

**MINISTRY OF EDUCATION AND TRAINING  
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**IMPACTS OF CREDIT ACCESS  
AND INNOVATION ON FIRM  
PERFORMANCE IN VIETNAM**

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## **CHAPTER 1: INTRODUCTION**

### **1.1. Rationale**

It is firmly believed that credit is a crucial issue of operating and running enterprises. “Without adequate access to financing, the staying power of the business and its potential for growth is jeopardised” (Rahaman 2011, p.709). Akoten et al. (2006, p.941) affirm that “better access to credit improves firm performance”. Hence, credit and expanding credit access are among key factors of firm’s growth and development (Phan and Archer, 2020). It is essential for firms to have access to external credit as their self-funding or internal capital is often insufficient for their business operations (Khandker, Samad and Ali, 2013). Particularly for SMEs, they have a high demand for access to external financing to run their business, create new products, enhance employees’ knowledge and skills, and equip more production facilities (Atieno, 2009). Nevertheless, it has never been straightforward for SMEs to obtain credit and other banking services at affordable rates (Rahaman, 2011). This group of enterprises appear to be more credit rationed than do larger firms (Nguyen, Su and Sharma, 2019; Tran and Santarelli, 2013).

Previous studies highlight that credit and innovation are key factors for growth and development of small and medium-sized enterprises (Akoten et al., 2006; Phan and Archer, 2020; Rand et al., 2009). These enterprises form a large part of the private sector in most countries, particularly in developing ones like Vietnam. In Asian countries, SMEs take up to 90 percent of all enterprises and create 50 to 80 percent of all jobs. In Vietnam, SMEs account for 95 percent of total enterprises nationwide, create about 77 percent of total employment, and contribute up to 48 percent of GDP (VCCI, 2013). Regardless of their significance in the economy, SMEs appear to face multiple risks such as loss of major suppliers, failure of a partnership, competitiveness from other enterprises, etc. Among the obstacles that SMEs have confronted, the shortage of and difficulty in access to capital are likely to be the most serious problems, followed by the competitiveness, the restriction on the demands for products, the difficulties in land access and business premises (Clusel et al., 2013). A study by Nguyen, Su and Sharma (2019) affirms that SMEs

often encounter more financial obstacles than do their large counterparts – such as inadequate collateral, high interest rate, or complex process of credit application. Along with credit, innovation has played a crucial role for firms to develop and survive in the context of increasing globalisation and global value chains, particularly for small and medium enterprises in developing countries (e.g., Archer, Sharma, and Su, 2020). Firms of all industries in general and those in manufacturing industries in particular have been aware of the needs of engaging in innovation activities to increase their competitiveness, survival and success in the markets (Saunila, 2020)

Previous empirical evidence has established a link between credit access and firm performance. In the context of Vietnam, Giang et al. (2019) examined the causal effect of access to finance on the total factor productivity of Vietnamese SMEs and found that the ability of firms to secure formal credit from financial institutions significantly increases their total factor productivity. Similarly, Tran and Santarelli (2013) used business operating profit and growth of sales to represent the business performance of Vietnamese SMEs, highlighting the need to research the relationship between credit access and firm performance.

In addition to credit access, the relationship between innovation and firm performance has also shown varied results in existing studies, necessitating further research to clarify this relationship, particularly within SMEs. According to Grant (1991), access to credit and innovation are two critical resources for a company. Therefore, it is essential to investigate the combined effects of these variables on firm performance, especially in the context of Vietnamese SMEs. This research aims to fill these gaps by exploring how access to credit and innovation together influence the performance of SMEs in Vietnam.

## **1.2. Purpose, subject and scope of the research**

### **Research objectives**

The objectives of this study is to examine the impact of credit access and innovation on firm performance as two separated variables. In details, this study aims to investigate these following objectives:

- analyse the effect of access to credit on firm performance in the case of Vietnamese SMEs
- analyse the impact of innovation on firm performance of Vietnamese SMEs.
- examine the synergic impacts of both access to credit and innovation on firm performance.

## **Research subjects**

The subjects of the research is to determine the relationship between access to credit, innovation and firm performance in Vietnamese SMEs which have to face multiple risks including lack of credit, competitiveness from other enterprises, the difficulties in applying technology.

## **Research scope**

The data used in the research is from two surveys including the Vietnam SME Survey and the Provincial Competitiveness Index. The first survey was biennially carried out from 2007 to 2015 in ten cities and provinces across Vietnam (Ha Noi, Phu Tho, Ha Tay, Hai Phong, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, Hochiminh City, and Long An). The second survey is the Provincial Competitive Index (PCI).

## **1.3. Research methodology**

The data collected is tested for endogeneity of two main independent variables: access to credit and innovation. The IV models for panel data are applied to solve these problems. Collected data were analyzed with statistical software of Stata.

## **1.4. Structure of the dissertation**

The thesis is organised into five chapters as follows:

**Chapter 1:** Introduction

**Chapter 2:** Literature review on access to credit, innovation and firm performance

**Chapter 3:** Theoretical framework and hypothesis development

**Chapter 4:** Research methods

**Chapter 5:** Results of the research

**Chapter 6:** Discussions of the research findings and Implications

## **CHAPTER 2: LITERATURE REVIEW ON ACCESS TO CREDIT, INNOVATION AND FIRM PERFORMANCE**

### **2.1. Firm performance**

Nowadays, firm performance has emerged as a significant topic and commonly utilized as a dependent variable in strategic management research.

Measuring firm performance is crucial for assessing the effectiveness of management strategies, evaluating competitiveness, and informing decision-making processes. This literature review synthesizes previous studies to identify key dimensions and methodologies used in measuring firm performance. We will discuss some measurements of firm performance as below:

- Financial Performance Metrics
- Market-Based Metrics
- Non-Financial Performance Measures

In conclusion, measuring firm performance requires a multi-dimensional approach that considers financial, market-based, and non-financial indicators. In this study, we use labor productivity, revenue and value added as measurements of firm performance.

### **2.2. Factors affecting firm performance.**

We category the factors affecting firm performance into 3 set of characteristics of firms, characteristics of owner and business environment. In terms of characteristics of firm, we analyse firm age, assets/liabilities, registration, investment, firm size and outsourcing. Regarding characteristics of owner, we consider whether the owner is Communist party member or not, owner's age, gender, education level and network size of owner. Business environment is measured by location (urban or not) and PCI ranking.

### **2.3. Impacts of access to credit to firm performance**

In recent years, there has been increasing concern regarding the challenge of accessing mainstream credit or finding credit that aligns with the specific needs of firms, particularly those with small and medium sizes and limited financial

literacy. This issue is prevalent in most financially developed countries.

The concept of access to finance can be defined as “availability of a supply of reasonable quality financial services at reasonable costs, where reasonable quality and reasonable cost have to be defined relative to some objective standard, with costs reflecting all pecuniary and non-pecuniary costs” (Claessens, 2006). It can also be defined as the “absence of price and non-price barriers” (Demirguc-Kunt and Bek, 2008). Access to finance can be considered as fundamental capital of every firm. While the effect of access to finance on firm’s performance becomes an interesting topic around the whole world, availability of finance becomes challenging issue for SMEs (Fowowe, 2017).

Previous studies show that having access to credit has a significant impact on firm performance (for example, Buyinza and Bbaale, 2013; Lan, Mai, and Khiem, 2016; McPherson and Rous, 2010; Rahaman, 2011). A wide range of proxies has been used to capture firm performance. Tran and Santarelli (2013) use annual income and growth of sales as proxies for firm performance. Akoten et al. (2006) measure firm performance by current profitability and employment growth rate and find that credit access is not a crucial factor affecting performance of garment firms in Kenya. Rahaman (2011) uses employment growth and sales growth to represent firm growth and affirms that access to internal funding significantly affects the growth of firms. Shinozaki (2012) indicates a negative impact of low credit access on firm SME survival and growth rates. Khandker, Samad and Ali (2013) find that limited credit access may decrease the profit margin of microenterprises in Bangladesh.

## **2.4. Impacts of innovation to firm performance**

According to the European Commission (1995), innovation is "the successful production, assimilation, and exploitation of novelty in the economic and social spheres." Innovation involves the renewal and expansion of the range of related market products and services; the establishment of new methods of production, supply, and distribution; and the introduction of changes in management, work organization, working conditions, and workforce skills.



## 2.5. Research gaps

The thesis identifies several research gaps that need to be addressed. One significant gap is in understanding the channels through which credit access impacts firm performance. The thesis aims to explore whether the effects stem from formal or informal credit sources, providing a clearer picture of how different types of credit access influence SMEs.

Another research gap pertains to the role of innovation in firm performance. The thesis categorizes innovation into three types: product innovation, process innovation, and technological innovation. Specifically, it investigates whether firms that engage in innovation by introducing new products, improving existing products, changing specifications, or adopting new production processes or technologies, experience enhanced performance. By addressing these gaps, the research seeks to provide a comprehensive analysis of the combined effects of credit access and innovation on the performance of Vietnamese SMEs.

These are significant contributions of this research to bridge the gap of literature regarding the relationship between capital, innovation, which are the two most important resources of firm growth according to *The Theory of the Growth of the firm*, Edith Penrose (1959), and firm performance.

## **CHAPTER 3:**

### **THE THEORETICAL FRAMEWORK ON THE THEORY OF THE GROWTH OF THE FIRM**

#### **3.1. Neoclassical theory of firm growth**

##### ***3.1.1. The natural of firm by Coase (1937)***

Coase (1937) provides an economic rationale for the preference of individuals to establish partnerships, companies, and other business entities rather than engaging in bilateral contracts within a market. It posits that firms emerge because they are more adept at managing transaction costs inherent in production and exchange compared to individuals. Economists such as Oliver Williamson, Douglass North, Oliver Hart, Bengt Holmström, Arman Alchian, and Harold Demsetz have elaborated on Coase's ideas concerning firms, transaction costs, and contracts. Coase's insights have been widely applied by economists and political scientists to elucidate the functioning of organizations beyond just firms, influencing the development of the New Institutional Economics.

##### ***3.1.2. Williamson: Evolution and formalization of Transaction cost theory***

Williamson (1975) presents a critique of Coase's notion that firms exist to economize on transactions, arguing that Coase's explanation fails to address why internal organization doesn't completely replace market transactions. Williamson introduces a framework to analyze organizational failure, which revolves around two categories of factors: human and environmental.

##### ***3.1.3. The development of the transaction theory by Hart (1986, 1990, 1997)***

Grossman and Hart (1986) propose a different perspective on what defines a firm, asserting that true firmhood is characterized by asset ownership. They argue that ownership of assets is crucial because conflicts or disagreements may arise between parties involved in contracts, such as suppliers, workers, or managers, either due to unforeseen circumstances or because renegotiation becomes mutually beneficial.

### **3.2. Summarize the neoclassical theory of firm growth**

Coase, Williamson, and Hart provide valuable insights into the variation in transaction costs within and outside firms, highlighting the importance of relationship maintenance costs. Additionally, Hart's emphasis on the impact of asset ownership and decision-making authority on investment incentives offers crucial perspectives. However, even in their most nuanced forms, these theories have limitations in fully explaining the dynamics of firms.

### **3.3. Penrose's "The theory of the growth of firm"**

The most fundamental research to mention is Penrose's theory of business growth, which states that the factors influencing the rate of business growth are managerial capabilities and the ability to coordinate the resources of the business in production.

Penrose defines a firm as a collection of (productive) physical and human resources. It is 'an administrative planning unit, the activities of which are interrelated and are coordinated by policies which are framed in the light of their effect on the enterprise as a whole' (pp.15-16). This model of the firm has a central managerial discretion responsible for general policies. The areas of coordination and authoritative communication define the boundaries of the firm. The firm is more than an administrative unit, and is 'a collection of productive resources the disposal of which between different users and over time is determined by administrative decisions' (pp.24).

### **3.4. Resource - based theory**

The Resource-Based View (RBV) perspective, a foundational branch of resource theory, was proposed by Wernerfelt (1984), building upon previous research by Penrose (1959).

Grant (1991) divides a firm's resources into two main types: tangible resources and intangible resources. Accordingly, tangible resources include financial resources such as equity, capital mobilization ability; Tangible assets such as production scale, factory location, production ingenuity, input materials, or flexibility, adaptability of the factory system. A firm's intangible resources

include technological secrets or the reputation of the business. Technological secrets such as owning intellectual property, patent inventions; Reputation includes factors such as famous brand, credibility, good relationships with suppliers, customers, government; Human resources such as knowledge, skills, loyalty, and employees' suitability with the business.

Our study is motivated by the Theory of the growth of the firm and Resource – based theory that mainly focus on the connection between scarce resource and the growth of the firm. Following Grant (1991), we divide a firm's resources into two main types: tangible resources and intangible resources. Accordingly, tangible resources are financial resources; Tangible assets are technological innovation, including new products, improvements of technologies or processes, new technologies and processes. From the theoretical background, we have come up with two research questions: how credit access affects firm performance, and how innovation affects firm performance, especially in the context of a developing country like Vietnam where the financial markets remain imperfection?

## **CHAPTER 4: RESEARCH METHODS**

### **4.1. The research context**

In Vietnam, SMEs are defined by Decree 56/2009/ND-CP of the Government, issued on September 30, 2009, aimed at supporting their development. According to this decree, SMEs are business entities registered according to the law, categorized into three levels: super small, small, and medium, based on either their total capital size or the number of employees, with total capital being the primary criterion.

SMEs, including micro-enterprises, have played a substantial role in the economy during the period spanning 2006 to 2015. Despite constituting approximately 70% of the total employment within the business sector, which encompasses both SMEs and large enterprises, SMEs have accounted for roughly 50% of the total capital and have contributed to around 60% of the total sales within this sector. When factoring in micro-enterprises, these figures would further rise to 90% for employment, 80% for total capital, and 85% for total sales, highlighting the significant impact and prevalence of SMEs and micro-enterprises in the economy.

A recent study conducted by the Japan External Trade Organization (JETRO) (2017) found that SMEs in Vietnam have been encountering different barriers, of which three main obstacles include lack of financial accessibility, the ineffectiveness of support from the government, and limited business capacity. Such obstacles have deterred the development of SMEs in Vietnam.

### **4.2. Research methodology**

#### ***4.2.1. Data***

This study employs data from two surveys conducted in Vietnam, namely the Vietnam SME Survey and the Provincial Competitiveness Index (PCI) Survey. The first survey was biennially carried out from 2007 to 2015 in ten cities and provinces across Vietnam (Ha Noi, Phu Tho, Ha Tay, Hai Phong, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, Ho Chi Minh City, and Long An). This was the research collaboration among the Central Institute for Economic Management

(CIEM, Vietnam), the Institute of Labour Science and Social Affairs (ILSSA) (MOLISA, Vietnam), and the University of Copenhagen (Denmark), under the sponsorship of the Danish International Development Agency (DANIDA).

The second data source comes from the Vietnam Provincial Competitiveness Index Survey, conducted annually since 2005 under the collaboration between the Vietnam Chamber of Commerce and Industry (VCCI) and the United States Agency for International Development (USAID). The PCI data is provincial-level and used to assess the governance quality of a local province in constructing a favourable business environment for the development of private enterprises.

Combining data from two surveys enables us to generate a unique longitudinal data set in firm level and at the provincial level. Information of 10 among 64 provinces in the second data source is taken into account in accordance with those in the first source, in the corresponding years, to ensure the consistency when merging data from two separate sources.

#### ***4.2.2. Description of variables***

Our study uses self-reported information of managerial respondents to construct variables with details as follows:

##### ***4.2.2.1. Firm performance:***

In this study, we use labor productivity, revenue and value added as measurements of firm performance.

##### ***4.2.2.2. Access to credit***

We measure firm's credit access by a dummy variable in which a firm is considered to have credit access if it obtained either short term or long-term loans or if a firm had informal loans. The combination of formal and informal financing allows us to make a comprehensive analysis on the probability of SMEs having credit access as well as to examine the effect of both capital sources on firm performance.

##### ***4.2.2.3. Innovation:***

Innovation is the key independent variable in this research. We construct this variable based on the three sub-questions in the survey questionnaire as follows: “Has the firm introduced new product groups since the last survey?”, “Has the firm made any improvements of existing products or changed specification since the last survey?”, and “Has the firm introduced new production processes/new technology since the last survey?”

#### *4.2.2.4. Control variables:*

We follow previous studies (e.g., Archer, 2019; Kiss, Cortes, and Herrmann, 2022; Nguyen, Su, and Sharma, 2019; Tran and Santarelli, 2013) to explore a vector of variables to control for firm’s characteristics, including liabilities (in logs), firm age, firm size, investment, competition, machine, outsourcing, network size, gender, and owner’s age. Year and location effects are also included.

#### *4.2.3. Characteristics of the sample*

The data has been collected through a survey carried out in nine provinces of the country: Hanoi (including Ha Tay), Hai Phong, Ho Chi Minh City, Phu Tho, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, and Long An. The data are based on face-to-face interviews with firm owners/managers and employees and are typically collected in the months of June-August.

The enterprises surveyed are distributed across approximately 18 sectors such as: food processing, fabricated metal products, and manufacturing of wood products. Enterprises are classified according to the current World Bank definition, with micro-enterprises having up to 10 employees, small-scale enterprises up to 50 employees, medium-sized enterprises up to 300 employees, and large enterprises having more than 300 employees.

Questionnaire of the survey can be accessed on the website of UNU Wider.

### **4.3. Research methods:**

#### *4.3.1. Access to credit on firm performance*

We apply the two-stage regression method to address the proposed research

questions. In the first stage, we run the random-effects logit regression to identify determinants of credit access of SMEs. This regression is selected as we explore time-invariant variables in our models, including the gender of the owner, the educational level, and the area where a firm is located (rural provinces or urban cities). This approach ties in an assumption of no correlation between the entity's error term and the independent variables, which allows time-invariant variables to play a role as predictors (Breusch et al., 2011; Tran and Santarelli, 2013). Since access to credit is likely an endogenous variable in the output of firms (Tran and Santarelli, 2013), in the second stage, we employ the method of instrumental variables and two-stage least squares for panel-data models using random-effects estimator to examine whether access to credit has an influence on firm's firm performance.

In this study, *distance* and *credit history* are selected as instrumental variables to deal with the endogeneity issues. The former is the distance from the firm to the most important creditor in terms of loan size, while the latter is the credit status if the firm has borrowed from the lenders before.

#### ***4.3.2. Innovation on firm performance***

##### ***Selectivity issues***

In this study, the key variable "*innovation*" is measured as a dummy variable taking the value of 1 if a firm had introduced new products, or made improvements of existing products or changed specification, or introduced new production processes or new technology since the last survey, and 0 otherwise.

We adopt the Heckman two-step selection model to first examine the determinants of innovation and second to measure the impact of innovation on firm performance, following previous studies (e.g., Abazi-Alili et al., 2016; Hall, Lotti, and Mairesse, 2009; Klomp and Van Leeuwen, 2001). In the first step, we estimate which firms had made innovation activities by running a probit regression of innovation on a set of variables. The inverse Mills ratio (or known as selectivity term) is estimated from the first step and used in the second step as the correction for selectivity in the estimation process.



#### ***4.3.3. The combination effects of access to credit and innovation to firm performance***

We argue there are endogenous issues appeared in the model. Therefore, we apply the two-stage regression method to address the endogeneity problems. In the first stage, we run the random-effects logit regression to identify determinants of credit access of SMEs and innovation. This regression is run with 3 sets of variables: Firm characteristics include firm age, assets (log.), formal registration, investment, network size, distance, credit history..,

In this study, *distance*, *credit history*, and *mean of innovation by code of firm* are selected as instrumental variables to deal with the endogeneity issues. These variables are chosen following the research of Ellis et al. (2010) and Krasniqi (2010).

## CHAPTER 5: RESULTS

### 5.1. Descriptive statistics

The average labour productivity in logarithm was 11.39 in the period 2007 – 2015, which equals to 178,494 thousand VND. In the other way, the revenue per employee of a firm was, on average, 178,494 thousand VND or approximately 8,500 USD.

In the sample, the average total annual sales for all products of a firm was approximately 13.3 (in logs). On average, firm's value added, which is estimated by the value of production or manufactured output minus total indirect costs minus value of raw materials used, was 12.2 (in logs).

SMEs had an average age of 15 years and total assets of 4,090,086 thousand VND or 194,766 USD, while the average age of the owner was 46.5. The PCI of these firms, on average, was 57.06 in the period, suggesting the average PCI index of provinces listed in the Vietnam's SME Survey in measuring the provincial competitiveness as a factor of the economic growth at the local level.

On average, 46.0% of firms had introduced new products, or made improvements of existing products or changed specification, or introduced new production processes or new technology since the previous survey. In more detail, there was 11% of firms, on average, having introduced new products; 41.4% of firms having made improvements of existing products or changed specification; and 15.7% of firms having introduced new production processes or new technology. The average of liability value was approximate 6.1 (in logs). Mean of firm age was 15.2 years and the average size of firm was 1.8 measured by the number of employees (in logs).

In the survey, 54.3% of firms reported to have made investments since the previous survey. On average, 30% of firms faced competition in their field of activity. 63.6% of firms reported using both manually and power-driven machinery in their production activities. On average, only 6.0% of firms outsourced production. In regard to networking, on average, firms had regular contact with approximately 33 people whom firms remained contact at least once every three months for their

business operations purposes. On average, 66.9% of firms were owned by male owners. At mean, owner's age was 46.5 years old. In terms of location, 35.9% of surveyed firms are located in urban areas, including Ha Noi, Hai Phong, Ho Chi Minh City, and the remaining is located in Phu Tho, Ha Tay, Nghe An, Quang Nam, Khanh Hoa, Lam Dong, and Long An.

## **5.2. Regression results**

### ***5.2.1. Impact of access to credit to firm performance***

#### ***5.2.1.1. The First Stage: Access to Credit***

As discussed previously, we apply the random-effects logit model in the first stage to discover the determinants of access to credit of SMEs in Vietnam.

In this stage, we find no significant relationship between the *firm age* and the possibility that firms have access to credit, which is consistent with Rand (2007). Firm size, proxied by the logarithm of total assets, is positively correlated with the likelihood of firms having credit access at the 1 percent significance level. At the 1 percent level of significance, firms making investment are 3.3 times more likely to have credit access than those which did not. These firms often have more demand for capital to invest in both short-term and long-term activities. Network size has a positive impact on the possibility that a firm has access to credit at the 1 percent significance level, which is consistent with Nguyen and Luu (2013). Credit history of firms significantly positively affects the probability that firms have credit access. With regard to the owner characteristics, firms whose owner is a member of the Communist Party are more likely to have credit access. In terms of Business environment characteristics, it is indicated that location and PCI ranking negatively affect credit accessibility of firms.

#### ***5.2.1.2. The Second Stage: Access to Credit and Firm performance***

The instrumental variable regression for panel data using random-effects estimator is applied in the second stage to analyse how access to credit affects firm performance of firms.

Result from Durbin-Wu-Hausman test for endogeneity of regressors

produces the  $\chi^2$  statistic of 5.551 with P-value of 0.018, thus we reject the null hypothesis that the regressor is not endogenous. In fact, our key independent variable (*access to credit*) is endogenous, thus the endogeneity issue needs to be addressed.

We also show Hansen-J test for overidentification of all instruments to test whether the instruments are valid. As p-value is greater than 0.10, we cannot reject the null hypothesis, which suggests that our instruments are valid and that are correctly excluded from the estimated equation.

The results demonstrate the significant effect of access to credit on firm-level labour productivity. Credit access positively affects a firm's labour productivity at the 1 percent significance level, suggesting that the level of labour productivity of firms with access to credit is 24.7 percent higher than that of their counterparts. Access-to-credit firms would be more likely to improve their financial capability to engage in other activities and expand their business. Besides, credit access enables firms to purchase and apply modern technology in production or to invest in new profitable projects, which is an efficient way to increase the labour productivity. Our finding is consistent with Akoten et al. (2006) and Giang et al. (2019) regarding the positive relationship between access to finance and productivity. Firms with better credit access are more likely to perform better (Akoten et al., 2006). The result is also consistent with Buyinza and Bbaale (2013) that the performance of firms benefits from their credit access. Apparently, the causal impact of access to capital on productivity re-affirms the importance of finance in economic growth.

The results confirm the significant effect of access to credit on firm performance, measured by revenue (in logs.) and value added (in logs). Our finding is consistent with Akoten et al. (2006) and Giang et al. (2019). They also find that firms with better credit access are more likely to perform better.

In terms of formal access, we also find the positive relationship between access to formal credit and firm performance, measured by labor productivity, revenue and value added. The revenue of firms with access to formal credit is 63.3 percent and 51.4 percent higher than their counterparts, respectively.

In terms of informal access, we also find the positive relationship between access to informal credit and firm performance. The revenue of firms with access to informal credit is 165.8 percent and 138.9 percent higher than their counterparts, respectively. These results are statistically significant at 1 percent level.

### ***5.2.2. Impact of innovation to firm performance***

We present results from Hausman test to select fixed-effects or random-effects regressions with the null hypothesis ( $H_0$ ) that random-effects model is appropriate and the alternative hypothesis ( $H_a$ ) that fixed-effects model is appropriate. We perform Hausman tests. The results show that fixed-effects regression is appropriate and should be selected to present main results.

The coefficient of innovation is positive and significant in relation with revenue, suggesting that firms engaging in innovation activities have a better performance than those without innovation. We also show a positive impact of innovation through launching new products on firm performance, yet the coefficient remains insignificant. Holding other factors unchanged, we show that firms making improvements of existing products perform a higher level of revenue than their peers by 13.6%. The coefficient of innovation through launching new production processes is positive and significant, showing that innovative firms through introducing new processes have a higher level of revenue by 13.9% than their non-innovative counterparts. Our findings are consistent with previous studies on the innovation vis-à-vis firm performance relationship. This suggests that Vietnamese firms prioritise engaging in process and marketing innovation activities rather than investing in product innovation

### ***5.2.3. The combination effects of access to credit and innovation to firm performance***

In terms of labor productivity, the results show that the coefficient of access to credit is 0.213 which is positive and statistically significant at 1% significant level ( $P\text{-value} = 0.001$ ). This indicates that increased access to credit has a significant positive impact on labor productivity. However, the coefficient of innovation is -0.11 which is negative and not statistically significant ( $P\text{-value} =$

0.197). This suggests that, when accounting for access to credit, the direct impact of innovation on firm performance is negative but not statistically meaning. This may imply that the effect of innovation is not robust when controlling for access to credit.

In terms of revenue and value added, the IV regression results provide robust evidence that both access to credit and innovation significantly and positively impact firm performance in terms of revenue and value added. The P-value of access to credit indicates that this coefficient is highly statistically significant, meaning there is strong evidence that access to credit has a positive impact on revenue and value added. This implies that improving access to financial resources significantly enhances a firm's financial performance. The same result has found with innovation. The P-value of innovation shows that this coefficient is also highly statistically significant, providing strong evidence that innovation positively affects revenue and value added. This means that engaging in innovative activities substantially boosts a firm's performance. The results indicate that both access to credit and innovation play crucial roles in enhancing firm performance, measured by revenue and value added. It suggests that firms benefit from both financial resources and innovative activities. Firms with better access to credit can more effectively leverage their innovative efforts, as they have the necessary capital to invest in new technologies, research and development, and market expansion.

## **CHAPTER 6:**

### **DISCUSSIONS AND RECOMMENDATIONS**

#### **6.1. Discussions of the findings of the research**

This research brings several key empirical findings.

*First*, firm's credit access is measured by a dummy variable, in which a firm is considered to have credit access if it obtained either short term or long term loans or if it had informal loans. The investigation of both formal and informal financing enables us to comprehensively analyse the probability of firms having credit access as well as the effect of both capital sources on firm-level labour productivity.

*Second*, a longitudinal dataset on manufacturing SMEs scattered across Vietnam is generated by using data from a biennial SME survey from 2005 to 2013 and an annual PCI survey. The unique detailed dataset allows us to do a long-term analysis of the determinants of access to credit and the impact of credit access on labour productivity of SMEs in Vietnam. This paper, to the best of our knowledge, is the first to make use of every available wave to create a long-term panel dataset for analyses.

*Third*, a two-stage regression method is applied to discover the determinants of credit access and its influence on labour productivity of firms. Two instrumental variables, captured by the distance from the firm to the most important creditor in terms of loan size and by credit history of firms, prove their validity.

*Fourth*, this study finds that among SMEs, larger firms are more likely to have credit access than their counterparts. Besides, those making investment are 3.3-times more likely to have credit access than those which did not. Firms participating in more business associations are more likely to approach credit. Credit history and the distance from firms to the most important creditor in terms of loan size positively affect credit access. In terms of owner characteristics, firms whose owners are members of the Communist Party are more likely to have access to capital, while no significant effects of age, gender and educational level of the owner on firm's credit accessibility are found. With regard to the business

environment, urban location and PCI ranking negatively affect the likelihood that firms have credit access.

*Fifth*, we find that credit access has a positive effect on firm's labour productivity. Credit-accessed firms have a higher level of productivity by 24.7 percent than their counterparts, affirming that better access to credit leads to better firm performance for the case of SMEs in Vietnam. Moreover, firm labour productivity is positively affected by a series of variables including firm size, registration under the Law on Enterprises, network size, gender, education of the owner, and urban location. Conversely, firm age and owner's age have negative impacts on the productivity.

## **6.2. Theoretical contributions**

Our paper contributes to literature on the topic of access to credit, innovation and firm performance, especially to the strand of literature conducted in the context of developing countries like Vietnam.

Our research brings some contributions to the literature.

First, this research addresses a critical gap in the literature by examining the combined effects of innovation and access to credit on firm performance, employing the Theory of the Growth of the Firm and Resource-Based Theory. While previous studies have often focused on individual factors influencing firm performance, such as innovation or access to credit separately, this study is among the first to emphasize the synergistic impact of both factors. The integrated approach highlights the importance of considering multiple dimensions to understand how firms can leverage their resources effectively to enhance performance. This approach aligns with calls from scholars for more comprehensive examinations of the factors that drive firm growth and productivity.

Second, the study distinguishes itself by utilizing a unique longitudinal dataset derived from manufacturing SMEs across Vietnam. This dataset, which spans from 2005 to 2013, includes data from a biennial SME survey and an annual Provincial Competitiveness Index (PCI) survey. This is the first instance where every available wave of data has been integrated to form a long-term panel



dataset for analysis. Most existing studies on SME performance have relied on cross-sectional data or shorter time frames, limiting their ability to capture long-term trends and dynamics. By employing a comprehensive dataset, this research provides a more nuanced and detailed examination of SME growth and performance in Vietnam, capturing the intricacies of their operations and the broader business environment.

Third, the paper contributes novel insights by being the first to investigate the combined effects of access to credit and innovation on firm performance, measured by labor productivity, revenue, and value added. It effectively addresses the endogeneity issue in the data through the application of three instrumental variables: distance, credit history, and the mean of innovation, ensuring accurate and unbiased results. Interestingly, the findings reveal that while the combination of access to credit and innovation does not have a significant effect on labor productivity, it does lead to a notable increase in both revenue and value added for firms. This sheds light on the relationship between financial access, innovation, and firm performance, highlighting the importance of considering multiple dimensions when analyzing their impact on business outcomes.

Through the rich data and clear analysis, our study endeavors to shed light on the interplay between credit access, labor productivity, and SME growth in the Vietnamese context. By providing insights into the dynamics of these pivotal factors over time, we seek to inform policymakers, practitioners, and stakeholders about the challenges and opportunities facing SMEs in Vietnam.

### **6.3. Recommendations for researchers and practitioners**

One of the top priorities of each country, especially the developing nations, is to facilitate SMEs in their business to promote the national economic growth. To do so, adequate credit plays a crucial role in the survival and growth of firms, suggesting the importance of financial accessibility for the private sector's development on the side of a balanced global economy. Because SMEs have different demands for credit at different business stages, the efficiency of lending and the diversification of credit mechanisms should be essentially improved and

tailored to facilitate SMEs having access to credit.

#### **6.4. Recommendations for policy makers**

To continue promoting the role of SMEs and overcoming difficulties and obstacles in the current competitive and integrated environment, it is necessary to pay attention to some of the following key solutions:

Firstly, the State creates a favorable investment and business environment for SME development to ensure maintaining confidence and increasing investment.

Second, continue to have policies to support SMEs in accordance with the practical requirements of businesses as well as the business environment.

Third, the State Bank needs to research policies to support businesses in production and business activities.

Forth, promote the development of the capital market.

Fifth, continue to promote reform of administrative procedures in the field of tax and customs

Sixth, it is necessary to encourage and support SMEs to invest in research and development activities, application and transfer of advanced technology.

Seventh, it is necessary to actively propagate and raise awareness about information transparency for small and medium-sized enterprises.

##### **To promote innovation activities in SMEs**

To remove barriers in applying science and technology and promote sustainable development, it is necessary to implement a number of policies and applicable solutions such as:

Increasing investment and technology research and development

Define and promote intellectual property rights

Developing technology infrastructure

Support and encourage technology businesses

Create policies and regulations to ensure data security and protection

Preferential tax policy

Support for training and human resource development

## **6.5. Limitations and future research direction**

This dissertation has some limitations:

The major limitation of this research is the lack of data. Although the database used in this research is widely used to analyze SMEs in Vietnam, it covers about 2,500 firms in only nine provinces/cities in Vietnam over 8 years. One significant limitation of this thesis is the lack of updated data. No further survey has been undertaken since 2015, resulting in the use of potentially outdated information.

In terms of business and economics, the correlation between innovation and access to credit stands as a pivotal point of interest, often perceived as a catalyst for firm growth and development. However, despite the significance of this relationship, my research has encountered limitations of exploration of this dynamic relationship.

Additionally, the instrumental variable – distance between firms and banks shows some possible limitation. For example, banks are often located in urbanized and developed areas. As a result, if firms are located near banks, they are more likely to operate in favorable areas, which in turn makes them perform better. This potential relationship could violate the assumption that the instrument should not be directly correlated with the outcome and the error term.

## **CONCLUSION**

Credit and innovation are crucial issues for firm development. Difficulties in access to finance and applying innovation activities put SMEs in difficult situations. The reason why the development of SMEs has not been as expected is due to many factors, some of them stems from problems with institutions, policies, administrative procedures, lack of capital, investment and business conditions, skilled labor shortage; low labor productivity. All above, lack of credit and innovation are two biggest obstacles SMEs may face.

Therefore, this study aims to examine the effect of access to credit on labour productivity and the impact of innovation on firm's revenue and value added. This study is motivated by the theory of the growth of the firm (Penrose, 1959) and Resource – based theory (Grant, 1991)

A quantitative research survey was conducted to investigate the

hypothetical relationships proposed in the theoretical framework. The data used in the research is from two surveys including the Vietnam SME Survey and the Provincial Competitiveness Index. Our findings are expected to contribute to literature on innovation, access to credit and their impacts on SMEs' performance in developing countries, focusing on Vietnam. We contribute to the literature by applying the instrument variables and the Heckman two-step procedure to address the issue of models, including endogeneity and biases selection. Our study provides a fresh insight for researchers and practitioners to facilitate firms to obtain credit, both formal and informal credit, and innovation activities, particularly to improve existing products and/or introduce new production processes, thus to foster SMEs' performances.

## **LIST OF WORKS RELATED TO THE DISSERTATION THAT THE PHD CANDIDATE HAS PUBLISHED**

1. Van Thu Pham, Hien Thi Thu Phan (2024), “Access to credit and labour productivity: A new insight from Vietnamese firms”, *Cogent Business and Management*, Volume 11, Issue 1.
2. Vu Tuan Anh, Pham Thu Van (2024), “Labor productivity of SMEs in Vietnam”, *Journal of Finance and Accounting Research*, No.2.