sole proprietorship firms) and the second group includes cooperatives, limited companies and joint stock companies (so-called incorporated firms). The empirical evidence shows a stronger effect of the business practice score on the performance of sole proprietorship firms. With regards to the factors that explain why some adopt good business practices while others do not, the results suggest that firms having a higher proportion of employees with university and college degrees and firms facing a fiercer competitive environment tend to have higher business practice scores. This is in line with the theoretical predictions of Van Reenen (2011) and the empirical results of Bloom et al. (2012).

This chapter is related to a large number of existing studies that attempt to identify the major sources of productivity differences (see Syverson, 2011 for an excellent survey of the literature). While they primarily use data collected in developed economies, this chapter uses data from a lower-middle income economy. I examine how the adoption of business practices differs in informal and formal firms and whether the differences affect their performance. This chapter is also related to the growing literature on the effects of business training on firm performance. Various studies have shown that many small firms in developing countries are not aware of, and thus do not adopt, business practices that are standard in developed economies (see, e.g., Berge et al., 2014; Mano et al. 2012; Bruhn and Zia, 2013; Karlan and Valdivia, 2011; and McKenzie and Woodruff, 2014). Thus, a number of training programs have been carried out to provide business owners/managers in developing countries with "standard" business practices. In their excellent review, McKenzie and Woodruff (2014), however, could find only a weak effect of management training on firm performance. They suggest a number of possible explanations such as the small

sample size, issues in the training design, and the evaluation time frame. In fact, most of the evaluations were conducted only several months or a year after the training was offered. Some recent studies try to overcome this difficulty by looking at the effect of business training programs on firm performance after two or three years (e.g. Berge et al., 2014; Karlan and Valdivia, 2011; Higuchi et al., 2015). The results from such studies show that business training has positive effects on firm performance. Therefore, this chapter complements studies that use data collected in randomized controlled trials (RCTs) of management training by using an observable dataset rather than data from RCTs. It also supplements the current literature by examining the heterogeneity in the relationship among different business practice indicators and different firm performance indicators.

This chapter also attempts to explain why some firms adopt good/standard business practices while others do not. Such attempts are still few, especially in developing economies. Except for Bloom and Van Reenen (2007), Bloom et al. (2012) and McKenzie and Woodruff (2015), most studies use data collected for the RCT purpose, so it is rather difficult to explicitly examine this question. The dataset I use in this chapter allows me to examine this question directly. Using fixed effect estimators also mitigates the endogeneity biases when using the cross-sectional data as in McKenzie and Woodruff (2015).

This chapter is organized as follows. Section 2 reviews the related literature and proposes some testable hypotheses. The dataset and descriptive statistics are presented in section 3. The correlations among business practice indicators, firm productivity and employment are discussed in section 4. The aggregation of business practice indicators, and the correlations among the aggregated indicator of business practices, firm productivity and employment are presented in section 5. Section 6

examines the determinants of the adoption of good business practices. Finally, section 7 provides the concluding remarks.

3.2. Hypotheses

It is widely recognized that the productivity difference among firms is large and persistent as many empirical studies have shown. Syverson (2004) demonstrates that even among firms in a very homogenous industry such as the cement industry, there is a large difference in productivity. According to Syverson (2011), this could be attributed to the difference in a firm's management capital. Bruhn et al. (2010) go further by considering the managerial input as a significant element of the "intercept shifters" of the production function. In fact, theoretically, Lucas (1978) points out that firm size and management capacity have positive correlations. This hypothesis, however, has only recently been examined empirically. In their seminal work, Bloom and Van Reenen (2007) construct a management practice score by bundling 18 management indicators, then examine how closely this score is associated with productivity among firms in France, Germany, the UK, and the US. They find a positive and statistically significant correlation between management practice scores and firm productivity.

Bloom et al. (2012), however, argue that management practices that are used to calculate the management practice scores in Bloom and Van Reenen (2007) seem unsuitable for firms in developing economies. This could be due to the fact that business administration programs, and thus business practices, are of lower quality in developing countries than in developed countries (see, e.g., Chaudhry, 2003; Bloom and Van Reenen, 2010; and Sonobe et al., 2011). For example, Gine and Mansuri (2011) show that only 18% of Pakistani firms in their study separate business expenditure from household expenditure, and the same proportion of the firms keep

sales records. Similarly, only 27% of metalwork firms in Ghana keep business records (Mano et al., 2012). This low level of the adoption of good business practices may explain the stagnated growth of small firms in developing countries. McKenzie and Woodruff (2015) construct a business practice score from 26 indicators related to marketing, stock management, record keeping and financial planning for over 20,000 small firms in seven countries. They find that the survival probability and sales growth are higher for firms that adopt good business practices. Similar to Bloom et al. (2012), their measured business practice score is also positively associated with labor productivity and total productivity.

McKenzie and Woodruff (2015) point out that their results are consistent with the results from the literature that examines the impact of management training programs implemented recently in many developing countries. In fact, as they argue, most of the recent studies using data collected before a training program, or both before and after the program, found positive effects on business performance, even though such measured effects are often statistically insignificant.[4] In summary, the theoretical and empirical evidence (especially that from developed economies) shows that the adoption of good business practices has a positive effect on firm performance. Furthermore, the mixed results from field experiments in developing countries do not imply that the adoption of good business practices fails to improve firm performance. Therefore, my first hypothesis is that the adoption of good business practices has a positive impact on firm productivity in general and on the productivity of small firms such as household businesses and sole proprietorship firms in particular.

[4] Mano et al. (2012) and Gine and Mansuri (2011) find a statistically significant increase in the survival likelihood among the firms participating in business training. Some other studies also find that training increases the profit and revenue of male-owned firms in the short run and the longer run (e.g. Berge et al., 2014; De Mel et al., 2012; Valdivia, 2012; Calderon et al., 2012; and Higuchi et al., 2015).

Questions may arise as to why firms do not adopt "standard" business practices in their operation if such practices are good for firm performance. According to Bloom and Van Reenen (2007), upgrading management is a costly investment, and some firms may simply find that these costs outweigh the benefits of adopting the better business practices. Furthermore, they also find that firms that have lower market power are likely to have higher management practice scores. Under a tough competitive environment, inefficient firms find it difficult to exist. Thus to survive, they have to increase their management efforts and adopt new business practices and strategies in order to increase their productivity, and enhance their capability to compete with more efficient firms (Schmidt, 1997; Van Reenen, 2011).

The average education level of employees and of the managers/owners may also be associated with the adoption of the better business practices (Bloom and Van Reenen, 2007; Bloom et al., 2012; Van Reenen, 2012). Moreover, if productivity is improved due to better management and the better use of inputs, then hiring those employees with higher levels of education is likely to have a positive impact on both productivity and management. In some cases, especially in the production of homogeneous products, the higher levels of education of workers may not directly translate to higher productivity but rather through better management and a better combination of the inputs used in production (Bruhn et al., 2010).

There will be some costs incurred by firms to adopt the best business practices (Bloom and Van Reenen, 2007). In a fierce competitive environment, the benefits of adopting good business practices are larger than the costs, especially the opportunity cost that firms may have to bear. Therefore, I expect that firms that experience declining market power will be more likely to adopt new business practices. Moreover, the successful adoption of business practices requires not only the knowledge of the

business leaders but also the support of employees. Thus, my next hypothesis is that a higher proportion of employees with university or college education will have a positive impact on firm productivity.

3.3. Data and descriptive analysis

The data are jointly collected by the Department of Economics at the University of Copenhagen (Denmark), the Central Institute for Economic Management (CIEM, Vietnam) and the Institute for Labor Science and Social Affairs (ILSSA, Vietnam) in 2005, 2007, 2009, 2011 and 2013. The surveys were conducted in 10 provinces, four in the North (Hanoi, Haiphong, Hatay and Phutho), three in the Central region (Nghean, Quangnam and Khanhhoa) and three in the South (Lamdong, Ho Chi Minh City and Longan). Of these provinces, Hanoi, Ho Chi Minh City and Haiphong are among the five major cities in Vietnam. In each province and city, both urban districts and rural districts are chosen (normally, one urban district in seven provinces and nearly all the urban districts in the three cities are chosen). The sample was stratified by ownership type to ensure that all types of non-state enterprises, including formal and informal firms in each province and city were represented. Subsequently, stratified random samples were drawn from a consolidated list of formal enterprises and an on-site random selection of informal firms.

After each survey round, to replace exiting firms and a number of firms that declined to continue to participate in the survey, some new firms were randomly selected from the list of the formal firms combined by the General Statistics Office (GSO) in the previous year and the on-site selection of informal firms. However, in terms of household firms, the GSO enterprise census only covers those with fixed professional premises (see Demenet et al. 2010 for more detail), which in turn means that these surveys are not representative of the household business dimension (the

number of household businesses is underestimated). In addition, since the informal household firms were chosen randomly within the selected survey districts, they all operate alongside officially registered enterprises and therefore may be relatively more competitive than the average informal firm in the district. Thus, the sample of informal firms may not be representative of the overall informal sector in Vietnam (Rand and Torm, 2012, Rand et al. 2008). The total sample size for all five surveys is 12,925. After cleaning and dropping firms with missing data, I arrive at a sample size of 11,463 firms. All variables are converted to constant prices using the industry price index provided by the General Statistics Office, the official statistics agency in Vietnam.

The questionnaires used in the different rounds of the survey are nearly the same and similar to, but more detailed than, the questionnaire used in the World Bank Enterprise Surveys. Information collected include the firm's general characteristics; firm history; the household characteristics of the owner/manager; production characteristics; the sales structure and exports; indirect costs, raw materials and services; investments, assets, liabilities and credit; fees, taxes and informal payments; employment; environment; and network and economic constraints and potential.

[TABLE 3.3 IS ABOUT HERE]

I divide the firms into two groups. The first group consists of household and sole proprietorship firms, which I refer to as SP firms for convenience. The second group consists of cooperative, limited, and joint stock firms and I refer to them as incorp firms for convenience. Although most of the SP firms have to register their operation with the lowest level of the local government, they are more likely to be considered as informal firms. Unlike the incorp firms, the SP firms do not have to comply with business regulations relating to taxes (they may have to pay a flat tax

based on their industry), accounting requirements and labor requirements. In total, the sample has 8,670 SP firms and 2,793 incorp firms.

I divide the sample into two groups: one consisting of firms located in Hanoi and Ho Chi Minh City (HCMC), two largest economic hubs in the North and South of Vietnam and one including firms located in other provinces. The division is based on the fact that the economic development in Hanoi and HCMC is much higher than the that in other provinces. In 2012, Hanoi's Gross Regional Product (GRP) accounts for 10% of national GDP while the figure for HCMC is 20-22% of national GDP. The GRP per capita in these two cities are three times larger than the national GDP (CIEM, 2013). There are about 8,355 firms located in other provinces other than Hanoi and HCMC, accounting for 64.5% of total number of firms.

Table 3.3 presents the basic statistics of the sample. In absolute terms, there is a substantial gap between the SP firms and the incorp firms in most performance indicators such as the value added, the number of employees, production capital, and the educational level of the managers and employees. On average, the value added and the total value of productive capital of the SP firms is 9-10 times lower than those of the incorp firms. Meanwhile, the number of employees in the SP firms is about 6 times smaller than for the incorp firms, indicating that the labor productivity of the SP firms is lower than in the incorp firms. On average, an incorp firm experiences a value added growth of 16.5% bi-annually, while an average SP firm grows only 10.5% over the same period. The average number of employees declines over the year, however. There is also a big difference with regards to the employment structure. The proportion of employees with university degrees in the SP firms is only 1.3%, while nearly 10% of employees in the incorp firms have university or college degrees. The proportion of owner/managers with university and/or technical education is also

much higher among the incorp firms. However, my data show that the share of regular employees in the total employment among the SP firms is slightly higher than that in the incorp firms.

Meanwhile, firms located in Hanoi and HCMC, on average, are outperformed firms located in other provinces with higher productivity, employment and capital intensity. The former also has higher share of professional in total employment, higher share of regular employees than the latter. The owners of firms located in Hanoi and HCMC also have higher general education as well as professional education.

3.4. Adoption of good business practices, firm productivity and employment

3.4.1 Measuring business practices

In this chapter, I construct a business practice score from a number of business practice indicators. Since the survey was not specifically designed to measure business practices adopted by firms, it may suffer from a lack of necessary information that can allow one to have a comprehensive coverage of indicators that can fully capture every aspect of business practices. In this chapter, I select seven available business practice indicators. In order to examine the evolution in the adoption of good business practices over years, I select those indicators that have been collected in all years. The business practice indicators which will be used for my measure of business practices are as follows: (i) using email in business activities; (ii) advertising; (iii) having accounting books or having the accounting books audited; (iv) having training activities for workers; (v) being a member of at least one business association; (vi) selling to customers located in other provinces or countries; and (vii) purchasing inputs from other provinces or countries. Of these, using email in business activities, advertising, having accounting books, having training activities and being a member of

a business association are dummy variables. These variables will take a value of one if a firm carries out such activities. The proportion of output sold in other provinces and exports and the proportion of input purchased from other provinces and imports are used to measure the indicators (vi) and (vii) above. Table A.1 presents the questions used to collect such indicators in the questionnaire.

The first indicator, using email in business activities, reflects the firm's adoption of information and communication technology in business activities. The second indicator, advertising, represents how firms market their products and whether they utilize advertisement to expand their customer base. The third indicator, having accounting books, represents how firms manage their financial activities and cash flow. Many Vietnamese micro and small firms, especially household firms, do not have any standard accounting books. They may record their business transactions, but mostly for managing debt. While sole proprietorship firms are not required to have accounting books, incorporated firms, which operate under the Enterprise or Cooperative Laws, are required to have formal accounting books. To account for this fact, for incorp firms, I replace the indicator of whether the firm has accounting books by the indicator of whether they have the accounting books audited. The fourth indicator, having training activities for workers, indicates the human capital strategies of firms. The fifth indicator, being a member of a business association, is related to the acknowledgement of the benefits of networking with other businesses. The sixth and seventh indicators, sales to and input procured from other provinces and exports/imports are related to the ability to expand the market and to manage procurement ability.

[FIGURE 3.1 ABOUT HERE]

Table 3.3 and Figure 3.1 shows the business practices adopted by firms. On average, the business practice score of the SP firms is much lower than for the incorp firms. The business practice score of the former is only 0.09 while that of the latter is 0.39. Figure 3.1 also shows that a high proportion of the SP firms have a business practice score of zero. The distribution of the business practice scores among the incorp firms seems to follow a normal distribution. For each business practice indicator, a large variation in the adoption between the SP firms and the incorp firms is also observed. For example, only 5% of the SP firms use email in their business activities, 4.8% advertise, 10% have accounting books, 4.4% are members of business associations and 10% have training activities for workers, while the corresponding figures for the incorp firms are 50%, 21%, 47% 42% and 46%, respectively. In terms of market strategy, only 14% of the SP firm's output are sold in other provinces or exported and 14% of input value procured from other province or imported while for the incorp firms, these figures are 35% and 37%, respectively.

Firms located in Hanoi and HCMC, on average, has higher business practice scores, i.e. adopting more "good" business practices than firms located in other provinces. The share of Hanoi and HCMC firms that use each of seven business practice indicators is also higher than that of firms located in other provinces other than Hanoi and HCMC, except for the share of input purchased in other provinces. This may be due to the fact that there are more input suppliers in these cities and therefore firms located in these cities do not have to procure production inputs in other provinces.

3.4.2. Correlations among business practice indicators, firm productivity and employment: pairwise correlation analysis

Because it is impossible to carry out an audit test, following Bloom and Van Reenen (2007) and McKenzie and Woodruff (2015), I examine the pairwise correlation

among business practice indicators, their aggregated indicators and several firm performance indicators, including firm revenue, firm size (represented by total employment), firm productivity (represented by total value added), firm profit, firm survival (i.e. firm continuing to participate in the survey) and labor productivity. Table 3.1 presents the pairwise correlations. The pairwise correlations indicate that our seven business practice indicators are correlated with each other but their pair-wise correlations are not high. The table also indicates that all of the business practice indicators are also positively correlated with all of firm performance indicators, except that there is no or very weak correlations between each business practice indicator and firm survival. Together with low correlations among the business practice indicators, rather high correlation between aggregated indicators and firm performance indicators supports my decision to aggregate business practice indicators into a single indicator.

[TABLE 3.4 IS ABOUT HERE]

3.4.3. Correlations among business practice indicators, firm productivity and employment: econometric analysis

Empirical strategy

Following McKenzie and Woodruff (2015), I augment the Cobb-Douglas production function by including a measure of business practices as follows:

$$VA_{it} = \alpha_0 + \alpha_1 L_{it} + \alpha_2 K_{it} + BPI'_{it}\alpha_3 + Lab_{it}\alpha_4 + X_{it}\alpha_5 + \epsilon_{it}^1 \qquad (3.1)$$

where VA_{it} is the value added of firm *i* at time *t*, respectively; L_{it} and K_{it} are the firm's labor and capital input, respectively; BPI_{it} is a vector of seven business practice indicators, which will be explained in detail in the next section; Lab_{it} is a vector of the share of regular employees and the share of employees with university and college

education; and X_{it} is a vector of other control variables including firm age, industry, location, and year dummies. I expect that firms having more employees with university/college education will have higher productivity, partly because the highly educated employees are more productive. The higher share of regular employees in total employment is also expected to increase firm productivity because of the familiarity with the production process of these employees. Two errors terms ϵ_{it}^{1} and ϵ_{it}^{2} are assumed to be independent and identically distributed (i.i.d).

I also examine the effect of the adoption of better business practices on employment demand as follows:

$$L_{it} = \beta_0 + \beta_1 KO_{it} + BPI'_{it}\beta_3 + X_{it}\beta_4 + c_i + \epsilon_{it}^{2} \quad (3.2)$$

where c_i is the firm-fixed effects and ϵ_{it}^{2} is a iid error terms. L_{it} is the total employment of firm i at time t and KO_{it} denotes the capital-output ratio. This variable reflects the substitution rate between capital and labor inputs and the technical efficiency. Thus, I expect that an increase in capital intensity causes a decline in employment. BPI_{it} is a vector of seven business practice indicator of firm i at time t. There may be different views on the relationship between the business practices and firm employment. On the one hand, improvement in the business practices would lead to a reduction in employment because the potential higher productivity may cause a firm to reduce its employment to produce the same amount of products. On the other hand, a firm may take advantage of higher labor productivity caused by the adoption of better business practices to reap more profit by increasing its production and/or expanding their markets. X_{it} is a vector of firm characteristics that may be correlated with labor demand such as firm's age, firm industry dummies, and province dummies. Year dummies are also included to capture the country's economic development in a given year.

Estimation results

Table 3.5 reports the contribution of the seven business practice indicators to firm productivity and employment.[5] The dependent variable in columns 1, 2 and 3 is the natural log of value added while in the other columns, it is the natural log of total employment. Columns 1 and 4 include all firms in the sample, columns 2 and 5 include only the SP firms and columns 3 and 6 include only the incorp firms. In all specifications, I include the owner's education level and technical skills, firm industry, location dummies, and year dummies as control variables even though their estimated coefficients are not reported in the table. Column 1 shows that among the seven business practice indicators, five indicators: (i) using email in business activities, (ii) having accounting books/having the accounting books audited; (iii) training workers; (iv) selling in other provinces/exporting; and (v) purchasing inputs from other provinces/importing, have a statistically significant effect on firm productivity, while only two indicators, namely advertising, and being a member of at least one business association, do not have any statistically significant effects. The results show that using email in business activities can increase productivity by 10%. Similarly, having accounting books also increases firm productivity by 10%. The results also indicate the different effects of business practices on the performance of the SP firms and the incorp firms. While only using email in business activities and having a higher percentage of input purchased from other provinces/importing have a positive and statistically significant effect on incorp firm productivity, all the business indicators, except for advertising, have such effects among the SP firms. The results, however, show a contrasting role of business associations for the different types of firms. While

[5] Appendices 3.A1 and 3.A2 present the estimation results that separately examine the correlation between each business practice indicator and firm productivity and employment demand.

being a member of at least one business association has a positive effect on the performance of the SP firms, it has a negative effect on the productivity of the incorp firms. This may imply that the operation of business associations may not be adequately efficient to facilitate the incorp firms whose production processing and operation requirements seem to be more complex than for the SP firms.

[TABLE 3.5 IS ABOUT HERE]

Columns 4 to 6 present the results for the employment demand equation. The estimation results show that all of the business practice indicators have positive and statistically significant correlations with the total employment for the sample consisting of all firms. Although it is hard to infer the causality among business practice indicators and firm employment, the results suggest that, on average, firms with larger number of employees adopt better business practice indicators. It, however, should be noted that this relationship is not causal. Columns 4 and 5 examines the correlation among business practice indicators and firm employment among SP firms and incorp firms. One can see that the results for SP firms are similar to that of the whole sample. But unlike the results presented in column 3 (i.e. none of business practice indicators have been positively associated with firm productivity), results reported in column 6 shows that advertising, using email in business activities, having a higher percentage of goods sold in other provinces or exported, and having training activities have positive and statistically significant correlation with the number of employees that the incorp firms employ. The results in Table 3.5 are robust when I control for the attrition bias.[6]

[6] To account for the attrition bias, I augment equations 3.1 and 3.2 by adding the inversed Mills ratio. The inversed Mills ratios are obtained from estimating a series of probit functions in which the dependent variables are whether a firm withdraw from the sample at each time *t*. The estimation results for these probit functions are presented in appendix 3.A6 while the estimation results for firm productivity and employment is presented in Appendix 3.A4

[TABLE 3.6 IS ABOUT HERE]

Table 3.6 presents difference in the association among business practice indicators, firm productivity and employment by firm location, i.e. whether firms are located in Hanoi and HCMC or in other provinces other than Hanoi and HCMC. The dependent variable in columns 1-6 is the firm productivity while that in columns 7-12 is the total employment. Columns 1, 2, 3, 6, 7, and 8 report the results for firms not located in Hanoi and HCMC while the remaining columns report the results for firms located in Hanoi and HCMC. In each sub-group of firms, I estimate equation 3.1 and 3.2 for the whole sample, SP firms and the incorp firms. The estimation results indicate a heterogeneity in the correlations among business practice indicators and firm productivity and employment by the location and by firm type-location. The estimation results show that using email, keeping accounting book are positively associated with firm productivity and firm employment, regardless of where they locate. Meanwhile, the percentage of input purchased in other provinces and the percentage of output sold in other provinces has a positive correlation with firm productivity for firms located in other provinces other than Hanoi and HCMC, but not for firms located in Hanoi and HCMC. Conversely, training workers is positively associated with productivity for for firms located in Hanoi and HCMC, but not for firms located in other provinces. The associations among business practice indicators and firm productivity are also different between SP firms and incorp firms in the same group of firms and among the same type of firms (i.e. SP firms and incorp firms) belonging to the different groups of firms (i.e. firms located in Hanoi and HCMC and firms located in other provinces).

Similar to the estimation results presented in Table 3.5, the estimation results reported in Table 3.6 also show that there is a large difference in the correlations

between the business practice indicators and firm productivity and the correlations between the business practice indicators and firm employment. For example, advertising variable continues to be uncorrelated with firm productivity and has positive correlated with firm employment. But the results indicate that the correlation between advertising and employment is stronger among firms located in Hanoi and HCMC and among incorp firms regardless of their location. This variable has no statistically significant correlation with total employment among SP firms in provinces other than Hanoi and HCMC. Or while training workers is not associated with firm productivity among firms located in other provinces than Hanoi and HCMC and incorp firms located in Hanoi and HCMC, it has statistically significant correlation with productivity among SP firms in Hanoi and HCMC.

3.5. Aggregation of business practice indicators, firm productivity and employment

3.5.1. Aggregation of business practice indicators

The previous section, I have examined the correlation of seven business practice indicators, firm productivity and employment demand. Such seven business practice indicators, however, could be endogenous. Thus, in order to identify the effects of such indicators on firm productivity and employment demand, it requires at least seven instrumental variables. Using instrumental variables to account for such endogeneity biases would be quite complicated, especially when five of the seven business practice indicators are binary variables. Therefore, following Bloom and Van Reenen (2007), Bloom et al. (2012), and McKenzie and Woodruff (2015), I aggregate these seven indicators into a single indicator named business practice score. I first calculate a simple average of these seven indicators as follows:

Business practice score = (1/7) (Using Email + Advertising + Having accounting books + Having training activities + Being a member of a business association + Selling to other provinces/export (% of total revenues) + Purchasing input from other provinces and imports (% of total purchased inputs)*

The aggregate indicator obtained from this method, however, seems to be difficult to interpret. Therefore, I convert this raw indicator into a standardized z-score. Another indicator is the first principal component from the principal component analysis of seven business practice indicators. In the empirical analysis, the standard z-score business practice score (BPS) is my preferred score. I use the simple average of seven business practice indicators and the first principal component obtained from a principal component analysis as alternative scores for robustness checks. The correlations between our standardized z-score business practice score and other two scores range between 0.987 and 0.996.

To validate the calculated business practice score, I also follow Bloom and Van Reenen (2007) and McKenzie and Woodruff (2015) to examine the correlation between the business practices and firm performance. Table 3.2 presents the estimation results. This examination could be viewed as an external validity test of the business practice score that I constructed. It, however, does not imply the causal relationships among the business practices and various indicators of firm performance, including productivity, revenue and profitability. I use the fixed effects regression to estimate a standard Cobb-Douglas production function and a profit function. For the production function, the dependent variable is either the value added or the total revenue. If the dependent variable is the value added, the independent variables include two standard production inputs, namely labor and capital inputs. If the dependent variable is the total revenue, the material costs enter the equation in

addition to labor and capital inputs. I also use the production function approach to estimate the profit function. The correlation between the business practice score and firm survival is examined by a probit function. For this purpose, I define that an exit firm is a firm that would not participate in the survey at time *t*, given it has participated in the survey at time *t-1*. The estimation results provide evidence that the business practices I use are positively and significantly correlated with firm performance. These results offer further external validation for the business practices used in this chapter.

3.5.2. Business practice score, firm productivity and employment demand

Empirical strategy

To examine the correlations of the business practice score, firm productivity and employment demand, I continue to use equations 3.1 and 3.2.

$$VA_{it} = \alpha_0 + \alpha_1 L_{it} + \alpha_2 K_{it} + BPI'_{it}\alpha_3 + Lab_{it}\alpha_4 + X_{it}\alpha_5 + \epsilon_{it}^1 \quad (3.3)$$

$$L_{it} = \beta_0 + \beta_1 KO_{it} + BPI'_{it}\beta_3 + X_{it}\beta_4 + c_i + \epsilon_{it}^2 \quad (3.4)$$

The variable BPI_{it} in these two equation now is the business practice score, instead of a vector of seven business practice indicators. As before, I use the fixed-effects estimators to estimate these two equations. The business practice score, however, is endogenous. Because the FE estimators could not eliminate the time variant factors that are correlated with both dependent variables (i.e. firm productivity and employment demand), I use the fixed effect with instrumental variables (FE-IV) estimator in order to identify the true effects of business practices on firm productivity and employment demand.

I follow Fisman and Svensson (2007) to assume that a firm's business practice score is determined by two components: the industry-province component which is

measured as the average of business practice scores of all firms in the same industry and province, and the firm-specific component. The industry-province component could be viewed as a function of specific features that shape that industry-province. Such features include the common industry-specific production techniques, common industry-specific and province-specific values and traditions, and common labor pools (and compositions). Market orientation and the availability of necessary inputs for production also cause heterogeneity at the industry-province level. These factors make the adoption of the business practices different from industry to industry and from province to province. Eventually, they determine the extent that the business practices would be common to all firms in the same industry and province in a given year. If the industry-province component is uncorrelated with time-varying unobservable factors, then we can use the industry-province component as the instrumental variable for the business practice score of a specific firm. As Fisman and Svensson (2007) argue, using industry-province averages could help to eliminate the biases caused by unobserved factors that are correlated with the business practice score at the firm, but not the industry-province level. Moreover, using this average could help to deal with the problem of measurement errors which are largely idiosyncratic to the firm, and thus uncorrelated with the industry-province average of business practice scores.

This instrumental variable, however, may be subject to several objections. For example, a firm may significantly change its productivity and this may be correlated with the unobservable factors in other firms. Or a firm may significantly change their level of adoption of business practices, and thus their productivity increases. This will ultimately correlate with other firms' unobservable factor. In other words, this may make the average of business practice score at the industry-province level correlated with other firms' unobservable factors. However, this may not be the case in our

sample. This is because the fact that it may take some time to imitate a good business practice, suggesting that changes occurred in a firm could only alter any industry-province process in the long run. Our data seems to support this argument. I find that the correlation between BPS_{jt-1} (i.e. the average of business practice scores at the industry-province level at time $t-1$) and BPS_{jt} (i.e. the average of business practice scores at the industry-province level at time t) is very high (0.8550). I, however, examine the robustness of the empirical strategy by dropping firms that either belong to the 2.5% industry-province cells that experience the largest change in the average BPS and belong to 2.5% industry-province cells that experience the smallest change in the average BPS. Dropping such firms may ensure that changes in a firm may not alter the process at the industry-province level.

Of concern is that if the number of firms in an industry-province cell (yearly mean: 20.2, standard deviation: 5.5) is small, a firm may adopt better business practices and thus have higher productivity and output. This will force other firms, including the firm under consideration, to depress prices and cut output to compete. In the robustness test, I will examine this case by dropping industry-province cells with fewer than 5 firms (and larger than 30 firms) in a given year.

Another objection is the presence of some external unobservable factors that influence BPS at the industry level (technology progress; product market; factor markets) and at the provincial level (socio-economic development, labor market composition) and are correlated with unobservable factors at the firm level. To control for such potential changes, we add the interaction terms between the year dummies and industry dummies, and the interaction terms between the year dummies and province dummies into our estimation equation.

Effects of the adoption of good business practices on firm productivity

Table 3.7 presents the estimates of the augmented Cobb-Douglas production function 3.4. Panel A of Table 3.7 presents the second stage estimation results, and Panel B presents the first stage estimation results. The results in columns 1, 2 and 3 are obtained by using the FE estimators, while the remaining columns are the results from the FE-IV estimators. Columns 1, 4 and 7 present the results for the whole sample, columns 2, 5 and 8 for the SP firms and columns 3, 6 and 9 for the incorp firms. The dependent variable in all the columns is the natural log of value added, at a constant price. I also control for the owner/manager's education level, firm industry, location, year dummies, interaction terms between year dummies and industry dummies and interaction terms between year dummies and province dummies.

[TABLE 3.7 IS ABOUT HERE]

The results from the FE estimator (columns 1 to 3) indicate that the business practice score has a positive and statistically significant association with the value added. A one-standard deviation increase in the business practice score increases value added by 7.1%. Moreover, the estimation results indicate that the association between the business practice score and the value added is stronger for the SP firms than for the incorp firms. A one standard deviation increase in the business practice score increases the value added of the SP firms by 9.4%, while the corresponding figure for the incorp firms is only 3.2%. Furthermore, the relationship between the business practice score and the value added is only statistically significant at 10% for the incorp firms. With respect to the labor input and capital input variables, the results show that firm productivity is mostly driven by the labor input, while the capital input plays a minor role. Moreover, the contribution of the labor input to productivity in the SP firms is larger than that in the incorp firms, indicating that the SP firms seem to be more labor-intensive than the incorp firms. Productivity and the share of regular

employment are positively associated, presumably because the regular employees may have higher productivity than the irregular employees. Firm age has positive coefficients probably because of the stock of knowledge accumulated over time in the case of the incorp firms, however, the coefficients are not significant in the case of the SP firms.

The FE estimator, however, could only eliminate the correlation between the time-invariant unobservable effects and the business practice score. It is possible that there are some time-variant factors that may be correlated with both the value added and the business practice score. To deal with this issue, I use the FE-IV estimator. As presented above, the instrumental variable used in columns 4 to 6 is the mean of the business practice scores at the industry-province level for a given year. The first stage results presented in Panel B indicate that this instrumental variable has a strong and positive effect on the business practice score of firm *i*. This instrumental variable also passes the under-identification and the weak instrument tests. The results show that the coefficients on the business practice score are larger in magnitude if the business practice score is instrumented than otherwise, suggesting that there exist time-varying factors correlated with both the business practice score and the value added in the opposite direction so that the estimated coefficients suffer from a downward bias. A one standard deviation increase in the business practice score increases productivity by 20.3%. In compared with the results from the FE estimation, the magnitude of the estimated coefficients on the business practice scores is higher, implying a downward bias of the FE estimation. This phenomenon is also observed in Bloom and Van Reenen (2007). They argue that the "true" effects of business practices on productivity could be biased upward or downward due to reverse causality. The coefficient on business practices could bias upward if an increase in productivity may increase firm

profitability and thus provides firms with adequate financial resources to improve their business practices. Meanwhile, if a higher productivity firm may cut their efforts to improve their business practices, the coefficient on business practices may be biased downward. While the effect is large for the SP firms (i.e. a one standard deviation increase in the business practice score leads to a 27.2% increase in productivity), the effect of the business practice score on the productivity of the incorp firms loses its significance. This, however, does not imply that business practices do not have any effect on the productivity of incorp firms but suggests that one may need a more comprehensive indicator for the incorp firms. Using instrumental variables for the business practice score, in principle, does not alter much the contribution of the labor and capital inputs and the behavior of the other variables to firm productivity.

Columns 7 to 9 further report the FE-IV estimation results using two instrumental variables: the average of the business practice scores at the industry-province level and the total passengers that were carried to and from a given province by transportation firms in a given year *t*. Having two instrumental variables for one endogenous variable allows one to test the validity of the instrumental variable. The p-values of the over-identification test confirm the validity of the instrument variables. The estimated coefficients on the business practice score variables are rather similar to the results presented in columns 4 to 6, i.e. the business practice score has a positive and statistically significant effect on the productivity of all firms in the sample and of SP firms but it has not a statistically significant effect on the productivity of the incorp firms. The coefficients on the business practice score are also higher than the estimated results from the FE estimation.

[TABLEs 3.8-3.11 ARE ABOUT HERE]

Tables 3.8, 3.9, 3.10 and 3.11 report the several robustness checks. I use the first principal component from the principal component analysis of seven business practice indicators and the average of seven business practice indicators in Tables 3.8 and 3.9. The structure of these two tables is similar to that of Table 3.7. The estimation results reported in Tables 3.8 and 3.9 are similar to those reported in Table 3.7, implying that the adoption of good business practices has a positive effect on productivity, especially for SP firms.

Columns 1, 2 and 3 in Table 3.10 present the estimation results when I drop firms located in industry-province cells that have less than five firm-years and have more than 30 firm-years while columns 4, 5 and 6 show the results with the sample including firms located in industry-province cells which experience either the largest or smallest changes in the average business practice score are dropped. The estimation results in both cases are similar to the ones that are reported in Table 3.7. This provides further evidence for the positive effect of business practice score on firm productivity.

Table 3.11 presents the estimation results using system GMM methods. Columns 1, 2 and 3 report the estimation results with the business practice score being converted to z-scores while columns 4 and 5 are the results with two different methods of calculating business practice score. The sample in columns 1, 4 and 5 consists of all firms while those in columns 2 and 3 include only SP firms and incorp firms, respectively. In all specifications, I use 2nd and higher lagged values of endogenous variables as instrumental variables (i.e. lagged dependent variable, total employment, capital, BPS and percentage of regular employees). The remaining variables are treated as exogenous variables. The estimation results further confirm our previous results. That is, the adoption of the good business practices has a positive

and statistically significant effect on firm productivity. Moreover, it also indicates that the business practice score calculated in this chapter has a statistically significant effect on SP firms but does not have a statistically significant effect on incorp firms.

To account for attrition effects, I use the methodology proposed by Semykina and Wooldridge (2010). Appendix 3.A3 presents this methodology in details. Appendices 3.A5 and 3.A6 report the second stage and first stage estimation results. In general, the estimation results are consistent with the above results, although the effects of business practice score on firm productivity are slightly reduced and become more statistically significant for incorp firms.

Effects of the adoption of good business practices on employment

Table 3.12 reports the estimates of the total employment equation. Like Table 3.7, Table 3.12 presents the FE estimation results presented in columns 1 to 3 and FE-IV estimates in the remaining columns. The sample used in columns 1, 4 and 7, columns 2, 5 and 9 and columns 3, 6 and 9 are all firms, the SP firms, and the incorp firms, respectively. The instrumental variable in columns 4, 5 and 6 is the average business practice score at the industry-province level. In columns 7, 8 and 9, total passengers transported to and from a given province in a given year is added as an additional instrumental variable. This inclusion allows one to test the validity of the instrumental variables. The dependent variable in Table 3.12 is the total employment as a natural logarithm. The results obtained from the FE estimators (columns 1 to 3) show a positive association between the business practice score and the total employment. A one standard deviation increase in the business practice score increases the total employment by 13.3%. This association seems to be stronger for the SP firms than for the incorp firms. The total employment of SP firms increases by 15.1% if the business practice score increases by one standard deviation, while this

figure for incorp firms is only 10.3%. Moreover, the positive correlations between the business practice score and the total employment are still observed when I use an instrumental variable to account for the endogeneity of the business practice score variable. But such associations lose their significance for the incorp firms.

[TABLE 3.12 IS ABOUT HERE]

Tables 3.13 and 3.14 provide robustness checks for the effect of good business practice score on the total employment. I replace the business practice score in Table 3.12 by the first component from the principal component analysis of seven business practice indicators and the average of seven business practice indicators in Tables 3.13 and 3.14. The structure of these two tables is similar to that of Table 3.12. The estimation results reported in Tables 3.13 and 3.14 are similar to those reported in Table 3.12, implying that the adoption of the good business practices has positive effects on total employment, especially for SP firms.

[TABLEs 3.13-3.14 ARE ABOUT HERE]

Effects of improvement in business practice score on firm growth

In Tables 3.15 and 3.16, I further check the contribution of the business practice score to firm performance. Table 3.15 presents the estimation results for the contribution of the improvement in the business practice score on firm productivity growth. The first three columns in Table 3.16 present the results of the FE estimation, and the remaining are the results of the FE-IV estimation. The empirical results indicate that an improvement in the business practice score has a positive and statistically significant effect on productivity growth. To mitigate any possible endogeneity biases, I use the lagged value of the independent variables as the instrumental variables for the growth variables. As shown in columns 4 to 6, even

when the potential endogeneity is controlled for, the effects of the business practice score on firm productivity remain unchanged qualitatively and similar in magnitude. Furthermore, different from the results above, the improvement in the business practice score has a statistically significant effect on the productivity growth of the incorp firms, albeit at only the 10% level.

[TABLE 3.15 IS ABOUT HERE]

Table 3.16 reports the contribution of the improvement in the business practice score on employment growth. Similar to Table 3.15, the first three columns display the FE estimation results, while the last three columns are the results from the FE-IV estimation. The estimation results presented in Table 3.16 also indicate a positive and statistically significant effect on the total employment growth. Moreover, the results also suggest that the contribution of the improvement in the business practice score to the employment growth of the SP firms is slightly larger than for the incorp firms. I further control for potential endogeneity by using instrumental variables. I use the lagged value of the independent variables as the instrumental variables for the variables in difference. All the instrumental variables pass both the under-identification test and the weak instrument test. The estimated coefficients are larger when I use the instrumental variables. Moreover, unlike the level equation estimates, the difference equation estimates show that the improvement in the business practice score has a positive and statistically significant effect on the total employment growth for both types of firms. These results suggest that firms with higher business practice scores employ a relatively smaller number of workers, but when they improve their business practices, they would increase their employment to profit from their improved efficiency.

[TABLE 3.16 IS ABOUT HERE]

3.6. Determinants of the adoption of good business practices

Empirical strategy

To examine what determines improvement in business practices, I estimate the following equation:

$$\Delta BPI_{it} = \lambda_0 + \lambda_1 \Delta Prof_{it} + \lambda_2 \Delta L_{it} + \lambda_3 \Delta PCM_{it} + \lambda_4 VAL_{it-1} + \lambda_5 X_{it} + \zeta_{it}, \qquad (3.5)$$

where ΔBPI_{it} is the improvement in the business practice score of firm i at time t; $\Delta Prof_{it}$ is the change in the share of employees with university/college education; ΔL_{it} is the labor growth; ΔPCM_{it} is the increase in the price-cost margin, which is used as a proxy for a firm's market power; VAL_{it-1} is the lagged value of the labor productivity; X_{it} represents the firm characteristics and ζ_{it} represents the i.i.d. error terms. As before, I use the lagged values of $Prof_{it}$, L_{it} and PCM_{it} as instrumental variables for $\Delta Prof_{it}$, ΔL_{it} and ΔPCM_{it}. I expect that the increase in the share of employees with university/college education and a lower market power will have positive effects on the business practice score improvement. In other words, I expect $\lambda_1 > 0$ and $\lambda_3 < 0$ (an increase in the price cost margin indicates an increase in firm competitive power).

Estimation results

I examine the determinants of the business practice score (i.e. the original business practice score) in Table 3.17. Columns 1, 2 and 3 are the results of the FE estimation, while the remaining columns are the results of the FE-IV estimation. Columns 1 and 4 report the results for all firms, columns 2 and 5 report the results of the sample of the SP firms and columns 3 and 6 display the results of the sample of the incorp firms. The dependent variable in all the specifications is the change in the business practice scores between this and the previous period. I also include control

variables, consisting of the owner's education level and technical skills, firm industry, location dummies and year dummies in all the specifications.

[TABLE 3.17 IS ABOUT HERE]

The results of the FE estimation show that an increase in the share of the educated workforce is associated with an improvement in the business practice score, even after controlling for the change in the total employment. This result is consistent with the findings of Bloom et al. (2012). I also find that firms that experience a decline in the price cost margin (i.e. declining market power) tend to improve their business practice scores. This is in line with the theoretical explanations of Bloom and Van Reenen (2007) and Van Reenen (2011) and the empirical results of Bloom et al. (2012). The results also indicate that the firms with higher labor productivity in the last period seem to reduce their business practice scores, suggesting that some firms may stop using some of the "standard" business practices as their productivity improves. This, however, is consistent with evidence reported by Karlan et al. (2012), which shows that some firms may revert to their old practices after a period of adopting some of the good business practices. Columns 4 to 6 of Table 3.17 present the FE-IV estimation results. The instrumental variables include the lagged value of the capital intensity, the business practice score and the percentage of regular employment. All the statistical tests for the instrumental variables (i.e. the under-identification and the weak identification tests) are passed. I find that the results obtained from the FE-IV estimators do not divert from the FE estimators, although some variables lose their weak significance.

[TABLE 3.18 IS ABOUT HERE]

Table 3.18 reports the robustness checks. The business practice score in columns 1, 2 and 3 is the first component from the principal component analysis while that in columns 4, 5 and 6 is the average of seven business practice indicators. All the sample is used in columns 1 and 4, while the sample of SP firms is used in columns 2 and 5 and that of incorp firms is used in columns 3 and 6. The estimation results using different methods of bundling business practice indicators are similar to those obtained when the business practice score is converted to a z-score as in Table 3.17.

3.7. Conclusion

This chapter takes advantage of the panel nature of data consisting of micro, small and medium firms in Vietnam to address three issues. First, a number of studies have figured out the positive associations of the adoption of good business practices and firm performance, but only few studies look at the heterogeneity in adopting each of business practice indicators and in the correlation of each business practices and each firm performance indicator. Second, while previous studies have found a positive correlation between the adoption of good business practices and firm performance, the causality of this relationship remains an open question. Third, the reason why some firms adopt the good business practices while others do not is unclear, especially among micro, small and medium firms in developing economies.

This chapter has found that the adoption of good business practices results in improvement in firm performance. The empirical analyses show that, on average, five (out of seven) business indicators have positive associations with firm productivity. The results also indicate that most of selected business indicators are positively correlated with firm employment. I, however find a heterogeneity in the associations between each business practice indicator and firm productivity by firm type. The

analysis also shows that each business practice indicator is associated with different performance indicators of different type of firms in a very different pattern.

To make it easier to interpret, and easier to control for potential endogeneity of these indicators, I bundle these business practice indicators into a single measure of business practices, named the business practice score. I find that a one standard deviation increase in the business practice score leads to an increase in productivity by about 8%. The effects of good business practices on firm productivity are even higher when I control for the potential endogeneity biases of the business practice scores. These results are similar to the findings of McKenzie and Woodruff (2015), in which they find that an increase in the business practice score is associated with an increase in the total factor productivity. The results also show that an increase in the business practice score has a stronger effect on the performance of the sole proprietorship firms than for the incorporated firms. This result, however, does not imply that good business practices do not matter to the incorporated firms. Similarly, I also find that improved business practices also have a positive effect on employment growth, although I do not find a positive effect of adopting good business practices on total employment, potentially due to the reverse causality problem. The estimation result shows that a one standard deviation increase in the business practice score leads to an increase of the total employment growth by 13.5%. With regards to factors that explain why some firms adopt the good business practices and some do not, the estimation results suggest that firms that have a higher share of employees with university/college education and those that experience a decline in competitiveness tend to have higher business practice scores. This is in line with the theoretical predictions of Van Reenen (2011), and the empirical findings of Bloom et al. (2012),

which show that firms would adopt more "standard"/better business practices if they experience a declining market power and the employees are more educated.

This chapter have provided further evidence on the role of the adoption of good business practices on firm performance, as already shown in some previous literature such as Bloom and Van Reenen (2007) and McKenzie and Woodruff (2015). It also indicates that good business practices are not only relevant for larger firms, but also for smaller firms. The study, however, also suggests that it is necessary to further study the role of business practices on firm performance by using different indicators of business practices in a more diversified context.

CHAPTER 4

HETEROGENEOUS FIRM INVESTMENT BEHAVIOR IN THE PRESENCE OF HIGH MACROECONOMIC UNCERTAINTY: THE CASE OF VIETNAM

4.1. Introduction

There has been renewed interest in the analysis of the impact of uncertainty on firm-level investment in developing countries (e.g. Pattillo 1998; Bigsten et al. 2005; Bo and Zhang; 2002; Le et al. 2004; Demir 2009a, 2009b; Leefmans 2011; Kandilov and Leblebicioglu 2011; Bianco et al. 2013). Given the irreversibility of investment and managers' risk and ambiguity aversion, the theoretical models developed by Dixit and Pindyck (1994), Abel and Eberly (1996), and Bernanke (1988), among others, predict that uncertainty reduces investment. However, the opposite is predicted by Oi (1961), Hartman (1972) and Abel (1983). A number of studies address this issue by using data from developed countries (e.g., Bond et al. 1994; Leahy and Whited, 1996; Guiso and Parigi 1999; Ghosal and Loungani, 2000; Bulan, 2005, Shaanan, 2005; Bloom, Bond and Van Reenen 2007; Baum et al., 2010). While firms in developing countries are faced with high and diverse uncertainty (e.g., Bloom, 2014), the analysis of data from developing countries is relatively scarce.

In developing countries, capital markets are said to be more imperfect than in developed countries (e.g., Bigsten et al. 2005). There has been a significant body of literature on the impacts of capital market imperfections on investment in developing economies (e.g., Schiantraelli 1996; Kaplan and Zingales 1997; Demir 2009a). Thus,

both market imperfections and uncertainty are important factors affecting investment decisions of firms. Aizeman and Marion (1999), Minton and Schrand (1999), and Caglayan and Demir (2014) examine the interactions of credit market imperfections and uncertainty in their analysis of the determinants of investment at the firm level. However, such studies are few.

In order to mitigate frictions in the financial market, many developing countries have gradually liberalized their financial markets. This not only improves firms' access to cheaper credit, but also provides them, especially those in the real sector, with opportunities to diversify their investment portfolio. While there are a number of studies that examine how financial liberalization could affect firm performance and accessibility to credit, very few studies explore how financial liberalization could affect a small firm's non-productive investment decisions. Using firm-level data from Turkey and Argentina, Demir (2009a, b) finds that an increase in the availability and accessibility of alternative investment opportunities, coupled with high uncertainty, channels a large share of firms' savings and/or earnings to short-term financial assets. Yet, we have very limited knowledge on how small and medium firms in a developing country make decisions on types of investment under a liberalized financial market.

This chapter explores how macroeconomic uncertainty, measured by volatility of real lending interest rates, affects productive investment and non-productive investment[7] of small- and medium-sized firms in a developing country. This chapter also explores the heterogeneous effects of macroeconomic uncertainty on investment by advantage to get bank loans, access to bank credit, ability to use bank credits to

[7] Productive investment includes investment in equipment and building/production facilities and non-productive investment includes investment in land, equity and other financial investments (for details, see section 3)

finance most of their investment. For this purpose, I use Vietnamese firm-level panel data collected bi-annually from 2005 to 2013, a period considered as the most uncertain after Vietnam's market reforms of 1989 (CIEM, 2013).[8]

The estimation results show that macroeconomic uncertainty has a negative and statistically significant effect on the productive investment rate while it has a positive and statistically significant effect on the non-productive investment rate. The results also suggest that the negative effect of macroeconomic uncertainty on productive investment is smaller among firms that have no contacts in the banking sector, are able to access to bank loans and to finance most of their investment by bank credits than those firms that either have at least a contact in the banking sector, are more likely to access to bank loans or can finance most of their investments by bank loans. It also shows that an increase in macroeconomic uncertainty has a higher correlation with the increase in the non-productive investment rate, which is more reversible than a productive investment, among firms that have at least a contact in the banking sector or have access to bank credit or are able to finance most of their investments by bank loans. I also find that there is a heterogeneous effect of macroeconomic uncertainty by the firm's ownership type, but such an effect is rather small.

This chapter contributes to the literature in several ways. First, this chapter examines how financial condition affects firm's investment behavior. Instead of using

[8] The uncertainty is partly due to the internal macroeconomic issues and partly the severe effects of the global economic crisis in 2008. Domestically, inflation increased rapidly from 6-7% before 2007 to 21% in 2008 and continued to be at double digits from 2009 through 2011, then slightly declined in 2012-2013 (see Figure 1). In addition, given its larger exposure to the global economy, especially after joining the WTO in 2007, the global financial crisis in 2008 also has strong and lasting effects on the local economy with a sharp fall in FDI and export growth.

either a traditional approach (i.e. the cash-flow sensitivities) or direct elicitation,[9] to separate firms into credit constrained and credit unconstrained group, I, however, divide firms based on several indicators that reflect firm's advantage in access to bank loans, firm's access to bank loans and the role of bank loans in financing their investment. Secondly, this chapter extends the literature by examining the effects of macroeconomic uncertainty on small- and medium-sized firms' investments under different conditions in regard to their financial source for funding investment. As mentioned earlier, most of the current empirical studies on investment using developing countries' data look at these issues separately,[10] mostly due to data limitations. The 10-year data span allows me to investigate the heterogeneity effects. Thirdly, this chapter is also related to the literature on the non-productive investment behavior of firms in the real sector in a developing country. While Demir (2009a, b) focuses on listed firms in Turkey and Argentina which are in their later stages of becoming developed economies, I focus on small- and medium sized firms in a developing economy in their early stages of industrialization. Moreover, to my knowledge, this study is among the few that explore the choice between productive and non-productive investment in small- and medium sized firms.

The chapter is organized as follows. Section 2 reviews the theoretical and empirical literature. Data sources and methods to construct variables are presented in Section 3. Descriptive statistics are provided in Section 4. The empirical approach and estimation results are reported in section 5, and finally the conclusion follows in

[9] While Kaplan and Zingales (1997) argued that cash-flow sensitivity does not fully reflect the firm's financial status, direct elicitation does not capture a firm's financial status but their needs of funds to further finance their investment opportunities (see more in section 3).

[10] There are some papers that examine the effect of credit constraint on firm investment during turbulent macroeconomic conditions, such as Bigsten et al. (2005). However, these papers do not explicitly quantify the effects of macroeconomic uncertainty or examine the effects of the volatility of macroeconomic variables on firm investment.

Section 6.

4.2. Testable hypotheses

4.2.1 Uncertainty and investment

Various theories have attempted to figure out the relationship between investment and uncertainty. However, how uncertainty affects investment is inconclusive. While the standard neoclassical investment theory argues that a higher degree of uncertainty may cause the present value of the expected cash flow gained from an investment project to exceed its total cost, and ultimately reduce the willingness to invest, the uncertainty-investment relationship may be more complex. Hartman (1972) and Abel (1983) find that under the assumptions of perfect competition, and constant returns to scale, higher uncertainty encourages firms to invest more because the marginal product of capital is a convex function of the stochastic variables. However, if such assumptions are relaxed, the effect of uncertainty on investment can be negative (Abel and Eberly, 1994; Caballero, 1991). Furthermore, the negative relationship is also found if the investment is irreversible (Bernanke, 1983; MacDonald and Siegel, 1986; Bertola and Caballero, 1994; Dixit and Pindyck, 1994). This negative effect, however, would be broken if the cost of waiting is too high (Bloom, 2014). Some other theories further show that the relationship between investment and uncertainty would also depend on the risk behavior of the investors (Nakamura, 1999).

While investment theories have different predictions on the effect of uncertainty, for the small firms, uncertainty seems to have a negative correlation with investment. This is because there are some inherent features of this type of firm. Firstly, small firms are usually run by more risk averse owners (Kihlstrom and Laffont,

1979), implying that higher uncertainty will cause a decline in investment among small firms. Secondly, sunk costs associated with installed capital seems to be greater than for larger firms. If small firms purchase a new machine, the lemon market problem in the second hand market will make the value of this machine decline significantly once installed. Meanwhile, if they buy a used machine, the costs associated with this machine, i.e. repair costs and its value, will largely be sunk. The discussion on the uncertainty effect leads me to postulate the following hypothesis.

H1: Productive investment is negatively associated with uncertainty

While empirical studies using developed economies' firm-level data generally find a negative correlation between uncertainty and investment, regardless of the degree of irreversibility (Bo, 2001), the results for developing and transition economies are mixed. While Leefmans (2001) and Bo and Zhang (2002) could not find a statistically significant relationship between uncertainty and investment among small and medium sized Tanzanian firms and among state-owned enterprises in the machinery industry in Liaoning province, Lensink and Sterken (2000) find that Czech firms on average react to uncertainty positively. Similarly, Bo and Zhang (2002) also find a positive correlation between labor cost uncertainty and investment among collective firms in the machinery industry in Liaoning province (China). Meanwhile, Le et al. (2004) find that uncertainty reduces the investment of rice millers in the Mekong River Delta (Vietnam) in the presence of irreversibility. However, the negative relationship between uncertainty and investment is not affected by the degree of irreversibility. Similarly, Pattillo (1998), using Ghanaian manufacturing firm level data, finds that uncertainty has a negative effect on investment levels such that the negative effect is greater for firms with a more irreversible investment. The negative relation between uncertainty and investment is also found among Ugandan firms and some

types of Tanzanian firms.

4.2.2 Capital market imperfection and investment

It is widely agreed that the asymmetric information and incentive problems are present in all financial markets around the world, especially in developing countries. The presence of these issues causes a cost wedge between internal funds and external funds (Jensen and Merkling, 1976 and Stiglitz and Weiss 1981), and thus liquidity is an important determinant of investment decisions of firms that face asymmetric information and incentive problems.

In the presence of high uncertainty, one would also expect that the frictions in the financial market might intensify the effect of uncertainty because firms find it more difficult to access to bank credits. According to Aizeman and Marion (1999), nonlinear budget constraints and the consequences of capital market imperfection may lead to a negative effect of uncertainty on investment. Furthermore, Minton and Schrand (1999) assert that, the cost of external funds under imperfect capital markets is usually higher than for a perfect capital market. Therefore, an increase in the cash flow volatility would cause the cost of external funds under an imperfect capital market to be higher than under a perfect capital market. This implies that under an imperfect capital market, higher cash-flow volatility will further reduce the investment than under a perfect capital market.

Duchin et al. (2010) showed that corporate investment decreased significantly during the subprime mortgage credit crisis in the US and that US firms with low cash reserves and/or operating in industries depending on external finance decreased investment more. Similarly, a survey of Chief Financial Officers from firms around the world also indicates that financially constrained firms planned to cut their investment

during the 2008 global crisis (Campello et al., 2010).

4.2.3 Productive and non-productive investment

To curb imperfection in the capital market, since the 1990s many developing countries have implemented steps to liberalize their financial markets. In such liberalized financial markets, theoretically, firms in a real sector are supposed to have more favorable access to low interest credits and greater opportunity to diversify their financial assets (McKinnon, 1973). However, in practice, this seems not to be the case. Accessing credit is still difficult for firms, especially small firms in developing countries (Demir, 2009b). Coupled with an uncertain environment as observed in developing countries (Bloom, 2014), limited sources of credit and more opportunity to diversify their investment portfolio potentially cause firms to shift an increasing share of the available funds to investment items that offer higher rate of returns. Thus, I test the following hypothesis.

H2: In terms of magnitude, uncertainty has a smaller effect on non-productive investment rate than on the productive investment rate.

Using firm-level data from Turkey, Mexico and Argentina, Demir (2009a) finds that an increase in the availability and accessibility of alternative investment opportunities may channel a large share of firms' savings and/or earnings to short-term financial assets. Demir (2009b) further explores this issue and finds that this tendency is mostly attributed to either higher uncertainty or an increasing rate of return on financial assets over and above that of fixed assets.

4.3. Data source and variables construction

4.3.1 Data source

The data is jointly collected by the Department of Economics at the University

of Copenhagen (UoC, Denmark), the Central Institute for Economic Management (CIEM, Vietnam) and the Institute for Labor Studies and Social Affairs (ILSSA, Vietnam) in 2005, 2007, 2009, 2011 and 2013 through surveys conducted in 10 provinces, four in the North, three in the Central and three in the South. In each of these selected provinces, the selection of the sample was stratified by ownership types to ensure that all types of non-state enterprises, including formal and informal firms, in both urban and rural areas, were included in the sample.

After each survey round, the sample firms that had exited or stopped cooperating with the survey were replaced by formal firms selected from a list compiled by the Government Statistics Office and by informal firms selected on-site (see, for details of this procedure, Demenet et al., 2010 and Rand and Torm, 2012). The sample size for each survey was around 2,500 firms. Almost the same questionnaires were used in these surveys to collect data in a consistent manner. The data cover variables representing firm's general characteristics, owner/managers' household characteristics, production and costs, sales and export activities, employment, investment, assets, liabilities and credit, and taxes.

4.3.2 Measurement of uncertainty

As mentioned above, the literature uses a diversified measurement of uncertainty. There are at least four approaches to calculate a proxy for the measurement of the uncertainty: (i) unconditional volatility of a variable that could play an important role in a firm's investment decision (Pindyck, 1986; Bell and Campa, 1997; Ogawa and Suzuki, 2000); (ii) unconditional variances of variables that are important for firm investment decisions (Episcopos, 1995; Price, 1996); (iii) firms' perception of future growth of a particular variable that is important for a firm's

investment decision (Pattillo, 1998; Guiso and Parigi, 1999; and Le et al., 2004); and (iv) the volatility of a particular variable that is important for investment decision using AR model residuals (Ghosal and Loungani 1996; Leahy and Whited, 1996).

In regard to the macroeconomic uncertainty variable, there is no consensus in the literature over the best measurement. In general, most of the current studies use the volatility of exchange rates, input/output prices, stock returns, demand for products that a given firm produces, profit or demand shocks as the proxy for macroeconomic uncertainty (Stein and Stone, 2013). This chapter focuses on volatility of the monthly real lending interest rate as the measure of uncertainty and uses two measures: the first measure is the (unconditional) standard deviation of the real lending interest rate, and the second measure is the conditional covariance obtained from a GARCH(1,1) process. This may be expressed as follows:

$$x_m = \alpha_0 + \alpha_1 \tau + \alpha_2 x_{m-1} + \epsilon_m$$

$$h_m^2 = \beta_0 + \beta_1 h_{m-1}^2 + \beta_2 \epsilon_{m-1}^2$$

where x_t is the variable of interest (i.e. monthly real lending interest rate), τ is the time trend, ϵ_t is the error term, and h_t^2 is the conditional variance of ϵ_t and is used to measure the macroeconomic uncertainty considered in this chapter. The monthly real lending interest rate data used here cover the period from January 2002 to December 2014. At each data point, all past information is utilized to calculate the standard deviations of the error terms.[11]

In the empirical results, I report the empirical results using a measure of uncertainty obtained from GARCH process. This type of uncertainty measurement is closer to the true meaning of uncertainty (Demir, 2009a). The results using other

[11] I also tried to construct the uncertainty measure by computing 3-year overlapping standard deviations of the residuals. The estimation results are not different.

measures were not significantly different from those reported.

4.4. Descriptive statistics

Table 4.2 presents basic descriptive statistics about investment among SMEs in the sample for this chapter. The proportion of firms that undertook productive investment declined from 36.0% in 2007 to only 26.5% in 2013. The proportion of both groups of firms, i.e. one with at least a contact in the banking sector and one without any contacts in the banking sector, that have productive investment activity declined over time. Sole proprietorship firms carrying out productive investment activities are less likely to undertake non-productive investment than incorporated firms. For both sole proprietorship firms and incorporated firms, productive investment experienced a declining trend during the period under study.

[TABLE 4.2 ABOUT HERE]

The productive investment rate declined from 6.0% in 2007 to 2.9% in 2013. Declining trend is observed in all categories of firms. Incorporated firms experienced a particularly sharp fall, from 10.6% in 2007 to only 3.9% in 2013. Similarly, the productive investment rate of credit unconstrained firms also declined sharply from 8.7% in 2007 to 3.4% in 2013.

With regards to portfolio choice, the proportion of firms that had non-productive investment increased significantly from 9.0% in 2007 to more than 42% in 2009 and then declined to 32.8% in 2013. Firms without any contacts in the banking sector and incorporated firms were more likely to carry out non-productive investment activities than credit unconstrained firms and sole proprietorship firms. During this period, the non-productive investment rate also rose from 1.41% in 2007 to around 9.2% in 2009 and slightly declined to 7.9% in 2011 and 4.6% in 2013.

[TABLE 4.3 ABOUT HERE]

Table 4.3 provides some basic statistics about firms in the sample. The mean of the ratio of revenue to productive assets is no different between two groups of firms, i.e. one with at least a contact in the banking sector and one without any contacts in the banking sector, but slightly higher for incorporated firms than for sole proprietorship firms. The ratio of profit to productive assets is about 0.67 for the whole sample and all of the firm types. On average, each firm in this sample employs about 14 persons. Firms without any contact in the banking sector, on average, have fewer employees than credit unconstrained firms. Between sole proprietorship firms and incorporated firms, there is a large difference in employment size: while sole proprietorship firms employ 6.38 persons on average,[12] incorporated firms employ more than 38 persons on average.

With regards to the number of contacts in the banking sector, on average, each firm had less than one contact, even though incorporated firms had about two contacts on average. Firms without any contact in the banking sector and sole proprietorship firms, on average, have a fewer number of contacts in the banking sector and, hence, the rate of access to formal credit in the previous period is lower than for credit unconstrained firms and incorporated firms. The average firm age in this sample is 20.1 years. A little less than half of the sample firms are located in urban areas. While the majority of sole proprietorship firms are located in rural areas, nearly 70% of incorporated firms are located in urban areas.

[TABLE 4.4 ABOUT HERE]

Table 4.4 presents the average amount of bank loans to SMEs during 2005-

[12] This figure does not include the owner herself/himself.

2013. The first column reports the average bank loan for all firms in the sample, while the second column is the average amount of bank loan among firms that applied for bank credit and the third column presents the share of firms that apply for bank loans. Column 1 shows that the average bank loan was peaked in 2009, the year that experienced the highest level of macroeconomic uncertainty. The data in this column further shows that the average bank loan reduced when the macroeconomic condition became more stable during the period from 2011 to 2013. Data reported in columns 2, 3 indicates an interesting phenomenon. While it is easy to imagine a positive correlation between macroeconomic uncertainty and credit demand, which is reflected by an increase in the proportion of firms that apply for bank loans, increasing demand for bank loan does not reduce the average amount of bank loans that an average firm can get from banks. This implies that in reality, accessing to bank loans may not be a serious issue for SMEs during the macroeconomic uncertainty as suggested by a large number of literature. This phenomenon may also indicate other interesting phenomena with regard to investment behavior of firms in the sample.

[FIGURE 4.1 ABOUT HERE]

Figure 4.1 presents the pattern of the lending interest rate volatility, the proxy for my measure of uncertainty. Before 2007, the lending interest rate was rather stable. However, from 2007 to 2009, there was a large fluctuation, mostly due to the global financial crisis. In Vietnam, the shock of the crisis was slightly smoothened after 2009, partly due to the Vietnamese Government's intervention (CIEM, 2013).

4.5. Heterogeneous effects of firm investment behavior under uncertainty

4.5.1. Empirical strategy

In this chapter, due to a high proportion of firms with zero investment, I use random effects Tobit estimators to estimate the following equations:

$$invrate_{it} = \theta_0 + \theta_1 UNC_{t-1} + \theta_2 ACC_{it-1} + \theta_3 Corp_{it-1} + \theta_4 X_{it-1} + \vartheta_{it} \qquad (4.1)$$

where ϑ_{it} is an independently and identically distributed error term. In this equation, the dependent variable, $invrate_{it}$, is either the productive investment rate and the non-productive investment rate of firm *i* at time *t*. The productive investment rate is the ratio of investment on building, equipment and machinery, research and development and training[13] to the total physical asset at the end of the last period. In this chapter, I refer to these investments for production as productive investment. *Non-productive investment rate 1* is the ratio of non-productive investment, such as in real estate, equity in other firms, and other investments to total productive assets at the end of the last period. *Non-productive investment rate 2* is similar to the *Non-productive investment rate 1,* but I do not include investment in real estate in the total non-productive investment.

The measure of macroeconomic uncertainty at time *t-1* is denoted as UNC_{t-1}. I expect that macroeconomic uncertainty would have a negative correlation with productive investment, mostly because of the higher irreversibility of productive investment. Meanwhile, opportunities to hedge the risks and having higher potential earnings during the uncertain period would lead to an increase in the non-productive investment rate.

The variable ACC_{it-1} is a vector of standard variables in accelerator investment models, including a firm's revenue/production assets and profit/production assets. *Revenue/productive asset* is the ratio of the total revenue of

[13] The majority of firms use their houses as production facilities as well. It is practically impossible to determine whether particular land investment is for living or for production. Instead, I treat real estate investment as non-productive investment.

firm i at time t to the total value of production assets. This variable captures investment opportunities and is considered as an accelerator factor. *Profit/productive asset* is the ratio of net profits (i.e. total revenues minus the sum of material costs, labor costs, interest payments, and tax payments) to the total value of the production asset. A higher ratio of profit over the production assets implies more financial resources (or less financial constraints) for firms, and thus an increase in this ratio could increase the investment rate. The allocation of extra resources due to an increase in this ratio to different types of investment, however, is ambiguous. Firms may increase their investment in productive assets or non-productive assets to enjoy potentially higher rate of returns, especially when the demand for their products is uncertain or stagnant. The ratio of revenue over productive assets acts as the accelerator factor. As this ratio increases, firms may increase their investment in productive assets to take advantage of the growing market, suggesting that an increase in the ratio of revenue over productive assets would cause an increase in productive investment and a decline in non-productive investment.

I also control for a vector of firm's characteristics, which is denoted as X_{it-1} and may influence a firm's investment. It includes firm size and its square, whether demand constraint was the most important growth constraint, and whether a firm is incorporated, a firm's industry dummies, location dummies, and the interaction between industry dummies and year dummies and between location dummies and year dummies.

Heterogeneity effects of macroeconomic uncertainty

To examine the heterogeneity effects of macroeconomic uncertainty, I use several indicators to separate the sample into two groups. The first indicator is whether the firm has any contacts in the banking sector (i.e. information from the

question: "Approximately, with how many people do you currently (presently) have regular contact with? (Contact at least once every 3 months, which you find useful for your business operations in each of the following categories: (3) Bank officials"). The second indicator is whether a firm could get bank loans or not while the third one is whether bank loans are major sources of investment finance (i.e. loans from banks account for more than 50% of total investment).

Appendix 4.1 presents the justification of using information regarding the contact in the banking sector to distinguish firm's advantage and disadvantage in accessing to bank credits using the pair-wise correlation and some econometric models to examine how having no contact in the banking sectors is correlated with investment decisions, decisions regarding applying for bank loans, the share of bank loans in the total investment and the share of own capital in the total investment (with and without control for sample selections due to investment decisions and applying for bank loans).

To further examine the heterogeneity effect of macroeconomic uncertainty on investment, I divide the sample into two groups. The first group includes firms that did not get bank loans, while the second one consists of firms that get bank loans for their investment. Because the decision to apply for bank loans is potentially endogenous, I use the regime switching endogenous estimators to account for the endogeneity. I augment the benchmark investment function (4.1) by adding the inversed Mills ratios for two regimes separately. There are two regimes under consideration: decision not to apply for bank loans and decision to apply for bank loans. For the first regime, the inversed Mills ratio is calculated from the following probit equation for each time t.

$$\Pr(NBL_{it} = 1 | (NBL_{it-1}, NBL_{i0}, X_{it})) = \Phi(\alpha_0^1 + \alpha_1^1 NBL_{it-1} + \alpha_2^1 NBL_{io} + X_{it-1}\beta_1^1 + \eta_{it}^1) \quad (4.2)$$

where $i = 1..N$ and $t = 1..T$, indicates firm i and time t. NBL_{it} is a dummy variable, taking the value of one if firm i decides not to apply for a bank loan at time t. X_{it} is a vector of control variables as in the main empirical equation (4.1). NBL_{it-1}, NBL_{io} are the dependent variables at time $t-1$ and time 1. These two variables act as the identification variables. Following Wooldridge (2005), I assume that the initial condition (NBL_{io}), is random.

For the second regime, the inversed Mills ratio is calculated from the following probit equation for each time t:

$$\Pr(BL_{it} = 1 | (BL_{it-1}, BL_{io}, X_{it}))$$

$$= \Phi(\alpha_0^1 + \alpha_1^1 BL_{it-1} + \alpha_2^1 BL_{io} + X_{it-1}\beta_1^1 + \eta_{it}^1) \qquad (4.3)$$

where $i = 1..N$ and $t = 1..T$, indicates firm i and time t. BL_{it} is a dummy variable, taking the value of one if firm i decides to apply for a bank loan at time t. X_{it} is a vector of control variables as in the main empirical equation (4.1). BL_{it-1}, BL_{io} are the dependent variables at time $t-1$ and time 1. These two variables act as the identification variables. Following Wooldridge (2005), I assume that the initial condition (BL_{io}) is random.

Therefore, for firms that do not use bank credits for their investment, the investment equation will be:

$$invrate_{it} = \theta_0 + \theta_1 UNC_{t-1} + \theta_2 ACC_{it-1} + \theta_3 Corp_{it-1} \qquad (4.4)$$

$$+\theta_4 X_{it-1} + \theta_5 IMR_{it}^{NBL} + \vartheta_{it}$$

For firms that use bank credits to finance a proportion of their investment, the investment equation is augmented as follows:

$$invrate_{it} = \theta_0 + \theta_1 UNC_{t-1} + \theta_2 ACC_{it-1} + \theta_3 Corp_{it-1} \qquad (4.5)$$

$$+\theta_4 X_{it-1} + \theta_5 IMR_{it}^{BL} + \vartheta_{it}$$

where IMR_{it}^{NBL} in equation (4.4) and IMR_{it}^{BL} in equation (4.5) are the inversed Mills ratio calculated from equation (4.2) and (4.3), respectively.

For the third indicator (i.e. whether bank loans are the major source of investment finance), I could control for sample selection because of the fact that only firms that have investment apply for bank loans. To do so, I estimate an investment decision as follows:

$$\Pr(Inv_{it} = 1|(Inv_{it-1}, Inv_0, X_{it})) =$$

$$\Phi(\alpha_0^1 + \alpha_1^1 Inv_{it-1} + \alpha_2^1 Inv_{i0} + X_{it-1}\beta_1^1 + \eta_{it}^1) \quad (4.6)$$

where $i = 1..N$ and $t = 1..T$, indicates firm i and time t. Inv_{it} is dummy variable, taking the value of one if firm i invests at time t. $X_{it}$is a vector of control variables as in the main empirical equation, i.e. revenue/asset; profit/asset, value of productive assets, firm age, firm size and firm size square, industry dummies, province dummies and year dummies. While past decisions to invest (Inv_{it-1}) are added to control for past behavior, the decision to invest at time $t = 1$ (Inv_{i0}), i.e. when the firm i joins the survey is considered as an identification variable. Following Wooldridge (2005), I assume that the initial condition (Inv_{i0}), is random.

Thus, the investment equation is augmented as follows:

$$invrate_{it} = \theta_0 + \theta_1 UNC_{t-1} + \theta_2 ACC_{it-1} + \theta_3 Corp_{it-1} + \theta_4 X_{it-1} + \theta_5 IMR_{it}^{MB} + \vartheta_{it} \quad (4.7)$$

where IMR_{it}^{MB} is the inversed Mills ratio calculated from equation (4.6).

4.5.2 Empirical results

Columns 1, 2 and 3 of Table 4.5 report the results of the estimation of equation (4.1) while the remaining columns present the estimation results of equation (4.1) augmented by the GDP growth. The dependent variable in columns 1 and 4 is the productive investment rate while those in columns 2 and 5 and in columns 3 and 6 are the non-productive investment rates 1 and 2, respectively. The estimation results

shown in columns 1, 2 and 3 indicate the opposite effect of the macroeconomic uncertainty on different types of investment. A standard deviation increase in macroeconomic uncertainty (mean: 0.814; standard deviation: 0.524) reduces the productive investment rate by 2 percentage points. This reduction is equal to a (nearly) 46% reduction in the average productive investment rate (mean: 0.045 and standard deviation: 0.13).[14,15] This result confirms my hypothesis 1. Meanwhile, the results show that macroeconomic uncertainty has positive effects on the non-productive investment rates (either including or excluding real estate investment). The effect is statistically significant at the 1% level. The estimated marginal effect indicates that a one standard deviation increase in macroeconomic uncertainty leads to a 4 percentage point increase in the non-productive investment rate, equal to 71% from the average non-productive investment rate (mean: 0.57; standard deviation: 0.15). This evidence lends support to hypothesis 3. This result is also in line with the empirical results found in Demir (2009a, b). Investment in financial assets of firms in the real sector is less negatively affected by the macroeconomic uncertainty than fixed-asset investment.

[TABLE 4.5 ABOUT HERE]

One can argue that a firm's investment decision may be driven by economic growth, not by macroeconomic uncertainty, although there is a highly negative correlation between macroeconomic uncertainty and economic uncertainty. To examine this, I add the GDP growth variable into equation 4.1. Columns 4, 5 and 6 of

[14] When I use the standard deviation of real lending interest rate as our measurement of macroeconomic uncertainty, this figure is 1.3 percentage points, or 27.6% of the average productive investment rate. The estimation results with standard deviation of real lending interest rate as the proxy for macroeconomic uncertainty is upon request.

[15] The magnitude of the estimated coefficient on macroeconomic uncertainty is smaller (in absolute value) when I do not control for the industry-wide shocks and location-wide shocks (the results are upon request).

Table 4.5 show that GDP growth has a positive correlation with the productive investment rate, but it has a negative correlation with the non-productive investment rate. This suggests that when economic growth is high, firms are more likely to increase their productive investment and reduce non-productive investment. Controlling for the economic growth variable, in our estimation, does not change the relationship between macroeconomic uncertainty and firm investment (including both productive investment and non-productive investment). The magnitude of such a relationship reduces when the economic growth is controlled, indicating the correlation between the economic growth and macroeconomic uncertainty.

Tables 4.6 and 4.7 report the estimation results using different measures of macroeconomic uncertainty. In columns 1, 2 and 3, I use the 3-year moving window conditional variance obtained from a GARCH(1,1) process; in columns 4, 5 and 6, I use the 3 year moving window unconditional standard deviation of the monthly real lending interest rate; and I use the 3 year moving window unconditional standard deviation of monthly inflation index in the remaining columns. I include the GDP growth as an additional variable in Table 4.7. The estimation results are also not significantly different from the findings presented in Table 4.5. That is, macroeconomic uncertainty, regardless of how it is measured, has a negative correlation with productive investment and a positive correlation with non-productive investment. The estimation results also confirm that an increase in the GDP growth has a positive association with the productive investment rate and a negative association with the non-productive investment rate.

[TABLES 4.6-4.7 ABOUT HERE]

Heterogeneous effects of macroeconomic uncertainty

Different types of firms may respond differently to macroeconomic uncertainty. Table 4.8 presents the estimation results of equation 4.1 separately for SP firms and for incorp firms. The sample in columns 1, 2 and 3 include SP firms while columns 4, 5 and 6 consist of incorp firms. The dependent variables in columns 1 and 2 are the productive investment rate while those in columns 2 and 5 and in columns 3 and 6 are the non-productive investment rates 1 and 2, respectively. The estimation results show that macroeconomic uncertainty has a negative effect on productive investment of both SP firms and incorp firms. However, this negative effect seems to be higher among the incorp firms. A standard deviation increase in the macroeconomic uncertainty causes a decline in the productive investment rate by 1.2% among SP firms while the figure for incorp firms is 3.1%. Meanwhile, for both types of firms, macroeconomic uncertainty is positively associated with non-productive investment rates, regardless of whether real estate investment is viewed as a non-productive investment item or not. The magnitude of the coefficients of the macroeconomic uncertainty variable is slightly higher for incorp firms. Similar to the estimation results with the whole sample, other variables such as the ratio of revenue to productive assets (as accelerator factor) or the ratio of profit over productive assets (indicating the internal finance) still has no statistically significant associations with all type of firm's investment rates.

[TABLE 4.8 ABOUT HERE]

Having at least a contact in the banking sector, as shown in Appendix 4.A3, may help firms to find it easier to access bank loans. Table 4.9 reports the estimation results for two types of firms: firms having no contact in the banking sector (columns 1, 2 and 3) and firms having at least one contact in the banking sector (columns 4, 5 and 6). Similar to Table 4.8, the dependent variables in columns 1 and 2 are the

productive investment rate while those in columns 2 and 5 and in columns 3 and 6 are the non-productive investment rates 1 and 2, respectively. Similar to the case in which whole sample is used, for both groups of firms, macroeconomic uncertainty is negatively associated with the productive investment rate and positively associated with the non-productive investment rate. An increase in macroeconomic uncertainty, however, causes a larger drop in the productive investment rate among the firms that have at least one contact in the banking sector compared to firms that do not have any contact in the banking sector. Meanwhile, a standard deviation increase in macroeconomic uncertainty causes firms with at least one more contact in the banking sector to increase their non-productive investment rate by 7.4% (and 9.3% if not taking into account real estate investment) while the figure for firms without any contact in the banking sector is only 4.7% (5.2% if not taking into account real estate investment). This suggests that firms that are more likely to access bank finance tend to use their money, either of their own or of their bank loans, to invest in non-productive investment as macroeconomic uncertainty increases.

[TABLE 4.9 ABOUT HERE]

Using different measures of macroeconomic uncertainty, Tables 4.10, 4.11 and 4.12 report estimation results on the relationships between different measures of macroeconomic uncertainty and different types of investment rates among the two types of firms. These are firms with at least one contact in the banking sectors and those without any contact in the banking sector that may find accessing bank finance more difficult. The measurement of macroeconomic uncertainty in Table 4.10 is the 3-year moving window conditional covariance obtained from a GARCH(1,1) process; in Table 4.11 it is the 3 year moving window unconditional standard deviation of monthly real lending interest rate; and in Table 4.12 it is the 3 year moving window

unconditional standard deviation of the monthly inflation index. The estimation results further confirm the results presented in Table 4.8 when the measure of macroeconomic uncertainty is proxied by the conditional covariance obtained from a GARCH(1,1) process with all information from January 2002 to December of year t-1 utilized. In all the cases, an increase in macroeconomic uncertainty causes a larger decline in the productive investment rate for firms with at least one contact than for firms without any contact. Meanwhile, an increase in macroeconomic uncertainty is correlated with a higher non-productive investment rate of firms with at least one contact in the banking sector.

[TABLES 4.10-4.12 ABOUT HERE]

We examine whether macroeconomic uncertainty has heterogeneity effects caused by a firm's decision to borrow from banks to finance their investment I continue to divide the sample into two groups: one group including firms that decide not to borrow from banks and another group consisting of firms that decide to borrow from banks. As in Table 4.9, columns 1, 2 and 3 in Table 4.13 report the estimation results using the first group of firms while columns 4, 5 and 6 present the results using the second group of firms. As presented in the empirical strategy section, I add the inversed Mills ratio to control for the sample selection raising due to the fact that only firms that have investment activities decide to whether to borrow or not. The inversed Mills ratio is calculated from two equations, one relating to an investment decision at each time t and the other relating to the decision to borrow from banks. The estimation results are presented in Appendix 4.A1 and Appendix 4.A2. The estimation results indicate that as macroeconomic uncertainty increases, those firms that decide not to apply for a bank loan (thus, could not get a bank loan) reduce their productive investment less than firms that decide to apply for a bank loan. The second group of

firms, i.e. firms that decide to borrow from banks, increase their non-productive investment at a higher rate than firms that do not borrow from banks. This indicates that during the period of high macroeconomic uncertainty, firms may use their bank loans for non-productive investment. Furthermore, they may also shift a share of their productive investment to non-productive investments. The estimation results confirm the previous results, i.e. firms that have at least one contact in the banking sector, or firms that have more advantage in accessing to bank credits may increase their non-productive investment rate at a rate greater than other firms. They may use their likely advantage in access to bank loans and reduce the productive investment to increase non-productive capital.

[TABLE 4.13 ABOUT HERE]

To further examine this result, I have used different measures of macroeconomic uncertainty. Tables 4.14, 4.15 and 4.16, respectively, present the results with the 3-year moving window conditional covariance obtained from a GARCH(1,1) process, the 3-year moving window unconditional standard deviation of monthly lending interest rate and the 3-year moving window unconditional standard deviation of monthly inflation index. The estimation results show similar patterns regarding heterogeneity effects of macroeconomic uncertainty on firm investment behavior by their potential advantage in accessing to bank loans.

[TABLES 4.14-4.16 ABOUT HERE]

We further examine whether macroeconomic uncertainty has heterogeneity effects by their major financial sources for investment. I divide the sample into two groups: one group consisting of firms that finance less than 50% of their total investment using the loans from the banking sector and the other group including

firms that finance more than 50% of their total investment rate. Columns 1, 2 and 3 of Table 4.17 report the estimation results using the first group of firms while columns 4, 5 and 6 present the results using the second group of firms. As presented in the empirical strategy section, I add the inversed Mills ratio to control for the sample selection raising due to the fact that only firms that have investment activities have information regarding the financing source for investments. The inversed Mills ratio is calculated from estimating the investment decision at each time t. The estimation results are presented in Appendix 4.A1. The estimation results indicate that as macroeconomic uncertainty increases, those firms where bank loans account for at least 50% of the total investment cost experience a larger decline in the productive investment rate but have a larger increase in the non-productive investment rate compared to those firms that finance most of their investment by other sources of finance such as their own savings or informal loans. This indicates that during the period of high macroeconomic uncertainty, firms that can finance most of their investment by bank loans seem to invest more in non-productive investments. Furthermore, they may also reduce productive investments to increase their non-productive investments. The estimation results confirm the previous results, i.e. firms with more contacts and firms with bank credits may increase their non-productive investment rate at a rate larger than firms without any contacts. They may use their likely advantage of access to bank loans and reduce the productive investment to increase non-productive capital.

[TABLE 4.17 ABOUT HERE]

To further examine this result, I have used different proxies for macroeconomic uncertainty. Tables 4.18, 4.19 and 4.20, respectively, present the results with the 3-year moving window conditional covariance obtained from a

GARCH(1,1) process, the 3-year moving window unconditional standard deviation of monthly lending interest rate and the 3-year moving window unconditional standard deviation of the monthly inflation index. Similar to previous robustness checks with different measures of macroeconomic uncertainty, I do not find different patterns of firm investment behavior when different measures of macroeconomic uncertainty are used.

[TABLES 4.18-4.20 ABOUT HERE]

4.6. Conclusions

Using rich and rather a large panel dataset of Vietnamese micro, small and medium firms collected once every two years from 2005 to 2013, this chapter examines the relationship between macroeconomic uncertainty and firm investment, including productive and non-productive investment, in Vietnam under credit constraints. In this chapter, I use the conditional variance of the real lending interest rate obtained from a GARCH(1,1) process as a proxy for macroeconomic uncertainty. To identify credit-constrained firms, I use the indicator of whether the firm has any contact in the banking sector or not.

The empirical evidence shows that macroeconomic uncertainty has a negative and statistically significant effect on the productive investment rate. Furthermore, the estimation results also show that firms that have advantage in accessing to bank credit, or access to bank credits and are able to finance most their investment by bank credits reduce their productive investment rate to a lower level than firms that that have disadvantage in accessing to bank credit, or could not access to bank credits and are not able to finance most their investment by bank credits. The empirical results also indicate that effects of macroeconomic uncertainty are significantly different for sole

proprietorship firms and incorporated firms, and that sole proprietorship firms, on average, have a lower productive investment rate than incorporated firms. However, the difference in the effects of macroeconomic uncertainty seems to be small.

With regards to non-productive investment, the estimation results show that as macroeconomic uncertainty increases, firms tend to increase the non-productive investment rate. The increase in the rate of non-productive investment, however, is higher among firms with at least a contact in the banking sector, or access to bank credits and/or bank credits as their most important source of investment finance. I also do not find a heterogeneous effect of macroeconomic uncertainty on investment by firm ownership type. Meanwhile, the estimation results show that credit constraint has a negative effect on the non-productive investment rate and the macroeconomic uncertainty does not dampen the effect of credit constraint on the non-productive investment rate.

The results also indicate that the accelerator factor has a positive effect on productive investment but they do not have a statistically significant effect on the non-productive investment rate. Moreover, on average, firms in the sample do not depend on the internal funds to finance both their productive and non-productive investment.

CHAPTER 5

CONCLUSION

Since opening its economy, Vietnam has achieved remarkable achievements. The economic reform starting in 1986 was further accelerated when the country joining the WTO in 2007. The accession to the WTO is expected to bring about various opportunities for business entities, including SMEs, a significant player during the reform process in Vietnam. This accession, however, also bring about challenges for the SME sector. Production costs are high while the product are usually obsolete and do not embed any significant innovation. Moreover, the lack of advanced technology, limited access to credit, weak management/business skills, and inadequate information on input and output market among others have hindered the development of SMEs not only domestically but internationally.

Understanding the potential constructions as well constraints faced by SMEs remains important, as this sector continues to play an increasingly important role in the economic growth and employment of Vietnam. This dissertation examined two issues that could be possible hindrances for the growth of this sector in Vietnam. The first hindrance is related to management capacity, while the second one is related to the sources of low and infrequent capital investment. More specifically, in chapter 3, I have taken advantage of the panel nature of the data consisting of micro, small and medium firms in Vietnam to address two issues: First, while some previous studies have found a positive correlation between the adoption of good business practices and firm performance, some others do not find such a relationship. These mixed results suggest that this relationship should be further studied in different contexts with different sets of instruments. Second, the reason why some firms adopt good business

practices while others do not is unclear, especially among micro, small and medium firms in developing economies. In chapter 4, I examined the relationship between macroeconomic uncertainty and firm investment, including productive and non-productive investment, in Vietnam under credit constraints.

Regarding the first issue, the results, as presented in Chapter 3, show that the adoption of good business practices improves firm performance. I find that, on average, five (out of seven) business indicators have positive associations with firm productivity. Moreover, all business indicators are positively correlated with firm employment. I, however, find a heterogeneity in the associations between each business practice indicator and firm productivity by firm type. The analysis also shows that each business practice indicator is associated with different performance indicators of different type of firms in a very different patternFive (out of seven) business indicators have positive associations with firm performance. To make it easier to interpret, and easier to control for the potential endogeneity of these indicators, I bundle these business practice indicators into a single measure of business practices, named the business practice score. I find that a one standard deviation increase in the business practice score leads to an increase in productivity by about 8%. The effects of the business practices on firm productivity are even higher when I control for the potential endogeneity biases of the business practice score. These results are consistent with the findings of McKenzie and Woodruff (2015), which show that a one standard deviation improvement in their business practice scores is associated with a 22% increase in the total factor productivity. The results also show that an increase in the business practice score has a stronger effect on the performance of sole proprietorship firms than on incorporated firms. This result, however, does not imply that business practices do not matter for the incorporated

firms. Similarly, I also find that improved business practices also have a positive effect on employment growth, although I do not find a positive effect of adopting the good business practices on the total employment, potentially due to the reserve causality problem. The estimation result shows that a one standard deviation increase in the business practice score leads to an increase in the total employment growth by 13.5%. With regards to factors that explain why some firms adopt good business practices and some do not, the estimation results suggest that firms that have a higher share of employees with university/college education and that experience a decline in competitiveness tend to have higher business practice scores. This is in line with the theoretical predictions of Van Reenen (2011), and the empirical findings of Bloom et al. (2012), which show that firms would adopt more "standard"/better business practices if the competitive environment becomes tougher and the employees are more educated.

This study provides further evidence to support results obtained in previous studies (e.g. Bloom and Van Reenen, 2007; McKenzie and Woodruff, 2015 among the others) regarding the role of the adoption of good business practices on firm performance. It also supports for the conjecture that good business practices are not only relevant for larger firms but also for smaller firms as well. The study, however, also suggests that it is necessary to further study the role of business practices on firm performance by using different indicators of business practices in a more diversified context.

To examine the relationship between macroeconomic uncertainty and firm investment, in Chapter 4, I use the conditional covariance of the real monthly lending interest rate obtained from a GARCH (1,1) process as a proxy for macroeconomic uncertainty and several indicators regarding financial sources for investment

including whether a firm has any contact in the banking sector, whether a firm gets a bank loans and whether a firm could finance most of their investment by bank credits. The empirical evidence shows that macroeconomic uncertainty has a negative and statistically significant effect on the productive investment rate of firms. Furthermore, I find that firms that have no contact in the banking sector, or could not access to bank credit and/or could not use bank credits as their major source of finance reduce their non-productive investment rate less than firms that have at least a contact in the banking sector, or could access to bank credits and/or could use bank credits as their major source of finance. The empirical results also indicate that the effect of macroeconomic uncertainty is not significantly different for sole proprietorship firms and incorporated firms, but sole proprietorship firms, on average, have lower productive investment than incorporated firms. The evidence is robust to different measures of macroeconomic uncertainty.

With regards to non-productive investments, the estimation results show that as macroeconomic uncertainty increases, firms tend to increase the non-productive investment rate. The effect of macroeconomic uncertainty on non-productive investments is stronger for the incorporated firms and firms that have at least a contact in the banking sector, or could access to bank credits and/or could use bank credits as their major source of finance. This implies that such firms may channel a larger share of funds into non-productive investment if the level of macroeconomic uncertainty is high. These firms may use their available funds to finance investment that may have higher rate of returns, especially when the financial market is liberalized and there are more options for them to invest.

The estimation results also indicate that the accelerator factor has a positive effect on the productive investment rate of firms in the data but it does not have a

statistically significant effect on the non-productive investment rate. Meanwhile, on average, firms in my sample do not depend on internal funds to finance both their productive and non-productive investments.

The findings in this dissertation have some policy implications. First, findings in chapter 3 indicate that the adoption of good business practices among small and medium firms in Vietnam is very low, and this has significantly hindered their growth. This implies that facilitating firms' adoption of good business practices should be important in order to improve these firms' competitiveness. Second, ensuring a stable macroeconomic stability is important. A stable macroeconomic environment not only encourages firms to invest more but also causes limited financial resource not to flow into non-productive investment. Third, coupled with ensuring a stable macroeconomic condition, financial frictions in the credit market should be remedied. As macroeconomic environment is stable, those firms, which have at least a contact in the banking sector, or are able to get bank credits and use bank credits as their major funding source to finance their investment, tend to increase their non-productive investment than other firms.

The findings in this dissertation have some implications for further studies. First, the results presented in Chapter 3 suggest that different types of firms may adopt different sets of business practices. In fact, the measurement of business practices is different from study to study. A consensus on the "standard" measurements of business practices that could be applicable to SMEs has yet to be reached. Bloom and Van Reenen (2010) argue that their measurement of management practices may not be suitable for firms in developing economies while business practice measurement by McKenzie and Woodruff (2015) seems so detailed that it may be subject to measurement errors, especially among SMEs in developing countries. This warrants

further studies that could test the effects of different sets of business practices on firm performance in different contexts and time frame. This, eventually, would help us to have a consensus on a "standard" measurement of business practices. Second, chapter 4 is limited to examining the relationship between uncertainty and productive and non-productive investments. We still do not know whether non-productive investment hinders the firm growth or facilitate firm growth. Moreover, chapter 4 has examined only the relationship between macroeconomic uncertainty and capital investment. It has not investigated the relationship between macroeconomic uncertainty and adjustments of other factor inputs such as labor inputs (including employment and wage rate) and managerial inputs. It is very important to understand such relationships, given the importance of the SME sector in job creation and the role of management in business success. Third, due to data limitation, this dissertation could not further explore underlying reasons for the heterogeneous effects of macroeconomic uncertainty on different types of investment. Potential reasons could be firm's orientations as well as entrepreneurs' changing attitude toward risks in the presence of high uncertainty and more investment options. Forth, chapter 4 in this dissertation would be stronger if the firm-level data is longer. Currently, the dataset consists of only five data points. This would make the estimated effects of macroeconomic uncertainty on firm investment less convinced. Fifth, this dissertation just limits at looking at the effect of macroeconomic uncertainty on firm investment behavior. One, however, would argue that uncertainty at the industry level may have a stronger effect on firm investment behavior. Therefore, examining how uncertainty at the industry level is associated with firm investment behavior could be an interesting topic for further study.

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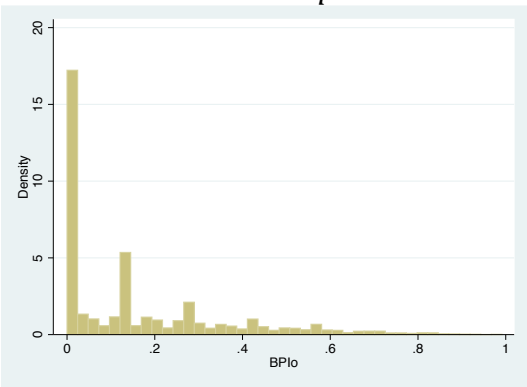
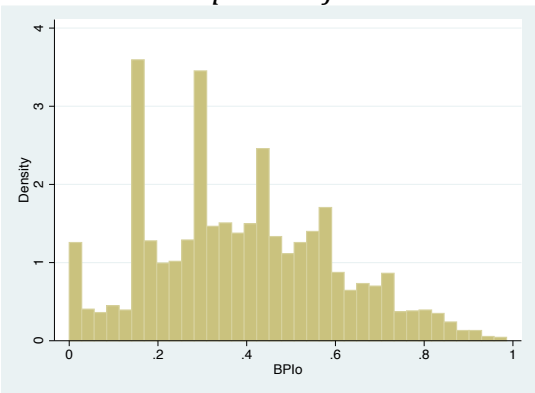
Figure 3.1: Distribution of business practice score

Whole sample



Incorporated firms



Sole proprietorship firms

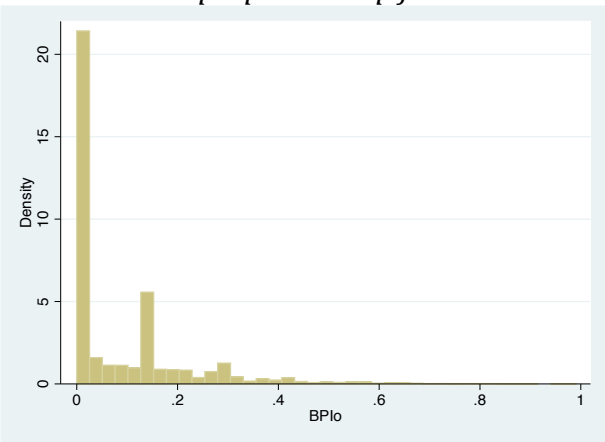
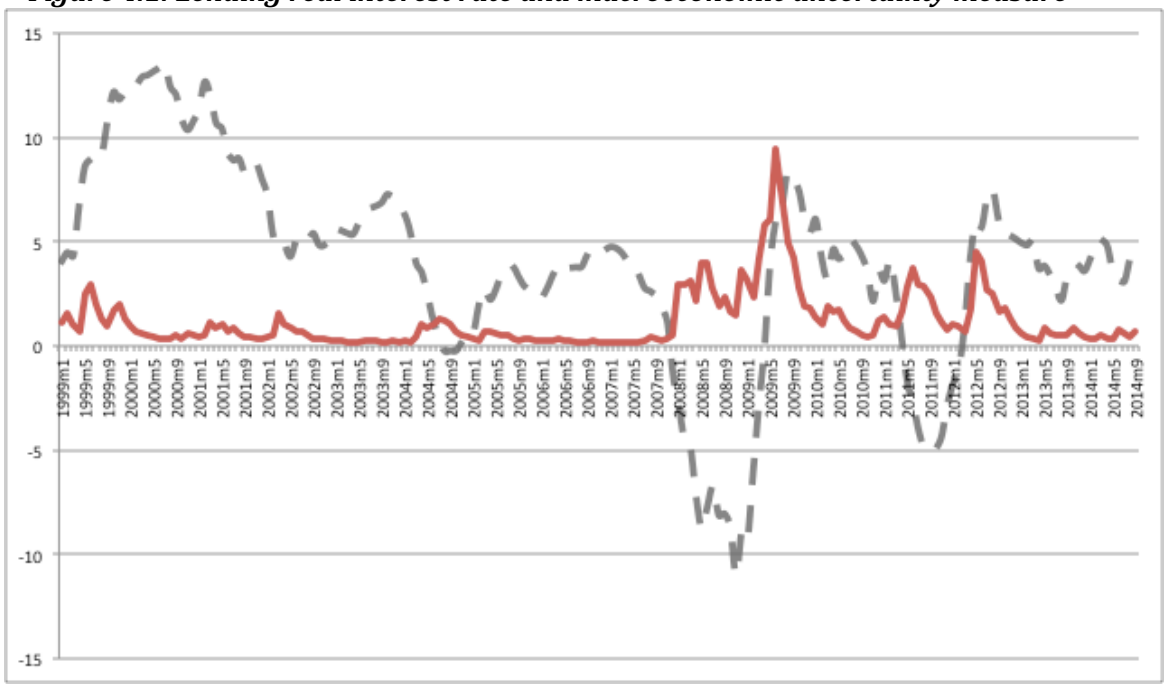


Figure 4.1: Lending real interest rate and macroeconomic uncertainty measure



- - - - - - - - - - - : real lending rate

_____: conditional variance

Figure 4.2: Investment rate and macroeconomic uncertainty

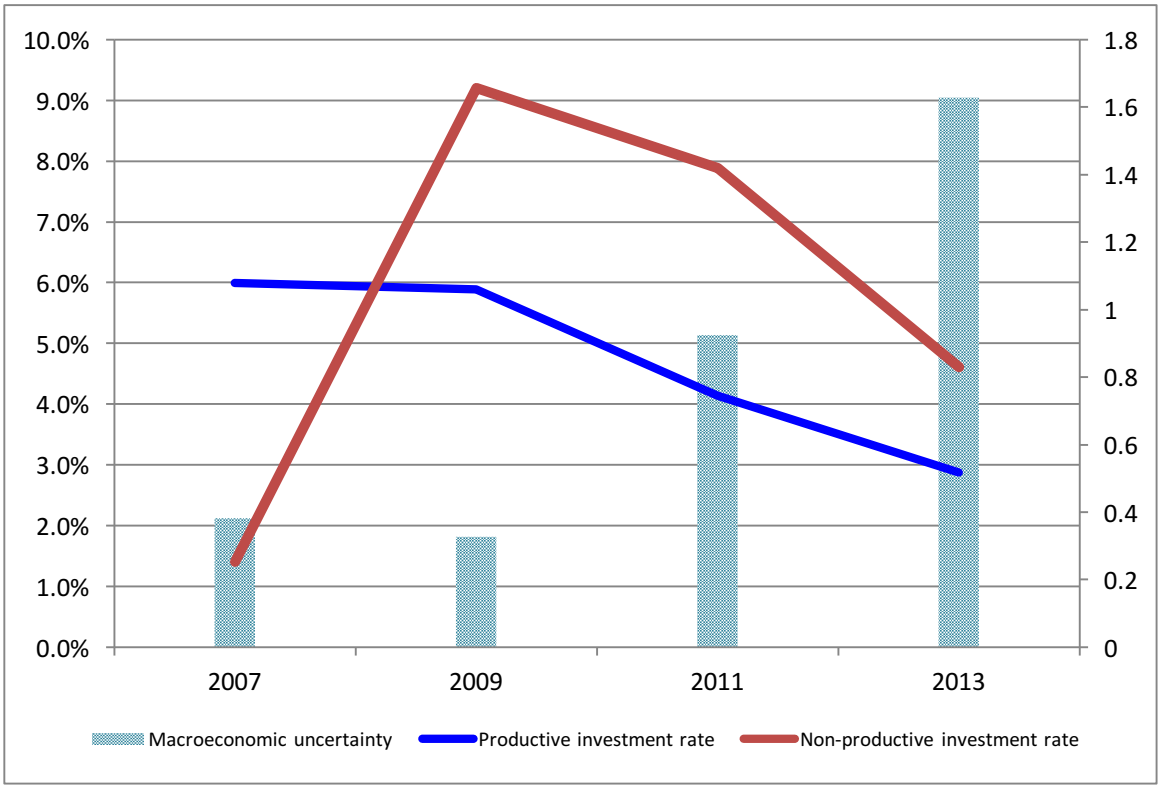


Table 2.1 Firm distribution over years

	2005	2007	2009	2011	2013	Total
2005	2,821	2,283	1,853	1,476	1,234	9,667
2007		352	253	197	169	971
2009			553	425	345	1,323
2011				454	358	812
2013					469	469
Total	2,821	2,635	2,659	2,552	2,575	13,242

Table 2.2 Firm distribution by provinces over year

Province	2005	2007	2009	2011	2013
Hanoi	10.8%	11.0%	11.0%	11.5%	11.2%
Phu Tho	10.1%	9.7%	10.1%	10.1%	10.3%
Ha Tay	14.3%	15.0%	14.6%	13.8%	13.7%
Hai Phong	7.2%	7.8%	8.3%	8.6%	7.7%
Nghe An	14.2%	13.8%	14.0%	14.0%	13.8%
Quang Nam	6.3%	6.7%	6.2%	6.6%	6.7%
Khanh Hoa	3.7%	3.6%	3.8%	4.0%	3.6%
Lam Dong	3.4%	3.3%	2.8%	2.9%	3.1%
HCMC	25.1%	24.3%	24.1%	23.5%	24.6%
Long An	5.0%	5.0%	5.2%	5.0%	5.4%

Table 2.3 Firm distribution by industry over year

Industry	2005	2007	2009	2011	2013
Agri-related	27.9%	27.9%	29.4%	30.3%	30.9%
Light	9.1%	10.7%	10.8%	11.5%	11.0%
Wood/Furni	20.2%	18.2%	18.2%	17.5%	17.6%
Chemicals	12.1%	12.2%	13.0%	11.8%	13.6%
Nonmetal	7.1%	5.9%	5.3%	4.7%	4.2%
Heavy	22.6%	22.3%	22.1%	23.0%	21.7%
Others	1.1%	2.8%	1.1%	1.2%	1.0%

Table 2.4. Overall statistics of the sample

		Survival	Exit	Difference
Revenue (Million VND)	Mean	1488.8	1881.4	-392.55
	SD	26300.0	11300.0	
Value added (Million VND)	Mean	320.2	400.6	80.44
	SD	1580.2	2106.2	
Employment (people)	Mean	17.3	22.9	5.54
	SD	47.1	75.5	
Capital (Million VND)	Mean	379.6	602.5	222.88
	SD	1477.0	4723.6	
Labor Productivity (Million VND)	Mean	14.4	14.3	-0.04
	SD	30.0	18.7	
Capital intensity (Million VND)	Mean	18.6	20.9	2.28
	SD	42.0	41.3	
% Regular employee	Mean	94.9%	93.7%	0.01
	SD	14.4%	16.4%	
% Professional employees	Mean	3.2%	4.5%	-0.01
	SD	6.7%	8.5%	
BPI (original)	Mean	0.162	0.165	0.00
	SD	0.202	0.196	
Total investment (million VND)	Mean	149.8	193.6	43.79
	SD	808.1	1385.3	
Productive investment rate	Mean	13.1%	17.6%	0.05
	SD	88.3%	166.2%	
Non-productive investment rate (with land/property)	Mean	17.7%	22.1%	0.04
	SD	122.2%	173.2%	
Non-productive investment rate (without land/property)	Mean	14.5%	19.6%	0.05
	SD	113.2%	170.0%	
Have contact in banking sector or not	Mean	35.4%	31.4%	-0.04
	SD	47.8%	46.4%	

Table 3.1: Questions to collect information on business practice indicators

Indicator	***Question***	***Section***
Having email address	Does the firm have an email address?	Firm Identification
Keeping accounting books	Does the enterprise maintain a formal accounting book in accordance with government guidelines? And If Yes, are these accounts audited?	Fees, taxes and informal cost
Training workers	"Does the enterprise normally (means more than 50% of the cases) train new workers?" And "Does the enterprise normally train (short term) existing workers?"	Employment
Being a member of business associations	Is your firm member of one or more business associations?	Networks
Advertising	Do you advertise your products?	Sales structure
Share of input purchased in other provinces	From where did the enterprise procure its raw material and other inputs in 2006. Give percentage distribution in terms of value. (Should add up to 100%). a) Same commune b) Other commune within district c) Other district within province d) Neighbouring province e) Other province (non-neighbouring) f) Import	Indirect costs, raw material and services
Share of outputs sold in other provinces	Location of customers (in 2006) of the most important product (in terms of value). (Should correspond to the most important product in question q17ba). Calculate as percentages. a) Same commune b) Other commune within district c) Other district within province d) Neighbouring province e) Other province (non-neighbouring) f) Import	Sales structure

Table 3.2: Pairwise correlations among business practice indicators, business practice scores and firm performance indicators

	Revenue	Value added	Firm size	Profit	Labor productivity	Using email	Advertising	Training workers	Business association member	Keeping accounting book	% input purchased in other province	% output sld in other provinces	BPS (z-score)	BPS (1st principal component)	BPS (origi)
Revenue	1.000														
Value added	0.952	1.000													
Firm size (total employment)	0.821	0.868	1.000												
Profit	0.929	0.961	0.777	1.000											
Labor productivity	0.691	0.717	0.277	0.769	1.000										
Using email	0.462	0.485	0.470	0.465	0.280	1.000									
Advertising	0.374	0.385	0.399	0.365	0.184	0.413	1.000								
Training workers	0.310	0.330	0.343	0.301	0.158	0.231	0.210	1.000							
Business association member	0.251	0.267	0.323	0.240	0.063	0.213	0.204	0.125	1.000						
Keeping accounting book	0.530	0.554	0.495	0.519	0.378	0.453	0.298	0.186	0.188	1.000					
% input purchased in other province	0.341	0.326	0.346	0.301	0.147	0.198	0.193	0.152	0.136	0.206	1.000				
% output sld in other provinces	0.465	0.466	0.506	0.436	0.192	0.267	0.219	0.191	0.236	0.246	0.328	1.000			
BPS (z-score)	0.670	0.690	0.708	0.644	0.341	0.668	0.616	0.517	0.510	0.596	0.543	0.611	1.000		
BPS (1st principal component)	0.674	0.694	0.705	0.650	0.354	0.721	0.641	0.471	0.472	0.659	0.513	0.603	0.986	1.000	
BPS (original)	0.676	0.697	0.706	0.651	0.357	0.688	0.608	0.521	0.474	0.674	0.531	0.591	0.987	0.996	1.(

Table 3.3: Basic statistics

	All firms		SP firms		Incorp firms		Not located in Hanoi and HCMC		Located in HN & HCMC	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Value added (VND Mill)	333.10	1674.70	112.90	401.80	989.80	3180.70	197.01	726.92	580.17	2622.76
Capital (VND Mill)	415.10	2319.20	145.50	923.80	1219.00	4244.10	271.79	1301.80	674.03	3466.70
Employment	18.20	52.70	8.60	19.70	46.90	93.70	14.60	46.59	24.75	61.77
Capital intensity (K/output)	1.62	3.05	1.51	2.82	1.97	3.62	1.37	2.39	2.09	3.94
Price cost margin	0.22	0.13	0.23	0.13	0.17	0.13	0.22	0.13	0.21	0.13
% Professional	0.03	0.10	0.01	0.00	0.10	0.10	0.02	0.06	0.06	0.09
% Regular employees	0.95	0.15	0.95	0.14	0.93	0.16	0.94	0.16	0.96	0.13
% owner with high school certificate	0.60	0.49	0.49	0.50	0.90	0.30	0.54	0.50	0.70	0.46
% owner with university degree	0.22	0.42	0.11	0.32	0.55	0.50	0.16	0.73	0.36	0.48
Business practice score	0.16	0.20	0.09	0.13	0.39	0.21	0.13	0.19	0.22	0.21
Advertising	0.11	0.32	0.05	0.21	0.32	0.46	0.10	0.83	0.17	0.37
Using email	0.14	0.35	0.04	0.20	0.43	0.50	0.08	0.27	0.25	0.43
Keeping accounting book	0.25	0.43	0.10	0.30	0.68	0.47	0.17	0.37	0.39	0.49
Training workers	0.15	0.36	0.10	0.30	0.31	0.46	0.10	0.30	0.24	0.43
Being a member of business association	0.09	0.28	0.04	0.20	0.22	0.42	0.09	0.29	0.08	0.27
% products sold in other provinces	0.20	0.32	0.14	0.28	0.39	0.35	0.18	0.32	0.25	0.32
% input purchased in other provinces	0.19	0.33	0.14	0.30	0.34	0.37	0.20	0.34	0.18	0.31

Note: Price cost margin is equal to (revenue – total cost)/total revenue; HN stands for Hanoi and HCMC stands for Ho Chi Minh City

Table 3.4: Correlation between business practice score and firm performance indicators (regression results)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent variables	Value added	Revenue	Profit	Survival chance	Value added	Revenue	Profit	Survival chance	Value added	Revenue	Profit	Survival chance
Business practice score (BPS)	0.081***	0.024***	0.091***	-0.046**								
	[0.013]	[0.007]	[0.018]	[0.022]								
Original BPS					0.432***	0.130***	0.460***	-0.284**				
					[0.065]	[0.033]	[0.091]	[0.114]				
BPS (1st principal component)									0.055***	0.016***	0.060***	-0.041***
									[0.008]	[0.004]	[0.012]	[0.015]
Total employment	0.726***	0.253***	0.492***	-0.061***	0.725***	0.253***	0.492***	-0.058**	0.726***	0.253***	0.492***	-0.055**
	[0.018]	[0.012]	[0.021]	[0.023]	[0.018]	[0.012]	[0.021]	[0.023]	[0.018]	[0.012]	[0.021]	[0.023]
Capital	0.104***	0.033***	0.134***	0.001	0.105***	0.033***	0.135***	0.001	0.105***	0.033***	0.134***	0.001
	[0.008]	[0.005]	[0.010]	[0.013]	[0.008]	[0.005]	[0.010]	[0.013]	[0.008]	[0.005]	[0.010]	[0.013]
Raw material		0.627***				0.627***				0.627***		
		[0.009]				[0.009]				[0.009]		
% regular employee	0.578***	0.221***	0.349***	-0.289***	0.576***	0.220***	0.346***	-0.284***	0.576***	0.220***	0.346***	-0.284***
	[0.046]	[0.031]	[0.058]	[0.099]	[0.046]	[0.031]	[0.059]	[0.099]	[0.046]	[0.031]	[0.059]	[0.099]
Being an incorp firm	0.095**	0.022	0.081	0.170***	0.079**	0.017	0.065	0.183***	0.079**	0.017	0.065	0.187***
	[0.040]	[0.021]	[0.057]	[0.045]	[0.040]	[0.021]	[0.057]	[0.046]	[0.040]	[0.021]	[0.057]	[0.046]
Firm age	0.170***	0.151***	0.219***	-0.221***	0.163***	0.149***	0.212***	-0.221***	0.161***	0.149***	0.210***	-0.221***
	[0.049]	[0.028]	[0.064]	[0.021]	[0.049]	[0.028]	[0.064]	[0.021]	[0.049]	[0.028]	[0.064]	[0.021]
Constant	7.383***	3.150***	7.057***	1.053***	7.322***	3.329***	7.006***	1.090***	7.368***	3.153***	7.073***	1.038***
	[0.202]	[0.136]	[0.254]	[0.211]	[0.202]	[0.141]	[0.272]	[0.209]	[0.213]	[0.137]	[0.254]	[0.211]
N	12861	12746	12819	10399	12861	12746	12819	10399	12861	12746	12819	10399

Table 3.5: Contribution of business practice indicators to value added and total employment

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variables	Value Added			Employment		
Firm groups	All	SP firms	Incorp firms	All	SP firms	Incorp firms
Labor input	0.727***	0.736***	0.703***			
	[0.018]	[0.021]	[0.038]			
Capital input	0.106***	0.091***	0.152***			
	[0.008]	[0.009]	[0.018]			
Capital intensity				-0.014***	-0.015***	-0.015***
				[0.002]	[0.002]	[0.004]
Advertising	0.008	0.002	0.011	0.098***	0.066*	0.113***
	[0.023]	[0.031]	[0.033]	[0.023]	[0.034]	[0.031]
Using email	0.106***	0.063	0.079**	0.104***	0.080**	0.104***
	[0.026]	[0.041]	[0.036]	[0.024]	[0.040]	[0.032]
Keeping accounting book	0.107***	0.093***	0.041	0.055***	0.071***	0.032
	[0.022]	[0.031]	[0.044]	[0.019]	[0.024]	[0.037]
Training workers	0.054***	0.090***	0.027	0.085***	0.092***	0.058**
	[0.020]	[0.024]	[0.035]	[0.015]	[0.018]	[0.025]
Business association member	0.005	0.095**	-0.077*	0.042*	0.064*	-0.005
	[0.029]	[0.041]	[0.042]	[0.024]	[0.033]	[0.036]
% input purchased in other province	0.082***	0.084***	0.084*	0.141***	0.161***	0.060
	[0.026]	[0.031]	[0.050]	[0.021]	[0.026]	[0.041]
% output sold in other provinces	0.064**	0.081**	0.018	0.184***	0.178***	0.164***
	[0.029]	[0.035]	[0.055]	[0.027]	[0.031]	[0.049]
% regular employee	0.577***	0.564***	0.691***	-0.934***	-0.911***	-0.982***
	[0.046]	[0.053]	[0.095]	[0.043]	[0.046]	[0.108]
Firm age	0.145***	0.078	0.187*	0.060	0.008	0.263***
	[0.049]	[0.060]	[0.096]	[0.040]	[0.046]	[0.083]
Intercept	7.183***	7.491***	7.002***	2.584***	2.480***	3.667***
	[0.274]	[0.204]	[0.421]	[0.154]	[0.139]	[0.364]
N	12846	9633	3212	12846	9633	3212

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. All the columns in this table are the estimation results using the FE estimator. Columns 1 and 4 include all firms in the sample; columns 2 and 5 include the sole proprietorship firms and columns 3 and 6 include the incorporated firms. The dependent variable in columns 1, 2 and 3 is the natural log of value added and in the remaining columns is the natural log of total employment. I include control variables in all the specifications. Control variables consist of the owner's education level and technical skills, firm industry, location and year dummies.

Table 3.6: Contribution of business practice indicators to value added and total employment: firms in Hanoi and HCMC vs firms in other provinces

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(1
Dependent variable	Value added						Employment demand					
Location	Not located in Hanoi and HCMC			Located in Hanoi and HCMC			Not located in Hanoi and HCMC			Located in Hanoi and HCMC		
Firm groups	All	SP firms	Incorp firms	All	SP firms	Incorp firms	All	SP firms	Incorp firms	All	SP firms	Incorp firms
Labor input	0.710***	0.716***	0.671***	0.738***	0.772***	0.709***						
	[0.023]	[0.024]	[0.066]	[0.028]	[0.039]	[0.042]						
Capital input	0.124***	0.104***	0.229***	0.088***	0.074***	0.111***						
	[0.011]	[0.012]	[0.034]	[0.012]	[0.015]	[0.021]						
Capital intensity							-0.018***	-0.023***	-0.014**	-0.010***	-0.010***	-0.014***
							[0.004]	[0.004]	[0.006]	[0.002]	[0.002]	[0.004]
Advertising	-0.010	-0.011	-0.023	0.032	0.040	0.018	0.071**	0.041	0.078*	0.134***	0.127*	0.140***
	[0.028]	[0.035]	[0.051]	[0.038]	[0.064]	[0.047]	[0.029]	[0.039]	[0.046]	[0.035]	[0.067]	[0.042]
Using email	0.103***	0.099*	0.055	0.086**	0.013	0.079	0.156***	0.114*	0.163***	0.063**	0.051	0.069*
	[0.032]	[0.053]	[0.046]	[0.038]	[0.061]	[0.051]	[0.037]	[0.059]	[0.049]	[0.032]	[0.054]	[0.041]
Keeping accounting book	0.126***	0.093*	0.035	0.114***	0.103**	0.083	0.058*	0.068	0.012	0.056**	0.073***	0.065
	[0.031]	[0.049]	[0.059]	[0.032]	[0.042]	[0.063]	[0.031]	[0.046]	[0.055]	[0.024]	[0.028]	[0.051]
Training workers	0.002	0.029	-0.007	0.082***	0.130***	0.040	0.107***	0.108***	0.084*	0.058***	0.067***	0.034
	[0.026]	[0.033]	[0.049]	[0.029]	[0.035]	[0.048]	[0.024]	[0.027]	[0.046]	[0.019]	[0.024]	[0.029]
Business association member	0.017	0.093**	-0.075	-0.007	0.098	-0.059	0.043	0.072**	-0.037	0.028	-0.003	0.026
	[0.032]	[0.044]	[0.053]	[0.060]	[0.107]	[0.070]	[0.028]	[0.036]	[0.047]	[0.044]	[0.076]	[0.054]
% input purchased in other province	0.080**	0.092***	0.093	0.093*	0.059	0.101	0.155***	0.173***	0.040	0.105***	0.120**	0.064
	[0.031]	[0.035]	[0.075]	[0.048]	[0.067]	[0.071]	[0.025]	[0.028]	[0.063]	[0.040]	[0.060]	[0.053]
% output sold in other provinces	0.104***	0.134***	-0.018	0.020	-0.001	0.043	0.253***	0.227***	0.269***	0.090**	0.076	0.078

	[0.037]	[0.042]	[0.088]	[0.046]	[0.061]	[0.071]	[0.036]	[0.038]	[0.081]	[0.039]	[0.052]	[0.061]
% Regular employee	0.515***	0.517***	0.585***	0.681***	0.650***	0.756***	-0.980***	-0.930***	-1.213***	-0.778***	-0.785***	-0.719***
	[0.054]	[0.059]	[0.143]	[0.090]	[0.137]	[0.123]	[0.051]	[0.052]	[0.165]	[0.075]	[0.095]	[0.126]
Firm age	0.022	-0.026	0.026	0.326***	0.282***	0.316**	0.039	0.025	0.159	0.142**	0.019	0.414***
	[0.063]	[0.075]	[0.132]	[0.079]	[0.099]	[0.135]	[0.052]	[0.064]	[0.106]	[0.062]	[0.065]	[0.122]
Intercept	7.179***	7.986***	7.415***	8.203***	8.049***	7.409***	2.577***	2.045***	3.494***	2.435***	2.532***	3.211***
	[0.239]	[0.297]	[0.642]	[0.343]	[0.374]	[0.564]	[0.177]	[0.230]	[0.493]	[0.231]	[0.232]	[0.333]
N	8304	6921	1382	4542	2712	1830	8304	6921	1382	4542	2712	1830

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. HCMC stands for Ho Chi Minh City

Table 3.7: Effects of business practice scores on productivity (main results)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Second stage									
BPS	0.071***	0.094***	0.032*	0.203**	0.272**	0.162	0.236***	0.311**	0.128
	[0.011]	[0.016]	[0.019]	[0.084]	[0.115]	[0.103]	[0.079]	[0.129]	[0.099]
Total employment	0.714***	0.721***	0.694***	0.688***	0.694***	0.661***	0.680***	0.683***	0.672***
	[0.014]	[0.017]	[0.029]	[0.023]	[0.026]	[0.039]	[0.023]	[0.028]	[0.040]
Capital	0.111***	0.099***	0.146***	0.105***	0.091***	0.137***	0.104***	0.089***	0.143***
	[0.007]	[0.008]	[0.016]	[0.009]	[0.011]	[0.019]	[0.009]	[0.011]	[0.019]
% regular employees	0.617***	0.600***	0.699***	0.610***	0.601***	0.670***	0.601***	0.594***	0.668***
	[0.044]	[0.051]	[0.094]	[0.046]	[0.054]	[0.100]	[0.048]	[0.055]	[0.103]
Firm age	0.245***	0.189***	0.233***	0.228***	0.182***	0.231**	0.224***	0.204***	0.146
	[0.044]	[0.056]	[0.090]	[0.049]	[0.058]	[0.097]	[0.050]	[0.059]	[0.099]
Being an incorp firm	0.111***			0.077*			0.057		
	[0.039]			[0.046]			[0.048]		
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: First stage									
Mean BPS at industry-province level				0.514***	0.497***	0.797***	0.528***	0.380***	0.796***
				[0.049]	[0.048]	[0.119]	[0.048]	[0.044]	[0.119]
No of passengers carried (provincial level)							0.392**	0.464***	0.300
							[0.182]	[0.174]	[0.975]
Panel C: Instrumental variable tests									
Underidentification test				96.01	96.03	37.141	114.108	79.052	38.842

Weak identification test				110.525	108.524	44.992	66.197	43.024	23.02
Overidentifcation test (p-value)							0.8126	0.7374	0.7457
N	12846	9631	3214	11539	8645	2686	11273	8518	2553

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns [1], [2] and [3] are the estimation results using the FE estimator while the remaining columns are the results from the FE-IV estimator. Panel A presents the second stage estimation, Panel B displays the 1st estimation results for instrumental variables while Panel C reports instrumental variable tests. Columns 1, 4 and 7 include all firms in the sample; columns 2, 5 and 8 include the sole proprietorship firms and columns 3, 6 and 9 include the incorporated firms. The dependent variable in all the specifications is the value added (in natural log, at constant prices). The business practice score (BPS) variable is the z-score of the average weighted sum of seven business practice indicators. Labor and capital variables are the natural logarithms of the total employment and productive capital (including building and equipment). I include control variables in all the specifications. Control variables consist of the owner's education level and technical skills, firm industry, location and year, interaction terms between year dummies and industry dummies and interaction terms between year dummies and province dummies. The instrumental variable in columns 4, 5 and 6 is the mean of the business practice scores of firms in the same industry and province for a given year. The instrument variables in columns 7, 8 and 9 are the mean of the business practice score at the industry-province level and the total number of passengers transported to and from the province in a given year.

Table 3.8: Effects of business practice scores on productivity (robustness check with BPS calculated from a principal component analysis of business practice indicators)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Second stage									
BPS	0.052***	0.067***	0.024*	0.173***	0.237**	0.130*	0.166***	0.229***	0.084
	[0.008]	[0.011]	[0.014]	[0.055]	[0.102]	[0.067]	[0.051]	[0.088]	[0.061]
Total employment	0.713***	0.721***	0.695***	0.679***	0.685***	0.658***	0.677***	0.681***	0.670***
	[0.018]	[0.021]	[0.036]	[0.023]	[0.030]	[0.040]	[0.023]	[0.028]	[0.039]
Capital	0.111***	0.098***	0.145***	0.104***	0.089***	0.135***	0.105***	0.090***	0.144***
	[0.008]	[0.009]	[0.018]	[0.009]	[0.011]	[0.019]	[0.009]	[0.010]	[0.019]
% regular employees	0.612***	0.594***	0.693***	0.600***	0.589***	0.669***	0.596***	0.587***	0.667***
	[0.046]	[0.053]	[0.097]	[0.047]	[0.055]	[0.101]	[0.048]	[0.056]	[0.103]
Firm age	0.249***	0.197***	0.230**	0.210***	0.172***	0.216**	0.207***	0.181***	0.146
	[0.049]	[0.061]	[0.097]	[0.051]	[0.061]	[0.098]	[0.051]	[0.061]	[0.099]
Being an incorp firm	0.097**			0.018			0.010		
	[0.040]			[0.055]			[0.055]		
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First stage									
Mean BPS at industry-province level				0.496***	0.328***	0.760***	0.519***	0.341***	0.812***
				[0.046]	[0.041]	[0.112]	[0.047]	[0.042]	[0.118]
Np of passengers carried (provincial level)							0.725***	0.866***	0.789
							[0.277]	[0.264]	[1.533]
Instrumental variable tests									

Underidentification test				102.857	60.302	38.179	181.739	75.327	41.345
Weak identification test				115.497	63.208	46.076	91.991	41.317	25.147
Overidentifcation test (p-value)							0.5997	0.4334	0.6756
N	12842	9631	3211	11521	8643	2670	11273	8518	2553

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns 1, 2 and 3 are the estimation results using the FE estimator while the remaining columns are the results from the FE-IV estimator. Panel A presents the second stage estimation, Panel B displays the 1st estimation results for instrumental variables while Panel C reports instrumental variable tests. Columns 1, 4 and 7 include all firms in the sample; columns 2, 5 and 8 include the sole proprietorship firms and columns 3, 6 and 9 include the incorporated firms. The dependent variable in all the specifications is the value added (in natural log, at constant prices). Labor and capital variables are the natural logarithms of the total employment and productive capital (including building and equipment). The business practice score (BPS) variable is the first components from principal component analysis using seven business practice indicators. I include control variables in all the specifications. Control variables consist of the owner's education level and technical skills, firm industry, location and year, interaction terms between year dummies and industry dummies and interaction terms between year dummies and province dummies. The instrumental variable in columns 4, 5 and 6 is the mean of the business practice scores of firms in the same industry and province for a given year. The instrument variables in columns 7, 8 and 9 are the mean of the business practice score at the industry-province level and the total number of passengers transported to and from the province in a given year.

Table 3.9: Effects of business practice scores on productivity (robustness check with the raw average of business practice indicators)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Second stage									
BPS	0.401***	0.525***	0.182	1.233***	1.534**	1.015*	1.195***	1.602**	0.637
	[0.066]	[0.084]	[0.111]	[0.431]	[0.741]	[0.562]	[0.406]	[0.656]	[0.502]
Total employment	0.713***	0.720***	0.695***	0.683***	0.692***	0.660***	0.680***	0.684***	0.672***
	[0.018]	[0.021]	[0.036]	[0.023]	[0.030]	[0.040]	[0.021]	[0.028]	[0.039]
Capital	0.111***	0.098***	0.145***	0.104***	0.091***	0.136***	0.106***	0.091***	0.144***
	[0.008]	[0.009]	[0.018]	[0.009]	[0.011]	[0.019]	[0.008]	[0.010]	[0.019]
% regular employees	0.612***	0.593***	0.694***	0.602***	0.588***	0.672***	0.596***	0.586***	0.669***
	[0.046]	[0.053]	[0.097]	[0.047]	[0.055]	[0.101]	[0.045]	[0.056]	[0.103]
Firm age	0.250***	0.199***	0.230**	0.218***	0.158**	0.220**	0.214***	0.190***	0.147
	[0.049]	[0.060]	[0.097]	[0.051]	[0.064]	[0.097]	[0.048]	[0.060]	[0.099]
Being an incorp firm	0.096**	.	.	0.026			0.016		
	[0.040]	.	.	[0.055]			[0.054]		
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First stage									
Mean BPS at industry-province level				0.483***	0.345***	0.706***	0.512***	0.365***	0.776***
				[0.046]	[0.042]	[0.111]	[0.040]	[0.043]	[0.117]
Np of passengers carried (provincial level)							0.085**	0.103***	0.045
							[0.037]	[0.034]	[0.189]
Instrumental variable tests									

Underidentification test				99.285	64.03	34.163	171.585	78.789	37.947
Weak identification test				111.08	68.057	40.167	86.74	43.4	22.574
Overidentifcation test (p-value)							0.7541	0.6266	0.7604
N	12844	9632	3211	11521	8643	2670	11273	8518	2553

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns 1, 2 and 3 are the estimation results using the FE estimator while the remaining columns are the results from the FE-IV estimator. Panel A presents the second stage estimation, Panel B displays the 1st estimation results for instrumental variables while Panel C reports instrumental variable tests. Columns 1, 4 and 7 include all firms in the sample; columns 2, 5 and 8 include the sole proprietorship firms and columns 3, 6 and 9 include the incorporated firms. The dependent variable in all the specifications is the value added (in natural log, at constant prices). Labor and capital variables are the natural logarithms of the total employment and productive capital (including building and equipment). The business practice score (BPS) variable is the average of seven business practice indicators. I include control variables in all the specifications. Control variables consist of the owner's education level and technical skills, firm industry, location and year, interaction terms between year dummies and industry dummies and interaction terms between year dummies and province dummies. The instrumental variable in columns 4, 5 and 6 is the mean of the business practice scores of firms in the same industry and province for a given year. The instrument variables in columns 7, 8 and 9 are the mean of the business practice score at the industry-province level and the total number of passengers transported to and from the province in a given year.

Table 3.10: Effects of business practice scores on productivity (robustness check: firms in industry-province cell with less than 5 firm-year and more than 30 firm-year dropped)

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	Firms located in industry-province cells with at least 5 firm year and less than 30 firm-year			Without firms located in industry-province cells among 2.5% largest increase in BPS and 2.5% smallest increases in BPS		
Second stage						
BPS	0.412**	0.533**	0.296	0.267***	0.320**	0.276*
	[0.167]	[0.214]	[0.256]	[0.093]	[0.152]	[0.163]
Total employment	0.660***	0.681***	0.616***	0.677***	0.688***	0.624***
	[0.034]	[0.037]	[0.067]	[0.022]	[0.028]	[0.047]
Capital	0.103***	0.084***	0.160***	0.103***	0.090***	0.136***
	[0.012]	[0.014]	[0.028]	[0.008]	[0.011]	[0.020]
% Regular employees	0.585***	0.607***	0.539***	0.602***	0.599***	0.646***
	[0.057]	[0.065]	[0.124]	[0.046]	[0.053]	[0.104]
Firm age	0.103	0.214***	-0.149	0.206***	0.204***	0.141
	[0.064]	[0.076]	[0.138]	[0.049]	[0.058]	[0.102]
Being an incorp firm	-0.017			0.037		
	[0.081]			[0.049]		
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
First stage						
Mean BPS at industry-province level	0.534***	0.478***	0.779***	0.579***	0.410***	0.764***
	[0.085]	[0.082]	[0.261]	[0.052]	[0.051]	[0.155]
Np of passengers carried (provincial level)	0.417*	0.402**	0.798	0.378*	0.409**	0.477
	[0.213]	[0.176]	[1.196]	[0.196]	[0.165]	[0.949]
Instrumental variable tests						
Underidentification test	47.048	44.553	10.305	132.805	73.725	26.087
Weak identification test	23.404	22.128	4.861	66.84	36.817	12.607
Overidentifcation test (p-value)	0.9448	0.8626	0.832	0.8695	0.7512	0.7435
N	7895	6141	1620	10784	8244	2341

Table3.11: Effects of business practice scores on productivity (robustness check: System GMM)

	(1)	(2)	(3)	(4)	(5)
Lagged dependent variable	0.202***	0.191***	0.163**	0.193***	0.192***
	[0.034]	[0.028]	[0.068]	[0.032]	[0.032]
Total employment	0.475***	0.630***	0.570***	0.501***	0.505***
	[0.140]	[0.176]	[0.158]	[0.135]	[0.135]
Capital	0.121	0.131	0.156*	0.121	0.122
	[0.077]	[0.098]	[0.088]	[0.075]	[0.075]
BPS (z-score)	0.154**	0.296*	0.134		
	[0.076]	[0.177]	[0.114]		
BPS (1st principal component)				0.112**	
				[0.045]	
BPS (raw calculation)					0.831**
					[0.350]
% Regular employee	-0.273	-0.339	-0.341	-0.125	-0.164
	[0.584]	[0.676]	[0.687]	[0.583]	[0.584]
Being an incorporated firm	0.243**			0.211**	0.208**
	[0.102]			[0.094]	[0.095]
Firm age	-0.125***	-0.110***	-0.079***	-0.122***	-0.123***
	[0.018]	[0.022]	[0.028]	[0.017]	[0.017]
Constant	6.554***	7.194***	7.875***	6.625***	6.568***
	[0.856]	[0.893]	[1.163]	[0.825]	[0.815]
No of instruments	50	47	46	50	50
AR(2) test (p-value)	0.784	0.552	0.48	0.89	0.915
Hansen test statistics (p-value)	0.273	0.409	0.352	0.248	0.231
NxT	8312	6429	2035	8312	8312

Table 3.12: Effects of business practice scores on employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Second stage									
BPS	0.133***	0.151***	0.103***	0.183***	0.209**	0.116	0.177***	0.200**	0.115
	[0.009]	[0.012]	[0.015]	[0.068]	[0.105]	[0.092]	[0.067]	[0.097]	[0.095]
Capital/Output	-0.013***	-0.014***	-0.014***	-0.013***	-0.014***	-0.014***	-0.013***	-0.014***	-0.014***
	[0.002]	[0.002]	[0.003]	[0.002]	[0.002]	[0.004]	[0.002]	[0.002]	[0.004]
% regular employees	-0.919***	-0.908***	-0.967***	-0.912***	-0.900***	-0.966***	-0.921***	-0.909***	-0.973***
	[0.033]	[0.036]	[0.075]	[0.044]	[0.050]	[0.102]	[0.044]	[0.049]	[0.105]
Firm age	0.108***	0.064	0.310***	0.099***	0.061	0.308***	0.080**	0.065	0.244***
	[0.035]	[0.042]	[0.074]	[0.038]	[0.044]	[0.079]	[0.038]	[0.044]	[0.082]
Being an incorp firm	0.192***	.	.	0.176***			0.168***		
	[0.030]	.	.	[0.042]			[0.043]		
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First stage									
Mean BPS at industry-province level				0.525***	0.380***	0.750***	0.517***	0.372***	0.735***
				[0.048]	[0.044]	[0.113]	[0.049]	[0.044]	[0.116]
Np of passengers carried (provincial level)							0.392**	0.464***	0.257
							[0.185]	[0.177]	[0.960]
Instrumental variable tests									
Underidentification test				104.511	70.115	36.887	108.37	74.952	35.211
Weak identification test				119.818	74.754	43.776	61.945	40.472	20.803

Overidentifcation test (p-value)							0.9386	0.8089	0.7613
N	12844	9632	3211	11521	8643	2670	11273	8518	2553

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns 1, 2 and 3 are the estimation results using the FE estimator while the remaining columns are the results from the FE-IV estimator. Panel A presents the second stage estimation, Panel B displays the 1st estimation results for instrumental variables while Panel C reports instrumental variable tests. Columns 1, 4 and 7 include all firms in the sample; columns 2, 5 and 8 include the sole proprietorship firms and columns 3, 6 and 9 include the incorporated firms. The dependent variable in all the specifications is the total employment (in natural log). Labor and capital variables are the natural logarithms of the total employment and productive capital (including building and equipment). The business practice score (BPS) variable is the z-score of the average weighted sum of seven business practice indicators. I include control variables in all the specifications. Control variables consist of the owner's education level and technical skills, firm industry, location and year, interaction terms between year dummies and industry dummies and interaction terms between year dummies and province dummies. The instrumental variable in columns 4, 5 and 6 is the mean of the business practice scores of firms in the same industry and province for a given year. The instrument variables in columns 7, 8 and 9 are the mean of the business practice score at the industry-province level and the total number of passengers transported to and from the province in a given year.

Table 3.13: Effects of business practice scores on employment: Robustness check with BPS computed from principal component analysis

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Second stage									
BPS	0.088***	0.099***	0.070***	0.109**	0.133*	0.061	0.105**	0.121*	0.060
	[0.006]	[0.008]	[0.010]	[0.044]	[0.075]	[0.057]	[0.044]	[0.067]	[0.059]
Capital/Output	-0.013***	-0.014***	-0.014***	-0.013***	-0.014***	-0.014***	-0.013***	-0.014***	-0.014***
	[0.002]	[0.002]	[0.003]	[0.002]	[0.002]	[0.004]	[0.002]	[0.002]	[0.004]
% regular employees	-0.922***	-0.913***	-0.966***	-0.918***	-0.907***	-0.967***	-0.925***	-0.916***	-0.974***
	[0.033]	[0.036]	[0.075]	[0.044]	[0.049]	[0.102]	[0.044]	[0.048]	[0.105]
Firm age	0.170***	.	.	0.154***			0.148***		
	[0.030]	.	.	[0.047]			[0.049]		
Being an incorp firm	0.100***	0.054	0.308***	0.092**	0.048	0.311***	0.074*	0.054	0.246***
	[0.035]	[0.042]	[0.074]	[0.039]	[0.045]	[0.079]	[0.039]	[0.045]	[0.081]
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First stage									
Mean BPS at industry-province level				0.518***	0.346***	0.783***	0.505***	0.331***	0.762***
				[0.048]	[0.043]	[0.113]	[0.048]	[0.043]	[0.116]
Np of passengers carried (provincial level)							0.729***	0.868***	0.733
							[0.281]	[0.268]	[1.513]
Instrumental variable tests									
Underidentification test				105.516	62.343	39.818	174.884	69.708	37.846
Weak identification test				119.029	65.709	48.043	88.466	37.92	22.808

Overidentifcation test (p-value)							0.8498	0.6959	0.7255
N	12842	9631	3211	11521	8643	2670	11273	8518	2553

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns 1, 2 and 3 are the estimation results using the FE estimator while the remaining columns are the results from the FE-IV estimator. Panel A presents the second stage estimation, Panel B displays the 1st estimation results for instrumental variables while Panel C reports instrumental variable tests. Columns 1, 4 and 7 include all firms in the sample; columns 2, 5 and 8 include the sole proprietorship firms and columns 3, 6 and 9 include the incorporated firms. The dependent variable in all the specifications is the total employment (in natural log). Labor and capital variables are the natural logarithms of the total employment and productive capital (including building and equipment). The business practice score (BPS) variable is the first component from the principal component analysis using seven business practice indicators. I include control variables in all the specifications. Control variables consist of the owner's education level and technical skills, firm industry, location and year, interaction terms between year dummies and industry dummies and interaction terms between year dummies and province dummies. The instrumental variable in columns 4, 5 and 6 is the mean of the business practice scores of firms in the same industry and province for a given year. The instrument variables in columns 7, 8 and 9 are the mean of the business practice score at the industry-province level and the total number of passengers transported to and from the province in a given year.

Table 3.14: Effects of business practice scores on employment: Robustness check with BPS as the average of business practice indicator

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Second stage									
BPS	0.666***	0.742***	0.527***	0.834**	0.906	0.511	0.806**	0.854*	0.522
	[0.056]	[0.075]	[0.090]	[0.352]	[0.554]	[0.472]	[0.318]	[0.503]	[0.492]
Capital/Output	-0.013***	-0.014***	-0.014***	-0.013***	-0.014***	-0.014***	-0.013***	-0.014***	-0.014***
	[0.002]	[0.002]	[0.004]	[0.002]	[0.002]	[0.004]	[0.002]	[0.002]	[0.004]
% regular employees	-0.922***	-0.914***	-0.966***	-0.918***	-0.910***	-0.967***	-0.926***	-0.918***	-0.973***
	[0.044]	[0.048]	[0.107]	[0.044]	[0.049]	[0.102]	[0.034]	[0.048]	[0.105]
Firm age	0.170***			0.154***			0.147***		
	[0.043]			[0.048]			[0.044]		
Being an incorp firm	0.103**	0.057	0.311***	0.095**	0.053	0.312***	0.077**	0.059	0.247***
	[0.040]	[0.047]	[0.089]	[0.039]	[0.045]	[0.079]	[0.037]	[0.045]	[0.081]
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies * Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
First stage									
Mean BPS at industry-province level				0.505***	0.363***	0.729***	0.496***	0.353***	0.714***
				[0.047]	[0.043]	[0.112]	[0.040]	[0.044]	[0.115]
Np of passengers carried (provincial level)							0.085**	0.103***	0.038
							[0.038]	[0.035]	[0.187]
Instrumental variable tests									
Underidentification test				101.834	65.703	35.826	163.769	72.455	33.686
Weak identification test				114.549	70.228	42.124	82.728	39.494	19.747
Overidentifcation test (p-value)							0.949	0.8505	0.7833
N	12844	9632	3211	11521	8643	2670	11273	8518	2553

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns 1, 2 and 3 are the estimation results using the FE estimator while the remaining columns are the results from the FE-IV estimator. Panel A presents the second stage estimation, Panel B displays the 1st estimation results for instrumental variables while Panel C reports instrumental variable tests. Columns 1, 4 and 7 include all firms in the sample; columns 2, 5 and 8 include the sole proprietorship firms and columns 3, 6 and 9 include the incorporated firms. The dependent variable in all the specifications is the total employment (in natural log). Labor and capital variables are the natural logarithms of the total employment and productive capital (including building and equipment). The business practice score (BPS) variable is the average of seven business practice indicators. I include control variables in all the specifications. Control variables consist of the owner's education level and technical skills, firm industry, location and year, interaction terms between year dummies and industry dummies and interaction terms between year dummies and province dummies. The instrumental variable in columns 4, 5 and 6 is the mean of the business practice scores of firms in the same industry and province for a given year. The instrument variables in columns 7, 8 and 9 are the mean of the business practice score at the industry-province level and the total number of passengers transported to and from the province in a given year.

Table 3.15: Contribution of business practices to value added growth

	(1)	(2)	(3)	(4)	(5)	(6)
	Fixed effects			Fixed effect- IV		
	All sample	SP firms	Incorp. firms	All sample	SP firms	Incorp. firms
Δ Labor	0.657***	0.659***	0.629***	0.627***	0.624***	0.599***
	[0.023]	[0.026]	[0.047]	[0.029]	[0.033]	[0.058]
Δ Capital	0.101***	0.093***	0.138***	0.096***	0.086***	0.145***
	[0.010]	[0.012]	[0.023]	[0.013]	[0.015]	[0.029]
Δ BP score	0.075***	0.077***	0.063**	0.081***	0.061**	0.065*
	[0.017]	[0.020]	[0.030]	[0.021]	[0.026]	[0.035]
Δ % regular empl.	0.590***	0.524***	0.786***	0.595***	0.557***	0.715***
	[0.056]	[0.065]	[0.119]	[0.070]	[0.082]	[0.142]
Firm age	-0.508***	-0.249	-0.852***	-0.511***	-0.249	-0.855***
	[0.142]	[0.175]	[0.265]	[0.142]	[0.175]	[0.264]
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
N	7408	5586	1692	7408	5586	1692

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns [1], [2] and [3] are the FE estimation results while the remaining columns are the FE-IV results. Columns 1 and 4 include all firms in the sample, columns 2 and 5 include the sole proprietorship firms and columns 3 and 6 include the incorporated firms. The dependent variable is the value added growth (i.e. equal to $lnVA_{it} - lnVA_{it-1}$). Similarly, the labor input and capital input growths are calculated by the difference between log of the total employment and the productive capital (including building and equipment) in this period and the log of the total employment and the productive capital in the previous period. The change in the business practice score (and changes in the percentage of regular employees in total employees) is the difference between the business practice score (or the percentage of regular employees in total employment) in this period and the previous period. I include control variables, including the owner's education level and technical skills, firm industry, location and year dummies, in all the specifications. The instrumental variables include the lagged value of the labor, capital inputs, the business practice score and the percentage of regular employments. All the statistical tests for instruments (weak identification test and underidentification test) are passed.

Table 3.16: Effects of improvement of business practice scores on employment growth

	(1)	(2)	(3)	(4)	(5)	(6)
Change in % regular employees	-0.950***	-0.939***	-0.982***	-0.976***	-1.011***	-0.922***
	[0.062]	[0.068]	[0.145]	[0.077]	[0.083]	[0.190]
Change in capital/output	-0.010***	-0.011***	-0.007***	-0.011***	-0.012***	-0.012***
	[0.002]	[0.003]	[0.002]	[0.003]	[0.004]	[0.004]
Changes in BPI	0.138***	0.153***	0.102***	0.140***	0.163***	0.106***
	[0.016]	[0.022]	[0.025]	[0.020]	[0.025]	[0.033]
Firm age	-0.103	0.090	-0.223	-0.216	-0.116	-0.318
	[0.101]	[0.123]	[0.201]	[0.219]	[0.261]	[0.430]
Instrumental variable tests						
Underidentification test	753.722	23.342	277.462	503.823	394.041	118.526
Weak identification test	1179.72	108.49	452.385	1847.255	1516.529	393.811
N	7402	5584	1688	4369	3352	957

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns [1], [2] and [3] are the FE estimation results, while the remaining columns are the FE-IV results from the fixed effects with instrumental variable estimation. Columns 1 and 4 include all firms in the sample, columns 2 and 5 include the sole proprietorship firms and columns 3 and 6 include the incorporated firms. The dependent variable in all the specifications is the total employment growth (i.e. equal to $lnLabor_{it} - lnLabor_{it-1}$). Similarly, the capital intensity growth is calculated by the difference between the capital intensity in this period and that in the previous period. The change in the business practice score (and changes in the percentage of regular employees in total employees) is the difference between the business practice score (and the percentage of regular employees in total employment) in this period and that in the previous period. The owner's education level and technical skills, firm industry, location and year dummies, are included as control variables. The instrumental variables included the lagged values of the capital intensity, the business practice score and the percentage of regular employments. All the statistical tests for instrumental variables (the weak identification test and the underidentification test) are passed.

Table 3.17: Determinants of improvement in business practice scores

	(1)	(2)	(3)	(4)	(5)	(6)
	FE	FE	FE	FE-IV	FE-IV	FE-IV
Change in share of professionals	0.590***	0.432*	0.575**	0.630***	0.472	0.608*
	[0.192]	[0.249]	[0.282]	[0.228]	[0.305]	[0.331]
Change in employment	0.143***	0.101***	0.214***	0.133***	0.084***	0.239***
	[0.020]	[0.019]	[0.056]	[0.026]	[0.025]	[0.070]
Change in market power	-0.162**	-0.266***	0.087	-0.218***	-0.304***	0.037
	[0.069]	[0.061]	[0.200]	[0.081]	[0.079]	[0.316]
Lagged labor productivity	-0.063***	-0.048**	-0.096*	-0.066***	-0.049***	-0.102*
	[0.021]	[0.019]	[0.057]	[0.020]	[0.019]	[0.059]
Instrumental variable tests						
Underidentification test				674.127	538.678	149.918
Weak identification test				936.426	809.908	258.983
N	7361	5577	1653	7361	5577	1653

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns 1, 2 and 3 are the FE estimation results while the remaining columns are the FE-IV results. Columns 1 and 4 include all firms in the sample; columns 2 and 5 include the sole proprietorship firms and columns 3 and 6 include the incorporated firms. The dependent variable in all the specifications is the difference between the business practice score in this period and that in the previous period. Similarly, the total employment growth is equal to $lnLabor_{it} - lnLabor_{it-1}$. The change in the percentage of employees with university/college education is the difference between the percentage of educated employees in total employment in this period and that in the previous period. The change in the price cost margins (i.e. ratio between profits to revenue) is calculated similarly. I include control variables, consisting of owner's education level and technical skills, firm industry, location and year dummies, in all the specifications. The instrumental variables include the lagged values of the capital intensity, the business practice score and the percentage of regular employments. All the statistical tests for instrumental variables (weak identification test and underidentification test) are passed

Table 3.18: Determinants of improvement in business practice scores (robustness check with BPS calculated from a principal component analysis and simple average of seven business practice indicators)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:	Change in BSP (1st principal component)			Change in BPS (original)		
Change in share of professionals	1.040***	0.954*	0.894*	0.140***	0.128**	0.122*
	[0.355]	[0.496]	[0.499]	[0.046]	[0.065]	[0.064]
Change in employment	0.214***	0.135***	0.391***	0.027***	0.018***	0.048***
	[0.040]	[0.038]	[0.105]	[0.005]	[0.005]	[0.014]
Change in market power	-0.257**	-0.368***	-0.094	-0.035**	-0.050***	-0.007
	[0.119]	[0.111]	[0.493]	[0.016]	[0.015]	[0.063]
Lagged labor productivity	-0.094***	-0.062**	-0.181**	-0.013***	-0.009**	-0.024**
	[0.030]	[0.027]	[0.090]	[0.004]	[0.004]	[0.012]
Instrumental variable tests						
Underidentification test	674.127	538.678	149.918	674.127	538.678	149.918
Weak identification test	936.426	809.908	258.983	936.426	809.908	258.983
N	7361	5577	1653	7361	5577	1653

Note: Standard errors in brackets; * p<0.1, ** p<0.05, *** p<0.01. Columns 1 and 4 include all firms in the sample; columns 2 and 5 include the sole proprietorship firms and columns 3 and 6 include the incorporated firms. The dependent variable in columns 1, 2 and 3 are the change in the BPS, which is the first component calculated from principal component analysis while that in columns 4, 5 and 6 are the change in the BPS, calculated as the simple average of seven business practice indicators. The total employment growth is equal to $lnLabor_{it} - lnLabor_{it-1}$. The change in the percentage of employees with university/college education is the difference between the percentage of educated employees in total employment in this period and that in the previous period. The change in the price cost margins (i.e. ratio between profits to revenue) is calculated similarly. I include control variables, consisting of owner's education level and technical skills, firm industry, location and year dummies, in all the specifications. The instrumental variables include the lagged values of the capital intensity, the business practice score and the percentage of regular employments. All the statistical tests for instrumental variables (weak identification test and underidentification test) are passed

Table 4.1: Correlation matrix

	Having no contact	Number of contact (in log)	Access to formal credit	Access to formal credit in subsequent period	Firm size (labor)	Firm age	Productive investment rate	Non-productive investment rate
Having no contact	1.000							
Number of contact (in log)	-0.988	1.000						
Access to formal credit	-0.556	0.548	1.000					
Access to formal credit in subsequent period	-0.264	0.266	0.357	1.000				
Firm size (labor)	-0.232	0.252	0.220	0.242	1.000			
Firm age	0.064	-0.066	-0.075	-0.081	-0.208	1.000		
Productive investment rate	-0.103	0.109	0.095	0.179	0.139	-0.072	1.000	
Non-productive investment rate	-0.181	0.184	0.168	0.320	0.134	-0.066	0.142	1.000

Table 4.2: Investment over the time, by financial regime and ownership type

Year	All firms	SP firms	Incorp firms	Having no contact	Having at least one contact	Not applying for bank loan	Applying for bank loans	Bank loans not as the major source of finance	Bank loans as the major source of finance
Productive investment rate									
2007	27.7%	16.6%	66.7%	26.8%	29.3%	14.3%	49.8%	22.5%	96.0%
2009	16.1%	11.1%	32.6%	13.1%	19.5%	10.0%	26.3%	16.2%	15.5%
2011	16.7%	11.8%	30.6%	14.7%	18.1%	11.4%	28.6%	16.7%	16.5%
2013	6.1%	5.5%	7.8%	4.0%	8.6%	2.7%	16.1%	5.0%	11.1%
Non productive investment rate (with land)									
2007	8.4%	6.2%	16.2%	6.6%	11.7%	3.0%	17.2%	4.5%	58.4%
2009	29.8%	25.6%	43.8%	22.4%	38.5%	8.7%	65.6%	15.6%	73.1%
2011	25.1%	16.4%	49.6%	19.0%	29.4%	12.7%	53.2%	16.1%	58.6%
2013	10.9%	6.4%	23.0%	6.6%	16.0%	2.7%	34.4%	4.2%	39.0%
Non productive investment rate (without land)									
2007	2.7%	2.4%	3.5%	0.9%	5.9%	3.0%	17.2%	0.5%	30.6%
2009	27.2%	23.8%	38.7%	19.9%	35.7%	8.7%	65.6%	12.8%	71.0%
2011	22.0%	13.2%	47.1%	16.2%	26.2%	12.7%	53.2%	13.3%	54.7%
2013	9.9%	5.3%	22.4%	5.6%	15.1%	2.7%	34.4%	3.1%	38.7%

Table 4.3: Descriptive statistics

		All firms	Sole proprietorship	Incorporated	Having no contact	Having at least one contact	Not access to bank loans	Access to bank loans	Bank loans not as major source of finance	Bank loans as major source of finance
% firms		100.0%	76.6%	23.4%	53.7%	46.3%	68.0%	32.0%	82.3%	17.7%
Revenue/productive asset	Mean	3.83	3.24	5.75	2.90	2.88	3.07	3.04	3.09	2.97
	SD	17.07	12.80	26.54	7.10	5.74	7.10	5.90	7.03	5.21
Profit/productive asset	Mean	0.67	0.66	0.68	0.69	0.63	0.56	0.44	0.54	0.42
	SD	3.89	4.19	2.68	3.67	4.24	1.55	1.17	1.52	0.97
Labor	Mean	13.93	6.38	38.66	8.91	19.40	9.12	24.18	11.70	24.35
	SD	39.14	12.63	72.33	19.34	53.77	19.19	62.19	32.47	60.43
Demand constraint	Mean	17.7%	18.3%	15.4%	19.2%	16.2%	20.3%	12.1%	18.6%	13.3%
	SD	0.38	0.39	0.36	0.39	0.37	0.40	0.33	0.39	0.34
Contact in banking system	Mean	1.2	0.95	2.01	0.73	1.45	0.36	1.54	0.52	1.74
	SD	2.75	2.24	3.87	2.4	2.44	1.32	1.97	1.46	2.05
Firm age	Mean	20.13	21.37	16.08	21.2	19.15	21.03	18.21	20.50	18.40
	SD	12.93	13.08	11.51	13.74	11.89	13.45	11.52	13.20	11.41
Locating in urban area	Mean	47.0%	40.2%	69.1%	52.0%	40.6%	50.3%	39.8%	48.5%	39.8%
	SD	0.5	0.49	0.46	0.5	0.49	0.50	0.49	0.50	0.49

Table 4.4: Average bank loans to SMEs during 2005-2013

Year	Average bank loan per firm	Average bank loan per firm, given they apply for bank loans (and have investment activity)	Share of firms apply for bank loans given they have investment activity
2005	67,303	169,849	50.1%
2007	53,920	145,111	51.4%
2009	106,002	277,757	58.0%
2011	81,838	272,032	51.7%
2013	76,186	291,366	53.5%

Table 4.5: Effect of macroeconomic uncertainty on investment (marginal effects)

	(1)	(2)	(3)	(4)	(5)	(6)
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.016***	0.060***	0.071***	-0.012***	0.017***	0.024***
	[0.002]	[0.003]	[0.004]	[0.003]	[0.003]	[0.003]
GDP growth				0.004**	-0.049***	-0.053***
				[0.002]	[0.002]	[0.002]
Revenue/Productive asset	0.001**	0.000	0.001	0.001**	0.000	0.001
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Profit/Productive asset	-0.001	-0.003*	-0.004**	-0.001	-0.003*	-0.004**
	[0.001]	[0.002]	[0.002]	[0.001]	[0.002]	[0.002]
Firm size	0.024***	0.024***	0.019***	0.024***	0.024***	0.019***
	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]
Firm size squared	-0.002**	-0.001*	-0.001	-0.002**	-0.001*	-0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Firm age	-0.007***	-0.015***	-0.013***	-0.007***	-0.015***	-0.013***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Demand constraint	-0.007**	-0.006	-0.003	-0.007**	-0.006	-0.003
	[0.003]	[0.004]	[0.003]	[0.003]	[0.004]	[0.003]
Being an incorp firm	0.007**	0.008**	0.008**	0.007**	0.008**	0.008**
	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]
Located in urban areas	0.005*	-0.007**	-0.008***	0.005*	-0.007**	-0.008***
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
N	7756	7756	7756	7756	7756	7756

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. I control for GPD growth in columns 4, 5 and 6. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the conditional covariance obtained from a GARCH(1,1) process. The time interval for such process is from January 2002 up to the last month of period t-1. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.6: Effect of macroeconomic uncertainty on productive investment (marginal effects): Robustness check with different measurement of macroeconomic uncertainty

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.003***	0.013***	0.015***	-0.012***	0.045***	0.054***	-0.003***	0.013***	0.015***
	[0.000]	[0.001]	[0.001]	[0.002]	[0.003]	[0.003]	[0.000]	[0.001]	[0.001]
Revenue/Productive asset	0.001**	0.000	0.001	0.001**	0.000	0.001	0.001**	0.000	0.001
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Profit/Productive asset	-0.001	-0.003*	-0.004**	-0.001	-0.003*	-0.004**	-0.001	-0.003*	-0.004**
	[0.001]	[0.002]	[0.002]	[0.001]	[0.002]	[0.002]	[0.001]	[0.002]	[0.002]
Firm size	0.024***	0.024***	0.019***	0.024***	0.024***	0.019***	0.024***	0.024***	0.019***
	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]
Firm size squared	-0.001**	-0.001*	-0.001	-0.001**	-0.001*	-0.001	-0.001**	-0.001*	-0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Firm age	-0.007***	-0.015***	-0.013***	-0.007***	-0.015***	-0.013***	-0.007***	-0.015***	-0.013***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Demand constraint	-0.007**	-0.006	-0.003	-0.007**	-0.006	-0.003	-0.007**	-0.006	-0.003
	[0.003]	[0.004]	[0.003]	[0.003]	[0.004]	[0.003]	[0.003]	[0.004]	[0.003]
Being an incorp firm	0.007**	0.008**	0.008**	0.007**	0.008**	0.008**	0.007**	0.008**	0.008**
	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]
Located in urban areas	0.005*	-0.007**	-0.008**	0.005*	-0.007**	-0.008**	0.005*	-0.007**	-0.008**
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
N	7752	7752	7752	7752	7752	7752	7752	7752	7752

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. The dependent variable in columns 1, 4 and 7 is the productive investment rate. The dependent variable in columns 2, 5 and 8 is the non-productive investment rate 1 and that in columns 3, 6 and 9 is the non-productive investment 2. The measurement of macroeconomic uncertainty in columns 1, 2 and 3 is the 36-month conditional covariance obtained from a GARCH(1,1) while that in columns 5,6 and 7 is the 36-month unconditional standard deviation of lending interest rate and in columns 7,8 and 9 is the 36-month unconditional standard deviation of inflation rates. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.7: Effect of macroeconomic uncertainty on productive investment (marginal effects): Robustness check with different measurement of macroeconomic uncertainty

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.004***	0.006***	0.009***	-0.010***	0.014***	0.021***	-0.004***	0.006***	0.009***
	[0.001]	[0.001]	[0.001]	[0.002]	[0.003]	[0.003]	[0.001]	[0.001]	[0.001]
GDP growth	-0.005	-0.036***	-0.035***	0.003	-0.047***	-0.050***	-0.005	-0.036***	-0.035***
	[0.003]	[0.004]	[0.004]	[0.002]	[0.002]	[0.002]	[0.003]	[0.004]	[0.004]
Revenue/Productive asset	0.001**	0.000	0.001	0.001**	0.000	0.001	0.001**	0.000	0.001
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Profit/Productive asset	-0.001	-0.003*	-0.004**	-0.001	-0.003*	-0.004**	-0.001	-0.003*	-0.004**
	[0.001]	[0.002]	[0.002]	[0.001]	[0.002]	[0.002]	[0.001]	[0.002]	[0.002]
Firm size	0.024***	0.024***	0.019***	0.024***	0.024***	0.019***	0.024***	0.024***	0.019***
	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]
Firm size squared	-0.001**	-0.001*	-0.001	-0.001**	-0.001*	-0.001	-0.001**	-0.001*	-0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Firm age	-0.007***	-0.015***	-0.013***	-0.007***	-0.015***	-0.013***	-0.007***	-0.015***	-0.013***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Demand constraint	-0.007**	-0.006	-0.003	-0.007**	-0.006	-0.003	-0.007**	-0.006	-0.003
	[0.003]	[0.004]	[0.003]	[0.003]	[0.004]	[0.003]	[0.003]	[0.004]	[0.003]
Being an incorp firm	0.007**	0.008**	0.008**	0.007**	0.008**	0.008**	0.007**	0.008**	0.008**
	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]	[0.003]	[0.004]	[0.004]
Located in urban areas	0.005*	-0.007**	-0.008**	0.005*	-0.007**	-0.008**	0.005*	-0.007**	-0.008**
	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]	[0.003]
N	7752	7752	7752	7752	7752	7752	7752	7752	7752

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. This table is similar to Table 4.5, except that in all specifications, I control for GDP growth.

Table 4.8: Heterogeneity effect of macroeconomic uncertainty by types of firms

	(1)	(2)	(3)	(4)	(5)	(6)
	SP firms			Incorp firms		
-	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.012***	0.058***	0.070***	-0.031***	0.066***	0.076***
	[0.002]	[0.004]	[0.004]	[0.006]	[0.007]	[0.007]
Revenue/Productive asset	0.001***	-0.000	0.000	-0.000	0.001	0.001
	[0.000]	[0.000]	[0.000]	[0.001]	[0.001]	[0.001]
Profit/Productive asset	-0.003**	-0.003	-0.004*	0.003	-0.003	-0.003
	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]
Firm size	0.023***	0.020***	0.017***	0.014	0.048***	0.036**
	[0.004]	[0.005]	[0.004]	[0.014]	[0.017]	[0.016]
Firm size squared	-0.002**	-0.001	-0.001	0.000	-0.005*	-0.003
	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]	[0.002]
Firm age	-0.006***	-0.016***	-0.013***	-0.010**	-0.015***	-0.016***
	[0.002]	[0.003]	[0.003]	[0.004]	[0.005]	[0.005]
Demand constraint	-0.005*	-0.005	-0.003	-0.012	-0.007	-0.002
	[0.003]	[0.004]	[0.004]	[0.008]	[0.009]	[0.009]
Being an incorp firm	0.000	0.023*	0.013	-0.022***	-0.024**	-0.017*
	[0.011]	[0.013]	[0.013]	[0.008]	[0.010]	[0.010]
Locating in urban areas	0.005	-0.008**	-0.008**	-0.001	0.003	-0.000
	[0.003]	[0.004]	[0.004]	[0.006]	[0.007]	[0.007]
N	6002	6002	6002	1750	1750	1750

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of SP firms while the sample used in the remaining columns is incorp firms. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the conditional covariance obtained from a GARCH(1,1) process. The time interval for such process is from January 2002 up to the last month of period t-1. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.9: Heterogeneity effect of macroeconomic uncertainty by whether a firm has any contacts in the banking sector

	(1)	(2)	(3)	(4)	(5)	(6)
	Having no contact			Having at least one contact		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.014***	0.047***	0.052***	-0.023***	0.074***	0.093***
	[0.003]	[0.004]	[0.004]	[0.004]	[0.006]	[0.006]
Revenue/Productive asset	0.001*	-0.001*	-0.000	0.001	0.001	0.001**
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]
Profit/Productive asset	-0.002	0.001	-0.000	0.001	-0.004	-0.005**
	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]
Firm size	0.027***	0.020***	0.015***	0.021***	0.022***	0.017***
	[0.004]	[0.005]	[0.004]	[0.005]	[0.006]	[0.006]
Firm size squared	-0.003***	-0.001	-0.001	-0.001	-0.001	-0.001
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Firm age	-0.007***	-0.017***	-0.012***	-0.005*	-0.010***	-0.010***
	[0.002]	[0.003]	[0.002]	[0.003]	[0.004]	[0.004]
Demand constraint	-0.006*	-0.002	-0.000	-0.008	-0.009	-0.007
	[0.004]	[0.004]	[0.004]	[0.005]	[0.006]	[0.006]
Being an incorp firm	0.010**	0.003	0.006	0.005	0.009	0.006
	[0.004]	[0.005]	[0.005]	[0.005]	[0.006]	[0.006]
Located in urban areas	0.008**	-0.003	-0.004	0.004	-0.004	-0.006
	[0.004]	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]
N	4240	4240	4240	3516	3516	3516

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms that do not have any contacts in the banking sector while the sample used in the remaining columns includes firms that have at least one contact in the banking sector. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the conditional covariance obtained from a GARCH(1,1) process. The time interval for such process is from January 2002 up to the last month of period t-1. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.10: Heterogeneity effect of macroeconomic uncertainty by whether a firm has any contacts in the banking sector (robustness check 1 with new measure of macroeconomic uncertainty)

	(1)	(2)	(3)	(4)	(5)	(6)
	Having no contact			Having at least one contact		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.003***	0.010***	0.011***	-0.005***	0.016***	0.020***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Revenue/Productive asset	0.001*	-0.001*	-0.000	0.001	0.001	0.001**
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]
Profit/Productive asset	-0.002	0.001	-0.000	0.001	-0.004	-0.005*
	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]
Firm size	0.027***	0.020***	0.015***	0.021***	0.023***	0.016***
	[0.004]	[0.005]	[0.004]	[0.005]	[0.006]	[0.006]
Firm size squared	-0.003***	-0.001	-0.001	-0.001	-0.001	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Firm age	-0.007***	-0.017***	-0.012***	-0.006*	-0.010***	-0.010***
	[0.002]	[0.003]	[0.002]	[0.003]	[0.004]	[0.004]
Demand constraint	-0.006	-0.002	-0.000	-0.008	-0.010	-0.006
	[0.004]	[0.004]	[0.004]	[0.005]	[0.006]	[0.006]
Being a incorp firm	0.010**	0.003	0.006	0.005	0.008	0.007
	[0.004]	[0.005]	[0.005]	[0.005]	[0.006]	[0.006]
Locating in urban areas	0.008**	-0.003	-0.004	0.004	-0.004	-0.006
	[0.004]	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]
N	4239	4239	4239	3513	3513	3513

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms that do not have any contacts in the banking sector while the sample used in the remaining columns includes firms that have at least one contact in the banking sector. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the 36-month conditional covariance obtained from a GARCH(1,1) process. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.11: Heterogeneity effect of macroeconomic uncertainty by whether a firm has any contacts in the banking sector (robustness check 2 with new measure of macroeconomic uncertainty)

	(1)	(2)	(3)	(4)	(5)	(6)
	Having no contact			Having at least one contact		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.011***	0.036***	0.040***	-0.017***	0.057***	0.070***
	[0.002]	[0.003]	[0.003]	[0.003]	[0.004]	[0.005]
Revenue/Productive asset	0.001*	-0.001*	-0.000	0.001	0.001	0.001**
	[0.000]	[0.001]	[0.001]	[0.000]	[0.000]	[0.000]
Profit/Productive asset	-0.002	0.001	-0.000	0.001	-0.004	-0.005*
	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]
Firm size	0.027***	0.020***	0.014***	0.021***	0.023***	0.016***
	[0.004]	[0.005]	[0.005]	[0.005]	[0.006]	[0.006]
Firm size squared	-0.003***	-0.001	-0.001	-0.001	-0.001	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Firm age	-0.007***	-0.017***	-0.012***	-0.006*	-0.010***	-0.010***
	[0.002]	[0.003]	[0.002]	[0.003]	[0.004]	[0.004]
Demand constraint	-0.006	-0.002	0.000	-0.008	-0.010	-0.006
	[0.004]	[0.004]	[0.004]	[0.005]	[0.006]	[0.006]
Being a incorp firm	0.010**	0.003	0.007	0.005	0.008	0.007
	[0.004]	[0.005]	[0.005]	[0.005]	[0.006]	[0.006]
Locating in urban areas	0.008**	-0.003	-0.004	0.004	-0.004	-0.006
	[0.004]	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]
N	4239	4239	4239	3513	3513	3513

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random Effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms that do not have any contacts in the banking sector while the sample used in the remaining columns includes firms that have at least one contact in the banking sector. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the 36-month unconditional standard deviation of real monthly lending interest rate. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.12: Heterogeneity effect of macroeconomic uncertainty by whether a firm has any contacts in the banking sector (robustness check 3 with new measure of macroeconomic uncertainty)

	(1)	(2)	(3)	(4)	(5)	(6)
	Having no contact			Having at least one contact		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.003***	0.010***	0.011***	-0.005***	0.016***	0.020***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Revenue/Productive asset	0.001*	-0.001*	-0.000	0.001	0.001	0.001**
	[0.000]	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]
Profit/Productive asset	-0.002	0.001	-0.000	0.001	-0.004	-0.005*
	[0.002]	[0.002]	[0.002]	[0.002]	[0.003]	[0.003]
Firm size	0.027***	0.020***	0.015***	0.021***	0.023***	0.016***
	[0.004]	[0.005]	[0.004]	[0.005]	[0.006]	[0.006]
Firm size squared	-0.003***	-0.001	-0.001	-0.001	-0.001	-0.000
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Firm age	-0.007***	-0.017***	-0.012***	-0.006*	-0.010***	-0.010***
	[0.002]	[0.003]	[0.002]	[0.003]	[0.004]	[0.004]
Demand constraint	-0.006	-0.002	-0.000	-0.008	-0.010	-0.006
	[0.004]	[0.004]	[0.004]	[0.005]	[0.006]	[0.006]
Being a incorp firm	0.010**	0.003	0.006	0.005	0.008	0.007
	[0.004]	[0.005]	[0.005]	[0.005]	[0.006]	[0.006]
Locating in urban areas	0.008**	-0.003	-0.004	0.004	-0.004	-0.006
	[0.004]	[0.004]	[0.004]	[0.004]	[0.005]	[0.005]
N	4239	4239	4239	3513	3513	3513

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random Effects Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms that do not have any contacts in the banking sector while the sample used in the remaining columns includes firms that have at least one contact in the banking sector. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the 36-month unconditional standard deviation of monthly CPI index. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.13: Heterogeneity effect of macroeconomic uncertainty by whether a firm applies for bank loans

	(1)	(2)	(3)	(4)	(5)	(6)
	Not applying for bank loans			Applying for bank loans		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.031**	0.040**	0.096***	-0.066***	0.108***	0.162***
	[0.016]	[0.018]	[0.019]	[0.014]	[0.021]	[0.022]
Revenue/Productive asset	0.005***	0.001	0.001**	0.002***	0.006***	0.007***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Profit/Productive asset	-0.004	0.002	0.000	0.014***	-0.006	-0.010*
	[0.002]	[0.003]	[0.003]	[0.005]	[0.006]	[0.006]
Firm size	-0.004	0.005	-0.004	0.020**	-0.009	-0.022**
	[0.007]	[0.008]	[0.007]	[0.009]	[0.012]	[0.011]
Firm size squared	0.000	0.001	0.001	-0.003*	0.000	0.002
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]
Firm age	-0.001	-0.013***	-0.006*	0.009*	-0.017***	-0.016***
	[0.004]	[0.004]	[0.004]	[0.005]	[0.006]	[0.006]
Demand constraint	-0.006	-0.000	0.002	-0.012	-0.013	-0.002
	[0.006]	[0.006]	[0.005]	[0.008]	[0.010]	[0.009]
Being an incorp firm	0.014**	-0.006	-0.001	0.003	0.015	0.012
	[0.006]	[0.006]	[0.006]	[0.007]	[0.009]	[0.009]
Located in urban areas	0.007	-0.004	-0.004	0.014**	-0.005	-0.008
	[0.005]	[0.005]	[0.005]	[0.006]	[0.008]	[0.008]
Inversed Mills ratio	Yes	Yes	Yes	Yes	Yes	Yes
N	1806	1806	1806	1928	1928	1928

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms that do not apply for bank loans while the sample used in the remaining columns includes firms that apply for bank loans. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the conditional covariance obtained from a GARCH(1,1) process. The time interval for such process is from January 2002 up to the last month of period t-1. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.14: Heterogeneity effect of macroeconomic uncertainty by whether a firm applies for bank loans (robustness check 1 with new measure of macroeconomic uncertainty)

	(1)	(2)	(3)	(4)	(5)	(6)
	Not applying for bank loans			Applying for bank loans		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.007**	0.009**	0.021***	-0.014***	0.023***	0.035***
	[0.003]	[0.004]	[0.004]	[0.003]	[0.005]	[0.005]
Revenue/Productive asset	0.005***	0.001	0.001**	0.002***	0.006***	0.007***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Profit/Productive asset	-0.004	0.002	0.000	0.014***	-0.006	-0.010*
	[0.002]	[0.003]	[0.003]	[0.005]	[0.006]	[0.006]
Firm size	-0.004	0.005	-0.004	0.020**	-0.009	-0.022**
	[0.007]	[0.008]	[0.007]	[0.009]	[0.011]	[0.011]
Firm size squared	0.000	0.001	0.001	-0.003*	0.000	0.002
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]
Firm age	-0.001	-0.013***	-0.006*	0.009*	-0.017***	-0.016***
	[0.004]	[0.004]	[0.004]	[0.005]	[0.006]	[0.006]
Demand constraint	-0.006	-0.000	0.002	-0.012	-0.013	-0.002
	[0.006]	[0.006]	[0.005]	[0.008]	[0.010]	[0.009]
Being an incorp firm	0.014**	-0.006	-0.001	0.003	0.015	0.012
	[0.006]	[0.006]	[0.006]	[0.007]	[0.009]	[0.009]
Located in urban areas	0.007	-0.004	-0.004	0.014**	-0.005	-0.008
	[0.005]	[0.005]	[0.005]	[0.006]	[0.008]	[0.008]
Inversed Mills ratio	Yes	Yes	Yes	Yes	Yes	Yes
N	1806	1806	1806	1928	1928	1928

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms that do not apply for bank loans while the sample used in the remaining columns includes firms that apply for bank loans. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the 36-month conditional covariance obtained from a GARCH(1,1) process. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.15: Heterogeneity effect of macroeconomic uncertainty by whether a firm applies for bank loans (robustness check 2 with new measure of macroeconomic uncertainty)

	(1)	(2)	(3)	(4)	(5)	(6)
	Not applying for bank loans			Applying for bank loans		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.024**	0.030**	0.073***	-0.051***	0.082***	0.123***
	[0.012]	[0.014]	[0.014]	[0.011]	[0.016]	[0.017]
Revenue/Productive asset	0.005***	0.001	0.001**	0.002***	0.006***	0.007***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Profit/Productive asset	-0.004	0.002	0.000	0.014***	-0.006	-0.010*
	[0.002]	[0.003]	[0.003]	[0.005]	[0.006]	[0.006]
Firm size	-0.004	0.005	-0.004	0.021**	-0.009	-0.022**
	[0.007]	[0.008]	[0.007]	[0.009]	[0.011]	[0.011]
Firm size squared	0.000	0.001	0.001	-0.003*	0.000	0.002
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]
Firm age	-0.001	-0.013***	-0.006*	0.008*	-0.017***	-0.016***
	[0.004]	[0.004]	[0.004]	[0.005]	[0.006]	[0.006]
Demand constraint	-0.006	-0.000	0.002	-0.012	-0.013	-0.002
	[0.006]	[0.006]	[0.005]	[0.008]	[0.010]	[0.009]
Being an incorp firm	0.014**	-0.006	-0.001	0.002	0.015	0.012
	[0.006]	[0.006]	[0.006]	[0.007]	[0.009]	[0.009]
Located in urban areas	0.007	-0.004	-0.004	0.015**	-0.005	-0.008
	[0.005]	[0.005]	[0.005]	[0.006]	[0.008]	[0.008]
Inversed Mills ratio	Yes	Yes	Yes	Yes	Yes	Yes
N	1806	1806	1806	1928	1928	1928

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms that do not apply for bank loans while the sample used in the remaining columns includes firms that apply for bank loans. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the 36-month unconditional standard deviation of monthly real lending interest rate. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.16: Heterogeneity effect of macroeconomic uncertainty by whether a firm applies for bank loans (robustness check 3 with new measure of macroeconomic uncertainty)

	(1)	(2)	(3)	(4)	(5)	(6)
	Not applying for bank loans			Applying for bank loans		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.007**	0.009**	0.021***	-0.014***	0.023***	0.035***
	[0.003]	[0.004]	[0.004]	[0.003]	[0.005]	[0.005]
Revenue/Productive asset	0.005***	0.001	0.001**	0.002***	0.006***	0.007***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Profit/Productive asset	-0.004	0.002	0.000	0.014***	-0.006	-0.010*
	[0.002]	[0.003]	[0.003]	[0.005]	[0.006]	[0.006]
Firm size	-0.004	0.005	-0.004	0.021**	-0.009	-0.022**
	[0.007]	[0.008]	[0.007]	[0.009]	[0.011]	[0.011]
Firm size squared	0.000	0.001	0.001	-0.003*	0.000	0.002
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]
Firm age	-0.001	-0.013***	-0.006*	0.008*	-0.017***	-0.016***
	[0.004]	[0.004]	[0.004]	[0.005]	[0.006]	[0.006]
Demand constraint	-0.006	-0.000	0.002	-0.012	-0.013	-0.002
	[0.006]	[0.006]	[0.005]	[0.008]	[0.010]	[0.009]
Being an incorp firm	0.014**	-0.006	-0.001	0.002	0.015	0.012
	[0.006]	[0.006]	[0.006]	[0.007]	[0.009]	[0.009]
Located in urban areas	0.007	-0.004	-0.004	0.015**	-0.005	-0.008
	[0.005]	[0.005]	[0.005]	[0.006]	[0.008]	[0.008]
Inversed Mills ratio	Yes	Yes	Yes	Yes	Yes	Yes
N	1806	1806	1806	1928	1928	1928

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms that do not apply for bank loans while the sample used in the remaining columns includes firms that apply for bank loans. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the 36-month unconditional standard deviation of monthly CPI. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.17: Heterogeneity effect of macroeconomic uncertainty by whether a firm uses the bank loans as the major source of financing or not

	(1)	(2)	(3)	(4)	(5)	(6)
	Bank loans is not the major financial source			Bank loans is the major financial source		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.040***	0.047***	0.108***	-0.088***	0.212***	0.248***
	[0.015]	[0.017]	[0.016]	[0.022]	[0.042]	[0.043]
Revenue/Productive asset	0.005***	0.000	0.001*	0.003***	0.010***	0.011***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]
Profit/Productive asset	-0.002	0.002	0.001	0.014**	-0.001	-0.007
	[0.003]	[0.003]	[0.003]	[0.006]	[0.009]	[0.009]
Firm size	-0.016	-0.039***	-0.032**	-0.018	-0.095***	-0.094***
	[0.013]	[0.015]	[0.013]	[0.019]	[0.027]	[0.026]
Firm size squared	-0.000	0.005*	0.004	-0.001	0.008*	0.009*
	[0.003]	[0.003]	[0.002]	[0.003]	[0.005]	[0.004]
Firm age	-0.001	-0.008*	-0.003	0.008	-0.007	-0.010
	[0.004]	[0.004]	[0.004]	[0.006]	[0.008]	[0.008]
Demand constraint	-0.008	-0.007	-0.002	-0.014	0.007	0.011
	[0.006]	[0.006]	[0.005]	[0.009]	[0.013]	[0.012]
Being an incorp firm	0.013**	-0.003	-0.002	-0.012	-0.004	-0.002
	[0.006]	[0.006]	[0.006]	[0.008]	[0.012]	[0.012]
Located in urban areas	0.007	-0.007	-0.009*	0.009	-0.014	-0.014
	[0.005]	[0.005]	[0.005]	[0.007]	[0.010]	[0.010]
Inversed Mills Ratio	Yes	Yes	Yes	Yes	Yes	Yes
N	2460	2460	2460	1276	1276	1276

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms for which the bank loan is not their major source of financing while the sample used in the remaining columns includes firms for which the bank loans account more than 50% of finance for their investment. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the conditional covariance obtained from a GARCH(1,1) process. The time interval for such process is from January 2002 up to the last month of period t-1. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.18: Heterogeneity effect of macroeconomic uncertainty by whether a firm uses bank loans as the major source of financing or not (robustness check 1 with new measure of macroeconomic uncertainty)

	(1)	(2)	(3)	(4)	(5)	(6)
	Bank loans is not the major financial source			Bank loans is the major financial source		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.010***	0.010***	0.023***	-0.021***	0.047***	0.055***
	[0.003]	[0.004]	[0.003]	[0.005]	[0.009]	[0.009]
Revenue/Productive asset	0.004***	0.001	0.001**	0.003***	0.010***	0.011***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]
Profit/Productive asset	-0.002	0.002	0.000	0.010	-0.004	-0.008
	[0.003]	[0.003]	[0.003]	[0.006]	[0.009]	[0.009]
Firm size	0.000	-0.007	-0.015*	0.007	-0.053***	-0.054***
	[0.008]	[0.009]	[0.008]	[0.012]	[0.017]	[0.017]
Firm size squared	-0.000	0.001	0.002	-0.001	0.004*	0.005**
	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]	[0.002]
Firm age	-0.000	-0.009**	-0.004	0.010*	-0.007	-0.011
	[0.004]	[0.004]	[0.004]	[0.006]	[0.008]	[0.008]
Demand constraint	-0.007	-0.007	-0.002	-0.013	0.008	0.013
	[0.006]	[0.006]	[0.005]	[0.009]	[0.013]	[0.012]
Being a incorp firm	0.016***	-0.001	0.001	-0.007	0.002	0.002
	[0.006]	[0.006]	[0.006]	[0.008]	[0.012]	[0.011]
Locating in urban areas	0.008	-0.006	-0.008*	0.009	-0.015	-0.015
	[0.005]	[0.005]	[0.005]	[0.007]	[0.010]	[0.010]
N	2460	2460	2460	1276	1276	1276

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms for which the bank loan is not their major source of financing while the sample used in the remaining columns includes firms for which the bank loans account more than 50% of finance for their investment. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the 36-month conditional covariance obtained from a GARCH(1,1) process. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.19: Heterogeneity effect of macroeconomic uncertainty by whether a firm uses bank loans as the major source of financing or not (robustness check 2 with new measure of macroeconomic uncertainty)

	(1)	(2)	(3)	(4)	(5)	(6)
	Bank loans is not the major financial source			Bank loans is the major financial source		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.036***	0.036***	0.082***	-0.074***	0.166***	0.195***
	[0.011]	[0.013]	[0.012]	[0.017]	[0.031]	[0.033]
Revenue/Productive asset	0.004***	0.001	0.001**	0.003***	0.010***	0.011***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]
Profit/Productive asset	-0.002	0.002	0.000	0.010	-0.004	-0.008
	[0.003]	[0.003]	[0.003]	[0.006]	[0.009]	[0.009]
Firm size	0.000	-0.007	-0.015*	0.007	-0.053***	-0.054***
	[0.008]	[0.009]	[0.008]	[0.012]	[0.017]	[0.017]
Firm size squared	-0.000	0.001	0.002	-0.001	0.004*	0.005**
	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]	[0.002]
Firm age	-0.000	-0.009**	-0.004	0.010*	-0.007	-0.011
	[0.004]	[0.004]	[0.004]	[0.006]	[0.008]	[0.008]
Demand constraint	-0.007	-0.007	-0.002	-0.013	0.008	0.013
	[0.006]	[0.006]	[0.005]	[0.009]	[0.013]	[0.012]
Being an incorp firm	0.016***	-0.001	0.001	-0.007	0.002	0.002
	[0.006]	[0.006]	[0.006]	[0.008]	[0.012]	[0.011]
Located in urban areas	0.008	-0.006	-0.008*	0.009	-0.015	-0.015
	[0.005]	[0.005]	[0.005]	[0.007]	[0.010]	[0.010]
N	2460	2460	2460	1276	1276	1276

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms for which the bank loan is not their major source of financing while the sample used in the remaining columns includes firms for which the bank loans account more than 50% of finance for their investment. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the 36-month unconditional standard deviation of monthly real lending interest rate. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Table 4.20: Heterogeneity effect of macroeconomic uncertainty by whether a firm uses bank loans as the major source of financing or not (robustness check 3 with new measure of macroeconomic uncertainty)

	(1)	(2)	(3)	(4)	(5)	(6)
	Bank loans is not the major financial source			Bank loans is the major financial source		
	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)	Productive investment	Non-productive investment (with land)	Non-productive investment (without land)
Macroeconomic uncertainty	-0.010***	0.010***	0.023***	-0.021***	0.047***	0.055***
	[0.003]	[0.004]	[0.003]	[0.005]	[0.009]	[0.009]
Revenue/Productive asset	0.004***	0.001	0.001**	0.003***	0.010***	0.011***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]
Profit/Productive asset	-0.002	0.002	0.000	0.010	-0.004	-0.008
	[0.003]	[0.003]	[0.003]	[0.006]	[0.009]	[0.009]
Firm size	0.000	-0.007	-0.014*	0.007	-0.053***	-0.054***
	[0.008]	[0.009]	[0.008]	[0.012]	[0.017]	[0.017]
Firm size squared	-0.000	0.001	0.002	-0.001	0.004*	0.005**
	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]	[0.002]
Firm age	-0.000	-0.009**	-0.004	0.010*	-0.007	-0.011
	[0.004]	[0.004]	[0.004]	[0.006]	[0.008]	[0.008]
Demand constraint	-0.007	-0.007	-0.002	-0.013	0.008	0.013
	[0.006]	[0.006]	[0.005]	[0.009]	[0.013]	[0.012]
Being an incorp firm	0.016***	-0.001	0.000	-0.007	0.002	0.002
	[0.006]	[0.006]	[0.005]	[0.008]	[0.012]	[0.011]
Located in urban areas	0.008	-0.006	-0.008*	0.009	-0.015	-0.015
	[0.005]	[0.005]	[0.005]	[0.007]	[0.010]	[0.010]
N	2460	2460	2460	1276	1276	1276

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Random effect Tobit estimation is used to estimate the above specifications. This table presents the marginal effects. The lower censoring limit is set at 0%. Columns 1, 2 and 3 present the estimation results using the sample of firms for which the bank loan is not their major source of financing while the sample used in the remaining columns includes firms for which the bank loans account more than 50% of finance for their investment. The dependent variable in columns 1 and 4 is the productive investment rate, which is the ratio of productive investment in this period to the value of production asset in the previous period. The dependent variable in columns 2 and 5 is the non-productive investment rate 1 and that in columns 3 and 6 is the non-productive investment 2. The measurement of macroeconomic uncertainty in this table is the 36-month unconditional standard deviation of monthly CPI. To avoid the endogeneity and simultaneity bias, I used the first lag of all variables in our estimations. In all specifications, I control for industry dummies, location dummies and period dummies.

Appendix 3.A1: Contribution of each business practice indicator to firm productivity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Labor input	0.744***	0.740***	0.742***	0.742***	0.745***	0.741***	0.742***
	[0.018]	[0.018]	[0.018]	[0.018]	[0.018]	[0.018]	[0.018]
Capital input	0.108***	0.108***	0.108***	0.108***	0.108***	0.107***	0.107***
	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]	[0.008]
Advertising	0.025						
	[0.024]						
Using email		0.122***					
		[0.026]					
Keeping accounting book			0.114***				
			[0.022]				
Training workers				0.056***			
				[0.020]			
Business association member					0.010		
					[0.030]		
% input purchased in other province						0.092***	
						[0.026]	
% output sold in other provinces							0.080***
							[0.029]
% regular employee	0.582***	0.583***	0.580***	0.581***	0.584***	0.582***	0.583***
	[0.046]	[0.046]	[0.046]	[0.046]	[0.047]	[0.046]	[0.046]
Firm age	0.185***	0.166***	0.157***	0.189***	0.186***	0.187***	0.184***
	[0.050]	[0.049]	[0.050]	[0.050]	[0.050]	[0.050]	[0.049]
Intercept	7.357***	7.390***	7.418***	7.328***	7.354***	7.341***	7.357***
	[0.203]	[0.203]	[0.213]	[0.204]	[0.204]	[0.204]	[0.203]
N	12846	12847	12847	12847	12847	12847	12847
SP firms							
Labor input	0.752***	0.751***	0.751***	0.748***	0.751***	0.747***	0.748***
	[0.021]	[0.021]	[0.021]	[0.021]	[0.021]	[0.021]	[0.021]
Capital input	0.094***	0.094***	0.094***	0.094***	0.094***	0.093***	0.093***
	[0.009]	[0.009]	[0.009]	[0.009]	[0.009]	[0.009]	[0.009]
Advertising	0.012						
	[0.032]						
Using email		0.073*					
		[0.041]					
Keeping accounting book			0.089***				
			[0.031]				
Training workers				0.093***			

				[0.024]			
Business association member					0.097**		
					[0.041]		
% input purchased in other province						0.091***	
						[0.031]	
% output sold in other provinces							0.094***
							[0.034]
% regular employee	0.566***	0.568***	0.563***	0.563***	0.572***	0.564***	0.566***
	[0.053]	[0.053]	[0.053]	[0.053]	[0.054]	[0.053]	[0.053]
Firm age	0.090	0.085	0.080	0.098	0.090	0.090	0.087
	[0.060]	[0.060]	[0.060]	[0.060]	[0.060]	[0.060]	[0.060]
Intercept	7.458***	7.467***	7.484***	7.922***	7.450***	7.925***	7.940***
	[0.204]	[0.204]	[0.204]	[0.216]	[0.204]	[0.217]	[0.216]
N	9633	9633	9633	9633	9633	9633	9633
Incorp firm							
Labor input	0.715***	0.709***	0.716***	0.715***	0.716***	0.713***	0.715***
	[0.038]	[0.038]	[0.038]	[0.038]	[0.038]	[0.038]	[0.038]
Capital input	0.152***	0.152***	0.153***	0.152***	0.154***	0.153***	0.152***
	[0.018]	[0.018]	[0.018]	[0.018]	[0.018]	[0.018]	[0.018]
Advertising	0.020						
	[0.034]						
Using email		0.082**					
		[0.036]					
Keeping accounting book			0.035				
			[0.044]				
Training workers				0.028			
				[0.035]			
Business association member					-0.073*		
					[0.043]		
% input purchased in other province						0.095*	
						[0.050]	
% output sold in other provinces							0.044
							[0.054]
% regular employee	0.693***	0.691***	0.695***	0.694***	0.695***	0.695***	0.696***
	[0.095]	[0.096]	[0.096]	[0.096]	[0.096]	[0.095]	[0.096]
Firm age	0.190**	0.187*	0.191**	0.191**	0.190**	0.188*	0.189**
	[0.096]	[0.096]	[0.096]	[0.096]	[0.096]	[0.096]	[0.096]
Intercept	7.839***	7.006***	6.424***	6.465***	6.462***	7.279***	6.450***
	[0.392]	[0.410]	[0.394]	[0.393]	[0.390]	[0.373]	[0.388]
N	3212	3213	3213	3213	3213	3213	3213

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix 3.A2: Contribution of each business practice indicator to firm employment

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Capital intensity	-0.014***	-0.014***	-0.014***	-0.014***	-0.014***	-0.014***	-0.015***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Advertising	0.124***						
	[0.023]						
Using email		0.134***					
		[0.025]					
Keeping accounting book			0.063***				
			[0.019]				
Training workers				0.096***			
				[0.016]			
Business association member					0.054**		
					[0.024]		
% input purchased in other province						0.171***	
						[0.022]	
% output sold in other provinces							0.220***
							[0.028]
% regular employee	-0.956***	-0.948***	-0.954***	-0.952***	-0.951***	-0.948***	-0.943***
	[0.044]	[0.044]	[0.044]	[0.044]	[0.044]	[0.044]	[0.043]
Firm age	0.088**	0.070*	0.076*	0.097**	0.092**	0.094**	0.086**
	[0.040]	[0.040]	[0.041]	[0.040]	[0.040]	[0.040]	[0.040]
Intercept	2.740***	2.795***	3.285***	2.704***	3.230***	2.707***	3.179***
	[0.160]	[0.159]	[0.163]	[0.160]	[0.164]	[0.160]	[0.160]
N	12846	12847	12847	12847	12847	12847	12847
SP firms							
Capital intensity	-0.015***	-0.015***	-0.015***	-0.015***	-0.015***	-0.015***	-0.015***
	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]	[0.002]
Advertising	0.080**						
	[0.035]						
Using email		0.088**					
		[0.042]					
Keeping accounting book			0.067***				
			[0.025]				
Training workers				0.102***			
				[0.018]			
Business association member					0.069**		
					[0.034]		
% input purchased in other province						0.183***	

						[0.026]	
% output sold in other provinces							0.208***
							[0.032]
% regular employee	-0.929***	-0.924***	-0.929***	-0.927***	-0.922***	-0.922***	-0.919***
	[0.047]	[0.047]	[0.047]	[0.047]	[0.047]	[0.047]	[0.046]
Firm age	0.025	0.019	0.017	0.033	0.025	0.024	0.017
	[0.048]	[0.048]	[0.048]	[0.047]	[0.048]	[0.048]	[0.047]
Intercept	2.551***	2.562***	2.568***	2.520***	2.544***	2.526***	2.519***
	[0.142]	[0.142]	[0.142]	[0.141]	[0.142]	[0.142]	[0.141]
N	9633	9633	9633	9633	9633	9633	9633
Incorp firms							
Capital intensity	-0.015***	-0.014***	-0.015***	-0.015***	-0.015***	-0.015***	-0.016***
	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]	[0.004]
Advertising	0.133***						
	[0.032]						
Using email		0.133***					
		[0.032]					
Keeping accounting book			0.023				
			[0.037]				
Training workers				0.066**			
				[0.026]			
Business association member					0.006		
					[0.037]		
% input purchased in other province						0.100**	
						[0.041]	
% output sold in other provinces							0.197***
							[0.049]
% regular employee	-1.003***	-0.996***	-1.002***	-1.000***	-1.002***	-0.999***	-0.988***
	[0.109]	[0.109]	[0.111]	[0.111]	[0.111]	[0.111]	[0.110]
Firm age	0.276***	0.271***	0.281***	0.281***	0.280***	0.277***	0.271***
	[0.085]	[0.084]	[0.086]	[0.086]	[0.086]	[0.086]	[0.086]
Intercept	3.943***	3.957***	3.596***	3.908***	3.804***	3.587***	3.871***
	[0.265]	[0.263]	[0.286]	[0.270]	[0.271]	[0.286]	[0.265]
N	3212	3213	3213	3213	3213	3213	3213

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix 3.A3: Accounting for the attrition bias

It seems that our estimations could suffer from selection sample bias and endogeneity bias. To account for this, we adopt the Semykina and Wooldridge (2010) strategy to estimate a panel data model in the presence of endogeneity and selection.

Consider a correlated unobserved effects panel data

$$y_{it} = x_{it}\beta + c_{i1} + u_{it}$$

Where x_{it} is a 1 x K vector of explanatory variables; c_{i1} is the unobserved effects and allowed to be correlated with x_{it} and u_{it} is an idiosyncratic error. Denote z_{it} is a vector of instrumental variables which is strictly exogenous that $E(u_{it}|z_{it} \dots z_{iT}, c_{i1}) = E(u_{it}|z_i, c_{i1}) = 0$ (z_{it} contains all exogenous variables in x_{it} . We assume that all variables in x_{it} and z_{it} are time-varying.

We define a latent variable, $l_{it}^*$for firm's decision to leave the survey.

$$l_{it}^* = z_{it}\delta_t + c_{i2} + u_{it2}$$

Where c_{i2} is an unobserved effect; and u_{it2} is an idiosyncratic error. We define

$$l_{it} = 1[l_{it}^* > 0] = 1[z_{it}\delta_t + c_{i2} + u_{it2} > 0]$$

By definition l_{it} is a selection indicator that equals one if y_{it} is observed and zero otherwise. In our case, l_{it} indicates whether firm i leaves the survey after period $t - 1$ or not.

We further model the unobserved effect c_{i1} as follows

$$c_{i1} = f(z_i) + a_{i1}$$

Where $f(.)$ is a known function and $E(a_{i1}|z_i) = 0$. Although $f(.)$ could be any known function, we assume $f(.)$ to follow the specification proposed by Chamberlain (1980), i.e.

$$c_{i1} = f(z_i) + a_{i1} = \bar{z}_i\eta + a_{i1}$$

According to Mundlak (1978) and Semykia and Wooldridge (2010), the above specification is similar to fixed effects but free from selection biases.

Our estimation could be re-written as follows:

$$y_{it} = x_{it}\beta + \bar{z}_i\eta + a_{i1} + u_{it} = x_{it}\beta + \bar{z}_i\eta + v_{it1}$$

Where $v_{it1} = a_{i1} + u_{it1}$ and $E(v_{it1}|z_i) = 0$. The above equation could be written as follows

$$y_{it} = x_{it}\beta + \bar{z}_i\eta + E(v_{it1}|z_i, l_{it}) + e_{it1}$$

Where by construction, we have $E(e_{it1}|z_i l_{it}) = 0$. We can estimate the above equation by pooled 2SLS as follows:

First, use probit to estimate the equation:$P(l_{it} = 1|z_i) = \Phi(z_{it}\delta_t^a + \bar{z}_i\gamma_t^a)$, then calculate the inversed Mills ratio $\hat{\lambda}_{it}$.

For $l_{it} = 1$, use 2SLS to estimate equation:

$$y_{it} = x_{it}\beta + \bar{z}_i\eta + \theta\hat{\lambda}_{it} + e_{it1}$$

Using $z_{it1}, \bar{z}_i, \hat{\lambda}_{it}$ as instruments. We can also add the interactions of $\hat{\lambda}_{it}$ with time dummies to allow θ to be different across t. The asymptotic variance will be estimated.

In our case, the z_{it} include (i) the mean of business practice score of other firms in the same industry and province with firm i at time t and (ii) other variables in x_{it}. To ensure the exogeneity of the instrumental variable, we control the mean of the productivity of other firms in the same industry and provinces, the number of firms in the same industry and provinces. We also control for whether firm i sells their products as intermediaries and capital goods for manufacturing to mitigate the effect of reverse causality from firm i productivity and other firm's productivity.

Appendix 3.A6 presents our first step for years 2007, 2009, 2011 and 2013. Apendix 3.A5 presents our second steps.

Appendix 3.A4: Contribution of each business practice indicator to firm productivity and employment (controlling for sample selection)

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variables	VA			Employment		
Firm groups	All	SP firms	Incorp firms	All	SP firms	Incorp firms
Labor input	0.727***	0.738***	0.706***			
	[0.018]	[0.021]	[0.038]			
Capital input	0.106***	0.091***	0.152***			
	[0.008]	[0.009]	[0.018]			
Capital intensity				-0.014***	-0.015***	-0.014***
				[0.002]	[0.002]	[0.004]
Advertising	0.008	0.000	0.006	0.098***	0.068**	0.114***
	[0.023]	[0.031]	[0.034]	[0.023]	[0.034]	[0.031]
Using email	0.105***	0.065	0.077**	0.104***	0.078**	0.099***
	[0.026]	[0.041]	[0.035]	[0.024]	[0.039]	[0.032]
Keeping accounting book	0.082***	0.081***	0.092*	0.141***	0.164***	0.055
	[0.026]	[0.031]	[0.050]	[0.021]	[0.026]	[0.041]
Training workers	0.064**	0.080**	0.021	0.184***	0.180***	0.170***
	[0.029]	[0.035]	[0.054]	[0.027]	[0.031]	[0.049]
Business association member	0.107***	0.095***	0.046	0.055***	0.069***	0.034
	[0.022]	[0.031]	[0.044]	[0.019]	[0.024]	[0.037]
% input purchased in other province	0.054***	0.091***	0.027	0.085***	0.091***	0.055**
	[0.020]	[0.024]	[0.034]	[0.015]	[0.018]	[0.025]
% output sold in other provinces	0.005	0.097**	-0.079*	0.041*	0.063*	-0.012
	[0.029]	[0.041]	[0.043]	[0.024]	[0.033]	[0.036]
% regular employees	0.577***	0.564***	0.727***	-0.933***	-0.910***	-0.979***
	[0.046]	[0.054]	[0.096]	[0.043]	[0.046]	[0.107]
Firm age	0.144***	0.073	0.253**	0.061	0.012	0.243***
	[0.049]	[0.060]	[0.102]	[0.040]	[0.046]	[0.089]
Inversed Mills ratio	Yes	Yes	Yes	Yes	Yes	Yes
Intercept	7.406***	7.513***	6.684***	3.028***	2.456***	3.344***
	[0.214]	[0.205]	[0.399]	[0.155]	[0.139]	[0.267]
N	12835	9625	3209	12835	9625	3209

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix 3.A5: Sample selection (2nd stage)

	(1)	(2)	(3)
	All sample	SP firms	Incorp firms
BPS	0.130***	0.135*	0.142**
	[0.048]	[0.076]	[0.061]
Total Labor	0.803***	0.844***	0.719***
	[0.020]	[0.028]	[0.031]
Capital	0.094***	0.081***	0.132***
	[0.009]	[0.010]	[0.019]
% regular employees	0.671***	0.660***	0.789***
	[0.055]	[0.063]	[0.108]
Mean of instrument variable	-0.045	-0.074	0.003
	[0.052]	[0.070]	[0.085]
Mean of labor	0.000	-0.018	-0.007
	[0.033]	[0.039]	[0.065]
Mean of capital	0.142***	0.160***	0.093***
	[0.012]	[0.014]	[0.022]
Mean of % regular employee	-0.112	-0.167	0.007
	[0.091]	[0.109]	[0.167]
Firm age	-0.072***	-0.076***	-0.030
	[0.010]	[0.011]	[0.019]
Constant	6.806***	6.763***	6.515***
	[0.136]	[0.166]	[0.294]
First stage			
Instrumental variable	0.958***	0.733***	1.368***
	[0.053]	[0.055]	[0.112]
Instrumental variable tests			
Underidentification test	278.622	151.497	99.4
Weak identification test	331.482	181.095	118.235
N	10814	8215	2599

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix 3.A6: Sample selection (first stage)

	(1)	(2)	(3)	(4)
	Year 2007	Year 2009	Year 2011	Year 2013
BPS	0.027	-0.071	-0.081*	-0.032
	[0.047]	[0.047]	[0.048]	[0.048]
Instrumental variable for BPS	2.391***	2.528***	0.597**	1.502***
	[0.279]	[0.296]	[0.267]	[0.313]
Total employment	-0.023	0.089*	-0.113**	-0.130**
	[0.048]	[0.049]	[0.049]	[0.050]
Capital	-0.019	-0.020	0.050*	0.001
	[0.026]	[0.028]	[0.027]	[0.028]
% Regular employee	-1.763***	-0.649**	0.067	-0.043
	[0.354]	[0.262]	[0.237]	[0.291]
Mean of Instrument variable	-3.516***	-3.685***	-1.093***	-1.887***
	[0.296]	[0.327]	[0.270]	[0.306]
Mean of labor	-0.432*	0.234	0.911***	-0.188
	[0.238]	[0.216]	[0.270]	[0.244]
Mean of capital	0.394***	-0.031	-0.312**	0.161
	[0.132]	[0.105]	[0.122]	[0.134]
Mean of share of regular employees	3.453***	1.109**	-1.375***	-0.702*
	[0.460]	[0.439]	[0.435]	[0.407]
Being a incorporated firms	0.027	0.149	0.127	0.381***
	[0.097]	[0.097]	[0.093]	[0.098]
Firm age	-0.407***	-0.261***	-0.171***	-0.084*
	[0.042]	[0.049]	[0.045]	[0.046]
Constant	-2.787**	0.675	3.523***	-1.142
	[1.102]	[1.019]	[1.162]	[1.343]
N	2762	2553	2577	2496

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Appendix 4.1: Investment decision at each period

Year	2007	2009	2011	2013
Initial condition	0.368***	0.078	0.146**	0.222***
	[0.067]	[0.069]	[0.068]	[0.069]
Lagged dependent variable	.	0.289***	0.296***	0.474***
	.	[0.071]	[0.071]	[0.068]
Revenue/Productive asset	-0.004	-0.022*	0.002	-0.018*
	[0.006]	[0.013]	[0.011]	[0.011]
Profit/Productive asset	-0.013	0.019	-0.170***	0
	[0.029]	[0.053]	[0.065]	[0.046]
Firm size	0.378***	0.388***	0.344***	0.291***
	[0.092]	[0.104]	[0.100]	[0.098]
Firm size squared	-0.015	-0.008	-0.009	-0.003
	[0.017]	[0.022]	[0.021]	[0.020]
Firm age	-0.126**	-0.227***	-0.202***	-0.047
	[0.052]	[0.060]	[0.057]	[0.057]
Demand constraint	-0.076	-0.312***	0.106	0.044
	[0.090]	[0.103]	[0.082]	[0.086]
Being an incorp firm	-0.008	0.061	-0.043	0.287***
	[0.100]	[0.110]	[0.098]	[0.099]
Located in urban areas	0.264***	-0.054	-0.025	-0.258***
	[0.082]	[0.088]	[0.082]	[0.080]
N	2028	1886	1891	1946

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix 4.A2: Bank loan application decision

Year	2007	2009	2011	2013
Initial conditon	1.032***	0.519***	0.357***	0.438***
	[0.063]	[0.071]	[0.073]	[0.074]
Lagged dependent variable		0.707***	0.790***	0.535***
		[0.072]	[0.074]	[0.078]
Revenue/Productive asset	0.005	0.027	-0.020	-0.009
	[0.005]	[0.020]	[0.026]	[0.027]
Profit/Productive asset	0.001	-0.006	0.000	-0.002
	[0.001]	[0.006]	[0.004]	[0.003]
Firm size	0.290***	0.214**	0.354***	0.466***
	[0.093]	[0.102]	[0.105]	[0.110]
Firm size squared	-0.010	0.008	-0.023	-0.029
	[0.017]	[0.021]	[0.020]	[0.021]
Firm age	-0.153***	-0.017	-0.281***	-0.071
	[0.050]	[0.058]	[0.060]	[0.064]
Located in urban areas	-0.071	-0.002	-0.081	-0.039
	[0.082]	[0.084]	[0.086]	[0.088]
Being an incorp firm	0.077	0.161	0.082	0.303***
	[0.097]	[0.100]	[0.098]	[0.102]
N	2211	2041	2051	2034

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Appendix 4.A3: Correlations between having no contact in the banking sector and other variables indicating firm's financial condition

	(1)	(2)	(3)	(4)	(5)	(6)
	Investment decision	Decision to apply for bank loans	% bank loan in total investment	% own capital in total investment	% bank loan in total investment	% own capital in total investment
Having no contact	-0.211***	-0.292***	-0.418***	0.301***	-0.112**	0.127**
	[0.034]	[0.067]	[0.071]	[0.062]	[0.056]	[0.058]
Investment at t-1	0.128***					
	[0.048]					
Investment at t=1	0.189***					
	[0.042]					
Borrowing from bank at t-1		0.598***				
		[0.060]				
Borrowing from bank at t=1		0.389***				
		[0.053]				
Total investment			0.323***	-0.260***	0.048***	-0.051***
			[0.017]	[0.014]	[0.010]	[0.011]
Macroeconomic uncertainty	0.128***	-0.072	0.979***	-1.008***	0.730***	-0.845***
	[0.035]	[0.135]	[0.139]	[0.127]	[0.088]	[0.092]
Profit/Asset	0.000	-0.015	-0.001	-0.009	-0.001	-0.004
	[0.004]	[0.011]	[0.011]	[0.011]	[0.006]	[0.006]
Revenue/Asset	-0.000	0.005*	-0.002	0.004	-0.001	0.003*
	[0.001]	[0.003]	[0.003]	[0.003]	[0.002]	[0.002]
Productive asset	0.042***	0.087***	0.007	0.023	0.003	0.005
	[0.012]	[0.019]	[0.020]	[0.018]	[0.013]	[0.014]
Firm size	0.359***	0.380***	-0.119	0.168*	-0.063	0.037
	[0.050]	[0.102]	[0.110]	[0.096]	[0.076]	[0.077]
Firm size squared	-0.020**	-0.023	0.008	0.005	0.005	-0.000
	[0.010]	[0.014]	[0.015]	[0.013]	[0.010]	[0.010]
Firm age	-0.174***	-0.188***	-0.056	0.022	-0.030	0.066*
	[0.029]	[0.049]	[0.053]	[0.045]	[0.035]	[0.035]
Investment sample selection		Yes	Yes	Yes	Yes	Yes
Bank loan application sample selection		No	No	No	Yes	Yes
N	8344	4259	4262	4262	2296	2296

Note: Standard errors in brackets; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

FINAL

Enterprise No.

Present Enterprise Name

Enterprise Name in 2009 Survey

MAIN QUESTIONNAIRE

SURVEY OF SMALL AND MEDIUM SCALE MANUFACTURING ENTERPRISES (SMEs) IN VIETNAM

June 2011

Interviewer

Supervisor

Date of the interview

Day	Month	Year

Time begun	Time finished

MAIN QUESTIONNAIRE

Previously and not previously surveyed enterprises in operation

Content

IDENTIFICATION PARTICULARS

1) Firm number (Enterprise code) _____(Aq1)

2) a) Name of respondent _____(Aq2a)

b) Position of respondent _____(Aq2b)

Code: Owner (1), Manager (2)

c) Gender of respondent _____(Aq2c)

Code: Male (1), Female (2)

d) Year of birth of respondent _____(Aq2d)

3) a) Name of firm _____(Aq3a)

b) Address of firm

ba) Street name _____(Aq3ba)

bb) Number of Building _____(Aq3bb)

bc) Commune/Ward _____(Aq3bc)

bd) District _____(Aq3bd)

Code: See manual for district codes (2004 definition)

be) City/Province _____(Aq3be)

Code: Ha Noi (1), HCMC (79), Hai Phong (31), ex-Ha Tay (28), Long An (80), Phu Tho (25), Quang Nam (49), Nghe An (40), Khanh Hoa (56), Lam Dong (68)

c) Telephone number

Office:_____ Mobile:_____

d) Does the firm have internet access? _____(Aq3d)

Code: Yes (1), No (2)

e) Does the firm have an email address? _____(Aq3e)

Code: Yes (1), No (2)

If yes, please specify the email address? _____(Aq3e1)

f) Does the firm have a website? _____(Aq3f)

Code: Yes (1), No (2)

*If yes, please write down website address:*_____(Aq3f1)

4) Did this firm merge with (take-over) another enterprise since August 2009 (last survey)?

Code: Yes (1), No (2) _____(Aq4a)

5) What type of zone is the main production facility located in? _____(Aq5)

Code: Industrial park/zone (IZ) (1), High-Tech park/zone (HTZ) (2), Export processing park/zone (EPZ) (3), Other (4).

a) Does this firm have more than one manufacturing location? _____(Aq5a)

Code: Yes (1), No (2)

6) a) When did the firm start to operate as the current firm? (Year) _____(Aq6a)

If started operating during 2010 (i.e. since 1 Jan 2010) stop survey and contact supervisor

aa) Was this formally registered (had BRC) when it began operations? _____(Aq6aa)

b) When did the firm come under the current owner(s)? (Year) _____(Aq6b)

7) a) Are you aware of the new unique Enterprise Code Number (ECN), issued by the Government, that combines the old Business Registration License (BRC) and the Tax Code (TC) number? _____(Aq7a)

Code: Yes (1), No (2)

ab) If yes, does the enterprise have the ECN? _____(Aq7aa)

Code: Yes (1), No (2)

If Yes, skip to 7D

b) Does the enterprise have a Business Registration Certificate (BRC)? _____(Aq7b)

Code: Yes (1), No (2)

ba) If yes, what is the BRC number? _____(Aq7ba)

c) Does the enterprise have a tax code (TC) number? _____(Aq7c)

Code: Yes (1), No (2)

ca) If yes, what is the firm TC number? _____(Aq7ca)

d) Do you know about the National Enterprise Registration Information Portal (NERIP)? _____(Aq7d)

8) Type of enterprise _____(Aq8)

Code: "Repeat" firm, still in business (1) => continue with Q9. "Repeat" firm, no longer in business (2) => Change to EXIT questionnaire, Firm not previously surveyed (3) => go to q10

9) Has the enterprise changed owner(s) since August 2009 (last survey)? _____(Aq9)

Code: Yes (1), No (2)

a) If yes, how? _____(Aq9a)

Code: Inherited from previous owner (who died, retired) without pay (1), Previous owner sold enterprise while it was still in operation (2), Privatisation of enterprise, while it was still in business (3), Previous owner sold enterprise, which was no longer operating (4), Privatisation of enterprise no longer in operation (5), Previous owner went bankrupt (could no longer pay bills) (6), Other reason (7)

If answer 1, 2 or 3, continue with Question 10.

If answer 4, 5 or 6, change to Exit Questionnaire.

If answer 7, make own judgement whether to continue or to change to Exit questionnaire.

10) Has the enterprise since the last survey in August 2009 (last survey):

a) Been closed down for up to a year? _____(Aq10a)

Code: Yes (1), No (2)

aa) If yes, why? (select only one) _____(Aq10aa)

Code: Too much competition (1), Low quality of products (2), Product became un-modern (3), Poor distribution/marketing channels (4), Production costs too high (5), Difficulties in getting inputs/raw material (6), Lack of demand/orders (7), Shortage of qualified labour (8), Normal part of business cycle / seasonal (9), Other (10)

b) Changed ownership form/legal status _____(Aq10b)

Code: Yes (1), No (2)

11) Has the location of the main production facility changed since August 2009 (last survey)?

Code: Yes (1), No (2)

a) If yes, why? (select only one from code list) _____(Aq11a)

Code: New premises larger (1), New premises better equipped (2), New premises have better location in terms of infrastructure (3), New premises have better location in terms of demand for products (4), New premises have better location in terms access to suppliers (5), New premises less expensive (6), Had to relocate due to environmental regulations (7), No choice (was forced to evacuate previous premises) (8), Other (9).

GENERAL CHARACTERISTICS

12) a) Form of ownership/legal status _____(Aq12a)

Code: Household establishment/business (1), Private (sole proprietorship) (2), Partnership (3), Collective/Cooperative (4), Limited liability company (5), Joint stock company with state capital (6), Joint stock company without state capital (7), Joint venture with foreign capital (8), State enterprise (central) (9), State enterprise (local) (10)

b) If household establishment/business (1), at what level is the firm registered?

Code: District level (1), Not registered (2) _____(Aq12b)

c) Is the firm owned by a single person or does it have multiple owners? _____(Aq12c)

Code: One owner (1), Multiple owners (2)

ca) If multiple ownership, what is the ownership percentage of the largest owner/shareholder?

_____(Aq12ca)

13) Main area of business and production activity _____(Aq13)

Code: (List only one according to the GSO product list given in the manual – Economic sectors - 1-digit ISIC)

14) Does the enterprise have any of the following facilities?

a) Is there a main (paved) road leading to the firm? _____(Aq14a)

b) Easy access to rail _____(Aq14b)

c) Easy access to port _____(Aq14c)

d) Access to public electricity grid _____(Aq14d)

e) Access to public provided water system _____(Aq14e)

Code: Yes (1), No (2)

f) Did you, during 2010, experience insufficient power for production? _____(Aq14f)

Code: Often (1), Seldom (2), Never (3)

g) Did you during 2010 experience insufficient water supply for production ? _____(Aq14g)

Code: Often (1), Seldom (2), Never (3)

15) What are the premises housing the main production facility of the enterprise mainly used for?

_____(Aq15)

Code: Mainly used for residential purposes (1), Mainly used for production purposes (2), Exclusively used for production purposes (3)

16) Is the land housing the main production facility of the enterprise owned or rented? _____(Aq16a)

Code: Enterprise owner has a Certificate of Land Use Right (CLUR) which was purchased (1), Enterprise owner has a CLUR which was inherited (2), Enterprise owner has an informal arrangement to use the land (3), Rented/Leased (4), Other (5)

a) If enterprise has a CLUR:

aa) How long did it take to obtain it from the time of application to the receipt of the CLUR?

(number of days) _____(Aq16aa)

ab) What was the cost of obtaining it? (1,000 VND) _____(Aq16ab)

b) If land rented (informally (case 3) or formally (case 4)), what was the total cost in 2010? (1,000 VND)

_____(Aq16b)

17) a) How many different goods/services (different 4-digit ISIC) did your firm produce in 2010?

b) Name these goods/services by order of importance (in revenue terms):

	Name	ISIC 4-digit code
ba) Most important good/service	_____(Aq17ba1)	_____(Aq17ba2)
bb) Second most important good/service	_____(Aq17bb1)	_____(Aq17bb2)
bc) Third most important good/service	_____(Aq17bc1)	_____(Aq17bc2)

Note: (The enumerator should only list the name of the each product. During data entry afterwards each of the goods should be listed according to the 4-digit ISIC classification given in the manual)

ENTERPRISE HISTORY

Question 18 to 21 should only be answered by firms not previously surveyed (i.e. 2011 is the first time firm is surveyed) and if respondent is the owner of the enterprise. (i.e. code 1 in Q2b)

18) Did the owner of the enterprise work with similar products/services (as listed in Q17b) prior to establishing the present enterprise? _____ (Aq18)

Code: Yes, mainly for own consumption (1), Yes, mainly for sale/exchange (informal business) (2), Yes, as an employee in another non-state enterprise (3), Yes, as an employee in a state owned enterprise (4), Yes, in the capacity of member of a collective farm (5), Yes, other (6), No (7)

19) What was the most important reason for the owner to start this particular line of business? (List a maximum of three in order of importance).

a) Most important reason _____ (Aq19a)

b) Second most important reason _____ (Aq19b)

c) Third most important reason _____ (Aq19c)

Code: Own market research found profit possibilities (1), Previous experience in this line of business (2), Local industrial tradition in this field (3), Had seen others with high profits in this field (4), Secure supply/marketing channels (5), Was advised by friends/relatives (6), Was advised by local authorities (7), Received financial support for this business idea (8), Inherited the enterprise (9), Other (10)

20) Which difficulties were encountered when the enterprise was established / bought for the first time?

a) Lack of capital _____(Aq20a)

b) Lack of raw material _____(Aq20b)

c) Lack of marketing outlet / packaging & distribution services _____(Aq20c)

d) Lack of marketing skills _____(Aq20d)

e) Lack of technical know-how _____(Aq20e)

f) Lack of suitable machinery/equipment _____(Aq20f)

g) Difficulty in finding suitable premises _____(Aq20g)

h) Complicated regulations/difficulties in obtaining licences _____(Aq20h)

i) Lack of skilled labour _____(Aq20i)

j) Lack of support from local government _____(Aq20j)

k) Lack of business development services/business advice/entrepreneurship development services _____(Aq20k)

l) Lack of relevant business associations _____(Aq20l)

m) Other _____(Aq20m)

Code: Severe difficulty (1); moderate difficulty (2); insignificant difficulty (3)

21) Did you get any assistance from the following sources in coping with these start-up problems/difficulties?

Code: Yes (1), No (2) - (Please answer for all the following cases)

a) Government officials _____(Aq21a)

b) State owned commercial banks _____(Aq21b)

c) State owned enterprises _____(Aq21c)

d) Donor agencies/Foreign NGOs _____(Aq21d)

e) Mass organizations _____(Aq21e)

f) Other private firms/private banks _____(Aq21f)

g) Friends and relatives/family _____(Aq21g)

h) Business associations _____(Aq21h)

i) Other _____(Aq21i)

HOUSEHOLD CHARACTERISTICS OF THE OWNER/MANAGER (RESPONDENT)

22) Number of members in the respondent's household:

a) Total _____(Aq22a)

aa) Female _____(Aq22aa)

b) By age:

ba) Below age of 15 _____(Aq22ba)

bb) Aged 15 – 60 _____(Aq22bb)

bc) Aged over 60 _____(Aq22bc)

23) Activity status of household members aged 15 or more:

a) Number of full time jobs _____(Aq23a)

Of which;

aa) In the enterprise _____(Aq23aa)

ab) Elsewhere, for wages _____(Aq23ab)

ac) Elsewhere, self-employed _____(Aq23ac)

b) Number of part time jobs _____(Aq23b)

Of which;

ba) In the enterprise _____(Aq23ba)

bb) Elsewhere, for wages _____(Aq23bb)

bc) Elsewhere, self-employed

24) a) How many income generating jobs do you currently have? _____(Aq24a)

b) Is the firm the main source of income for your household? _____(Aq24b)

Code: Yes (1), No (2)

25) By how much do you estimate that your total household real income has changed since 2009?

_____(Aq25)

Code: It has declined (1), It is unchanged (2), It has increased by no more than 25 percent (3), It has increased by 25-50 percent (4), It has increased by 50-100 percent (5), It has increased by more than 100 percent (6)

26) Characteristics of the respondent:

a) Ethnicity of respondent _____(Aq26a)

Code: Kinh (1), Hoa (2), other (3)

b) What was the highest general educational level completed of respondent? _____(Aq26b)

Code: No education (1), Not finished primary (2), Finished primary (3), Finished lower secondary (4), Finished upper secondary (5)

c) What was the highest professional education completed of respondent? _____(Aq26c)

Code:
Unskilled = 1
Technical certificate/ Elementary worker = 2
Technical worker without certificate = 3
Technical worker with certificate/professional secondary = 4
College/University/post-graduate = 5

d) Previous main work status _____(Aq26d)

Code: Wage employee in state enterprise (1), Wage employee in non-state enterprise (2), Self-employed in manufacturing-construction (3), Self-employed in trade/services (4), Own or collective farm (5), Other (6)

e) Main previous occupation of respondent _____(Aq26e)

Code: GSO classification (1-digit) (See manual)

f) What is/was the main occupation of mother and father of respondent?

fa) Mother of respondent _____(Aq26fa)

fb) Father of respondent _____(Aq26fb)

g) Other experience/positions:

ga) Village, commune, district, province cadre _____(Aq26ga)

gb) War veteran _____(Aq26gb)

gc) Other position of responsibility _____(Aq26gc)

Code: Yes (1), No (2)

h) Are you a member of the Communist Party _____(Aq26h)

Code: Yes (1), No (2)

i) Characteristics of the house where your household lives				
a) What type of dwelling? *Codes: Villa (1), permanent self-contained house (2), permanent non-contained house (3), semi-permanent house (4), unsettled house and other (5)*	**b) What is the space of your dwelling, including living and accessory rooms? (square meters)**	**c) How long has your household been living in this dwelling? (years)**	**d) In approximately which year was the dwelling built?**	**e) When did last undertake major house repair? (year)**
Aq26ia	Aq26ib	Aq26ic	Aq26id	Aq26ie

Question 27 is for owner of the enterprise only. If respondent is the manager go to question 28

27) a) Before establishing, or owning, the present enterprise, did you own any other enterprise?

Code: Yes (1), No (2) _____(Aq27a)

aa) If yes, was it in the same sector (4-digit ISIC)? _____(Aq27aa)

Code: Yes (1), No (2)

b) Does the owner currently have more than one enterprise? _____(Aq27b)

Code: Yes (1), No (2)

ba) If yes, how many? _____(Aq27ba)

bb) Why were the other enterprises created? (List main reason) _____(Aq27bb)

Code: For tax purposes (1), To obtain government subsidies or other support (2), To expand in a different line of business (3), Other (4)

PRODUCTION CHARACTERISTICS AND TECHNOLOGY

28) Does your enterprise use: (select only one) _____(Aq28)

Code: Only hand tools, no machinery (1), Manually operated machinery only (2), Power driven machinery only (3), Both manually and power driven machinery (4)

If answer (1), go to Question 33. Otherwise continue.

29) What percentage of your main/most important equipment/machinery is?

a) Under 3 years old _____(Aq29a)

b) Between 3 to 5 years old _____(Aq29b)

c) Between 6 to 10 years old _____(Aq29c)

d) Between 11 to 20 years old _____(Aq29d)

e) More than 20 years old _____(Aq29e)

30) a) What percentage of your main equipment/machinery did you get?

aa) New _____(Aq30a)

ab) Used/Second hand _____(Aq30b)

ac) Self-constructed _____(Aq30c)

b) What percentage of your main equipment/machinery did you purchase/lease/get?

ba) Same district as place of production (domestic/Vietnamese equipment/machine) _____(Aq30ba)

bb) Other district but same province as place of production (domestic/Vietnamese equipment/machine) _____(Aq30bb)

bc) Other province as place of production (domestic/Vietnamese equipment/machine) _____(Aq30bc)

bd) Through direct imports (foreign equipment/machine) _____(Aq30bd)

be) Through indirect imports (foreign equipment/machine) _____(Aq30be)

31) a) Does the enterprise own or rent main equipment/machinery in use? _____(Aq31a)

Code: Own all the machinery and equipment in use (1), Rent/borrow all the machinery and equipment from others (2), Rent/borrow part of the machinery and equipment from others (3)

If answer (2) skip to Q33

b) If the enterprise owns any main machinery/equipment, how was the purchase financed?

Code: Self-financed (1), Financial loan (2), Gift (3), Other (4) _____(Aq31b)

32) What is the main source of supply of machinery and equipment? _____(Aq32)

Code: Other private enterprise/source (1), State enterprise/outlet (2), Direct import (3), Other (4)

33) By how much would you be able to increase your production from the present level using existing equipment/machinery only? _____(Aq33)

Code: Not at all, operating at maximum capacity (1), By no more than 10 percent (2), By between 10 and 25 percent (3), By between 25 and 50 percent (4), By between 50 and 100 percent (5), By more than 100 percent (6)

34) a) How many operating personal computers (pc) does the firm have? _____(Aq34a)

b) Does your firm sell products via e-trading? _____(Aq34b)

Code: Yes (1), No (2)

c) Does your firm buy input materials via e-trading? _____(Aq34c)

Code: Yes (1), No (2)

35) a) Outsourcing:

Did the firm outsource production in 2010? _____(Aq35a)

Code: Yes (1), No (2)

aa) If yes, how many outsourcing subcontracts in 2010? _____(Aq35aa)

ab) What was the total cost of outsourcing in 2010? (1,000 VND) _____(Aq35ab)

ac) What percentage of your outsourcing contract value was for exports? _____(Aq35ac)

ad) Main reason for outsourcing parts of the production. _____(Aq35ad)

Code: To benefit from specialization (1), Other producers are more efficient (2), Capacity constraints related to equipment (3), Constraints related to labour (4), Capacity constraints related to land (5), Capacity constraints related to buildings (6), Other (7)

b) Firm as subcontractor:

Did the enterprise itself produce as subcontractor in 2010? _____(Aq35b)

Code: Yes (1), No (2)

ba) If yes to ba), how many subcontracts in 2010? _____(Aq35ba)

bb) What was the total revenue from these subcontracts in 2010? (1,000 VND) _____(Aq35bb)

be) What percentage came from subcontracts with foreign-invested enterprises _____(Aq35be)

SALES STRUCTURE

36) a) Does the firm have an internationally recognized quality certification? _____(Aq36a)

(e.g ISO 9000, ISO 14000 etc.) Code: Yes (1), No (2)

b) Is your enterprise required by customers to meet certain standards of production or abide by certain codes of conduct? _____(Aq36b)

Code: Yes (1), No (2)

37) Production quantity and unit prices in 2010. List by product. List in order of importance (in revenue terms).

Code: 1 = most important, 2 = second most important, and 3 = third most important.

aa) Name of product	ab) 4-digit ISIC Code	ac) In what units do you produce and sell this product?	ad) Quantity produced	ae) Quantity sold	af) Average sales price of one unit of output (in 1,000 VND)	ag) Average cost of producing one unit of output (in 1,000 VND)
1. (Aq37aa1)	1. (Aq37ab1)	(Aq37ac1)	(Aq37ad1)	(Aq37ae1)	(Aq37af1)	(Aq37ag1)
2. (Aq37aa2)	2. (Aq37ab2)	(Aq37ac2)	(Aq37ad2)	(Aq37ae2)	(Aq37af2)	(Aq37ag2)
3. (Aq37aa3)	3. (Aq37ab3)	(Aq37ac3)	(Aq37ad3)	(Aq37ae3)	(Aq37af3)	(Aq37ag3)

b) How many times did you change the output price of your main product in 2010? _____(Aq37b)

c) For you most important product, by how much did the output price change (in % terms) during 2010? _____(Aq37c)

38). How much of your production is used for: (in percent of total sales)

a) Final consumption _____(Aq38a)

b) Intermediate inputs/capital equipment in agriculture _____(Aq38b)

c) Intermediate inputs/capital equipment in manufacturing _____(Aq38c)

d) Intermediate inputs/capital equipment in services _____(Aq38d)

e) Don't know _____(Aq38e)

((a) to (e) should add up to 100%)

39) a) How do you set the prices of your products/services? (List maximum 3 in order of importance: most important = 1, second most important = 2, third most important = 3)

a1) A fixed mark-up over production costs _____(Aq39a1)

a2) Charge similar prices as my competitors _____(Aq39a2)

a3) Charge somewhat lower prices than my competitors _____(Aq39a3)

a4) Individual negotiation with each customer _____(Aq39a4)

a5) Prices are given by government regulations _____(Aq39a5)

a6) Other _____(Aq39a6)

40) Does the enterprise produce on advance order? _____(Aq40)

Code: No, never (1), Sometimes (2), Yes, always or almost always (3)

41) Do you advertise your products?

Code: Yes (1), No (2)

a) If yes, advertisement amount used in 2010? (in 1,000 VND) _____(Aq41a)

b) If yes, how do you advertise? *Code: Yes (1), No (2)*

ba) On street posters, or similar _____(Aq41ba)

bb) Door-to-door information material _____(Aq41bb)

bc) In newspapers/yellow pages _____(Aq41bc)

bd) In the radio _____(Aq41bd)

be) In TV _____(Aq41be)

bf) On the Internet _____(Aq41bf)

bg) Through trade fair _____(Aq41bg)

bh) Other _____(Aq41bh)

42) a) How many customers normally buy the most important good/service produced by your enterprise? (Should correspond to the most important product in question q17ba). _____(Aq42a)

Code: Exclusively one customer (1), 2-5 customers (2), 6-10 customers (3), 11-20 customers (4), Over 20 customers (5)

b) How large (estimate) is your current (within district) market share within your main line of activity? _____(Aq42b)

43) Location of customers (in 2010) of the most important product (in terms of value). (Should correspond to the most important product in question q17ba). Calculate as percentages.

aa) Same commune _____(Aq43aa)

ab) Other commune within district _____(Aq43ab)

ac) Other district within province _____(Aq43ac)

ad) Neighbouring province _____(Aq43ad)

ae) Other province (non-neighbouring) _____(Aq43ae)

af) Export/outside country (direct) _____(Aq43af)

b) What is the distance to your main customer (in km)? _____(Aq43b)

44) Sales structure (in 2010) of most important product (in terms of value). (Should correspond to the most important product in question q17ba). Calculate as percentages.

a) Individual people/households (non-tourists) _____(Aq44a)

b) Tourists _____(Aq44b)

c) Non-commercial government authorities _____(Aq44c)

d) Domestic, non-state enterprises _____(Aq44d)

e) State enterprises _____(Aq44e)

f) Foreign invested companies _____(Aq44f)

g) Direct export (should equal Q43af) _____(Aq44g)

45) a) Have your relations with any of your customers ever required any special/additional investments in production and/or information technology and human capital upgrading? _____(Aq45a)

Code: (1) Yes, (2) No

b) If yes, have any of these customer relations ever resulted in technology transfer from the customer to your firm?

Code: (1) Yes, (2) No _____(Aq45b)

46) Does your enterprise export (directly or indirectly)? _____(Aq46)

Code: Yes (1), No (2)

If answer No (2) to Q49 skip to Q60

a) If yes, how? _____(Aq46a)

Code: Directly, only (1); Both directly and through trading companies (2); and Through trading companies, only (3)

If answer (3) to q49a skip to Question 60

47) Which year did your firm start producing for direct export? _____(Aq47)

48) How many foreign customers did you have for your direct export products in 2010? _____(Aq48)

49) a) What percentage of total sales did your enterprise export directly in 2010 to foreign countries?

_____(Aq49a)

b) of which, direct export (percentage of total export) by country (should add up to 100%):

ba) China _____(Aq49ba)

bb) Japan _____(Aq49bb)

bc) ASEAN countries _____(Aq49bc)

bd) Other Asian countries _____(Aq49bd)

be) US _____(Aq49be)

bf) EU _____(Aq49bf)

bg) Russia _____(Aq49bg)

bh) Other (non-Asian) countries _____(Aq49bh)

50) a) How many days (on average in 2010) did it take to get customs clearance in Vietnam for export products?

_____(Aq50a)

Code: 0-14 days (1), 15-30 days (2), between 31-60 days (3), between 61-90 days (4) over 90 days (5), Don't know (6)

b) How many days (on average in 2010) did it take to export your products (from the time it arrives at the destination of exit from Vietnam (e.g. port, airport) until the product reaches your main importer? (FOB enterprises should not answered with code 99) _____(Aq50b)

Code: 0-14 days (1), 15-30 days (2), between 31-60 days (3), between 61-90 days (4) over 90 days (5), Don't know (6)

c) What is the most constraining factor for quick export delivery? _____(Aq50c)

Code: Vietnamese customs (1) Transport (outside Vietnam) (2), Foreign Customs (3), Other (4)

51) Do you receive orders for direct export production? _____(Aq51)

Code: Yes (1), No (2)

a) If yes, does your enterprise receive product specifications, designs or materials for the production?

Code: Yes (1), No (2) _____(Aq51a)

52) Does your enterprise have long-term relations (that is more than one year) with your direct export product customers? _____(Aq52)

Code: Yes (1), No (2)

53) Do you use legal advice when entering direct export contracts? _____(Aq53)

Code: Yes (1), No (2)

a) If yes, indicate who? _____(Aq53a)

Code: Individual person (1), Private company (2), Government (3), Business association (4), more than one source (5)

54) Have foreign customers ever requested certification of your procedures and/or products?

Code: Yes (1), No (2) _____(Aq54)

a) If yes, who provided the certification? (List most important) _____(Aq54a)

Code: Domestic government agency (1), Domestic private agency (2), Foreign government agency (3), Foreign private agency (4).

55) Assess the performance of the cooperation with foreign partners? _____(Aq55)

Code: Satisfactory (1), Medium (2), Unsatisfactory (3)

56) Did the cooperation with foreign partners provide you with technology or expertise that you otherwise would not have had access to? _____(Aq56)

Code: Yes (1), No (2)

INDIRECT COSTS, RAW MATERIALS AND SERVICES

57) What was the cost to your firm of the following items in 2010 (1,000 VND)?

a) Electricity _____(Aq57a)
b) Liquid fuel, solid fuel and gas water _____(Aq57b)
c) Water _____(Aq57c)
d) Rental costs (including storage) _____(Aq57d)
e) Stationary and office supplies _____(Aq57e)
f) Telephone/Internet _____(Aq57f)
g) Transport _____(Aq57g)
h) Insurance (including standby fund against risk) _____(Aq57h)
i) Marketing and advertisement (incl. web-site costs) _____(Aq57i)
j) Maintenance & repairs of plant, equipment and buildings _____(Aq57j)
k) Other _____(Aq57k)
Total indirect costs in 2010 (sum of a to k) _____(Aq57)

58) How many days of inventory of the most important input does the firm have (on average)? _____(Aq58)

Code: Under a week (1), 1-2 weeks (2), 2-3 weeks (3), 3-4 weeks (4), Over 4 weeks (5), Don't know (6)

59) What percentage of the firm's total transport cost is due to (should add to 100%):

a) Road transport _____(Aq59a)
b) Rail transport _____(Aq59b)
c) Coastal (Ocean) shipping _____(Aq59c)
d) Air transport _____(Aq59d)

60) Who is responsible for the firm's transport? Give percentage distribution (a-e should add to 100%)

a) The firm handles the transport itself _____(Aq60a)
b) Contract with a transport company that handles firm cargo _____(Aq60b)
c) Collective agreement with other firms for joint shipments _____(Aq60c)
ca) If the enterprise consolidates cargo with other enterprises (category c) above), what is the main purpose? _____(Aq60ca)

Code: To reduce transportation costs (1), To reduce transit time (2), Business network considerations (3), Social network considerations (4), Other (5)

61) From whom did the enterprise procure its raw materials and other inputs in 2010. Give percentage distribution in terms of value. (Should add up to 100%)

a) From households _____(Aq61a)
b) Other non-state enterprises _____(Aq61b)
c) State enterprises _____(Aq61c)
d) Other state agencies _____(Aq61d)
e) Imported (directly) _____(Aq61e)
f) Other _____(Aq61f)

62) From where did the enterprise procure its raw material and other inputs in 2010? Give percentage distribution in terms of value. (Should add up to 100%)

a) Same commune _____(Aq62a)
b) Other commune within district _____(Aq62b)
c) Other district within province _____(Aq62c)
d) Neighbouring province _____(Aq62d)
e) Other province (non-neighbouring) _____(Aq62e)
f) Import (directly) _____(Aq62f)

If the firm does not use imported inputs go to question 65, otherwise continue

63) What were the origins of the imported raw materials and other inputs in 2010? Give percentage distribution in terms of value. (Should add up to 100%)

a) China _____(Aq63a)
b) Japan _____(Aq63b)
c) ASEAN countries _____(Aq63c)
d) Other Asian countries _____(Aq63d)
e) US _____(Aq63e)
f) EU _____(Aq63f)
g) Russia _____(Aq63g)
h) Other (non-Asian) countries _____(Aq63h)

64) a) What was the average number of days from goods arrived at the point of entry in Vietnam until it reached the firm (Import customs clearance)? _____(Aq64a)

Code: 0-14 days (1), 15-30 days (2), between 31-60 days (3), between 61-90 days (4) over 90 days (5), Don't know (6)

b) What percentage of average cargo was lost in 2008 while in transit in Vietnam? _____(Aq64b)

65) a) Have your relations with raw material and other input suppliers ever required any special/additional investments in production and/or information technology and human capital upgrading?

Code: (1) Yes, (2) No _____(Aq65a)

b) If yes, have these supplier relations ever resulted in technology transfer from the supplier to your firm?

Code: (1) Yes, (2) No _____(Aq65b)

66)

a) Can the firm select suppliers freely? _____(Aq66a)

Code: (1) Yes, (2) No

If yes,

ba) How does the enterprise identify suppliers? (List most important) _____(Aq66ba)

Code: (1) Personal contact,(2) Marketing efforts by suppliers, (3) Through Government Agencies, (4) Own search processes, (5) Through business association; (6) Other

bb) What are the main criteria in selecting suppliers? (List most important) _____(Aq66bb)

Code: *(1) Competitive price, (2) Terms of credit, (3) Currency of payment (VND/Gold/ US dollar), (4) Quality standards, (5) Secure supply, (6) Know supplier personally, (7) Geographic proximity, (8) Allocated supply by Government agency, (9) Other*

bc) Would it be easy for the enterprise to find an alternative supplier if the current main suppliers closed down

Code: (1) Yes, (2) No _____(Aq66bc)

bd) Does the enterprise take account of the conduct of suppliers when deciding who to purchase raw materials and inputs from? _____(Aq66bd)

Code: (1) Yes, (2) No

bda) If yes, what is the important conduct taken into account when selecting suppliers?

(Chose 3 most important) _____(Aq66bda)

Code: (1) Working conditions, (2) employee pay (2), energy consumption (3), waste production, disposal and emissions (4), quality standards (5),clear and honest product labelling (6), community responsibility (engagement/protection) (7), fringe benefits to employees (8), use of labour in-line with state regulations (9), whether supplier has a union (10), whether supplier is formal (i.e. has a BRC), other (12)

67) What is the distance (in km) to your main (most important) supplier? _____(Aq67)

68) Do you purchase business services outside the enterprise? _____(Aq68)

Code: Yes (1), No (2)

a) If yes, which business service purchased outside the enterprise do you find most important? List maximum 3 in order of importance (most important = 1, second most important = 2 and third most important = 3)

aa) Market info, marketing, advertisement services _____(Aq68aa)

ab) Information services on technology and inputs _____(Aq68ab)

ac) Transport services _____(Aq68ac)

ad) Tax, audit and accounting services _____(Aq68ad)

ae) Legal services (incl. advise on trademarks and patents) _____(Aq68ae)

af) Management and human resource advise _____(Aq68af)

ag) Vocational training _____(Aq68ag)

ah) Other _____(Aq68ah)

b) How much was on average spent in 2008? (List in percentage of total costs) _____(Aq68b)

69) What are the main sources for obtaining services purchased from outside the enterprise? *(List maximum 3 in order of importance with 1 = most important, 2 = second most important and third most important = 3)*

a) Private individuals/households _____(Aq69a)

b) Non-state enterprises _____(Aq69b)

c) State enterprises _____(Aq69c)

d) Co-operative organisations/collective farms _____(Aq69d)

e) Local authorities _____(Aq69e)

f) Foreign invested enterprises _____(Aq69f)

g) Other _____(Aq69g)

INVESTMENTS, ASSETS, LIABILITIES AND CREDIT

70) Has the firm made any investments since 2009 (last survey)? _____(Aq70)

Code: Yes (1), No (2)

If no (2), go to Question 76. Otherwise continue.

a) If yes, how much was actually invested (1,000 VND) _____(Aq70a)

Of which:

aa) Land _____(Aq70aa)

ab) Buildings _____(Aq70ab)

ac) Equipment/machinery _____(Aq70ac)

ad) Research and development (R&D) _____(Aq70ad)

ae) Human capital upgrading (training) _____(Aq70ae)

af) Patents _____(Aq70af)

ag) Investments in other enterprises _____(Aq70ag)

ah) Other investments (including increase in working capital) _____(Aq70ah)

71) How were investments financed? (List as percentage of total investment)

a) Own capital _____(Aq71a)

b) Borrowed from bank/credit institution _____(Aq71b)

c) Borrowed against interest from other sources _____(Aq71c)

d) Borrowed from friends and relatives without interest _____(Aq71d)

e) Borrowed from other sources without interest _____(Aq71e)

f) Stocks issued _____(Aq71f)

g) Other, specify _____(Aq71g)

72) What was the main purpose of the investment (select one only)? _____(Aq72)

Code: Add to capacity (1), Replace old equipment (2), Improve productivity (3), Improve quality of output (4), Produce a new output (5), Safety (6), Environmental requirements (7), Other purpose (8).

73) Total assets in 2010 (end-year) *(1,000 VND) (in market value)*

a) Total physical assets _____(Aq73a)

aa) Land _____(Aq73aa)

ab) Buildings _____(Aq73ab)

ac) Equipment/machinery _____(Aq73ac)

ad) Transport equipment _____(Aq73ad)

ae) Raw materials, input inventories _____(Aq73ae)

af) Finished goods/inventories _____(Aq73af)

b) Total financial assets _____(Aq73b)

ba) Cash and deposits _____(Aq73ba)

bb) Outstanding credits _____(Aq73bb)

c) Total assets (end year) in 2010 (end-year, sum of a + b) _____(Aq73c)

74) Did your firm sell any land, buildings or (used) equipment in 2010? _____(Aq74a)

Code: Yes (1), No (2)

a) If yes, what was the sales value and why were the assets sold?

	Sales Value (1,000 VND)	Main reason for sale
aa) Land	_____(Aq77aa1)	_____(Aq74aa2)
ab) Buildings	_____(Aq77ab1)	_____(Aq74ab2)
ac) Equipment/machinery	_____(Aq77ac1)	_____(Aq74ac2)

Code: Excess capacity/too much equipment/machinery (1), Replacement (2), Increase liquidity (3), Change of production/no need for old equipment/machinery (4), Other (5)

75) Total liabilities in 2010 end-year *(1,000 VND)* _____(Aq75)

a) Formal short term debt (up to one year) in 2010 _____(Aq75a)

b) Informal short term debt (up to one year) in 2010 _____(Aq75b)

c) Formal long term debt (over a year) in 2010 _____(Aq75c)

d) Informal long term debt (over a year) in 2010 _____(Aq75d)

76) How much were your total interest payments in 2010? *(1,000 VND)* _____(Aq76)

a) Of which: Interest payment on formal loans? _____(Aq76a)

77) Did the enterprise ever fail to service its debt on time in 2010? _____(Aq77)

Code: Yes (1), No (2), No debt (3)

If yes:

a) Number of times _____(Aq77a)

b) Maximum amount involved *(1,000 VND)* _____(Aq77b)

c) Main reason (list one only): _____(Aq77c)

Code: Failed to collect debt owed by others (1), Could not sell product (2), Had loss for other reason (3), Delay on purpose (4), Other (5)

78) a) Current outstanding balance owed to all suppliers? (1,000 VND) _____(Aq78a)

b) Current amount due to your firm from all customers? (1,000 VND) _____(Aq78b)

79) Does your firm (at this time) have an overdraft facility? _____(Aq79)

Code: Yes (1), No (2)

80) Has your firm applied for bank loans or other formal credit since 2009 (last survey)? _____(Aq80)

Code: Yes (1), No (2)

If No, then skip to question 90.

If Yes, then answer questions 84-89.

81) Did your firm experience any problems getting the loan? _____(Aq81)

Code: Yes (1), No (2)

a) If yes, why? _____(Aq81a)

Code: Lack of collateral (1); Did not deliver a proper description of the potential of the enterprise (2); Complicated government regulations (3) Administrative difficulties in obtaining clearance from bank authorities (4); Other (5).

82) How many formal loans (short/long term) have your firm obtained since 2009 (last survey)?

a) Number of formal short term loans _____(Aq82a)

b) Number of formal long term loans _____(Aq82b)

83) a) Which bank/formal credit institution do you primarily use? _____(Aq83a)

Code: State Owned Commercial Bank (SOCB) (1), Private bank (2), Foreign bank (3), Social Policy Bank (4), DAF (Development assistance fund) (5), Targeted programs (6), Other (7)

84) How many formal loan applications (short and long term) have been denied since 2009 (last survey)?

a) Number of formal short term loans _____(Aq84a)

b) Number of formal long term loans _____(Aq84b)

85) Specification of the most important (in value terms) current formal loan.

a) Source _____(Aq85a)

Codes: State Owned Commercial Bank (SOCB) (1), Private/joint stock bank (2), Foreign bank (3), Social Policy Bank (4), DAF (Development assistance fund) (5), Targeted programs (6), Other sources (7)

b) Amount originally borrowed (1,000 VND). _____(Aq85b)

c) Which year and month did you borrow? _____(Aq85c)

c1) What is the duration of the loan (months) _____(Aq85c1)

d) Current liability (1,000 VND). _____(Aq85d)

e) Interest rate, % month. _____(Aq85e)

f) Did your firm have to offer assets as collateral for the loan? _____(Aq85f)

Code: Yes (1), No (2)

fa) If Yes, what kind of collateral? _____(Aq85fa)

Code: Land (CLUR) (1); Housing (2); Capital equipment (3); Personal belongings (4); Other (5).

g) Is there a guarantor for this loan? _____(Aq85g)

Code: Yes (1), No (2)

ga) If yes, which relations do guarantor and the firm have? _____(Aq85ga)

Code: Family (1); Friends (2); Trade partner or business relationship (3), Credit guarantee fund (4), Member of this guarantee organization (5); Other (6)

86) Do you still think that you are in need of a loan? _____(Aq86)

Code: Yes (1), No (2)

a) If yes (1), why? _____(Aq86a)

Code: To pay debt/to compensate for losses (1); for recurrent spendings (2); investment (3); Other (4)

b) If no (2), why? _____(Aq86b)

Code: Have enough own funds (1), don't want/need to invest (2), other (3)

87) Why has the firm not applied for formal loans since 2009 (last survey)? _____(Aq87)

Code: Inadequate collateral (1), Don't want to incur debt (2), Process too difficult (3), Didn't need one (4), Interest rate too high (5), Already heavily indebted (6), Other (7).

88) Have you borrowed from informal sources since August 2009 (last survey)? _____(Aq88)

Code: Yes (1), No (2)

IF NO, THEN SKIP TO q90

a) If yes, why? _____(Aq88a)

Code: Couldn't get formal credit (1), Most favourable interest (2), Easier formalities (3), No collateral required (4), Flexible payback (5), Other (6)

b) Number of informal long term loans since August 2009 (last survey)? _____(Aq88b)

c) Since August 2009 (last survey) have you experienced any difficulties in obtaining credit from informal sources?

Code: Yes (1), No (2)

ca) If yes, how many times have you had difficulties? _____(Aq88ca)

89) Specification of the most important (in value terms) current informal loan.

a) Source _____(Aq89a)

Codes: Private moneylender (1), Relative and friends to owner (2), Enterprises (3), Other sources (4)

b) Amount originally borrowed (1,000 VND) _____(Aq89b)

c) Which year and month did you borrow? _____(Aq89c)

ca) Duration of this loan (months) _____(Aq89ca)

d) Current liability (1,000 VND). _____(Aq89d)

e) Interest rate, % month. _____(Aq89e)

f) Did your firm have to offer assets as collateral for the loan? _____(Aq89f)

Code: Yes (1), No (2)

fa) If yes (1), what kind of collateral? _____(Aq89fa)

Code: Land (CLUR) (1); Housing (2); Capital equipment (3); Personal belongings (4); Other (5).

g) Is there a guarantor for this loan? _____(Aq89g)

Code: Yes (1), No (2)

ga) If yes, which relations do guarantor and the firm have? _____(Aq89ga)

Code: Family (1); Friends (2); Trade partner or business relationship (3), Other (4)

90) Which source of loan do you consider most important for the operation of your firm? _____(Aq90)

Code: Formal loan (1), Informal loan (2)

Question 91 – 94 should be answered for the most important loan only (consistent with q90)

91) How far is the distance (in km) to the most important creditor (in terms of loan size)?_____ (Aq91)

Code: Under 5 km (1), between 5-10 km (2), between 11-20 km (3), more than 20 km (4)

92) Where is the creditor located?

a) Same Commune/Ward _____(Aq92a)

b) Same District _____(Aq92b)

c) Same Province/City _____(Aq92c)

d) Other Province _____(Aq92d)

e) Outside of Vietnam _____(Aq92e)

93) Did your enterprise ever extend (give) a loan to the main creditor (formal or informal)?

Code: Yes (1), No (2) _____(Aq93)

94) Has your enterprise ever borrowed from the main creditor (formal or informal) before?

Code: Yes (1), No (2) _____(Aq94)

FEES, TAXES AND INFORMAL COSTS

95) Does the enterprise maintain a formal accounting book in accordance with government guidelines?

Code: Yes (1), No (2) _____(Aq95)

If No, skip to q96

a) Are these accounts audited? _____(Aq95a)

Code: Yes (1), No (2)

b) Do you submit financial reports to government authorities? _____(Aq95b)

Code: Yes (1), No (2)

ba) If No, why not? _____(Aq95ba)

Code: (1) Not obliged to; (2) Other

96) Fees and taxes paid in 2010 (in 1,000 VND).

a) Total taxes and fees _____(Aq96a)

aa) Corporate Income Tax (if registered under Enterprise Law) or Household Business Income Tax (if Household Establishment) _____(Aq96aa)

ab) Value Added Tax (VAT) _____(Aq96ab)

ac) Business Registration Tax (Commercial license tax) _____(Aq96ac)

ad) Import/Export taxes _____(Aq96ad)

ae) Special Consumption Tax (Luxury good taxation) _____(Aq96ae)

af) Property/Enterprise tax (Stamp duties) _____(Aq96af)

ag) Other taxes _____(Aq96ag)

97) a) Approximately, what percentage of management's working time is spent each month dealing with government regulations and officials (including taxes, permits, licenses, business and trade regulations)?

_____(Aq97a)

b) What is the distance (in km) to the relevant tax office? _____(Aq97b)

98) Do you have to pay informal/communication fees? _____(Aq98)

Code: Yes (1), No (2)

a) If yes, how many times did you have to pay in 2010? _____(Aq98a)

Code: Only once (1), 2-5 times (2), 6-10 times (3), More than 10 times (4)

b) Approximately how much did you pay in total in 2010? (1,000 VND) _____(Aq98b)

c) What is the bribe payment/communication fee mainly used for? _____(Aq98c)

Code: to get connected to public services (1), to get licenses and permits (2), to deal with taxes and tax collection (3), to gain government contracts/public procurement (4), to deal with customs/imports/exports (5), other (6).

99) Do you think that the bribe payments/communication fees will increase in the coming years?

Code: Yes (1), No (2) _____(Aq99)

a) If yes, why _____(Aq99a)

Code: More difficult to comply with government regulation (1), needed in order to keep up with the competitive environment (2), Due to introduction of new products and processes (3), in order to enter export markets (4), other, please specify (5)

EMPLOYMENT

Question 100 should only be answered by firms interviewed for the first time in 2011 (Full time is considered as a person working more than 6 months per year, more than 20 days a month and more than 20 hours per week. – see manual for details).

100) Number of full-time employees at the time of establishment? _____(Aq100)

101) What was the total work force number as at 31 Dec 2010?

	Total	Female
a) Total labour force (sum of aa+ab)	_____(Aq101at)	_____(Aq101af)
Of which (total):		
aa) regular labour force (full time and part time)	_____(Aq101aat)	_____(Aq101aaf)
aaa) Regular full-time labour force	_____(Aq101aaat)	_____(Aq101aaaf)
aab) Regular part-time labour force	_____ (Aq101aabt)	_____(Aq101aabf)
ab) Total casual labour force	_____(Aq101abt)	_____(Aq101abf)

b) How many of the regular labour force is unpaid? _____ (Aq101b)

c) What percentage of the regular full-time labour force (101aaa) has a formal (written down) labour contract?

_____ (Aq101c)

ca) <u>For these formal (written down) contracts (of FT regular labour force, q101aaa)</u>, what is the contract duration?

(total should add up to 100%):

(caa) Indefinite term contract	_____ (Aq101caa)
(cab) Definite term contract valid for between 12 and 36 months	_____ (Aq101cab)
(cac) Contract valid for between 3 and 12 months	_____ (Aq101cac)
(cad) Contract valid less than 3 months	_____ (Aq101cad)

d) What is the average number of days worked per month by a regular full-time employee at your firm?

_____(Aq101d)

e) What is the average number of hours worked per day by a regular full-time employee at your firm?

_____(Aq101e)

102) Of the total regular workforce in 2010 (reported in q101aat), how many are in each of the following categories?

	Total	Female
a) Managers (Top management)	_____ (Aq102ta)	_____ (Aq102fa)
b) Professionals (university and college degree)	_____ (Aq102tb)	_____ (Aq102fb)
ba) Engineer and similar	_____ (Aq102tba)	_____ (Aq102fba)
bb) Accountant/Economist	_____ (Aq102tbb)	_____ (Aq102fbb)
bc) Technicians	_____ (Aq102tbc)	_____ (Aq102fbc)

bd) Other professionals _____ (Aq102tbd) _____ (Aq102fbd)

c) Office workers _____ (Aq102tc) _____ (Aq102fc)

d) Sales personnel _____ (Aq102td) _____ (Aq102wc)

e) Service workers (cleaners, food prep/servers) _____ (Aq102te) _____ (Aq102wf)

f) Production workers _____ (Aq102tf) _____ (Aq102wff)

fa) Foreman and supervisor _____ (Aq102tfa) _____ (Aq102wfa)

fb) Electrician, plumber, etc. _____ (Aq102tfb) _____ (Aq102wfb)

fc) Mach. maintenance/repair _____ (Aq102tfc) _____ (Aq102wfc)

fd) Mach. operator/assembler _____ (Aq102tfd) _____ (Aq102wfd)

fe) Master _____ (Aq102tfe) _____ (Aq102wfe)

ff) Labourer (unskilled) _____ (Aq102tff) _____ (Aq102wff)

g) Apprentice _____ (Aq102tg) _____ (Aq102wg)

Total (sum of a+b+c+d+e+f+g and equal q104b) _____ (Aq102t) _____ (Aq102w)

103) How was the stability of the labour force (for the regular workers in q101aat) in 2010?

a) How many additional regular workers did the firm hire? _____ (Aq103a)

b) How many regular workers left the firm? _____ (Aq103b)

Of which:

ba) Left voluntarily? _____ (Aq103ba)

bb) Were fired? _____ (Aq103bb)

bc) Retired? _____ (Aq103bc)

bd) Left because of illness? _____ (Aq103bd)

be) Died? _____ (Aq103be)

bf) Left for other reasons? _____ (Aq103bf)

c) Did the firm reduce its labour force in 2010? _____ (Aq103c)

Code: Yes (1), No (2)

d) If yes, what was the basis for doing so? _____ (Aq103d)

Code: Negotiation between employers and representative of employees (1), Direct negotiation between enterprise and employee (2), Enterprise decision alone (3), Other, please specify (4)

e) Did the firm prior to laying off workers, inform the employees/representative organizations of the labour force reduction? _____ (Aq103e)

Code: Yes (1), No (2)

ea) If yes, how much time in advance? _____ (Aq103ea)

Code: Less than one week (1), between one week and a month (2), more than one month (3)

104) a) Does the enterprise normally (means more than 50% of the cases) train new workers?

Code: Yes (1), No (2) _____(Aq104a)

aa) If yes, what is the average number of days of this training? _____(Aq104aa)

b) Does this training include any health and safety training? _____(Aq104b)

Code: Yes (1), No (2)

c) What percentage of production workers (q102f) receive health and safety training? _____(Aq104c)

105) Does the enterprise normally train (short term) existing workers? _____(Aq105)

Code: Yes (1), No (2)

a) If yes, what is the average number of days of this training? _____(Aq105a)

b) Does this training normally (means more than 50%) include health and safety training? _____(Aq105b)

Code: Yes (1), No (2)

106) a) Is there an automatic job rotation system/company regulation among production workers? _____(Aq106a)

Code: Yes (1), No (2)

b) Has there been any additional restructuring of the labour force in 2010? _____(Aq106b)

Code: Yes (1), No (2)

ba) If yes how? (most important) _____(Aq106ba)

Code: Rotating labour among divisions within enterprise *(1)*, Reducing the average working hours per worker per day (2), Increasing the average working hours per worker per day (3), Reducing number of "work" shifts a day (4), Increasing number of "work" shifts a day (5), Allowing workers to take turns to be off work (6), Recruitment of more labour (7), Other (8)

107) How does the enterprise hire workers? List three most important ways. *(1 = most important, 2 = second most important, and 3 = third most important).*

a) Newspaper, advertisement etc. _____(Aq107a)

b) Through labour exchange _____(Aq107b)

c) Recommended by friends, relatives, other workers _____(Aq107c)

d) Recommended/allocated by local authorities _____(Aq107d)

e) Personal contacts _____(Aq107e)

f) Through employment service centres _____(Aq107f)

g) Other _____(Aq107g)

h) Not applicable _____(Aq107h)

108) Did your enterprise experience any difficulties in recruiting workers with the required/appropriate skill level in 2010? _____(Aq108)

Code: Yes (1), No (2), Not applicable, have not needed/no need to recruit (3)

a) If yes (1), why? _____(Aq108a)

Code: Lack of skilled labour (1), Cannot provide sufficient wage offer (2), Working conditions not attractive (3), Other, specify (4)

109) a) What is the main basis for determining wage rates? List maximum of three in order of importance.

(1 = most important, 2 = second most important, and 3 = third most important).

aa) Wage rates in other local non-state enterprises _____(Aq109aa)

ab) Wage rates in local state enterprises _____(Aq109ab)

ac) Set by authorities _____(Aq109ac)

ad) Wage rate for employment in agriculture _____(Aq109ad)

ae) Individual negotiation with each worker _____(Aq109ae)

af) Paying capacity of the enterprise _____(Aq109af)

ag) Other _____(Aq109ag)

b) What was the average monthly wage (1000 VND) for a production worker in 2010?_____(Aq109b)

c) What was the monthly wage (1000 VND) for a newly hired (in 2010) production worker?

_____(Aq109c)

d) How did average monthly wage/income (not including other 'fringe' benefits) of an average production worker in your enterprise move between 2009 and 2010? _____(Aq109d)

Code: Decrease (1), No change (2), Increase (3)

e) Is there any difference in wages between employees who work in hazardous conditions and those who do not (i.e. a premium paid for working in hazardous conditions)?

Code: Yes (1), No (2) _____(Aq109e)

ea) If yes, what is the difference, on average, in wages (i.e. how large is the hazardous conditions premium)? (as percentage of the total wage bill)? _____(Aq109ea)

f) Are employees paid overtime for working outside standard hours?

Code: Yes (1), No (2),Not Applicable (3) _____(Aq109f)

110) a) Does the enterprise have its own regulation on severance pay (aside from the Labour Code)?

Code: Yes (1), No (2) _____(Aq110a)

b) When you lay off workers do you in general provide (by regulation) them with severance pay?

ba) Due to incompetence of worker _____(Aq110ba)

bb) Due to general cutback in firm. _____(Aq110bb)

Code: Yes (1), No (2)

111) a) Does the enterprise have a local/plant level trade union/employee representative organization?

Code: Yes (1), No (2), If No skip to Q114b _____(Aq111a)

aa) If Yes, when was the local Trade Union established (year)? _____(Aq111aa)

ab) If yes, what percentage of workers in the firm are members of this trade union? _____(Aq111ab)

ac) Who is chairman of this local/plant level trade union _____(Aq111ac)

Code: Owner of enterprise (1), relative to owner (2), managerial staff (3), head of personnel section (4), senior worker (5), other (6)

ad) Does the enterprise have a Collective Labour Agreement? _____(Aq111ad)

Code: Yes (1), No (2)

ad1) If yes, when was the most recent Collective Labour Agreement signed (year)?

_____(Aq111ad1)

ad2) Has this Collective Labour Agreement been reported to superior trade union?

Code: Yes (1), No (2) _____(Aq111ad2)

b) Has your enterprise experienced any labour dispute since the last survey (August 2009)? _____(Aq111b)

Code: Yes (1), No (2)

112) a) Did you pay contribution to social insurance for your employees in 2010?

Code: Yes (1), No (2) _____(Aq112a)

b) Did you pay contribution to health insurance for your employees in 2010?

Code: Yes (1), No (2) _____(Aq112b)

c) Did you pay contribution to unemployment insurance for your employees in 2010?

Code: Yes (1), No (2) _____(Aq112c)

d) Do you normally compensate your workforce directly for accidents or professional illness?

Code: Yes (1), No (2) _____(Aq112d)

113) Do the employees enjoy any of the following benefits (by regulation, directly or from the government)?

Code: Yes (1), No (2)

a) Sick leave with pay _____(Aq113a)

b) Right to paid maternity leave _____(Aq113b)

c) Right to unpaid maternity leave _____(Aq113c)

d) Annual leave with pay _____(Aq113d)

e) Any payment (lump-sum) when worker retires _____(Aq113e)

f) Survival Benefit (family) _____ (Aq113f)

114) Do you rely on any of these measures to ensure that your employees work hard enough (*list maximum of 3 in order of importance, 1 = most important, 2 = second most important, and 3 = third most important*):

1) Supervision through foreman _____(Aq114a1)

2) Employees supervise each other _____(Aq114a2)

3) Incentives through additional payment systems _____(Aq114a3)

4) Social ('fringe') benefits _____(Aq114a4)

5) Cultivating Trust/Loyalty/Obligation _____(Aq114a5)

6) Management by quality of production _____(Aq114a6)

7) Time supervision _____(Aq114a7)

8) Threat of dismissal _____(Aq114a8)

9) Other _____(Aq114a9)

ENVIRONMENT

115)
a) Does the firm have a "Certificate for registration of satisfaction of environmental standards" (ESC)? (Ask to see certificate if possible)
Code: Yes (1), No (2) _____(Aq115a)

b) If yes, why did you choose to get a environmental standards certificate (ESC)? _____(Aq115b)

Code: It is cost reducing (in the longer run) (1), To attract or required by customers (2), Required by officials/law (3), Personal reasons/we have to protect the environment (4), Improve working conditions for labour (5), Other (6)

c) IF FIRM HAS A ESC, which of the requirements for the environmental certificate were the most difficult and most costly to meet? (Select three most difficult and costly).
IF FIRM DOES NOT YET HAVE A ESC, what is its opinion of which would be most difficult/costly)
(1 = most difficult/costly, 2 = second most difficult/costly, and 3 = third most difficult/costly).

	Most Difficult	*Most Costly*
Air quality	_____(Aq115ca1)	_____ (Aq115cb1)
Fire	_____(Aq115 ca 2)	_____ (Aq115 cb 2)
Heat	_____(Aq115 ca 3)	_____ (Aq115 cb 3)
Lighting	_____(Aq115 ca 4)	_____ (Aq115 cb 4)
Noise	_____(Aq115 ca 5)	_____ (Aq115 cb 5)
Waste disposal	_____(Aq115 ca 6)	_____ (Aq115 cb 6)
Water pollution	_____(Aq115 ca 7)	_____ (Aq115 cb 7)
Soil degradation/pollution	_____(Aq115 ca 8)	_____ (Aq115 cb 8)
Other, please specify	_____(Aq115 ca 9)	_____ (Aq115 cb 9)

116) a) Which of the following environmental factors does your firm treat and how much do they cost?

Factor	Treated 1. Yes 2. No	Investments in equipment 1. Yes 2. No > skip to next line	Equipment cost (1000 VND)
1. Air quality	(Aq116ab1)	(Aq116ac1)	(Aq116ad1)
2. Fire	(Aq116ab2)	(Aq116ac2)	(Aq116ad2)
3. Heat	(Aq116ab3)	(Aq116ac3)	(Aq116ad3)
4. Lighting	(Aq116ab4)	(Aq116ac4)	(Aq116ad4)
5. Noise	(Aq116ab5)	(Aq116ac5)	(Aq116ad5)
6. Waste disposal	(Aq116ab6)	Aq116ac6)	(Aq116ad6)
7. Water pollution	(Aq116ab7)	(Aq116ac7)	(Aq116ad7)
8. Soil degradation/pollution	(Aq116ab8)	(Aq116ac8)	(Aq116ad8)
9. Other, please specify	(Aq116ab9)	(Aq116ac9)	(Aq116ad9)

b) Why do you choose to treat these environmental factors (main reason)? _____ (Aq116 b)

Code: It is cost reducing (in the longer run) (1), To attract or required by customers (2), Required by officials/law (3), Personal reasons/we have to protect the environment (4), Improve working conditions for labour (5), Other (6)

NETWORKS

117) Social network information

	a) Approximately, with how many people do you currently (presently) have regular contact with? (Contact at least once every 3 months, which you find useful for your business operations in each of the following categories)	b) Of these contacts, whom do you consider the most important?	c) How many times in 2010 did your contacts assist in issues related to the operation of your firm?	d) When was the last time one of your contacts assisted you/your firm with issues related to the operation of your firm? *Code: Under a month ago (1), 1-3 months ago (2), More than 3 months ago (3)*
1) Business people in the same sector (same product as Q17b)	(Aq117a1)	(Aq117b1)	(Aq117c1)	(Aq117d1)
2) Other business people in a different sector.	(Aq117a2)	(Aq117b2)	(Aq117c2)	(Aq117d2)
3) Bank officials	(Aq117a3)	(Aq117b3)	(Aq117c3)	(Aq117d3)
4) Politicians and civil servants	(Aq117a4)	(Aq117b4)	(Aq117c4)	(Aq117d4)
5) Other	(Aq117a5)	(Aq117b5)	(Aq117c5)	(Aq117d5)
Total (T)	(Aq117a6)	X	(Aq117c6)	X

118) Which is the number of contacts is (percentage of Total (T) in q117):

a) Supplier of your firm? _____(Aq118a)
b) Customer of your firm? _____(Aq118b)
c) Debtor of your firm? _____(Aq118c)
d) Creditor of your firm? _____(Aq118d)
e) Women? _____(Aq118e)

119) Is your firm member of one or more business associations? _____(Aq119)

Code: Yes (1), No (2)

a) If yes, how many business associations at present _____(Aq119a)

b) Details on membership of three most important business associations

ba) Name of Association	bb) Do you pay membership fees? *Code: Yes (1), No (2)*	bc) At time of joining, which one did you consider the most important purpose of the business association (i.e. expectation from joining)? *(Use codes below, choose only one association)*	bd) Have you received some advocacy support from the association so far? *Code: Yes (1), No (2)*	be) What has been the actual benefit, in reality, of being a member of the Business Association? *(Use codes below, chose only one association)*	bf) Assess the advocacy support provided by the business associations? *Code: Good (1) Average (2) In sufficient (3) Not able to assess (4)*	bg) Which type of advocacy support would you prefer that business associations offered? *(Use codes below, choose only one)*
(Aq119ba1)	(Aq119bb1)	(Aq119bc1)	(Aq119bd1)	(Aq119be1)	(Aq119bf1)	(Aq119bg1)
(Aq119ba2)	(Aq119bb2)	(Aq119bc2)	(Aq119bd2)	(Aq119be2)	(Aq119bf2)	(Aq119bg2)
(Aq119ba3)	(Aq119bb3)	(Aq119bc3)	(Aq119bd3)	(Aq119be3)	(Aq119bf3)	(Aq119bg3)

Codes: Access to land (1), Costs and time of starting a business (2), Labour training (3), Time and costs of complying with regulations (4), Authorities' solving of problems facing businesses (5), Private sector services (such as trade fairs and export promotion) provided by authorities (6), Communication of new policies and laws to firms (7), Provision of preferential loans (8), Tax relief (9), Economic arbitration (10), Other (11).

ECONOMIC CONSTRAINTS AND POTENTIALS

120) a) Do you face competition in your field of activity? _____(Aq120a)

Code: Yes (1), No (2)

If yes, how hard was the competition?

aa) From state enterprises _____(Aq120aa)

ab) From other non-state formal enterprises _____(Aq120ab)

ac) From other non-state informal (unregistered) enterprises _____(Aq120ac)

ad) From legal imports/foreign competition _____(Aq120ad)

ae) From smuggling _____(Aq120ae)

af) From other sources _____(Aq120af)

Code: Severe (1), Moderate (2), Insignificant (3), No competition (4)

b) How is the level of competition as compared to 2 years ago (since last survey)?

Code: Increased (1), Same (2), Decreased (3) _____(Aq120b)

121) Do you have accumulated goods, which are difficult to sell? _____(Aq121a)

Code: Yes (1), No (2)

a) If yes, is that because (*list maximum of 3 in order of importance, 1 = most important, 2 = second most important, and 3 = third most important*):

aa) Too much of the same product in the market _____(Aq121aa)

ab) The quality is too low _____(Aq121ab)

ac) Do not have access to good sales channels _____(Aq121ac)

ad) Transportation problems _____(Aq121ad)

ae) The price is too high _____(Aq121ae)

af) Other _____(Aq121af)

122) Has the firm introduced new product groups (different from q17b) since 2009 (last survey) [different ISIC 4-digit code]?

Code: Yes (1), No (2) _____(Aq122)

a) If yes, what motivated this change? (select only one) _____(Aq122a)

Code: Difficulty in selling old product (1), Increasing competition from domestic producers (2), Increasing competition from imports/foreign competitors (3), Requested by purchasing enterprises (4), Other (5)

b) How successful was the change? (select only one) _____(Aq122b)

Code: Successful (1), Unsuccessful (2), Too early to tell (3)

123) Has the firm made any improvements of existing products (same as in Q17b) or changed specification? (Since August 2009, last survey) [within one ISIC 4-digit code]?

Code: Yes (1), No (2) _____(Aq123)

a) If yes, what motivated this change? (select only one) _____(Aq123a)

Code: Difficulty in selling product (1), Increasing competition from domestic producers (2), Increasing competition from imports/foreign competitors (3), Requested by purchasing enterprises (4), Other (5)

b) How successful was the change? (select only one) _____(Aq123b)

Code: Successful (1), Unsuccessful (2), Too early to tell (3)

124) Has the firm introduced new production processes/new technology since 2009 (last survey)?

Code: Yes (1), No (2) _____(Aq124)

a) If yes, what motivated this change? (select only one) _____(Aq124a)

Code: Needed upgrading in order to face competition (1), Upgrading was done to potentially earn more profit (2), Everybody else is upgrading (3), Required by buyers to improve quality (4), Required by law, regulations (5), Other (6)

b) How successful was the change? (select only one) _____(Aq124b)

Code: Successful (1), Unsuccessful (2), Too early to tell (3)

c) If yes, from where did the firm procure the new technology? _____(Aq124c)

Code: Self-constructed (1), domestic (2),Indirect Import (3), Direct Import (4)

d) Was it necessary to carry out any technical adaption to the equipment/machinery as a part of the new production processes/new technology?

Code: Yes (1), No (2) _____(Aq124d)

da) If yes, what was the main purpose of the adaption? _____(Aq124da)

Select the 3 most important:

Code: adapt to local materials (1), adapt for product size (2), to adapt to local climate (3), to adapt to energy source (4, adapt to water supply capacity (5), adapt to local skills level (6), adapt to physical characteristics of local population (7), other (8).

db) Who did the adaption? _____(Aq124db)

Code: Self (i.e. the enterprise itself) (1), contract with the supplier of the technology (2), another firm (i.e. not the interviewed enterprise and not the supplier of the technology (3), Other (4)

125) a) Do you plan to start up new projects/product lines in the near future

Code: Yes (1), No (2) _____(Aq125a)

b) Which are the major problems in starting up new projects?

Code: Severe problem (1); Moderate problem (2); Insignificant problem (3)

ba) Lack of capital (availability and access) _____(Aq125ba)

bb) Lack of raw material _____(Aq125bb)

bc) Lack of market outlet/problems identifying new markets _____(Aq125bc)

bd) Lack of technical know-how _____(Aq125bd)

be) Lack of suitable machinery/equipment _____(Aq125be)

bf) Difficulty in finding suitable premises/land _____(Aq125bf)

bg) Complicated government regulations _____(Aq125bg)

bh) Lack of skilled labour _____(Aq125bh)

bi) Negative attitude of local officials _____(Aq125bi)

bj) Other _____(Aq125bj)

126) Does the firm face any major constraints to growth? _____(Aq126)

Code: Yes (1), No (2)

a) If yes, what are the major constraints to the growth of the enterprise?

Rank maximum of 3 in order of importance. (1 = most, 2 = second most, 3 = third most important).

aa) Shortage of capital/credit _____(Aq126aa)

ab) Cannot afford to hire wage labour _____(Aq126ab)

ac) Lack of skilled workers in the local job market _____(Aq126ac)

ad) Lack of technical know-how _____(Aq126ad)

ae) Current products/services have limited/reduced demand _____(Aq126ae)

af) Too much competition/unfair competition _____(Aq126af)

ag) Lack marketing services or transport facilities _____(Aq126ag)

ah) Lack of modern machinery/equipment _____(Aq126ah)

ai) Lack of raw material _____(Aq126ai)

aj) Lack of energy (power, fuel) _____(Aq126aj)

ak) Inadequate premises/land _____(Aq126ak)

al) Too much interference by local officials _____(Aq126al)

am) Government policies uncertain _____(Aq12am)6

an) Difficult to get licences/permissions from authorities _____(Aq122an)

ao) Other factors _____(Aq122ao)

127)

a) Has the recent international economic crisis adversely affected your business, worsened the constraints faced and/or introduced new constraints? _____(Aq127a)

Code: Yes (1), No (2)

aa) If yes, do you believe that this effect will be temporary or permanent.

Code: Temporary (1), Permanent (2),Don't know (3) _____(Aq127aa)

b) Has the enterprise experienced any positive consequences arising from the recent international economic crisis?

Code: Yes (1), No (2) _____(Aq127b)

ba) If yes, how? Rank maximum of 3 in order of importance. (1 = most important, 2 = second most important, 3 = third most important).

baa) More skilled labour available _____(Aq127baa)

bab) Cheaper inputs/materials _____(Aq127bab)

bac) Lower wage costs _____(Aq127bac)

bad) Failure of weaker competitors _____(Aq127bad)

bae) Government support has made doing business easier _____(Aq127bae)

baf) Falling land (real estate) prices/rentals _____(Aq127baf)

bag) Lower machinery rental costs _____(Aq127bag)

bah) Other _____(Aq127bah)

128) Government assistance in 2010:

	1. Did you receive assistance? *Code: Yes (1), No (2)*	2. Which level do you receive assistance? *Code: Commune (1), District (2), Provincial (3), Notional (4), Other (5)*	3. How did you get in contact? *Code: I contacted the authorities (1), I was contacted by authority (2).*	4. Did you have pay communication fees in order to obtain the assistance? *Code: Yes (1), No (2)*	5. How do you assess the impact of the support? *Code: Significant (1), Average (2), Cannot tell (3)*
a) Financial Assistance:	(Aq128a1)	(Aq128a2)	(Aq128a3)	(Aq128a4)	(Aq128a5)
aa) Investment Incentives (Tax exemptions or reductions)	(Aq128aa1)	(Aq128aa2)	(Aq128aa3)	(Aq128aa4)	(Aq128aa5)
ab) Loans (Policy lending/soft loans from Vietnam Development Bank (VDB) or Vietnam Bank for Social Policy (VBSP))	(Aq128ab1)	(Aq128ab2)	(Aq128ab3)	(Aq128ab4)	(Aq128ab5)
b) Technical Assistance:	(Aq128b1)	(Aq128b2)	(Aq128b3)	(Aq128b4)	(Aq128b5)
ba) Human Resource Training Programme (Provides training for SMEs and potential entrepreneurs about business start-up, business management, etc.)	(Aq128ba1)	(Aq128ba2)	(Aq128ba3)	(Aq128ba4)	(Aq128ba5)
bb) National Key Trade Promotion Programme (Provides partial financial assistance to study export opportunities and participate in international exhibitions and fairs. Support by the "Export Support Fund")	(Aq128bb1)	(Aq128bb2)	(Aq128bb3)	(Aq128bb4)	(Aq128bb5)
bc) Quality and Technology Improvement Programmes (training and grants for implementing quality assurance programs (ISO 9000 etc.)	(Aq128bc1)	(Aq128bc2)	(Aq128bc3)	(Aq128bc4)	(Aq128bc5)
c) Received other type of government assistance (not well specified)	(Aq128c1)	(Aq128c2)	(Aq128c3)	(Aq128c4)	(Aq128c5)

129) If you have any of the following, approximately how long time did it take to obtain the document?
(Time to obtain should be reported as the time from the date of application to current document obtained)

	Have document (Yes = 1, No = 2)	Time to obtain (Number of days)
a) Business Registration Application (incl. Business Registration Certificate, Tax Code Registration Certificate, and Seal Engraving Permit)	_____(Aq129a1)	_____(Aq129a2)
b) Social insurance registration certificate	_____(Aq129b1)	_____(Aq129b2)
c) Investment certificate	_____(Aq129c1)	_____(Aq129c2)
d) Environmental standards certificate	_____(Aq129d1)	_____(Aq129d2)
e) Fire prevention certificate	_____(Aq129e1)	_____(Aq129e2)
f) Technology transfer certificate	_____(Aq129f1)	_____(Aq129f2)
g) License to operate overseas accounts	_____(Aq129g1)	_____(Aq129g2)

130) How would you characterize your knowledge about the following laws and government regulations:

a) Enterprise law _____(Aq130a)
b) Cooperative law _____(Aq130b)
c) Labour code _____(Aq130c)
d) Customs law _____(Aq130d)
e) Insurance law _____(Aq130e)
f) Tax law _____(Aq130f)
g) Environmental law _____(Aq130g)
h) Land law _____(Aq130h)
i) Investment law _____(Aq130i)
j) Social Insurance Law _____(Aq130j)
k) Gender equality law _____(Aq130k)

Code: Good (1), Average (2), Poor (3), No knowledge/Not of my interest (4)

131) How many times (in 2010) was your firm inspected by government officials for the following reasons?

a) Policy compliance inspections (labour, tax, etc.) _____(Aq131a)
b) Technical compliance inspections (environmental, fire, etc.) _____(Aq131b)
c) Other inspections (after accidents etc.) _____(Aq131c)

132) How could the authorities' best help the enterprise expand and increase its profits?

Rank a maximum of 3. (1 = most important, 2 = second most important, and 3 = third most important).

a) By further removing bureaucratic requirements/restrictions _____(Aq132a)

b) Assistance with premises/land _____(Aq132b)

c) Assistance with infrastructural facilities _____(Aq132c)

d) By providing easier access to credit _____(Aq132d)

e) By restricting competition from imported goods (illegally) _____(Aq132e)

f) Through more liberal imports of inputs _____(Aq132f)

g) Assistance with raw materials _____(Aq132g)

h) Through assistance with technical know-how _____(Aq132h)

i) By improving training facilities for workers _____(Aq132i)

j) Through assistance with marketing _____(Aq132j)

k) By clarifying sustainable long term government policies _____(Aq132k)

l) Through improved macro-economic policies _____(Aq132l)

m) Through better private sector policies _____(Aq132m)

n) Other, specify _____(Aq132n)