

**SMALL AND MEDIUM ENTERPRISE DEBT FINANCING IN VIETNAM**

By

Nguyen Hoang Anh

March 2015

A Dissertation Submitted to the Higher Degree Committee  
of Ritsumeikan Asia Pacific University  
in Partial Fulfillment of the Requirements for the Degree of  
Doctor of Philosophy in Asia Pacific Studies

## ACKNOWLEDGEMENTS

Foremost, I wish to express the highest appreciation to my supervisor, Professor Otake Toshitsugu, for his patience, motivation, guidance, assistance, enthusiasm and immense knowledge throughout the entire writing of this thesis. He was always there to meet and give invaluable advice, to proofread and correct my chapters. Without his guidance, I could not have finished this study.

I would also like to extend my sincere thanks and appreciation to the committee members for their brilliant comments and suggestions to improve my research.

I am thankful to the research respondents who have cooperated in rating the survey instruments and sharing their opinions. They helped me to develop comprehensive insights into SMEs debt financing activities as well as bank lending procedures in Vietnam.

I would also like to express my gratitude to the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT) for the financial grants that funded my education and living in Japan. My time in Japan was filled with extremely valuable learning experiences.

I also owe my sincere thankfulness to my family and my best friends in Vietnam who always supported and encouraged me when I felt down. Most importantly, I have to thank my husband for his patience, love and support over the course of my research, and my baby-to-be for coming into my life, being my friend and my motivation during final months of writing.

## TABLE OF CONTENTS

<b>ACKNOWLEDGEMENTS</b> .....	ii
<b>LIST OF TABLES</b> .....	viii
<b>LIST OF FIGURES</b> .....	xii
<b>LIST OF ABBREVIATIONS</b> .....	xiii
<b>ABSTRACT</b> .....	xiv
<b>CHAPTER 1: INTRODUCTION</b> .....	1
1.1 Background of the Dissertation .....	1
1.1.1 The concept and importance of the SME sector and SME debt financing .....	1
1.1.2 Paradoxes in SME debt financing .....	4
1.1.3 Determinants of SME participation in formal and informal credit markets .....	6
1.2 The Study Site .....	10
1.2.1 SME debt financing in Vietnam .....	10
1.2.2 Vietnam credit market and banking system .....	12
1.2.3 Ho Chi Minh City - Overview of SMEs and banking sector.....	15
1.3 The Research Gap and Definition of the Research Issues .....	17
1.3.1 The Research gap .....	17
1.3.2 Research issues or Research questions.....	20
1.4 Research Objectives.....	21
1.5 The Significance of the Study .....	21
1.6 Overview of Research Methodology .....	23
1.7 Structure of the Dissertation.....	24
Chapter Summary.....	25
<b>CHAPTER 2: LITERATURE REVIEW ON SME DEBT FINANCING AND LENDING TECHNOLOGIES</b> .....	26
2.1 SME Debt Financing Related General Issues in Developing Countries .....	26
2.1.1 Financing sources for SMEs.....	26
2.1.2 The issue of information asymmetry.....	27
2.1.3 The coexistence of formal and informal financial system.....	28
2.1.4 Discouraged borrowers and non-borrowers .....	30
2.2 Literature Review on the Credit Demand Side .....	31
2.2.1 Traditional capital structure theories and SMEs credit participation.....	32
2.2.2 Behavioral finance theories and financing decisions .....	34
2.2.3 Social capital and corporate capital structure .....	36
2.3 Determinants of credit participation and credit source selection among SMEs ...	39
2.3.1 Present biased preference or hyperbolic discounting.....	39

2.3.2 Risk attitudes.....	41
2.3.3 Debt attitudes .....	42
2.3.4 Overconfidence .....	42
2.3.5 Social capital.....	44
2.3.6 Other potential factors .....	48
2.3.6.1 Characteristics of owners .....	48
2.3.6.2 Characteristics of firms .....	50
2.4 Literature Review on the Credit Supply Side .....	52
2.4.1 Lending technologies and important information for the loan approval process .....	52
2.4.2 Components of hard and soft information evaluated by banks in SME financing.....	57
2.5 Conceptual Model and Hypotheses .....	62
Chapter Summary.....	64
<b>CHAPTER 3: AN OVERVIEW OF THE VIETNAM ECONOMY, THE CREDIT MARKET AND SME DEBT FINANCING IN VIETNAM .....</b>	<b>66</b>
3.1 Current Vietnam Economy in Brief.....	66
3.2 Financial Sector Development .....	68
3.2.1 The formal financial system in Vietnam .....	68
3.2.2 Informal credit market.....	76
3.2.2.1 Overview .....	76
3.2.2.2 Borrowers participant.....	77
3.2.2.3 Lender participants .....	78
3.3 Characteristics of Vietnam SME Sector .....	81
3.3.1 Definition of SME in Vietnam.....	81
3.3.2 The SMEs' role and obstructions in socio-economic development.....	81
3.4 Issues of SME Debt Financing in Vietnam.....	88
3.4.1 Sources of SME financing .....	88
3.4.1.1 External formal financing sources .....	88
3.4.1.2 Informal financing sources.....	93
3.4.2 Bank's Lending Procedure and Practices in SME lending.....	93
3.4.3 SME's constraints to credit access .....	97
3.5 The Role of the Government.....	103
Chapter Summary.....	105
<b>CHAPTER 4: RESEARCH METHODOLOGY .....</b>	<b>106</b>
4.1 Research Design .....	106
4.2 Attribute Selection and questionnaire instrumentation.....	108

4.2.1 Attribute selection and questionnaire instrumentation for the demand side	108
4.2.1.1 Attribute selection.....	108
4.2.1.2 Questionnaire instrumentation .....	113
4.2.2 Attribute selection and questionnaire instrumentation for the supply side ..	114
4.2.2.1 Attribute selection.....	114
4.2.2.2 Questionnaire.....	117
4.3 Data collection.....	118
4.3.1 Data collection of the demand side .....	118
4.3.2 Data collection of the supply side .....	120
4.4 Validity and Reliability.....	121
4.4.1 Validity .....	122
4.4.2 Reliability .....	123
4.5 Data Analysis .....	125
4.5.1 Normality of the data.....	126
4.5.2 Association tests.....	127
4.5.2.1 Chi-square test and symmetric measures .....	127
4.5.2.2 Mann-Whitney U Test .....	128
4.5.2.3 Kruskal-Wallis Test .....	129
4.5.3 Factor analysis .....	130
4.5.4 Logistic regression .....	137
Chapter Summary.....	140
<b>CHAPTER 5: FINDINGS OF THE CREDIT DEMAND SIDE DETERMINANTS OF CREDIT PARTICIPATION AND CREDIT SOURCE SELECTION AMONG VIETNAM SMEs</b> .....	141
5.1 Definition and Measurement of Variables .....	141
5.1.1 Description of dependent variables .....	141
5.1.2 Description of independent variables.....	142
5.1.2.1 Behavioral finance factors.....	142
5.1.2.2 Control variables.....	146
5.2 Characteristics of the Respondents.....	149
5.2.1 Demographic characteristics.....	149
5.2.1.1 Characteristics of firm owners or key managers .....	149
5.2.1.2 Firm ownership, industry and size.....	150
5.2.1.3 Characteristics of SMEs debt financing.....	153
5.2.2 Characteristics of behavioral finance related factors .....	155
5.2.3 Characteristics of firm social capital factors .....	158

5.2.3.1 Firm networks with officials, business communities, formal lenders and informal lenders .....	158
5.2.3.2 SMEs perceptions and attitudes toward credit information sharing General Perceptions.....	159
5.3 Association Tests between Independent Variables and Dependent Variables....	162
5.3.1 Credit participation and explanatory variables .....	162
5.3.1.1 Credit participation and the owner/firm characteristics.....	162
5.3.1.2 Credit participation and behavioral finance factors.....	163
5.3.1.3 Credit participation and SMEs social capital factors.....	165
5.3.2 Credit source selection and explanatory variables .....	167
5.3.2.1 Credit source selection and the firm & owner’s characteristics .....	167
5.3.2.2 Credit source selection and behavioral finance factors.....	171
5.3.2.3 Credit source selection and firm networks.....	173
5.4 A Statistical Model for Credit Participation .....	174
5.5 A Statistical Model for Credit Source Selection .....	178
5.6 Usefulness of Prediction Models.....	182
5.7 Conclusion .....	183
Chapter Summary.....	184
<b>CHAPTER 6: FINDINGS OF THE CREDIT SUPPLY SIDE – LENDING TECHNOLOGIES &amp; DETERMINANTS OF SMES CREDIT ACCESSIBILITY ....</b>	<b>185</b>
6.1 Characteristics of the Survey Participants .....	185
6.2 Types of Information Used in the Loan Approval Process.....	187
6.2.1 Attributes influencing lending decisions to SMEs.....	187
6.2.2 Tests of the reliability of scales .....	190
6.2.3 Explanatory factor analysis.....	190
6.2.4 Confirmatory factor analysis .....	196
6.2.5 Discussion on the information used for the loan approval process.....	199
6.2.5.1 The relative importance of individual information indices .....	199
6.2.5.2 Complementarity/ Substitution among the information indices.....	201
6.3 Determinants of Lending Decisions .....	205
6.3.1 The level of firm response to important information for lending decisions .	205
6.3.2 Logistic regression on determinants of lending decisions.....	209
6.3.2.1 Sample sizes, dependent and independent variables .....	209
6.3.2.2 Association tests between independent variable and dependent variables .....	212
6.3.2.3 Logistic regression results.....	214
6.4 Discussion .....	217
Chapter Summary.....	221

<b>CHAPTER 7: IMPLICATIONS AND CONCLUSION .....</b>	<b>223</b>
7.1 Overview of the Study Findings.....	223
7.1.1 Major findings of the credit demand side analysis .....	224
7.1.2 Major findings of the credit supply side analysis .....	226
7.2 Study Implications.....	228
7.2.1 Implications for Vietnam Government.....	228
7.2.2 Implications for Vietnam SMEs and business associations .....	233
7.2.3 Implications for credit institutions .....	235
7.3 Contributions, Limitations and Recommendation for Further Studies.....	239
7.3.1 Contributions .....	239
7.3.2 Limitations and recommendations for further studies.....	241
Chapter Summary.....	244
<b>BIBLIOGRAPHY .....</b>	<b>245</b>
<b>APPENDIX A: Research Questionnaire for SME owners/managers (English version)</b>	<b>267</b>
<b>APPENDIX B: Research Questionnaire for Bank Loan Officers (English version)...</b>	<b>272</b>
<b>APPENDIX C: Construction of Debt Attitude Index by Principal Component Analysis</b> .....	<b>275</b>
<b>APPENDIX D: Construction of Attitude toward Credit Information Sharing (CIS)</b> Index by PCA .....	<b>276</b>
<b>APPENDIX E: Measurement of Overconfidence .....</b>	<b>277</b>
<b>APPENDIX F: Association Tests between Behavioral Finance Factors and Owner</b> characteristics .....	<b>278</b>
<b>APPENDIX G: Association Tests among Firm Network Factors and Respondent &amp;</b> Firm Characteristics .....	<b>280</b>
<b>APPENDIX H: Initial Models of Credit Participation and Credit Source Selection ..</b>	<b>281</b>
<b>APPENDIX I: Reliability Statistics of Cronbach’s Alpha Test on Attributes to the Loan</b> Approval Process .....	<b>283</b>

## LIST OF TABLES

Table 1.1: Foreign Direct Investment to HCMC and Vietnam (new approvals) (case/million dollars) .....	15
Table 1.2: Network Distribution of Banking Sector .....	16
Table 2.1: Factors Evaluated by Loan Officers in Loan Application Assessment .....	57
Table 2.2: Measurement Model of Trust.....	61
Table 3.1: Developments in the Macroeconomic Indicators of Vietnam (2004-2013) ..	67
Table 3.2: System of Credit Institutions in Vietnam by Mid 2013 .....	71
Table 3.3: Some Development of Vietnam Banking System (2003-2012) .....	72
Table 3.4: Vietnam Credit Market Share (%) (2007-2012) .....	73
Table 3.5: Definition of SME based on Total Assets and Number of Employees .....	81
Table 3.6: Components of Getting Credit Indicator of Vietnam.....	86
Table 4.1: Potential Attributes Influence on Bank Lending Decisions – Hard Information .....	116
Table 4.2: Potential Attributes Influence on Bank Lending Decisions – Soft Information .....	117
Table 4.3: Thresholds for Cronbach’s Alpha Assessment .....	124
Table 4.4: Reliability Statistics of Cronbach’s Alpha Test .....	125
Table 4.5: Thresholds to Evaluate Reliability and Validity .....	136
Table 4.6: Criteria for Evaluating CFA Model.....	137
Table 5.1: Time Preference Responses Classification.....	143
Table 5.2: Distribution of Risk Attitude Response.....	144
Table 5.3: Dependent & Independent Variables Used in the Models .....	148
Table 5.4: Characteristics of Firm Owners regarding Gender, Marital Status, Income and Education .....	149
Table 5.5: Characteristics of Respondent Age, Experience and Firm Age .....	150
Table 5.6: Overview of SMEs regarding Ownership, Industry and Firm Size .....	151
Table 5.7: Overview of Surveyed SMEs Characteristics regarding Fixed Assets, Export, Audited Financial Statement .....	152
Table 5.8: Overview of Surveyed SMEs regarding Debt Financing Behaviors.....	153
Table 5.9: Overview of Surveyed SMEs Behavioral Finance Factors .....	155



Table 5.10: Distribution of Items Measuring Debt Attitude (5-point Likert Scale).....	157
Table 5.11: Distribution of SMEs Networking .....	158
Table 5.12: Distribution of SME Perception about Credit Information Center .....	160
Table 5.13: Descriptive Statistics of SME Awareness of CIC .....	160
Table 5.14: Descriptive Statistics of SME Attitude toward CIS .....	161
Table 5.15: Descriptive Statistics of Attitude toward CIS Index .....	161
Table 5.16: Chi-square Test and Symmetric Measures of the Association between Credit Participation and Audited Financial Statement.....	162
Table 5.17: Proportion of SMEs ‘Using Debt’ or ‘Non-Debt Use’ by Present Biased Preference and Overconfidence.....	163
Table 5.18: Chi-square Tests and Symmetric Measures of the Association between Credit Participation and Present Biased and Overconfidence.....	164
Table 5.19: Results of the Mann Whitney U Test on the Credit Participation by Risk Attitude and Debt Attitude .....	164
Table 5.20: Mann-Whitney Tests of Credit Participation – Networks .....	165
Table 5.21: Awareness of CIC * Use Debt in Capital Structure Crosstabulation .....	166
Table 5.22: Chi-square Test and Symmetric Measures of Credit Participation and CIC Awareness .....	166
Table 5.23: Mann-Whitney Test of Credit Participation and Attitude toward CIS.....	166
Table 5.24: Proportion of Enterprises Selecting Informal Credit as the Main Financing Source (%).....	168
Table 5.25: Chi-Square Tests and Symmetric Measures of Owner Gender, Income and Credit Source Selection.....	169
Table 5.26: Mann-Whitney Test of the Owner’s age, Experience and Firm Age and Credit Source Selection.....	170
Table 5.27: Chi-Square Tests and Symmetric Measures of Firms Background and Credit Source Selection .....	171
Table 5.28: Chi-Square Tests and Symmetric Measures of Behavioral Finance Factors and Credit Source Selection .....	172
Table 5.29: Mann-Whitney Test of Risk Attitude and Credit Source Selection .....	173
Table 5.30: Mann-Whitney Test of Firm Networks and Credit Source Selection .....	173
Table 5.31: Credit Participation and Explanatory Variables.....	175

Table 5.32: Credit Source Selection and Explanatory Variables .....	179
Table 6.1: Characteristics of Surveyed Loan Officers regarding Gender, Education and Position.....	186
Table 6.2: Characteristics of Surveyed Loan Officers regarding Age, Experience, Number of Responsible Files and Time to Process .....	186
Table 6.3: Descriptive Statistics of Attributes Influencing Lending Decisions .....	187
Table 6.4: Parallel Analysis Results .....	191
Table 6.5: KMO and Bartlett’s Test .....	192
Table 6.6: Final PCA results .....	193
Table 6.7: Measurement of Validity and Reliability of CFA Model.....	197
Table 6.8: Descriptive Statistics of Information Indices Used in Loan Approval Process .....	200
Table 6.9: Descriptive Statistics of Information Indices Used in Loan Approval Process after Combining Integrity, Capability and Network.....	201
Table 6.10: Pearson Correlation of the Five Information Indices .....	202
Table 6.11: Results of Multivariate Regression Models among the Information Indices .....	204
Table 6.12: Descriptive Statistics of the Level of Firm Response to Correspondingly Important Attributes.....	206
Table 6.13: Composite Scores of the Firm Response Level to Important Information	208
Table 6.14: Description of Variables Used in the Logistic Regression Model of Determinants of Lending Decision .....	210
Table 6.15: Results of the Mann-Whitney U Test on the Bank Lending Decision by Firm Response Level to Information on Collateral, Finance, Credit history, Social Capital and the Length of Relationship with Banks .....	212
Table 6.16: Proportion of Reject & Accept Group by Main-Bank and Exborrower....	213
Table 6.17: Chi-square Tests and Symmetric Measures of the Association between Bank Lending Decision and Main-bank and Exborrower Variables.....	214
Table 6.18: Omnibus Tests of Model Coefficients.....	215
Table 6.19: Classification Tablea of Bank Lending Decision.....	215
Table 6.20: Logistic Regression Results – Lending Decision and Explanatory Variables .....	216

Table C.1: KMO and Bartlett’s Test (Debt Attitude Measurement) .....	275
Table C.2: PCA results (Debt Attitude Measurement) .....	275
Table D.1: KMO and Bartlett's Test (CIS Attitude Measurement) .....	276
Table D.2: PCA results (CIS Attitude Measurement) .....	276
Table E.1: Variables in the Equation (Overconfident Measurement).....	277
Table F.1: Chi-square Test and Symmetric Measures of Present Biased – Respondent Gender .....	278
Table F.2: Kruskal-Wallis Test of Present Biased – Owner’s Age & experience.....	278
Table F 3: Mann-Whitney Test of Risk Attitude – Owner’s Gender .....	278
Table F.4: Correlation of Risk Attitude – Owner’s Age .....	279
Table F.5: Mann-Whitney Test of Overconfidence – Owner’s Age & Experience .....	279
Table F.6: Mann-Whitney Test of Overconfidence – Firm’s Age .....	279
Table G.1: Correlation among Firm Networks and Owner’s Age, Experience & Firm Age .....	280
Table G.2: Kruskal-Wallis Test of Firm Networks – Firm Size .....	280
Table H.1: Initial Model of Credit Participation and Explanatory Variables .....	281
Table H.2: Initial Model of Credit Source Selection and Explanatory Variables .....	282
Table I.1: Reliability Statistics of Cronbach’s Alpha Test.....	283

## LIST OF FIGURES

Figure 1.1: GDP Growth Rate of HCMC and the whole country (%).....	15
Figure 1.2: Number of SMEs in HCMC (2006-2012).....	16
Figure 1.3: Debt Financing Decision Flow Chart.....	17
Figure 2.1: Conceptual Model of the Study .....	63
Figure 3.1: Number of Banks by Groups (1991-2013).....	71
Figure 3.2: Banking System NPL's Ratio (%).....	75
Figure 3.3: NPLs by Credit Institutions (2013).....	76
Figure 3.4: Newly Established Enterprises from 2000 to 2013.....	82
Figure 3.5: Non-state Sector Contribution to GDP in Comparison with FDI and Public Sector (%).....	83
Figure 3.6: The Most Problematic Factors for Doing Business in Vietnam .....	85
Figure 3.7: CIEM Survey Results on Financing Sources for SMEs.....	88
Figure 3.8: Bank Lending Procedure for SME Applicants .....	94
Figure 3.9: Top five assets used as collateral by 24 banks .....	96
Figure 5.1: ROC Curve for Model 1 – Credit Participation Prediction .....	183
Figure 5.2: ROC Curve for Model 2 – Credit Source Selection Prediction.....	183
Figure 6.1: Eigenvalues of Raw Data and Random Data.....	192
Figure 6.2: Standardized Coefficients for the Seven-Factor Model .....	198

## LIST OF ABBREVIATIONS

- ACB: Asia Commercial Bank
- ADB: Asian Development Bank
- AGFI: Adjusted Goodness of Fit Index
- ASMED: Agency of Small and Medium-sized Enterprises Development
- ASV: Average Shared Variance
- AVE: Average Variance Extracted
- BIDV: Bank for Investment and Development of Vietnam
- CFA: Confirmatory Factor Analysis
- CFI: Comparative Fit Index
- CIC: Credit Information Centre
- CIEM: (Vietnam) Central Institutions of Economic Management
- CIS: Credit Information Sharing
- CMIN/DF: the minimum fit function Chi-Square ratio degrees of freedom
- CR: Composite Reliability
- EFA: Explanatory Factor Analysis
- EximBank: Vietnam Export Import Bank
- GDP: Gross Domestic Product
- GSO: General Statistics Office
- HCMC: Ho Chi Minh City
- JBIC: Japan Bank for International Cooperation
- JSCBs: Joint-Stock Commercial Banks
- JVBs: Joint-Venture Banks
- MSV: Maximum Shared Variance
- NBFIs: Non-Bank Financial Institutions
- NPLs : Non-Performing Loans
- PCA: Principal Factor Analysis
- PCB: Vietnam Credit Information Joint Stock Company
- RMSEA: Root Mean Square Error Approximation
- ROSCA: Rotating Savings and Credit Association
- Sacombank: Saigon Thuong Tin Commercial Joint Stock Bank
- SBV: the State Bank of Vietnam
- SMEs: Small and Medium Enterprises
- SOCBs: State-Owned Commercial Banks
- SOEs: State-Owned Enterprises
- SRMR: Standardized Root Mean Square Residual
- VBARD: Vietnam Bank for Agriculture and Rural Development
- VCCI: Vietnam Chamber of Commerce and Industry
- Vietcombank: Bank for Foreign Trade of Vietnam

## **ABSTRACT**

This study is a comprehensive investigation of debt financing behaviors of the Vietnam small and medium enterprises (SMEs) through examining the determinants of credit participation, credit source selection and credit accessibility from both the credit demand side and the credit supply side. Using a unique dataset based on surveys conducted in Ho Chi Minh City, Vietnam, we examine firm and owner-specific factors that influence the credit participation and credit source selection, especially from the viewpoint of behavioral finance and social capital theories. Furthermore, the study also assesses the factors determining the credit accessibility of SMEs from supply side in regard to hard and soft information.

Methodologically, this study applied the quantitative research design in gathering data from the credit demand side and supply side. The surveys were designed separately for SME owners and bank loan officers. The data analyzing techniques included quantitative methods: reliability test of scales, explanatory factor analysis (EFA), confirmatory factor analysis (CFA), association tests, and logistic regression.

From the demand side analyses, the research results pinpointed that non-financial factors like personal traits of SME owners/managers in terms of behavioral finance factors such as debt and risk attitudes, present-biased preference and overconfidence, and firms networking also had impacts on the firms' credit participation and credit source selection. Furthermore, from the supply side analyses, SME credit accessibility was affected by the level of firm response to required information on bank lending decisions such as the response to collateral, the response to financial information, the response to credit information and relationship lending. Further, the findings also

indicated that although collateral-based lending was the most widespread method used by commercial banks and could substitute for other lending technologies, a combination of various lending information types were usually employed. This suggests that both complementarity and substitutability were found in the use of soft and hard information for bank lending decisions in Vietnam.

Ultimately, the study seeks to contribute to knowledge about factors influencing on the SME debt financing decisions in a more comprehensive approach by analyzing both the credit demand side and credit supply side. The research findings provide an analytical framework for SME owners or managers, policy makers, bankers and others concerned to have a better understanding of SME debt financing behaviors. This should lead to changes in terms of policies, management methods and lending practices to support SME credit accessibility and to improve the Vietnam credit market.

# **CHAPTER 1**

## **INTRODUCTION**

This chapter presents the background of the dissertation. It contains a brief description of SME debt financing, the Vietnam credit market, debt financing paradoxes and other subsequent sections detailing the research problem, research objectives, research questions, research significance, overview of methodology, and research organization.

### **1.1 Background of the Dissertation**

#### ***1.1.1 The concept and importance of the SME sector and SME debt financing***

Though there is not a consistent global definition of SME, some common criteria used widely to identify an SME consist of the size of capital, the number of employees and the value of total assets. For instance, Iran considers SMEs to have fewer than 50 employees, while in Vietnam, SMEs are defined as having more than 10 and fewer than 300 employees. A number of European countries define SMEs with employees less than 250, but in the United States, they have defined SMEs as having employees fewer than 500 (Natarajan & Wyrick, 2011). Currently, the World Bank's SME department has defined SME as follows: "microenterprise up to 10 employees, total assets of up to \$10,000 and total annual sales of up to \$100,000; small enterprise up to 50 employees, total assets and total sales of up to \$3 million; medium enterprise up to 300 employees, total asset and total sales of up to \$15 million" (Ayyagari et al., 2003).

SMEs constitute the dominant form of business organization worldwide, accounting for over 95% and up to 99% of the business population depending on the country. In Vietnam's case, the economy has been undergoing major changes, underpinned by economic revolution – Doi Moi since 1986. These policy initiatives



have transformed the economy from being public sector-led to private sector-driven. The SME sector plays an important role in this emerging economic structure. SMEs take up an overwhelming proportion of total number of country's enterprises with 97% and 77% of total enterprises and regular workforce, respectively (Le Xuan Ba et al., 2006; Runckel, 2011). They have contributed approximately 40% of Vietnam gross domestic product (GDP) and 32% of total investment in the economy (Ho Sy Hung, 2007). The private sector which SMEs occupy the most is considered to be the most dynamic sector of the Vietnam economy in terms of its GDP and tax contribution, jobs creation, the maintenance of high mobility of the labor market and the reduction of development gaps among areas in the country. The importance of the SME sector to the Vietnam economy is not unique and is consistent with the trends observed by Audretsch (2000), Bateman (2000) and Hallberg (2000) who all argued that SMEs have important contributions to many aspects, such as employment, taxes, innovation and poverty eradication.

Despite the important role that SMEs are expected to play in the economy, there are a number of constraints that act as barriers to the emergence and growth of a sustainable SMEs sector: poor quality of products, insufficient market information, poor management skills, the lack of advance technology, weak internal and external network, etc. Especially, capital shortage has been a major hindrance to the development of the SME sector. Most SMEs in the world face the challenge in finding financing resources (Schiffer & Beatrice, 2001; Valverde et al., 2008). The World Bank report (2010) suggested that one of the major causes of SME failure is limited access to external finance. The report further observed that SME loans as a percentage of total bank loans are generally smaller compared to large firms.

Finance is the life-blood of any business enterprise and no enterprise, no matter how well managed, can survive without enough funds for working capital, fixed assets investment, employment of skilled employees and development of markets and new products (Biggs & Shah, 2006). External finance sources include equity finance and debt finance sources. However, because of limitations in firm sizes as well as strict requirements to issue stocks, debt financing becomes a regular source for SMEs' operation. Debt financing refers to the firm's activities in raising capital by borrowing. Borrowings from formal credit sources (such as bank loans) or from informal credit sources (such as moneylenders and family members), cash raised from debt instruments (such as bonds) and off-balance-sheet financing (such as operating leases) are common patterns of debt financing. Among these, bank loans are the most common source of funds, especially in developing countries due to the underdevelopment of bond market and non-bank institutions (Aristeidis & Dimitris, 2005).

SME's debt financing is an interesting research problem to scholars as well as policy decision makers. Multiple studies in developed countries indicated that SMEs are high-risk borrowers (Nguyen et al., 2006; Sogorb-Mira, 2005; O'Connor, 2000) and providing the financial resources for SMEs is considered to be a great obstacle in comparison with large firms (Schiffer & Beatrice 2001; Minton, 2006; Zia, 2007; Tambunan, 2008). SMEs in emerging economies suffer more hindrances in finance access because of the underdevelopment of financial institutions and infrastructure, poor property rights protection and serious information asymmetry issues.

### *1.1.2 Paradoxes in SME debt financing*

There are some paradoxes in SME debt financing, especially in developing countries. These paradoxes are suggestive of the significance of studying about SME debt financing in emerging economies as well as new approaches to study this topic.

First, the SME sector plays a critical role in the socio-economic development in both advanced and less – advanced economies, but they often struggle with the issue of capital shortage due to credit constraints. For instance, Vietnam SMEs account for 97% of all businesses and 77% of total employment, contributing an estimate of 40% to 60% of Vietnam GDP, but they can only get approximately 15% of total lending in the economy. Therefore, studying about the SME access to and participation in the credit market is of great importance to support SMEs in improving their credit accessibility.

Second, the traditional SME financing models or lending practices are implemented in stable market environments, based on reliably documented company data, have proven to be largely unsuitable for banks operating in highly informal economies. Although many banks in these countries are generally interested in SME clients, the actual growth of their SME portfolios often fails to meet their expectations. Likewise, entrepreneurs express almost constant disappointment with the poor quality of services available for SMEs. Moreover, commercial banks in developing countries often apply collateral-based lending technology as a way to guarantee the borrower's creditworthiness. For example, Vietnam banks make lending decisions based on the adequacy and registrability of the borrower's fixed asset collateral, not the underlying credit quality of the borrower. A Vietnam bank often does not provide a loan to a non-fully secured party without some form of secondary guarantee (e.g. asset pledge or corporate guarantee from a collateralized corporate guarantor with pledgeable assets).

Credit-based lending, which the lender primarily evaluates the borrower's repayment ability, rarely exists at all inside the traditional Vietnam banking system. However, the Vietnam SME borrowers, almost always lacking sufficient collateral to meet Vietnam banks' lending standards, are left with few options inside to fund their working capital needs. SME borrowers often utilize informal credit sources for debt financing and working capital needs. This paradox is indicative of the need for further studies in lending technologies used by formal lenders, mostly banks, as well as the coexistence of the formal and informal credit markets.

Third, in the crisis time, banks often increase the level of requisite collateral for existing, renewing or new loans. However, commercial banks often complain that they have abundant capital to lend to businesses meanwhile many SMEs are discouraged from the credit market due to their incapability of response to banks' strict requirement, not to mention the 'debt-aversion' and 'risk-aversion' psychology among small businesses. In Vietnam, some empirical evidences reported that 57% of SMEs do not want to go into debt in the future, especially getting loan from banks (CIEM, 2012). Another survey by the Vietnam General Statistic Office (GSO) in 2011 also indicated that 41.9% of enterprises in general do not use debt in their capital structure. Researchers should address the fact that there are a significant proportion of SMEs discouraged to participate in the credit market in order to acknowledge determinants of SME borrowing decisions comprehensively.

Fourth, financial behaviors of small firms cannot be explained by facts and circumstances alone. Recently, some studies revealed that a number of others – mostly non-financial-factors have been shown to influence financing decisions such as cultural factors, owner characteristics, business objectives, attitudes toward personal risk,

attitudes toward debt financing, issues relating to independence and control, etc. Therefore, a study with new approaches that incorporate non-financial factors such as behavioral finance and social capital factors could help to explain the motivations of SME credit participation.

### ***1.1.3 Determinants of SME participation in formal and informal credit markets***

SME's debt financing is a classic theme gaining attention by numerous scholars (Ayyagari et al., 2003). The SMEs credit accessibility is investigated by both the demand side (borrowers) and the supply side (credit grantors). From the demand side, there are generally two propensities explaining the SME borrowing decisions. On one hand, traditional theories of capital structure such as Miller & Modigliani's (1958, 1963) static trade-off theory and Myers (1984) pecking order theory helped to identify the target optimal capital structure and how to interpret corporation financing decisions in respect of the company financial benefit maximization view. Following the traditional approach, many firm-specific factors have been examined and proved to have an effect on credit access and capital structure of SMEs. Those are firm's size (Friend & Lang, 1988; Beck & Levine, 2004; Beck et al., 2005), level of fixed assets (Marsh, 1982), non-debt tax shields (Bradley et al., 1984), firm's profitability (Friend & Lang, 1988; Rajan & Zingales, 1995; Booth et al., 2001); growth opportunities (Kester, 1986; Kim & Sorensen, 1986; Chaplinsky & Niehaus, 1993), the stage of development and sector of activity (Agrebi, 2009) and having audited financial statement (Tagoe et al., 2005; Berry et al, 1993). However, the traditional approaches could not help to explain the circumstance of 'debt-adverse' among SMEs. In other words, these theories could not explain why many SMEs do not participate in the credit market even though they

have a demand of growth and borrowing. Discouraged borrowers are often ignored from these traditional theories.

On the other hand, a small number of researchers investigated the relationship between non-financial motivations and corporate financing decisions. Several theories and assumptions were proposed to explain the debt aversion or borrowing discourage phenomenon among business, especially the SME sector (Cressy, 1995; Rice & Strahan, 2010). One of these theories is the theory of social capital or firm networks. According to this theory, networks could give SMEs an advantage in order to access a bank loan by increasing the firms' legitimacy (Le & Nguyen, 2009; Nguyen & Ramachandran, 2006; Ravina, 2012; Moro & Fink, 2013) or help SMEs find other sources of funding easily by reducing the need for bank loans (Hussain et al., 2006; McMillan & Woodruff, 2002).

In addition, the evolution of behavior finance theories is suggestive of the studies on determinants of consumer borrowing and corporate borrowing decisions. For instance, behavioral corporate finance literature suggested that optimism and overconfidence can considerably affect the investment and financing decisions made by managers (Baker et al., 2005; Heaton, 2002; Fairchild, 2005); or managers that are more risk tolerant may initiate more merger and acquisition projects and, therefore, may pursue heightened leverage policies (Grable & Lytton, 2003). Especially, many studies on consumer borrowing and microfinance investigated the impact of behavioral finance factors such as present-biased preference or impatience, risk-attitude and debt-attitude on borrowing decisions of individuals (Bauer et al., 2012; Laibson et al., 2003, 2007; Brown et al., 2013).

Consumer finance and corporate finance are different fields but in the case of studying SME finance, we can 'borrow' the ideas and results from the studies on consumer finance to apply to the explanation of SME debt financing decisions. This is because the SME sector has some unique characteristics. First, it is extremely complicated to differentiate the financial situation of the firm from that of its owners. For instance, the entrepreneur can use the firm cars and home accommodations for both private and business purposes. Furthermore, different from large firms, the decision-making process, financing decision included, is mostly in the hands of SME owners or managers. With large enterprises, especially with joint-stock listed companies, the decision-making process is much more complicated and is often affected or ruled over by other members in the company's board of directors. In other words, business and financing decision with SMEs is often personally managed. Therefore, SME owners' knowledge, psychology and attitudes can have an effect on the company's financing decision. Second, the relationships between the small firm and its stakeholders tend to reflect the owner's personal relationships much more than in larger firms where such relationships are formalized. It is expected that large firms carry out standard corporate governance practices that executives, board of directors and auditors are assumed to conform to transparent norms. Third, the interrelationship between SMEs and financial institutions is looser in comparison with large firms. In other words, SME owners often have strong ties with informal strands, which leads to the choice of informal credit sources. This particular feature of SME network or social capital obviously has an effect on their credit participation.

With regard to the supply side, inadequate and often inaccurate information is one of the major bottlenecks in the bank's decision to supply credit (Leland & Pyle, 1977; Bris

& Welch, 2005). In order to alleviate the issue of information asymmetry, bank loan officers must find a different approach and lending techniques to SMEs as compared with larger enterprise customers. Leland & Pyle (1977) and Bris & Welch (2005) reported that creditors, in general, gather and verify business information about firms to evaluate their current performance and forecast the firms' future performance. Apire (2002) and Griffiths (2002) emphasized that along with poorly compiled records and unreliable unaudited financial statements, the fact that SMEs are often weak at expressing their knowledge and capabilities about their business fields and opportunities add up to the lack of reliable information required for the bank-loan-application assessment. In sum, information used in the loan approval process could be categorized into soft and hard information. Two main lending technologies used to finance SMEs include transaction-based lending which is based on borrowers' hard information, and relationship lending which is principally based on borrowers' soft information. Hard information is quantitative, easy to store, evaluate and transmit, and its content is independent of the collection process while soft information is essentially qualitative in nature, and so cannot be easily recorded in written form. Stein (2002) identified hard information as any information that is effortlessly confirmable (e.g. financial statement, payment history records) while soft information cannot be straightforwardly certified by anyone except for the agent who provides it (e.g. management skills, plans and strategy).

Regarding the relationship between hard and soft information, there has not been any consistent agreement among scholars about whether hard and soft information are complementary or substitutive in lending activities. Berger & Udell (2006) and Uchida et al. (2006) suggested that they are not necessarily discriminative. Commercial lenders may combine different lending technologies in the loan approval process though one



key lending technology may be emphasized. Meanwhile, Chang et al. (2006) and Petersen (2004) found that hard information and soft information act as substitutes. They suggested that while large banks emphasize on quantitative information, small banks focus more on qualitative information.

One of the challenges when studying on determinants of lending decisions or SME credit accessibility is the quantification of soft and hard information. Previous studies have investigated the lending technologies from the standpoint of SMEs in developed countries (Uchida et al., 2006; Bartoli et al., 2013). However, addressing the issue of information types influencing on the lending decisions from the perspective of the lender side is necessary since it examines the choice of lending technologies from the standpoint of those who make the loan decision.

## **1.2 The Study Site**

### ***1.2.1 SME debt financing in Vietnam***

Vietnam signifies an exciting case. In fact, the country ranks 40th out of 183 countries in terms of getting credit in 2012 (World Bank, 2012). This is a relatively good outcome of the banking system. Commercial banks, including state-owned commercial banks (SOCBs) and private banks, compete with each other to increase the credit market share and are beginning to recognize the SME sector as a prospective market and sketch out strategies to approach this sector. However, capital shortage is still a big hindrance to the SME community. The large majority of SMEs in Vietnam are very small indeed, and are largely dependent on purely internal and/or informal sources of financing. This is true in many developing and transitional economies. As the more successful SMEs grow, they are likely to need – and get improved access to – more formal and external sources of financing.

In Vietnam, according to a recent research executed by Vietnam Chamber of Commerce and Industry (VCCI), 75% SMEs would like to access bank loans but only about 30% of them succeeded (VCCI, 2010). Another survey conducted by the Central Institutions of Economic Management (CIEM), only 30% of SMEs were able to obtain bank loans. The CIEM report in 2012 also confirmed that “constraints in credit markets have for a long time been cited (by firms) as the most serious obstacles for future growth of SMEs in Vietnam” (CIEM, 2012).

SMEs mainly contact commercial banks to obtain necessary funds. Additionally, twice as many firms obtain informal loans as compared to formal ones. Although informal loans only finance 8 to 9 percent of total investments for SMEs, almost 90% of the constrained group (in formal credit markets) has access to loans from informal sources (CIEM, 2012). This shows that informal loans are small but a frequent part of the Vietnamese SMEs financing scheme. Regarding formal financing arrangements, there exists many barriers for SMEs’ access to bank loans from both the demand side and supply side. From the demand side, the barriers include the lack of sufficient collateral, no proof of ownership of assets, ineffective management of SMEs, the lack of information about loan procedures, unsound business plans, etc. From the supply side, the difficulties of credit access consist of banks’ unwillingness to lend to SMEs or discrimination of banks, stringent bank regulations, time-consuming procedure, short maturity of bank loan, insufficient financial information, high lending rates and unequal allocation of borrowings between state-owned enterprises and private businesses (Baldwin, et al., 2002; Hughes, 2000; CIEM , 2012).

### *1.2.2 Vietnam credit market and banking system*

Until 1988, the Vietnam financial system was comprised only of the State Bank of Vietnam (SBV) and its several branches. The main objective of SBV at that time was to allocate credit to State-owned enterprises (SOEs) and other organizations under the central plan's directives and to provide deposit services for these SOEs (O'Connor, 2000). From the end of 1988 to 1989, the government commenced to execute the banking reforms that reconstructed from the mono-banking system to the two-tier banking system. The SBV was then contained to act as the central bank and four newly-established SOCBs took over the commercial banking activities of the SBV. In the period of the 1990s, the government allowed and encouraged the entrance of new players into the financial industry. As a result, a considerable number of joint-stock commercial banks or private banks and foreign bank's branches increased. However, the banking products and services offered by the new players were still restrained. Besides, non-bank financial institutions, such as insurance, financial companies and investment funds also entered the credit market but they are insignificant in terms of financing firms.

With respect to formal debt financing, commercial banks, especially joint-stock commercial banks are the most important source of external finance for SMEs due to the absence of capital markets and the immaturity of securities markets as well. With the fact that banks have constituted more than 85% of financial institutions, O'Connor (2000) indicated that Vietnam has a bank-based financial system. Hence, commercial banks play a critical role in providing credit for individuals as well as companies in Vietnam. The existing banking system consists of the SBV, five SOCBs, joint-stock banks, joint-venture banks and system of People's Credit Fund. The SOCBs currently

account for nearly a half of total bank credit in Vietnam. They are still involving in non-commercial or politically favor lending, especially in rural areas. These circumstances resulted in a serious disproportion in allocating funds to different economic sectors. SMEs and private companies always find it unfavorable and difficult to access loans from banks, compared to state-owned companies. Soo (1999) demonstrated that SOCBs supply 78% of total loans in the Vietnam economy. Gradually, together with the open of financial market and the strong emergence of private commercial banks, the “monopolistic” position of SOCBs has been descending. Moreover, SOCBs are moving out of their SOE-oriented lending ‘comfort zone’, and becoming much more focused on SMEs in the private sector.

However, potential borrowers often confront barriers in obtaining loans from Vietnam’s formal banking sector. In offering credit, banks often persists on a secured foundation that necessitate certificates of land using, house or other fixed assets approved as collateral. In other words, lending decisions in Vietnam are still based more on collateral pledgeability and relationship than the firm’s cash flow. Consequently, many small businesses have little incentive to pursue formal credit because they have insufficient collaterals. Another reason contributing to this lending practice of Vietnam banks is the problem of obtaining reliable information about borrowers. The credit histories of Vietnamese consumers and businesses are short or even unavailable, and as a result, many loans are reportedly motivated by personal relationships instead of financial analysis (Tran, 2008). More generally, while banks seek out information about firms and the overall commercial environment when assessing the viability of business plans, the sources of such data are reportedly not kept up to date, partly due to the rapid growth of new businesses. Besides, banks often struggle to estimate the value of

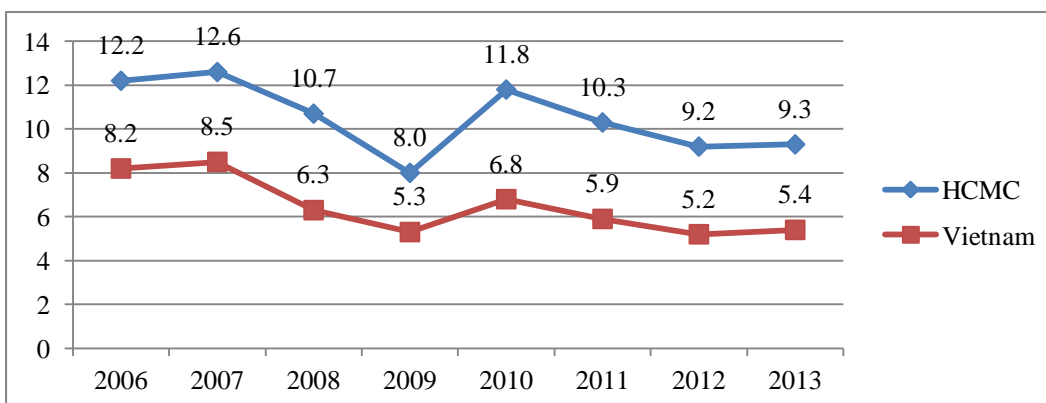
collateral such as houses (Nguyen et al., 2006). The lack of information sufficient to evaluate credit-worthiness is the result of a lack of reliable identifiers for businesses and individuals, together with generally poor accounting practices and widespread tax evasion. “In most cases, financial statements of SMEs are not audited and are unreliable. SMEs often have more than one accounting book... Currently, 99% of SMEs are tax evaders” (Freeman & Le, 2007). The more severe issue of information asymmetry between firms and banks in developing countries rather than in developed countries (Cornelli et al., 1996) resulted in the credit constraint by banks to avoid adverse selection problem in firm financing. Therefore, individuals and small businesses alike have limited access to credit, because lenders have poor or limited financial information, and cannot offer automatic screening. Vietnam has a population of 90 million and approximately 400,000 SMEs, but only 5% of the population and 30% of the SMEs have participated in credit transactions with banks.

The coexistence of the formal and informal credit market is another characteristic of the Vietnam credit market. Empirical evidences revealed that though informal financing sources accounted for a small amount in SMEs’ capital structure, they are the frequent sources of SMEs to finance the needs of working capital (CIEM, 2012). SMEs which are discouraged from participating in the formal credit market are clients of the informal credit market. The main informal sources of SME financing involve use of personal sources, loans and grants from a social network of family and friends, liquidation of family assets, reciprocal asset usage arrangements, informal operating leases, rotating savings and credit institutions and money lenders.

### 1.2.3 Ho Chi Minh City - Overview of SMEs and banking sector

Ho Chi Minh City (HCMC) is the most dynamic economic center in Vietnam since it makes up a high proportion of the Vietnam economy. This city just composes 0.6% land area, 7.5% population of Vietnam, but nevertheless constitutes 20% GDP, 27% industrial output and 36% FDI projects in Vietnam in 2010. The GDP growth rate of HCMC has always been higher than that of the whole country. HCMC is considered the center of Vietnam in terms of trade, tourism, education, technology and science. Therefore, it is also a suitable and convenient site for bank activities and credit activities alike.

**Figure 1.1: GDP Growth Rate of HCMC and the Whole Country (%)**



Source: Statistical Office of HCMC

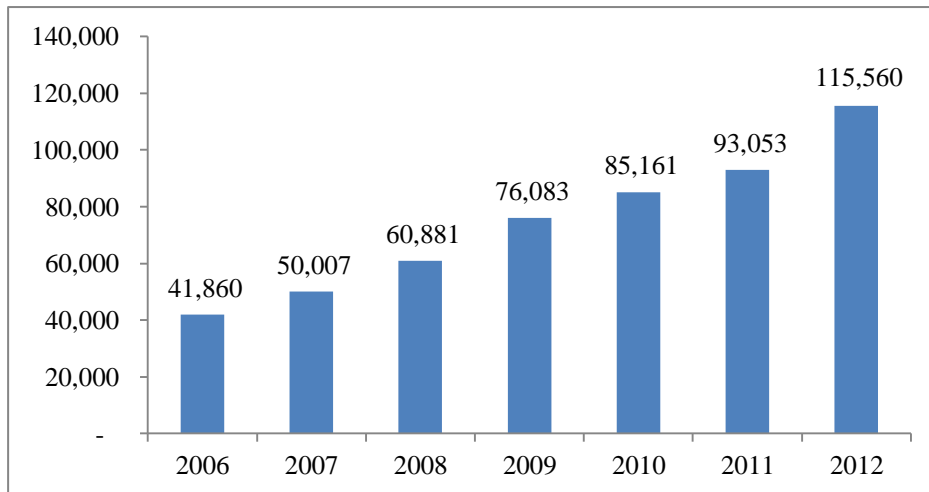
**Table 1.1: Foreign Direct Investment to HCMC and Vietnam (new approvals) (case/million dollars)**

	2010		2011		2012	
	HCMC	Vietnam	HCMC	Vietnam	HCMC	Vietnam
Number of cases	375	1240	439	1,091	401	1,100
Approved value	1,883	17,866	2,804	11,559	541	7,854

Source: Statistical Office of HCMC

In reference to the SME sector, there are more than 115,000 SMEs located in this city, accounting for 96% of total enterprises in HCMC.

**Figure 1.2: Number of SMEs in HCMC (2006-2012)**



Source: Statistical Office of HCMC

In accordance with the economic growth as well as the development of SMEs, the banking industry in HCMC has been growing fast. During the last decade, HCMC is also the biggest banking and financial focus in Vietnam, leading the country in regards to the number of banks and revenue earned from financial and credit products and services. Earnings of HCMC's banks make up one-third of total earnings of the whole system in Vietnam.

**Table 1.2: Network Distribution of Banking Sector**

Location	SOCBs	JSCBs	Foreign Banks
Hanoi	692	892	25
<b>HCMC</b>	<b>495</b>	<b>1,248</b>	<b>30</b>
Da Nang	84	179	3
Can Tho	54	137	7
Others	3,149	1,808	27
Total	4,474	4,241	92

Source: SBV, VCBS update report of bank industry, 2011

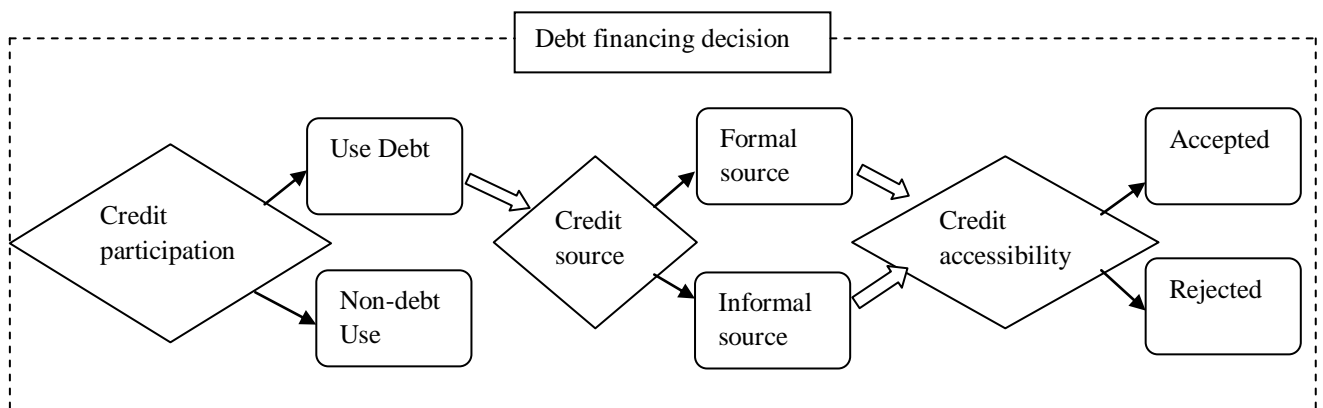
### 1.3 The Research Gap and Definition of the Research Issues

#### 1.3.1 The Research gap

The role of debt financing to the development of the SME sector along with debt financing paradoxes raises the question of what factors determine the credit participation, credit source selection and credit accessibility of SMEs in a developing country like Vietnam. The study makes the distinction between credit participation, credit source selection and credit accessibility.

These three terms contribute to a fully-constituted process of the debt financing decision (Figure 1.3). When making decisions regarding the firm's capital structure, at the first stage, the SME owner has to decide whether or not to use debt in the firm capital structure (credit participation). Then, if the owner decides to go with debt or participate in the credit markets, he or she must select the credit source (or the credit pattern), meaning that they will go with formal credit sources, semi-formal credit programs or informal credit sources (credit source selection). Finally, after the firm applies for loans and goes through the loan approval process, the credit grantors or lenders will decide whether the application is accepted or rejected. Credit accessibility refers to the possibility that individuals or enterprises can credit services.

**Figure 1.3: Debt Financing Decision Flow Chart**





By covering the whole process of the debt financing decision, the study addresses all the subjects in the credit market: non-borrowers and discouraged borrowers (namely, non-debt using firms), accepted borrowers and declined borrowers. Previous researches on SME debt financing rarely took into account non-borrowers and discouraged borrowers.

Moreover, the study gives a comprehensive description of SME debt financing process by analyzing potential factors from both the credit demand side and credit supply side. In the credit supply side analyses, we reconfirm that social capital information did have an effect on lending decision by banks. In the demand side analysis, the firm social capital factors, which were measured through firm networks, were proved to have an influence on credit participation and credit source selection of SMEs. Meanwhile, on the supply side analysis, social capital continues to prove its role in the bank lending decisions. On this side, we not only quantify social capital as networking but also cover other aspect of social capital – trust. Nguyen & Le (2006) investigated that Vietnam commercial banks still rely on trust in lending to their private business clients. Therefore, in our study, trust and network will be used as components of firm's social capital which is believed to affect credit accessibility of SMEs.

In addition, from the demand side literature, traditional capital theories such as trade-off theory and pecking order theory could not address the financing behaviors of non-borrowers and discouraged borrowers. According to Vietnam CIEM current surveys, it is a fact that there exist 'discouraged' SMEs borrowers. They do not want to participate in the credit market although they still lack resources for their development. This debt-aversion psychology make small and micro businesses operate perfunctorily or at an indifferent level, especially in the crisis period. From this point, we realize that

a few studies considered corporate behavioral finance factors in analyzing SME credit participation decision. Normally, behavioral finance theory is often applied for individuals such as investors, consumers etc. Yet, one of the specific characteristics of SMEs is that the owner is also the manager who makes the financial decisions. Therefore, behavioral financial traits of managers or owners of SMEs are believed to have an impact on financing decisions. Theories of behavioral finance and social capital could be used as new approaches to explore the motivations of SME credit participation and credit source selection.

Furthermore, to the best of our knowledge, the literature on the supply side suggests there are almost no studies investigating how and which lending technologies or information types are used in lending to the SMEs in developing countries, particularly Vietnam. This inspired us to do an empirical research to shed some light on interactions among sources of soft and hard information and their impact on lending decisions in Vietnam. Additionally, there have been no measures of soft and hard information, especially soft information. Our study contributes to the literature of lending technologies by including new measures of soft and hard information. This study is also different from several previous researches in computing composite indices of information types or lending technologies. Instead of using a simple average method (Uchida et al., 2006; Bartoli et al., 2013), we used a variety of attributes obtained from experienced loan officers and bank managers and employed factor analysis to achieve good scales of the information types used for loan approval. Thus, we were able to construct information indices considering the level of importance of each attribute for the corresponding factor. Although previous studies have investigated the lending technologies from the standpoint of SMEs in developed countries (Uchida et al., 2006;

Bartoli et al., 2013), our study attempts to address the issue of information types influencing on lending decisions from the perspective of the lender. We believe this is a good approach to explore the bank lending technologies and corresponding information types used for the loan approval process since it examines the choice of lending technologies from the standpoint of those who make the loan decision.

Besides, the study also helps to explain the coexistence of the formal and informal credit markets that a few studies have considered. In the case of Vietnam, prior studies mainly focused on Vietnam SMEs' accessibility to formal credit market but ignored informal market. Informal credit channels were just mentioned in some studies that focus on households in rural areas.

### ***1.3.2 Research issues or Research questions***

The dissertation attempts to answer the following research questions:

- i) What are the determinants of SME credit participation in Vietnam? Or What determines an enterprise to use external debt or not?
- ii) What factors influence the SME credit source selection in Vietnam?
- iii) What types of information could influence the bank loan approval process?
- iv) From the viewpoint of the supply side, what determine SMEs credit accessibility?

The first two questions are related to the demand side analysis and the last two are connected to the supply side analysis. Based on the findings on these issues, the dissertation suggests measures for Vietnam to enhance the credit accessibility for the SME sector as well as improve the Vietnam credit market.

#### **1.4 Research Objectives**

Overall, the purpose of this study is to investigate debt financing behaviors of the Vietnam SMEs comprehensively by examining the determinants of credit participation, credit source selection and bank credit accessibility from both the credit demand side and the credit supply side. In order to achieve this purpose, the study attempts:

- To examine firm and owner specific factors that influences the credit participation and credit source selection, especially from the viewpoint of behavioral finance-related factors such as present-bias, risk aversion, debt attitude and overconfidence psychology and the viewpoint of social capital that is measured through SMEs' networks.

- To assess the factors determining the credit accessibility of SMEs from supply side regards to hard and soft information and to evaluate whether firm's social capital plays a significant role in lending decisions by Vietnam commercial banks or not.

- To find out the 'gap' in information between SMEs and credit grantors and then. to propose solutions to help SMEs become aware of the importance of managing and providing information to build their reputation collateral as well as enhance their social capital in order to get credit for supporting their growth.

#### **1.5 The Significance of the Study**

The access to finance has been a theme of great interest to both scholars and policy makers in advanced as well as less-advanced countries for many years. There are several reasons explaining the importance of SME access to finance. First, some empirical researches indicated that the increase in finance access could help to decrease the situation of poverty in developing economies (World Bank, 2009). Second, researchers argued that access to finance, credit accessibility in particular, is positively

associated with the firm's growth and development. The Investment Climate Survey carried out by the World Bank recently showed that widespread access to financial services would generally enhance the economic growth, creating more jobs and weakening the issue of poverty in many developing economies. Thirdly, the issue of access to finance is much more severe in developing countries in comparison with developed economies.

In terms of the professional significance, researchers can contribute to the field of study in several ways: testing or developing a theory, expanding the existing knowledge and adjusting prevailing beliefs; exploring the relationships between the phenomena, extending a research methodology or instrument, and providing deeper knowledge about previously studied phenomena (Glatthorn & Joyner, 2005).

This study is conducted based on the assumption that access to credit is a crucial issue for the development of the SME sector as well as the economy. Our study makes several contributions to the management literature:

- The study seeks to contribute to knowledge about factors influencing the SME debt financing decisions in a more comprehensive approach by analyzing both the credit demand side and credit supply side.
- The study uses a new approach to investigate the influence of behavioral finance factors on firms financing decision and helps to explain the motivations of non-borrowers and discouraged borrowers who are often ignored from the traditional studies on the SME credit access.

- The study contributes to the literature of lending technologies by including new measures of soft and hard information as well as provides deeper knowledge about the relationship among information types used in the loan approval process.

In addition, the research would help SME owners or managers, policy makers, bankers and other people concerned to have a better understanding of SME debt financing behaviors. This might lead to changes in terms of policies, management methods and lending practices to support SME credit accessibility and to improve the Vietnam credit market.

## **1.6 Overview of Research Methodology**

This dissertation applies the quantitative research design in gathering data from SMEs and loan officers. The implementation process was carried out through three major phases: preliminary phase for potentially important attributes; data collection phase mostly for primary data; and data analysis phase for results.

The preliminary phase dealt with content analysis of related literature, statements and expert consultation. The data collection phase used mail survey the main strategy. The surveys were designed separately for SME owners and bank loan officers. The sampling used for the research is both random and purposeful. Simple random sampling method was applied for the demand side survey with SME owners or managers of the enterprises located in HCMC as the participants. Snowball sampling technique was used to gain access to bank loan officers at commercial banks in HCMC. The implementation process was carried out from May 2013 to September 2013. There were 1,500 questionnaires for SME owners and 250 questionnaires for bank loan officers

distributed to the respondents. The valid returned questionnaires totaled 263 from SME owners and 218 from bank loan officers.

The data analyzing techniques include quantitative methods: Reliability tests of scales, explanatory factor analysis (EFA), confirmatory factor analysis (CFA), normality tests, parametric or non-parametric tests based on the results of normality tests, and finally logistic regression. The statistical parameters of each step were compared with the criteria applied in the analysis of multivariate data. The specific methods and process are presented in Chapter 4 – Methodology.

### **1.7 Structure of the Dissertation**

This dissertation is divided into seven chapters of which the major contents are summarized as follows:

Chapter 1 – Introduction: provides the general background information of the topic including the role of the SME sector, debt financing paradoxes among SMEs, overview of the Vietnam SME debt financing and the Vietnam credit market, research gap, research problems, research objectives and research methodology in brief.

Chapter 2 - Literature Review on SME Debt Financing and Lending Technologies: reviews the theories and related discussions, which serve as a theoretical framework for the research by analyzing the current theories and literature on the subjects of SME debt financing and lending technologies

Chapter 3 - Debt Financing for SMEs in Vietnam: discusses the Vietnam economic environment, the development of the Vietnam financial sector, the situation of Vietnam SME debt financing, the bank's lending procedure and practices in SME lending as well as the role of Vietnam government in supporting SME credit access.

This chapter provides a background for the research issues and analysis in the subsequent chapters.

Chapter 4 – Research Methodology: introduces a full description of the methodology applied in the research. The chapter describes the methods used in collecting data, research sampling and the data analysis methods, of which specific techniques with criteria for the results are also described in detail.

Chapter 5 - Findings of the Credit Demand Side - Determinants of Credit Participation and Credit Source Selection among Vietnam SMEs: presents the findings of the research from the credit demand side analyses.

Chapter 6 - Findings of the Credit Supply Side – Determinants of Credit Accessibility among Vietnam SMEs based on soft and hard information: presents the findings of the research from the credit supply side analyses.

Chapter 7 – Implications and Conclusion: summarizes the major research findings regarding the research issues, analyzes the contributions and the limitations of the research, and make suggestions for further studies in this field.

### **Chapter Summary**

This chapter offered a general background of the research. A brief description of SME debt financing and related issues discussed some general understanding for the topic. The research objectives and research questions listed the purpose of conducting the research, and the research significance showed the usefulness of researching on SME debt financing in the context of a developing country like Vietnam.



**CHAPTER 2**  
**LITERATURE REVIEW ON SME DEBT FINANCING**  
**AND LENDING TECHNOLOGIES**

This chapter presents theories, concepts, and empirical works related to SME debt financing. The first section introduces general issues related to SME debt financing in developing countries. It is then followed by a discussion of the major theories that are supposed to affect the SME financing decisions including capital structure, behavioral finance and social capital theories. The chapter also reviews the literature related to soft and hard information used for the bank loan approval process. These discussions serve as a theoretical framework and empirical background for comparing the results of this dissertation to draw new and significant points.

**2.1 SME Debt Financing Related General Issues in Developing Countries**

In acknowledgement of the role of SMEs in economic growth and development, there has been a number of impediments to SME development such as unqualified human resources, lack of technology access, unfavorable market conditions and inadequate access to bank credits and equity (Weller, 2004). Among these, there is a growing consensus among experts that the lack of funds is one of the biggest threats to SMEs (Cook & Nixon, 2000; Ayyagari et al., 2006; Beck et al., 2005; Minton, 2006; Zia, 2007; Tambunan, 2008).

***2.1.1 Financing sources for SMEs***

There is a wide range of financing sources for SMEs, including internal sources such as owner's personal equity and retained profits, external sources such as borrowings from family members, friends or money lenders (informal sources), trade credit, angel

investors, venture capital, and financial institutions (Chittenden et al., 1996). Among these sources of finance, bank loans are considered the most common source of funds in both developed and developing countries (Carey & Flynn, 2005; Wu et al., 2008; Ono & Uesugi, 2009). Especially, bank lending in transition economies has attracted much attention from research teams because of the role as well as the controversiality and difficulty of this issue. Bank credit in developing countries plays an important role as a crucial capital source in the growth of the economy due to the underdevelopment of the financial institutions and infrastructure. However, the governments in developing countries often interfere in the credit allocation by state-owned commercial banks (SOCBs) through providing state-owned enterprises (SOEs) with a tacit guarantee on the borrowings. As a result, the SOCBs, which play a dominant role in the credit market often allocate credit ineffectively to SOEs which is often considered the poor-performing sector (Gorton & Winton, 1998; Perotti, 1993). This also leads to the scarcity and credit constraints for private enterprises (Sherif et al., 2002; Koford & Tschoegl, 1999).

### ***2.1.2 The issue of information asymmetry***

Information is a crucial element of all financial markets and transactions. In a world in which information were available to all lenders without any restraints, firms with potential and positive net present value projects would always get the financing sources they need. However, information is not equally available to everyone in the economy. Information asymmetry refers to the situation where all relevant information is not known by the interested parties (Peirson et. al., 1999). In lending to small firms, credit grantors are usually assumed to have less information about the firm than the borrower.

SMEs generally have better information about their abilities, level of effort, preferences and firm's prospect than the outsiders like lenders.

In most of the economic and finance literature, information asymmetry between banks and firms is considered as a main challenge for SMEs to access bank loans (Berger & Udell, 1998; Winborg & Landstrom, 2000; Ebben & Johnson, 2006). Ang (1991) comprehended this issue by proving that small firms are more informationally opaque than big corporations, and the collection of private information about small firms is expensive. This results in the rejection of a loan application (Stiglitz & Weiss, 1981). In developing countries, several factors are responsible for the information asymmetry between SMEs and financial institutions. One of such factors is that many SMEs operate in the informal sector, and as a result, they are unable to provide the minimum information (e.g. contact details, financial statements, etc.) required by banks (Lefilleur, 2009). Even some of the SMEs that operate in the formal sector struggle to come up with the financial information required by banks. The absence of accounting standards and the lack of independent and capable accounting agencies, affect negatively on the quality of financial information available to banks (Kauffman, 2005). Moreover, the absence of credit bureaus, or the existence of inefficient credit bureaus, makes it difficult for banks to ascertain the payment behavior of customers (Lefilleur, 2009).

### ***2.1.3 The coexistence of formal and informal financial system***

In developing countries, along with the formal credit sector, the informal financial sector prospers and serves many types of customers from individuals to firms (Conning & Udry, 2005). The formal credit sector principally is comprised of formal credit institutions including private and state commercial banks. Meanwhile, informal credit is

often provided by relatives, friends, moneylenders and revolving credit associations. In fact, informal credit sources play a vital role in supporting SMEs to start up and to exploit business opportunities, especially in developing countries where the formal credit market is considered difficult to access. For example, McMillan & Woodruff (1999) found that informal credit such as loans from relatives, friends and trade credit are much more regular in Mexico while only 2.5% of surveyed firms got bank loans at the start-up stage. Similarly, based on the results of the survey conducted in Nagppur, India, Kampala and Uganda, Aliber (2002) concluded that informal credit sources in these countries are even more important than formal credit sources in respects to the main source for starting and maintaining business activities.

The coexistence of informal and formal financial systems is the consequence of the severe information asymmetry problem in developing countries. In the literature, researchers explained that informal financial transactions usually occur when credit grantors and borrowers are well familiar with each other, and informal lenders generally make use of locally private information about borrowers. The contracts are implemented effectively based on the borrowers' reputation, interlinked transactions and group responsibility (McMillan & Woodruff, 1999). Meanwhile, formal credit institutions are primary hierarchical and have weak motivation to collect and verify private or soft information about borrowers. Consequently, informal credit grantors get a relative advantage over formal lenders in collecting private information and are more aggressive within the local market.

Though informal credit sources seem to be flourishing in satisfying the credit demand of small businesses in some countries, their limited resources confine the extent

to which they can meet the credit needs of these firms effectively and sustainably, not to mention their risk and instability (Aliber, 2002).

#### ***2.1.4 Discouraged borrowers and non-borrowers***

Though limited access to finance is often cited as the major impediment of SMEs, many small firms report that they do not want to use financial leverage in their capital structure ('non-borrowers'). Besides, many 'good' firms indicate that they are reluctant to apply for loans though they need credit because they think their application will be rejected ('discouraged borrowers') (Kon & Storey, 2003). In discussion of SME debt financing, the existing literature barely take into account non-borrowers as a separate group from businesses that need credit. Some recent empirical evidences have shown that the majority of SMEs do not employ external finances. For example, the World Bank Enterprise Survey in 2012 revealed that on average only 36% of firms used external finance, meaning that more than 60% did not access the external financing sources.

In addition, there has been relatively few literature published on discouraged borrowers. The fact that discouraged borrowers have received little attention from scholars is partly because they do not affect risk in loan portfolios of banks. Moreover, it is difficult for banks to obtain information on discouraged borrowers as well as non-borrowers.

In this study, we combine 'non-borrowers' and 'discouraged borrowers' into a category, namely 'non-credit participant' and try to investigate the latent motivation resulting in many SMEs absent form the credit market. There are a number of reasons for our research strategy. First, this is a gap in literature on corporate capital structure

which is further mentioned in the following sections. Second, non-borrowers and discouraged borrowers are often ignored by both credit grantors and policy makers even though these borrowers account for a large percentage of the SME sector. They could become potential customers in the future if they are offered suitable credit products/services designed specifically for them. This will then boost the expansion and development of the whole SME sector. Governments should take into account the reasons why so many SMEs, particularly those that have the potential for growth through external financing, do not ask for external source and address the encumbrances to their need for funds. A better understanding of non-credit participants or non-borrowers can assist policymakers to take actions that will lead to more employment and faster economic growth. Third, by acknowledging the motivations as to why many SMEs do not participate in the credit market, governments could provide training, education or supporting programs to adjust this behaviour and orient these SMEs to formal credit markets when they have a need for loans. From the perspective of practical terms, it is complicated to make a clear, practical dissimilarity between good and bad borrowers since the definition of a creditworthy borrower may differ from lender to lender depending on the level of the lender's risk tolerance. Therefore, we expand the scope of 'discouraged borrowers' by including both 'good' and 'bad' discouraged borrowers.

## **2.2 Literature Review on the Credit Demand Side**

Financing decisions are some of the most frequent and complicated decisions to every business manager. There are two sources of finance available to SMEs: equity finance and debt finance. The combination of these two financing sources is an enterprise's capital structure. There are a lot of theories and empirical studies on firms' capital

structure in which their arguments and findings are not united, even contradictory. Overall, there are two propensities that explain the entrepreneurship decision with debt. On one hand, traditional theories of capital structure such as Miller and Modigliani's (1958, 1963) static trade-off theory and Myers (1984) pecking order theory contributed to figuring out the target optimal capital structure and interpreting corporation financing decisions in regards to the company financial benefit maximization view. On the other hand, some researchers investigate the relationship between non-financial motivations and corporate financing decisions. Several theories and assumptions have been proposed to explain the debt aversion or borrowing discourage phenomenon among business, especially the SME sector (Cressy, 1995; Rice & Strahan, 2010).

### ***2.2.1 Traditional capital structure theories and SMEs credit participation***

The most mentioned theories on capital structure are the trade-off theory and the pecking order theory. According to the trade off theory, although financing the firm's asset by debt has the advantage of tax benefit, at the same time bankruptcy costs are always associated with using debt. Therefore, optimal debt ratio of a firm is identified by a trade-off between the tax advantage and the bankruptcy cost (Scott, 1972). The point of an optimal capital structure is the point at which the tax benefit from an extra amount of debt is equal to the cost raised from the probability of bankruptcy (Brealey et al, 1984). The pecking order theory dates back to Myers (1984) who suggested a capital structure model based on the information asymmetry issue. Myers suggested that companies should consider the use of internal financing through retained earnings first, which brings about the lowest transaction costs. If retained earning source is insufficient, the company should aim to use the safest debt in the next step before considering the issue of additional shares. In other words, financial hierarchy descends from internal

resources, to debt and finally to external equity as the last option. In the case of the SME sector, there are some reasons supporting the argument that the financing decisions follow the pecking order theory. One reason is that most SMEs do not have access to external equity as they cannot issue out shares. Another reason is that external financing grantors such as venture capital funds find it costly and unattractive to provide the small amounts of funding sought by many new SMEs. Inaccessibility to external equity leaves SMEs highly dependent on debt finance. Widespread empirical researches on the SMEs capital structure showed the consistency with the pecking order theory's predictions (Blumberg & Letterie, 2008; Leary & Roberts, 2005; Graham & Harvey, 2001).

Both Myer's pecking order theory and Millier & Modigliani's trade-off theory argued that a company prefers using debt to finance their investment to using external equity. Modigliani & Miller (1963) argued that the advantage of debt using is tax-deductible, thereby providing tax savings for the borrower. The tax advantage of debt was also conceded by Myers (1984) when he argued in pecking order theory.

Nevertheless, neither the trade-off theory nor the pecking order theory explains the reasons why firms tend to be "debt-adverse" (Graham, 2000). Researchers seem to put too much of their focus on trying to figure out the target debt ratio instead of taking into account the tendency that many small businesses have negative attitudes to debt and do not want to go into the credit market. In the most recent survey of small business finance, around 50% of small firms in the USA reported that they had not recently applied for financing due to the fear of denial (Cole, 2011).



Whereas many empirical studies of SME financing decision have assumed implicitly that the ultimate goal of SMEs is to maximize profits, which is similar to the objective of most large firms, other researchers have argued that the goal of independence and control is much preferred by SME owners. With the objective of profit maximization, there is a common sense that SMEs also pursue growth and inquire about external finance sources (Cassar & Holmes, 2003; Chittenden et al., 1996; Sogorb-Mira, 2005). With this assumption, the pecking order theory and trade-off theory can help to explain some parts of SME financing decisions. On the contrary, authors such as Psillaki & Daskalakis (2009) and Cressy (1995) believe that control, independence and non-financial goals are more important to SMEs and therefore, SMEs have a preference for internal finance. Cressy (1995) believes that SMEs, in general, reveal debt-aversion much more than large firms due to aversion to outside monitoring. Likewise, Rice & Strahan (2010) who found that a measure of increase in credit supply in the USA did not bring about an increase in borrowing amongst SMEs. This suggests that we could use non-financial motivation factors to interpret the fact that there are a large portion of SMEs that consciously do not want to use debt in their capital structure.

### ***2.2.2 Behavioral finance theories and financing decisions***

Similar to the authors who examined the correlation between SMEs financing decisions and non-financial motivation factors, some researchers have recently tried to answer Myers's question "How do firms choose their capital structure?" (Myers, 1984) from the point view of corporate behavior finance. Behavioral finance, of which behavioral corporate behavioral finance is a subcategory, incorporates economics and psychology into the research of individual judgment and biases in decision making under circumstances of uncertainty. Traditional theories of capital structure described

financing decisions under the assumption that financial market participants and firm managers always act rationally. However, a considerable amount of literature on human psychology and behavior indicates that most people, managers and investor included, are subject to important restrictions in their cognitive processes and tend to extend behavioral biases that can drastically affect their decisions. For instance, bounded rationality of theory suggests that in decision-making, rationality of individuals is limited by the information they have, the cognitive limitations of their mind (Simon, 1983). The literature of behavioral corporate finance also proves that optimism and overconfidence can have a significant impact on the managers' decisions of financing and investment (Baker et al., 2007; Heaton, 2002; Fairchild, 2005). CEOs with high-risk tolerance level are likely to pursue more mergers and acquisitions projects and therefore may initiate heightened leverage policies (Grable & Lytton, 2003). CEOs that experience depression may be averse to debt and rely intensely on internal finance (Malmendier et al., 2011). Recent studies like these shed new light on financing decision determinants, especially credit participation of the SME sector, which previous studies had not addressed.

In fact, several studies on behavior finance have revealed the relationship between behavioral finance factors and consumer borrowing. For example, studies on microcredit from the perspective of behavioral finance concluded that present biased preferences or hyperbolic discounting factor contributed to the explanation of the participation in microcredit programs of rural Indian women (Bauer et al., 2012). In addition, some studies considered the association between debt holdings and risk attitudes as well as debt attitudes (Brown et al., 2008; Daly et al., 2010; Davies & Lea, 1995). However, the existing researches fails to cover comprehensively the

determinants of credit participation and credit source selection among the SME sector, both in developed and developing countries. In this study, by applying suggestions from empirical studies on consumer behavior finance, we expand the literature by examining the impact of behavioral finance factors on the SME credit participation decisions. Specifically, we investigate the relationship between present-biased preference, risk attitude, debt attitudes and overconfidence and credit participation decisions among SMEs in Vietnam. Applying consumer behavior finance to explain the SME financing decision is feasible because of special characteristics of SMEs. Different from large firms, most of the decisions at a SME, financing decisions included, are mostly in the hands of the owner and/or the manager. Therefore, the personality or psychological traits and attitudes of the owner and/or the manager play an important role in corporate financial decision-making (Graham et al., 2013).

### ***2.2.3 Social capital and corporate capital structure***

In addition to (corporate) behavioral finance theories, there are also other observations motivating this study. First, relationship lending technology is one of the most frequent lending technologies used by credit institutions in developing countries, beside collateral-based lending when loan officers assess SME s' loan application (Agarwal & Hauswald, 2008; Berger & Udell, 1995; Lehmann & Neuberger, 2001; Harhoff & Korting, 1998; Howorth & Moro, 2012). If a SME has a relationship or network with bank loan officers at a certain bank, it is likely that the SME will go to the formal credit market if it has a borrowing demand. Conversely, a SME that has strong ties with informal lending sources are encouraged to borrow from informal lenders. On the other hand, SMEs with poor networks or less social capital may be discouraged from the credit market altogether. Furthermore, because the private sector in developing

countries often suffers from the discrimination due to misdirected credit allocation by SOCBs, investment in the establishment and maintenance of networks may increase the probability of SMEs access to credit smoothly, thus, acquiring more debt in their capital structure.

Second, previous researches on SME bank financing were mostly conducted under the circumstances of a developed country (Ulrich & Cassel, 1975; Jankowicz & Hensrich, 1987; Petersen & Rajan, 1994; Van Auken, 2001). These studies emphasized on suggesting strategies that help to diminish the inherent risks of lending to SMEs. However, SMEs in developing countries face a more primary hindrance in accessing formal credit, namely the comparative lack of legitimacy (Tsang, 1994; Peng & Heath, 1996; Le & Nguyen, 2009). Suchman (1995) defined that “Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.” Small firms, especially new start-up businesses often suffer from a lack of legitimacy in the eyes of critical stakeholders such as lenders, venture capitalists and consumers. Much of the literature proved that in the context of underdeveloped market institutions, SMEs need to lean on a variety of strategies to achieve legitimacy (Tsang, 1994; Peng & Heath, 1996). Various strategies proposed by many researchers included investment in building networks with government officials, networks with managers of other firms, networks with business association and social club members and networks with relatives and friends (Xin & Pearce, 1996; Peng & Luo, 2000; Peng, 2004). Therefore, in order to address comprehensively the determinants of credit participation among SMEs in the context of a transition economy like Vietnam, this study will

consider social capital factors that are measured through the firm networks as one of the prominent factors.

There have been numerous definitions of social capital from various approaches (Adler & Kwon, 2002). One of the most influential definitions was given by Bourdieu (1983), who said that “social capital is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition.” More recently, Putnam (2000) asserted that the “core idea of social capital theory is that social networks have value.” He first defined social capital (1993) as “features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions,” and then later (2000) refined this to “...connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them.” Based on these definitions, we interpret social capital as the number and types of networks (formal and informal) that individuals or entities use to gain approach to important resources such as capital, information, technology and knowledge. We also infer that establishing and maintaining trust is the center of social capital and the building of formal and informal networks comprising the norms of behaviors is an essential task to enhance the firm’s legitimacy. A broad range of studies are devoted to analyzing the impact of social capital on the entrepreneurship process (Adler & Kwon, 2002; Fukuyama, 2001; Griffith & Harvey, 2004).

Regarding the role or the impact of social capital on firm financing decisions, several authors conceded that social capital not only increases the entrepreneur’s ability to make self-assured business decisions but also supports firms to obtain the reputation and legitimacy. Thus, the reputation facilitates their access to external resources such as

bank loans especially if firms operate in environments characterized by information asymmetry, hindrances to access credit market, poor enforcement of business contracts and property rights (Biggs & Shah, 2006; Anderson et al., 2002). Some empirical researches conducted around the world indicates that there exists an association between social capital and capital structure (Uzzi, 1999; Nguyen & Ramachandran, 2006; Gana & Ayari, 2013; Ravina, 2012; Moro & Fink, 2013).

### **2.3 Determinants of credit participation and credit source selection among SMEs**

None of the traditional capital structure theories and empirical researches could fully explain the motivations behind credit participation of the firms, especially regards to “debt-averse” firms. Nonetheless, behavioral finance theories and social capital theory described in the above section strongly argue that the degree of present-biased preference, risk attitude, debt attitude, overconfidence of business managers and firm networks can significantly influence their debt/equity selection. Hence, these factors should be considered as the potential determinant of credit participation decision by SMEs. This section displays the potential factors that affect SMEs credit participation.

#### ***2.3.1 Present biased preference or hyperbolic discounting***

There is an assumption among economists that people are “time-consistent”, meaning that “a person’s relative preference for well-being at an earlier date over a later date is the same no matter when she is asked” (O’Donoghue & Rabin, 2000). However, people are not always patient, conversely, they often prefer to enjoy rewards soon but suspend costs until later (Kinari et al., 2009). For example, when presented a choice between receiving a lottery reward of 1,000 dollars tomorrow versus 1,100 dollars three month later, many people would prefer the immediate reward of 1,000 dollars. Such inclining is called present-biased preferences: “when considering trade-offs between current (or

closer future) moment and future moment, people are often more impatient for current trade-offs than for future tradeoffs” (Ainslie, 1991). The degree of time discounting is critical in making finance decisions such as saving, borrowing and investment decisions. Regarding the association between present-biased preference and credit behaviors, based on experimental evidences, several studies indicate that individuals with higher level of present-biased time preferences have propensities to use more debts (Meier & Sprenger, 2007; Laibson, 2007). The massive and increasing use of credit card debt has been recently explained by present-biased preference literature. Meier & Sprenger (2007) explained that since credit cards can offer an instant borrowing, they enable present-biased individuals the opportunity to “easily and instantaneously move consumption from the future, where its value is relatively low, to the present, where its value is disproportionately high.” Recently, Ikeda et al. (2010) conducted a nationwide internet survey of Japanese adults to examine how debt behavior is related to personal time discounting. They came to a conclusion that “impatience are associated with high debt-to-income ratios, borrowing on credit cards, and the experiences of having borrowed unsecured consumer loans, of having engaged in debt-restructuring, or of having declared personal bankruptcy.” Besides, present-biased preference is considered as a commitment device to interpret the success of microcredit programs and informal rotating savings and credit associations in developing countries (Bauer et al., 2012). These results are consistent with previous studies that show that hyperbolic discounting has positive correlation with “overconsumption, under-saving and over-borrowing” (Laibson, 1996; Krusell et al., 2002; Laibson et al., 2003, 2007).

For small business owners, in such a similar way as credit card using of consumers, they can easily get loans from a line of credit or a business revolving

account offered by banks or instantaneously obtain debts from moneylenders who do not have strict requirements of collateral and complicated application process. They can move business or investment opportunities from the future to the present, where their value is considered higher than in the future, according to the time preference perspective. Therefore, in this study, we expect credit participation and credit choice of SMEs will be influenced by the owners' time preference.

### ***2.3.2 Risk attitudes***

There is a considerable difference among individuals regarding how they deal with risks and uncertainty. Some studies showed that risk aversion is accompanied with individually imperative decisions and features. Hartog et al. (2002) explored empirically that risk aversion is associated with an individual's education and income. They also revealed that women and civil servants have higher levels of risk aversion while the self-employed are more likely to take risks. Similarly, Dohmen et al. (2011) showed that the risk attitude vary from person to person depending on age, gender and socioeconomic background. They reported that men, younger adults or those stemming from a low socioeconomic background are more willing to accept risky opportunities. .

Debt financing is always associated with risks such as bankruptcy, risk of losing collateral and risk of fluctuating interest rates. Therefore, the attitude toward risk is expected to have an impact on debt holdings of individuals. For example, Brown et al. (2013) in their empirical study, explored that risk aversion and household debt in the U.S varied in opposing directions, meaning that people with higher level of risk aversion have a tendency to employ less debt. Daly et al. (2010) also used "risk attitudes as an independent predictor of debt." They concluded that "risk willingness is a robust predictor of debt holdings even controlling for demographics, personality, consideration



of future consequences and other covariate.” Hence, in our study, the risk attitude is expected to have effect on the credit participation of SMEs.

### ***2.3.3 Debt attitudes***

In the financial psychology literature, attitudes toward debt or debt aversion is concerned as one of the determinants of credit behaviors. For instance, Livingston & Lunt (1992) argued that the debt attitude was strongly associated with the extent of debt that people carry. Lea et al. (1995) reported that personal psychological attitude affects credit use, money management and economic socialization. Davies & Lea (1995), in their empirical studies on student debts, explored that “Individuals were found to be a relatively low-income, high-debt group with relatively tolerant attitudes toward debt.” More recently, Watson (2003) pointed out that materialistic individuals were likely to have positive attitudes toward borrowing, or in other words, less debt-averse. Consequently, previous empirical studies suggested that the debt attitude could be used as a potential factor influencing the credit participation of SMEs.

### ***2.3.4 Overconfidence***

In corporate behavioral finance literature, among cognitive biases which are predicted to influence financing and management decisions, overconfidence appears to be the most highly cited factor determining financing decisions of the company (De Bondt & Thaler, 1995). Overconfidence generally denotes an exaggeratedly optimistic estimation of one's capability over a circumstance. It is widely believed that entrepreneurs are susceptible overconfident (Brettel et al., 2008; Hackbarth, 2008; Landier et al., 2009). According to Weinstein (1980), people, especially ones in the leader position, generally

tend to overestimate their capacity and knowledge and they have a trend to show optimism and overconfidence about “uncertain results they think they can control.”

With respect to the relationship between overconfidence and company debt/equity selection, numerous studies came to a similar conclusion that managerial overconfidence would lead to the higher use of leverage (Shefrin, 2001, Heaton, 2002, Baker et al., 2007; Hackbarth 2008, Oliver, 2005; Na Dai, 2010, Yu et al. 2006). There are some reasons contributing to the overconfidence-high debt use correlation. First, the over-optimistic manager often underestimates the probability of the company going through financial distress in the future. Therefore, he will make light of the expected bankruptcy cost and use more debt to receive benefits from tax shield (Hackbarth, 2008). Second, overconfident managers often overvalue the upcoming projects, thus prefer to employ debt rather than issue new equity in order to avoid sharing the profits of the projects (Shefrin, 2001).

According to Na Dai (2010), overconfidence could have a critical influence on financing decisions of small businesses more than on big companies because “mechanisms that might constrain less-than-fully-rational managers of a big corporation into making rational decisions might not be available in small firms.” For instance, big corporations are often committed to sound corporate governance systems such as boards of directors with independence and separation of duties, proxy fights, and transparent compensation; meanwhile small enterprises rarely have such monitoring mechanisms. Therefore, measuring overconfident biases and putting it as an expected variable in our model to predict the credit participation and credit choice of Vietnam SMEs is necessary.

### ***2.3.5 Social capital***

The literature on social capital suggested that borrowers, especially small businesses who hardly meet the lenders' requirement of collaterals and have poor information records, could resort to the use of social capital to improve their credit accessibility. Social capital factors also help to explain the widespread existence of informal finance in developing countries like Vietnam. First, because there is no legal contract enforcement mechanisms in informal credit market, informal financial institutions have no choice but to depend more on the quantity and quality of their social connections than formal providers. Hence, social capital capacitates access to concealed information unavailable to credit markets, supervise members' behavior and penalize individual members who stand against the social standards or rules (Boot, 2000). Second, Southeast Asian developing countries hold a collectivist instead of an individualist culture (McGrath et al., 1992). Consequently, individuals in these cultures are generally more social and relational than individuals in Western societies. This characteristic of the culture is also included in business contexts, meaning that managers always make more effort to "invest" in building and maintaining business relationships to achieve success in business transactions, credit transactions included. Biggs & Shah (2006) argued that the operating environments in developing countries are plagued by corruption, the lack of human and material resources, poor management, and inefficient judicial systems. As a result, entrepreneurs must lean on social capital and incorporate themselves in multi-level social networks.

In discussion of the relationship between social capital and credit access, scholars often considered and measured networks between a firm and its stakeholders to concretize its social capital (Le & Nguyen, 2009; Peng & Luo, 2000). In this research,

as suggested in the previous literature we conceive social capital as the intangible assets intrinsic in business networks which may consist of directors at other enterprises, bank officers, and government officials (Park & Luo 2001; Peng & Luo, 2000). The social capital intrinsic in such relationships provides firms with several benefits regardless of their competence, especially the advantage of access to scant resources and information (Adler & Kwon, 2002). One of limited resources, which is considered a regular constraint for SMEs, especially in the developing countries, is financial capital. Researchers assert that networks can help firms to improve the legitimacy and then enhance the access to external finance (Le & Nguyen, 2009, Peng & Luo, 2000; Talavera et al., 2010).

Concretely, as found in a number of previous researches, networks with government officials assists procedures with authorities and banks smoothly and quickly (Peng & Luo, 2000). Xin & Pearce (1996) showed that in the context of developing countries like China, “close ties with government officials could offset the disadvantages of being a privately owned firm.” Strong networks with government authorities also has a substantial influence on firm performance and help to amplify the creditworthiness for firms in the lenders’ assessment (Peng & Luo, 2000).

In addition, maintaining a good relationship with social or trade associations such as local small business associations, chambers of commerce and societies may enhance the probability for small firms to access loans. For instance, through becoming a member and attending workshops, seminars and training programs conducted by small business associations and chambers of commerce, the entrepreneurs will enrich their skills and knowledge of their industry, such as financial management skills and the ability of well-prepared project proposals for banks. Occasionally, the member of these

associations can get benefit in seeking bank loans due to the positive referrals as an effective guarantee from an established and prominent member. Moreover, the associations could help their members by providing information on diverse credit schemes available in commercial banks.

Similarly, good relationships with managers at other companies might improve the inter-firm loans accessibility, trade credit and help to ease the business contract writing procedures. Well-established relationships with bank loan officers increase the firm opportunities to access bank loans (Uzzi, 1999) and good relationships with informal lenders may enhance the likelihood to get loans from informal financial institutions. Uzzi (1999) suggested that social networks could expedite the exchange of private information between lenders and borrowers. Besides, informal connections to borrowers also help banks to reduce transaction costs and to retain their customers (Boot, 2000). Further researches on the role of networking on the access to debt finance by SMEs can be found in the researches by Zhang et al. (2006), Biggs & Sha (2006), Atieno, (2009) and Khwaja et al. (2011). In sum, the authors found a significant positive association between networking and access to debt.

Correspondingly, we delineated five groups of business cooperation: 1) network with business communities, 2) network with governmental institutes, 3) network with formal loan officers, 4) network with informal lenders, and 5) network with credit information bureaus. Though the last two networks have not been supported strongly by previous researches, we still include them in the analysis as potential factors because of some reasons. First, because of the widely use of informal credit as a supplementary and/or substitutional credit source which was shown in surveys on Vietnam SMEs (CIEM, 2012), we believe that it is a potential factor in explaining the credit

participation of SMEs. Second, credit information bureaus today play an increasingly important role in the credit market in developing countries (Pagano & Jappelli, 1993; Barron & Staten, 2000). A credit bureau's main activity is to collect data from a variety of sources on enterprises or individuals, process and consolidate data into credit profiles, and disseminate credit information reports to lending grantors, including financial and non-financial institutions, as well as supervisory authorities. The idea behind information sharing is that "the best predictor of future behavior is past behavior" (Miller, 2003). Reports from credit bureaus contain information about the payment behavior of borrowers, including data on timely fulfillment (positive data) and/or delinquency in financial obligations (negative data). Banks or other credit grantors use this information to help decide whether to approve the credit application or not and what interest rates to apply. Credit information bureaus are intermediary institutions that help to enhance the transparency of the credit market and create special collateral called "reputation collateral," which is particularly important to consumer, microfinance and small business lending (Luoto et al. 2007). Credit information sharing activities can have three effects: help to reduce information asymmetry between lenders and borrowers (Jappelli & Pagano 2002; Gehrig & Stenbacka 2007); support to act as a "borrower discipline device" (Padilla & Pagano, 1997) and help to lessen the borrowers' motivation to become over-indebted or default (Jappelli & Pagano, 2000). However, the roles of credit bureaus follow from the assumption that borrowers know that a credit information bureau records their borrowing and payment activities. Additionally, borrowers have rights and are advised to request credit bureaus to check credit information about themselves regularly to assure there is no error in their credit records. Therefore, if borrowers do not recognize the existence of the credit information bureau,

its role as a discipline device will not work and will weaken other functions of the credit bureaus in the credit market. Moreover, the unawareness may hinder borrowers from accessing formal credit sources. To the best of our knowledge, there is no study that considers the role of borrower's perceptions and attitude on credit information sharing activities, especially in developing countries. Although network with credit information bureaus is not a direct relationship, it may be a hidden variable affecting the credit accessibility and credit source choice of the SME community. Instead of measuring direct network with credit bureaus, we will measure the SMEs perceptions and attitudes toward credit information bureaus in our study.

### ***2.3.6 Other potential factors***

Based on suggestions from traditional capital structure theories, empirical studies have proposed a variety of potential determinants of firm financing decisions. Those variables are related to characteristics of owners or managers and firms. Therefore, in the following sections, we will signalize these factors as the control variables for this study.

#### ***2.3.6.1 Characteristics of owners***

Multiple studies indicated the impact of personal characteristics of the owner and/or managers in accessing external finance (Cassar, 2004; Irwin & Scott, 2010). As mentioned above, the SME owner-manager possesses the foremost position in the enterprise as the principle decision maker. Therefore, SME owners themselves have a conspicuous power in their firm's financing decisions as well as the firms' performance and growth (Coleman, 2007).

There are several studies investigating the impact of owner-manager characteristics such as gender, age, education or experience on financing behaviors. For instance, several studies indicate that there is a difference among **female and male** entrepreneurs in their decision of financial leverage (Carter & Rosa, 1998; Verhuel & Thurik, 2001). Alicia & Wolken (2002) revealed that firms owned by women are more risky than owned by men. Bellucci et al. (2010) found that female entrepreneurs are less likely to apply for bank loans and the acceptance probability of their applications are also lower in comparison to male entrepreneurs.

With respects to the owner/manager's **age**, it is generally believed that age is associated with personal financing preferences of entrepreneurs. Romano et al. (2001) indicated that younger entrepreneurs are more likely to employ external finance than older entrepreneurs. By the same token, Nakano & Nguyen (2011) explained that compared to younger entrepreneurs, older entrepreneurs often have the higher level of risk aversion, hence, risky investments are not as attractive to them. Accordingly, they appear to prefer use their own assets, retained earnings or externally formal finance sources than accessing informal loans.

Concerning the owner/manager's **education**, the firm's financial leverage is associated positively with the entrepreneur's educational background (Coleman, 2007). Thanh et al. (2011) also supported this relationship by arguing that highly educated firm owners notably decrease the likelihood of rejected loan applications. This is because entrepreneurs with higher education levels are more confident in working with credit grantors when applying for loans (Storey, 1994). However, there are a few studies indicating that the firm owner's education and the leverage have a negative correlation.



Regarding the owner's **experience**, Cole (1998) explored that experience, measured by the number of years in a business field, can improve the credit accessibility of firms. Gompers et al. (2010) argued that credit grantors often believe that experienced entrepreneurs are more likely to perform better than less experienced entrepreneurs; therefore, lenders often integrate the owner's experience as soft information into the creditworthiness evaluation process.

#### *2.3.6.2 Characteristics of firms*

Numerous studies insist that the firm specific characteristics could affect the credit accessibility. Specifically, **firm size** is one the most cited determinants of firms' access to finance (Friend & Lang, 1988; Devereux & Schiantarelli, 1990; Beck & Levine, 2004; Beck et al., 2005). Beck & Levine (2004) acknowledged that small-size firms often generate short-term loans and are more likely to seek loans from informal sources such as family, friends and moneylenders. Meanwhile large-size firms often finance their investment by formal external sources such as bank finance. In other words, large firms often face less credit constraint and have a higher opportunity to access alternative financing sources compared to smaller firms (Beck et al., 2005). According to Myers (1984), with large firms, the information asymmetry problem is less severe than small firms. Thus, large firm will find it easier to access loans from financial institutions.

Another firm specific characteristic assumed to determine the firm financing in various studies is **the age of firm**. According to Coleman & Cohn (2000), young firms or start-up firms are more likely to face the severe issues of information asymmetry; therefore, there is a strong likelihood that these firms often access informal financial sources. Conversely, because information about well-established enterprises is often available in the market and these firms have enough time to establish close ties with

important stakeholders, the formal credit accessibility of these firms with high legitimacy is also higher. Various researches also confirmed the influence of the firm age factor (Coleman & Cohn, 2000; Akoten, et al., 2006; Beck et al., 2005). On the other hand, few studies have reported the adverse result of the impact of firm age. For instance, Rand (2007) reported that firm age and debt ratios have a negative relationship. The author argued that old firms are more settled and risk-averse, therefore, they are less likely to involve themselves in risky investment and may employ low financial leverage.

Regarding **ownership types**, several studies suggested that financing pattern varies among firm categories. Particularly in developing economies, SOEs often obtain the hidden guarantee from the government and receive favor borrowings from SOCBs (Laeven, 2003; Le & Nguyen, 2009) .

Concerning the relationship between **having audited financial statements** and credit accessibility, especially bank loans, several empirical studies have stated that having audited financial statements play an important role in enhancing the creditworthiness for firms, especially from banks that apply financial statement based lending technology (Berry et al., 1993; Bass & Schrooten, 2005, Tagoe et al., 2005; Le, 2012). Berry et al. (1993) concluded that firms with audited financial statements are likely to obtain formal credit with lower cost than those with unaudited financial statements.

As for **fixed assets of firms**, according to the trade-off theory or financial distress theory, if a company employs more fixed assets, bankruptcy risks are lower because the cost of financial distress will be lower in the case of insolvency in comparison to the

company having high proportion of intangible assets (Marsh, 1982). Fixed asset is often accepted as effective collateral by credit grantors. Hence, fixed asset ratio is expected to be a potential variable affecting the SMEs credit participation.

## **2.4 Literature Review on the Credit Supply Side**

### ***2.4.1 Lending technologies and important information for the loan approval process***

A considerable amount of literature has been published on the important role of bank loans to SMEs in developed economies (Blackwell & Winters, 2000; Rao, 2010). The literature has also acknowledged the obstacles banks confront in lending to SMEs. These obstacles include a severe information asymmetry between SMEs and banks (Frame et al., 2001), high failure rates of SMEs (Levin & Travis, 1987), and the complex combination of the SME representatives' personal and their companies' financial situation (Hannan & Freeman, 1984). In order to alleviate these issues, bank loan officers must find a different approach and technique to SMEs as compared to larger enterprise customers. These consist of requiring sufficient collateral, audited financial statements and credit scoring, as well as building long-term relationships with SMEs. Adequate collateral and long-term relationships between lenders and borrowers are believed to help lessen the issue of information asymmetry (Frame et al., 2001; Binks & Ennew, 1997). Additionally, a solid interrelationship between banks and borrowers create trust which mitigates the problem of moral hazard. Petersen & Rajan (1994) insisted that a close relationship with the bank enhances credit flow to SMEs and diminishes the interest rate offered to firms. Depending on the business environments as well as the competition in the credit market, banks pursue and develop their own lending technologies. Berger & Udell (2006) defined lending technology as "a unique combination of primary information sources."

The two main lending technologies used to finance SMEs include transaction-based lending which is basically based on the borrowers' hard information and relationship lending which is principally based on the borrowers' soft information. Hard information is quantitative, easy to store, evaluate and transmit, and its content is independent of the collection process while soft information is essentially qualitative in nature and cannot be easily recorded in written form. Stein (2002) identified hard information as any information that is effortlessly confirmable (e.g. financial statement, payment history records) while soft information cannot be straightforwardly certified by anyone except for the agent who provides it (e.g. management skills, plans and strategy).

Regarding the role of hard and soft information, there has been no consistent agreement among scholars about whether hard and soft information are complementary or substitutive in lending activities. Mason & Stark (2004) claimed that loan officers tend to emphasize on the firm's past financial records rather than information on human capital or development strategies of the firm. Similarly, Bruns & Fletcher (2008) acknowledged that the borrower's previous profitability ratio is the most significant factor and that the borrower's financial position is the second most important factor. Less imperative factors include the firm's proficiency in the business project and the firm's collateral pledgeability. In other words, the above studies emphasized more on the role of hard information or transaction technologies than that of soft information. On the contrary, a number of studies analyzed the importance of soft information, especially for SME financing (Berger & Udell 2002; Petersen 2004; Grunert et al. 2005; Agarwal & Hauswald 2007; Liberti & Mian 2009). For example, according to Agarwal & Hauswald (2007), soft information considerably influences both credit availability

and interest rates offered to SMEs. Grunert et al. (2005) observed that soft information represents an imperative component in assessing the default risk of SMEs borrowers.

Berger & Udell (2006) suggested that lending technologies are not necessarily discriminative. Commercial lenders may combine different lending technologies in the loan approval process though one key lending technology may be emphasized. The authors also argued that banks can use a combination of information sources to minimize information asymmetry problems. Similarly, Uchida et al. (2006) concluded that, by creating four lending technologies indices (financial statement lending, real estate lending, other fixed-asset lending; and relationship lending) from The Management Survey of Corporate Finance Issues in the Kansai Area – Japan, lending technologies are not necessarily discriminative. Commercial lenders may combine different lending technologies in the loan approval process though one key lending technology may be emphasized. On the other hand, Chang et al. (2006) found that hard and soft information act as substitutes. They suggested that while large banks emphasize on quantitative information, small banks focus more on qualitative information.

For SMEs financing, a number of studies indicated that soft information is relatively more important than hard information because there is less hard information available for small firms (Berger & Udell, 1995, 2006; Leland & Pyle, 1977; Petersen, 2004; Petersen & Rajan, 1994, 2002). Soft information about small businesses can be collected by lending officers over time through personal relationships with these firms. In addition, Berger et al. (2005) showed that smaller banks, presumably having more local focus, have an advantage over larger banks in collecting and acting on soft information. Because of the important role of soft information, researchers argued that while many banks apply transactions-based lending technologies to assess the firm's

creditworthiness before providing loans, relationship lending still plays important role in lending to SMEs, especially for opaque SMEs that do not have audited financial statements or lack collaterals. According to a survey conducted by Cowen & Cowen's (2006), the results showed that loan-officer respondents ranked relationship lending as the ascendant approach in lending decisions to SMEs, in spite of the availability of credit scores and financial information. In relationship lending, loan officers can gather and verify private and even confidential information about firms. Loan officers employ such soft information to assess the borrowers, to evaluate the collaterals and to build relationships with the clients (Boot, 2000). Much of the literature on bank lending technologies suggests that the bank-borrower relationship is positively associated with credit terms and credit availability (Berge & Udell, 1995; Petersen & Rajan, 1994; Cole, 1998; Harhoff & Körting 1998; Scott & Dunkelberg, 1999). The stronger the relationship, the lower the interest rates (Berger & Udell, 1995; Harhoff & Körting, 1998; Scott & Dunkelberg, 1999). Strong relationships also result in the loosening of collateral requirements (Berger & Udell, 1995; Harhoff & Körting, 1998; Scott & Dunkelberg, 1999). In some circumstances, hard information may not be enough to assess the firms' creditworthiness because small firms often have limited history of operation and poor information on financial statements, especially for family-owned firms.

The discrimination between soft and hard information in the loan approval process or transaction-based lending and relationship lending is quite interesting and useful. However, from the practical viewpoints, we are not quite sure how, and to what extent, diverse lending technologies are selected and employed by bankers. Hard information is conventionally considered suitable for comparatively large and

transparent corporations while soft information is viewed as best-suited for small and opaque SMEs (Petersen, 2004). However, recent studies in this field have shown a different viewpoint. For example, Berger & Udell (2006) disagreed with the conventional view by arguing that most of the transaction-based lending technologies or some types of hard information can be employed to lend to opaque SMEs. However, this alternative has not been examined practically.

In addition, when investigating loan decisions based on relationships, scholars often focus on quantitative indicators such as the duration of the bank-firm relationship, the number of bank products the firm is using, and the number of lending relationships (Petersen & Rajan, 1994; Ongena & Smith, 2000). Thus, relationship lending is assumed to be primarily based on the relationship between the bank and its existing customers. However, in practice, for potential borrowers or non-regular customers who apply for loans, loan officers also consider soft information such as the entrepreneur's management skills and integrity. Therefore, it is a serious shortcoming if we do not consider soft information when examining the types of information used for the loan approval process especially in developing countries like Vietnam. In such countries, banks confront greater uncertainties and struggle to deal with collecting reliable information, stemming in part from the underdeveloped business environment and the low level of regulatory oversight (Nguyen et al., 2006). Therefore, our study contributes to the literature of lending technologies by including new measures of soft and hard information. Moreover, to the best of our knowledge, in developing countries like Vietnam, there are almost no studies investigating what and how lending technologies or information types are used in lending activities to the SMEs community. This

inspired us to do an empirical research to shed some light on interactions among soft and hard information sources and their impact on lending decisions.

#### **2.4.2 Components of hard and soft information evaluated by banks in SME financing**

Information provided by SMEs and collected by loan officers is crucially important to the loan approval process of credit grantors. Loan officers use such information as the basis to assess the applicant's creditworthiness and to make a credit decision. From a review of empirical studies on SME financing, approximately 15 factors are addressed as the significant information components that bankers take into account when appraising the potential borrowers' creditworthiness (Table 2.1).

**Table 2.1: Factors Evaluated by Loan Officers in Loan Application Assessment**

No.	Factors	A	B	C	D	E	F	G	H	J	K	Total
1	Financial statement	x				x		x		x		4
2	Business schedule and future plans	x	x		x					x		4
3	Purpose		x	x								2
4	Business product/service and potentiality/ risk			x		x			x	x		4
5	Knowledge			x		x						2
6	Third-party opinion			x		x						2
7	Size of business			x		x						2
8	Owner (Manager) character		x		x	x	x					4
9	Collateral (representative, firm)				x	x	x		x			4
10	Trust (ability, benevolence and integrity)								x		x	2
11	Firm's network			x								1
12	Main bank					x						1
13	Length of relationship					x						1
14	Number of bank products					x						1
15	Credit history records					x		x				2

Note: A - Mason & Stark (2004); B - Petersen (2004); C - Berry et al. (1993); D – Petersen & Rajan (2002); E – Uchida et al. (2006); F - Frame et al. (2001); G - Berger & Udell (2006); H - Petersen (2004); J - Armstrong et al. (2010); K - Ferrary (2003), Howorth & Moro (2012)



The first factor considered by banks when assessing the borrower's creditworthiness is the audited financial statements. Berger & Udell (2006) defined financial statement lending as "a transactions technology based primarily on the strength of a firm's financial statements." Components of financial statements consist of a balance sheet, income statement and cash flow statement. From these statements, bankers often analyze financial ratios such as profitability ratios, leverage ratios, liquidity ratios, operating ratios and cash flow ratios. Financial statement lending is considered the most common lending technology within transactions technologies (Mason & Stark, 2004; Armstrong et al. 2010). A necessary condition for the strength of a financial statement is that it requires audited financial statements. A review of literature on the credit demand side analysis affirmed the importance of having audited financial statements in SME debt financing. In fact, financial statement based lending is best suited for comparatively transparent, well-established and large firms. However, for SME lending, in the context of imperfect information in developing countries, financial statements are still an important type of hard information considered in the bank-loan approval process.

The second factor is the business schedules and future plans (item 2 in table 2.1). This information is often considered as an element in evaluating the repayment ability of firms (Petersen, 2004).

The third factor is the purpose of the loan (item 3 in table 2.1). The purpose of the loan is an important piece of information because credit grantors need to assess the potential risk involved in the lending decision and to evaluate the risk of moral hazard issues (Berry et al., 1993).

The fourth factor is the risk and potentiality of the firm's products or services (item 4 in table 2.1). This factor is related to business risk of firms. Business risk varies from firm to firm and from industry to industry, depending much on the products or services provided by the firm. This information is believed to influence bank-lending decisions to SMEs (Berry et al., 1993).

The fifth factor necessary for lending decisions is knowledge (item 5 in table 2.1). Knowledge collected and verified by the bankers relates to the information about the business field of the applicant. This knowledge particularly supports loan officers in evaluating the risk associated with a lending proposal (Uchida et al., 2006).

The sixth factor considered in the loan approval process is the third-party opinion (item 6 in table 2.1). Third-party opinion is the information gathered or verified by querying the important stakeholders of the applicant such as other financial institutions, credit rating agencies, suppliers, customers, etc. Positive referral or introductions from an influential third party may enhance the likelihood of credit access for the applicant (Berry et al., 1993).

The seventh factor is the size of the firm (item 7 in table 2.1). The size of the firm can affect bank-lending decisions because it can have an impact on the lender's perception of risk. Generally, small firms are more likely to face financial distress and go bankrupt than larger firms. The impact of firm size is also discussed in the section of demand side literature review.

The eighth factor is owner characteristics (item 8 in table 2.1). Character assessment is performed to determine the willingness and desire of borrowers to repay the debt (Petersen, 2004). The fact that owner characteristics such as gender, education,

experience and attitude can affect the credit accessibility of the firm is described in the literature review of the demand side.

The ninth factor used in the bank-loan approval process is collateral (item 9 in table 2.1). Any asset that the applicant may have to pledge as security against the loan is considered collateral. The collateral plays a significant role in lending decisions to SMEs because it is employed to diminish the credit risk and lessen the problem of information asymmetry (Uchida et al., 2006; Frame et al., 2001). Asset-based lending or collateral-based lending is still a dominant lending technology in developing countries.

The tenth and eleventh factors are related to trust and networking which are the two main components of social capital. Previous studies indicated that social capitals have impacts on firm credit accessibility (see literature review from demand side). Soft information such as judgments about the honesty and integrity of the firm manager (components of trust) were proved to affect lending decisions (Berger, 1998; Berger & Udell, 2002; Petersen, 2004). In East Asian economies, trust has been extensively recognized as a significant element in doing business (Xin & Pearce, 1996; Boisot & Child, 1996; Nguyen et al., 2006).

There are some studies that consider trust as an important factor in lending decisions. Ferrary (2003) investigated how bank managers can gain trust from networks of customers by developing social capital. Saporito & Gopalakrishnan (2009) investigated knowledge transfer in lending relationships. Howorth & Moro (2012) examined the impact of trusting relationships on interest rate. Harhoff & Körting's (1998) research analyzed what impacts on interest and collateral but trust is only one of the variables investigated. These authors simply asked the bank managers whether they

trust or do not trust the owner/manager, using a simple dummy variable to indicate the response. Thus, the role of trust is under-investigated even though it is far too important to be overlooked. In our study, we follow Mayer et al. (1995) in measuring the trust factor through the following items:

**Table 2.2: Measurement Model of Trust**

Ability	The entrepreneur knows very well the market in which he operates
	The entrepreneur is good at selecting the needed resources
	The entrepreneur is good at understanding market evolution
Benevolence	The entrepreneur adapts his interests with those of his commercial partners
	The entrepreneur pays attention to the needs of his employees
	The entrepreneur is very involved in the community
Integrity	The entrepreneur is totally honest during negotiations with commercial partners
	The entrepreneur is consistent in his behavior and decisions

Source: Mayer et al. (1995)

Ability refers to perspective such as the entrepreneur’s capability and skills. Trust in the entrepreneur’s ability will decrease the banker’s perceived likelihood of default risk. Benevolence is defined as “the extent to which a trustee is voluntarily believed to do good to the trustor” (Mayer et al., 1995). In the firm - bank relationship, benevolence can play an imperative role since it can strengthen the banker’s expectation that the entrepreneur will meet the obligations such as repayment schemes, using loans properly, covenants, etc. Integrity is “the trustor’s perception that the trustee adheres to a set of principles considered acceptable to the trustor” (Mayer et al., 1995). Integrity refers to the inherent part of the entrepreneur’s commitments to ethical principles. In lending relationships, integrity is believed to enhance the reliability of information provided by the entrepreneur as well as to help reduce the expectation of moral hazard. Ability, benevolence and integrity contribute to the evaluation of the trustworthiness of the entrepreneur. Previous studies found it difficult to distinguish empirically the

components of trust, especially benevolence and integrity (Nooteboom et al., 1997) and it was suggested that perceptions of trustworthiness draw on all the trustworthiness components with changeable degrees of importance that are subject to the context.

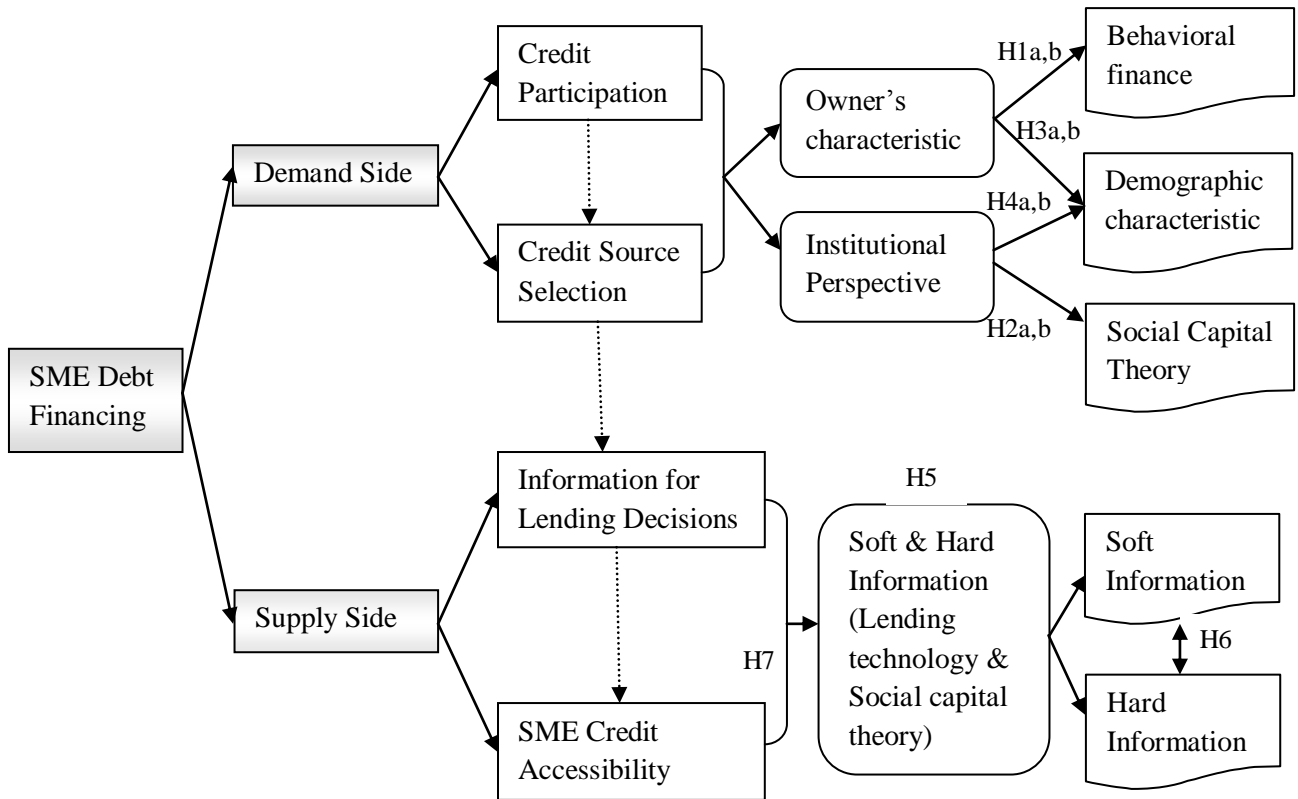
The factors from twelfth to fourteenth refer to the measurement of relationship lending. Conventionally, empirical researches of relationship lending have measured the power of the relationship from the perspective of the amount of time the bank has provided deposit, loan or other services to the firm (Berger & Udell, 1995; Petersen & Rajan, 1994, 1995; Angelini, P. et al., 1998; Scott & Dunkelberg, 1999; Ongena & Smith, 2000). Uchida (2006) also computed the relationship-lending index by the composite of factors: the length of the relationship, whether the bank is the SME's main bank or not and the number of products used by the SME.

The fifteenth factor is credit history records (item 15 in Table 2.1). The credit report could also include positive information and credit inquiries from other financial institutions. Credit reports are often stored and provided by a credit information bureau. History records about the past repayment and outstanding loans of firms could be an effective sign of borrower's creditworthiness. It enhances trust between lenders and clients. The importance of credit history records as well as credit information bureaus is emphasized in the literature review of the demand side.

## **2.5 Conceptual Model and Hypotheses**

Based on the literature on SME financing from both the demand side and supply side, the study's conceptual model is described in Figure 2.1

**Figure 2.1: Conceptual Model of the Study**



Using the argumentation from previous researches, the hypotheses have been formulated. The hypotheses from 1 to 4 refer to the credit demand side analysis while the hypotheses from 5 to 7 relate to the supply side analysis.

- Hypothesis 1a: Corporate behavior finance factors such as present-bias, debt attitude, risk attitude and overconfidence have an impact on the credit participation of SMEs.
- Hypothesis 1b: Corporate behavior finance factors such as present-bias, debt attitude, risk attitude and overconfidence have an impact on the SMEs' selection of credit sources.
- Hypothesis 2a: Firm social capital factors could influence the SMEs' credit participation.

- Hypothesis 2b: Firm social capital factors could affect the SMEs' selection of credit sources.
- Hypothesis 3a: Owner's characteristics influence the SMEs' credit participation.
- Hypothesis 3b: Owner's characteristics affect the SMEs' selection of credit sources.
- Hypothesis 4a: Firm's characteristics influence the SMEs' credit participation.
- Hypothesis 4b: Firm's characteristics affect the SMEs' selection of credit sources.
- Hypothesis 5: Soft and hard information used for the loan approval process could be categorized as many types of information: financial statement, credit information, collateral pledgeability, the relationship with banks, the entrepreneur's trust and the firm's network.
- Hypothesis 6: Commercial banks use both soft and hard information in the loan approval process at the same time. That is to say, lending technologies are used complementarily.
- Hypothesis 7: The firm's response to information types could affect its credit accessibility.

## **Chapter Summary**

This chapter presented the concepts as well as theoretical background regarding SME debt financing in developing countries. The first section discussed general issues related to SME debt financing, including financing sources, information asymmetry, the coexistence of formal and informal financial system and the existence of discouraged borrowers and non-borrowers. The following part of the chapter covered major theories related to SME credit participation and credit accessibility from the viewpoint of SME owners and lenders. These consisted of traditional capital structure theories, behavioral

finance theories, social capital theories and empirical evidences related to lending technologies and important information for the loan approval process. The final part of the chapter addressed the conceptual framework and hypotheses of the study.



## **CHAPTER 3**

### **AN OVERVIEW OF THE VIETNAM ECONOMY, THE CREDIT MARKET AND SME DEBT FINANCING IN VIETNAM**

This chapter provides an overview of the Vietnam economy, the Vietnam credit market and SME debt financing issues in Vietnam. The chapter will serve as background information for the research issues and the analyses in the following chapters.

#### **3.1 Current Vietnam Economy in Brief**

The characteristics of each country's economy more or less affect corporate management, especially financing decisions. For instance, a prediction of changes in interest rates would make managers modify their financing schedules; or a loose credit policy would make enterprises find it easy to access bank loans, etc. Thus, it is necessary to introduce a comprehensive picture of Vietnam economy in order to supplement the research result's discussions and suggestions.

Vietnam started the market-oriented economy since 1986 and acquired some achievements. The annual economic growth during the 2004 – 2013 period reached 5% to 8%; boosting GDP per capita from USD604 in 2004 to USD1,902 in 2013. In PPP terms, GDP per capita grew throughout amounting USD4,012 in 2013, up from USD2,124 in 2004. Vietnam economy has shown great progression and become one of the most attractive countries in Asian region for foreign investors to invest. The implementation of “open door” and liberalization policies has helped Vietnam economy integrate into the international economy and resulted in strong economic activities. The FDI flow and investor's expectation of an energetic economy led to the strong capital formation. Along with foreign capital flow, Vietnam Government has supported the

economy growth by the abundant money supply. On average, money supply and credit growth during the last decade has exceeded 25%. The effect of the global financial crisis, along with consequences of the abundant money supply policy from 2003-2008 and the real estate bubble have been exposed since 2008. In particular, the credit growth in 2007 was mainly contributed by the growth in risky areas such as consumer loans, real estate and securities lending. In 2008, the government gave a priority for the target of restraining inflation with tightening monetary policies. That was why money supply and credit growth in this year went down dramatically. However, after that, because of the negative effects of global financial crisis, the government implemented demand-stimulating policies. This led to the sudden increase in credit growth in 2009. In 2010 and 2011, again, to fight for inflation, tight credit policy was carried out and it led to the reduction of credit growth in 2010. Inflation rate soared to the peak of 23.1% in 2008, decreased in 2009-2010 and increased dramatically in 2011. The continuous change in credit policy expresses the instability and latent risk of Vietnam economy.

**Table 3.1: Developments in the Macroeconomic Indicators of Vietnam (2004-2013)**

<b>Indicator</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
GDP growth (annual, %)	7.7	8.4	8.2	8.5	6.3	5.3	6.8	5.9	5.2	5.4
GDP per capita (current US\$)	604	700	797	920	1,154	1,181	1,297	1,532	1,753	1,902
GDP per capita PPP (current US\$)	2,124	2,354	2,567	2,793	2,976	3,128	3,334	3,574	3,788	4,012
Money Supply (M2) Growth (%)	29.5	29.7	33.6	46.1	20.3	29.0	33.3	12.1	12.6	18.5
Domestic Credit growth(%)	37.1	34.7	24.7	50.2	27.7	45.6	31.9	13.9	8.91	8.8
Inflation, consumer prices (annual %)	7.8	8.3	7.4	8.3	23.1	7.1	8.9	18.7	9.1	6.6
Total labor force (millions of people)	45.4	46.3	47.4	48.3	49.3	50.2	51.1	51.9	52.8	52.9
Unemployment rate* (%)	2.1	2.5	4.9	4.1	3.6	3.2	2.7	2.0	2.28	2.22
Foreign direct investment, net inflows (% of GDP)	3.3	3.4	3.6	8.7	9.7	7.2	6.9	5.5	5.4	n.a.
Total investment (% of GDP)	33.5	33.8	34.5	39.6	36.5	37.2	35.7	29.8	27.2	26.6
Gross national savings (% of GDP)	29.0	32.4	33.2	30.2	25.0	30.7	31.9	29.9	33.1	33.2
Current account (million US\$)	(1.6)	(0.6)	(0.2)	(7.0)	(10.8)	(6.6)	(4.3)	0.23	9.06	n.a
Trade balance (billion US\$)	(2.3)	(4.6)	(4.8)	(14.2)	(18.0)	(12.9)	(12.6)	(9.5)	0.8	n.a.

Source: World bank (<http://data.worldbank.org/country/vietnam>)

Besides, the data in Table 3.1 also shows that the growth rate of Vietnam's labor force is considerable with one million people newly entering the labor force annually. Especially, irrespective of the expansion of the labor force, the unemployment rate is relatively low in Vietnam.

In addition, with a low starting point of an agricultural country, there has been an increase in the import demand, especially the demand of equipment and technology to support the economic activities of an overheating economy. The value of import in Vietnam has increased continuously over the last decade and often exceeded the export value, which led to the deficit in trade balance and current account.

In general, Vietnam's economy has been growing tremendously but also facing enormous challenges in order to maintain a sustainable growth rate in the long term as well as ensure macroeconomic stability ahead. Financing decisions of firms will become more and more complex in the circumstances of the instability of macroeconomic factors, at least in the next few years.

## **3.2 Financial Sector Development**

### ***3.2.1 The formal financial system in Vietnam***

Until 1988, the Vietnam financial system was comprised only of the State Bank of Vietnam (SBV) and its several branches. The main objective of SBV at that time was to allocate credit to State-owned enterprises (SOEs) and other organizations under the central plan's directives and to provide deposit services for these SOEs (O'Connor, 2000). From the end of 1988 to 1989, the government commenced to execute the banking reforms that aimed at transforming the mono-banking system into the two-tier banking system. The SBV was then contained itself to act as the central bank and four

newly-established SOCBs which took over the commercial banking activities of the SBV. These sector-specialized SOCBs consisted of Vietnam Bank for Agriculture and Rural Development (VBARD), Bank for Foreign Trade of Vietnam (Vietcombank), Bank for Investment and Development of Vietnam (BIDV), and Vietnam Bank for Industry and Trade (Vietinbank). These days, another SOCB named Housing Bank of Mekong Delta is added to this group. In the period of the 1990s, the government allowed and encouraged the entrance of new players into the financial industry. As a result, the number of joint-stock commercial banks or private banks and foreign bank's branches increased remarkably. However, the banking products and services offered by the new players were still restrained. Despite this, SOCBs still prevailed over other financial intermediaries. SOCBs seem to be in favor of lending to SOEs as an issue of government policy. Joint ventures between SOCBs and foreign banks were also founded, but the services they provided were rigorously restrained. These joint venture banks did not supply loans to private enterprises. Instead, they mainly concentrated on offering banking services to expatriates, visitors, wealthy consumers and foreign corporations, apart from facilitating remittances from Vietnamese people living overseas.

Besides, non-bank financial institutions such as insurance, financial companies and investment funds also entered the market, but they were insignificant regarding financing firms. The Vietnam stock market, though relatively younger than its other Asian counterparts, has contributed greatly to the growth of the Vietnam's economy since its introduction in 2000. Vietnam equity market has recently provided opportunities for companies' fundraising activities, especially for large firms. It is not supportive to private enterprises, which are often small and not qualified to be listed.

In general, Vietnam has a number of commercial banks, few non-bank financial institutions, and an infant stock market. With the fact that banks have constituted more than 85% of financial institutions, O'Connor (2000) indicated that Vietnam has a bank-based financial system. Hence, commercial banks play a critical role in providing credit for individuals as well as companies in Vietnam. For the scope of the study, we focus on analyzing the Vietnam credit market, especially the banking sector, which is considered a major source of external financing for SMEs.

The credit market had already existed in Vietnam long before any Vietnam equity market was formed. Therefore, debt financing has become a common way for firms and individuals to mobilize capital through either formal bank credits or informal credits. Presently, the Vietnam credit market includes five SOCBs, 34 joint-stock commercial banks (JSCBs), four joint-venture banks (JVBs), five 100% foreign owned banks, 50 foreign bank branches, 18 financial companies, 12 financial leasing companies, and almost 1,100 cooperative credit funds (Table 3.2). The biggest bank regarding capital is Vietinbank, while regarding network and total asset is VBARD. Approximately half of JSCBs are undersized with chartered capital less than VND5 trillion and total asset less than VND50 trillion. Compared with regional counterparts, Vietnam banks are still humble.

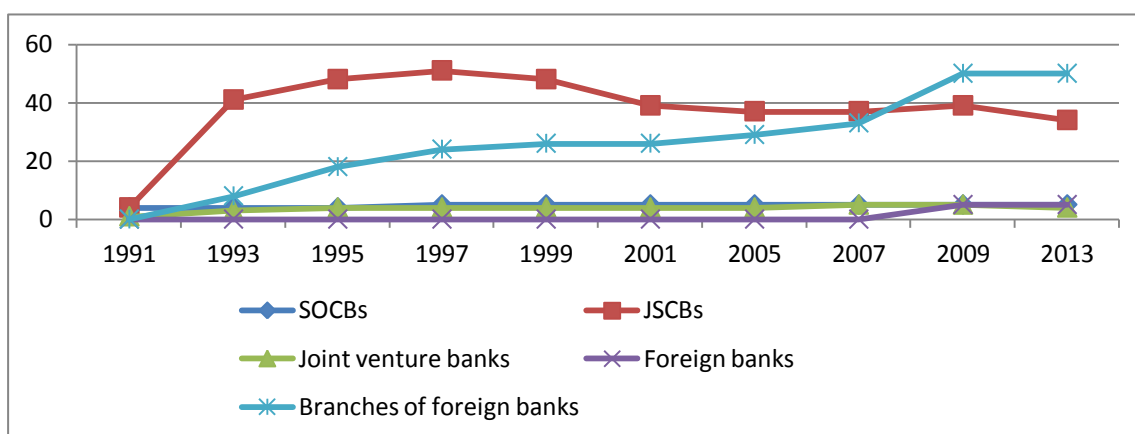
**Table 3.2: System of Credit Institutions in Vietnam by Mid 2013**

Group of credit institutions	Type	Number
Banks	State-owned commercial bank	5
	Joint-stock commercial bank	34
	Joint venture commercial bank	4
	100% foreign capital banks	5
	Foreign bank branches	50
	Vietnam Development Bank	1
	Vietnam Bank for Social Policies	1
Non-bank credit institutions	Financial company	18
	Financial leasing company	12
	Co-operative credit funds	nearly 1,100

Source: VCBS report on Vietnam Banking Sector, 2011

It can be said that Vietnam debt capital market has been “dominated by banks of which state-owned commercial banks always outweigh the rest of the financial market” (Vuong & Pham, 2009).

**Figure 3.1: Number of Banks by Groups (1991-2013)**



Source: VCBS report on Vietnam Banking Sector, 2011

The data in Figure 3.1 indicates that the number of SOCBs stayed stable while the number of JSCBs has expanded appreciably since 1991. The number mounted to a peak of 51 in 1997, but has since declined due to the new regulations of required minimum capital, which led to the mergence or consolidation of small and inefficient banks.

Vietnam banking sector is expected to grow notably in Asia in the next few years because of the country's economic development, the growth of household income, and the poor access to banking services. Since the 1990s, the Vietnam credit market has developed greatly in terms of relative figures to the GDP:

**Table 3.3: Some Development of Vietnam Banking System (2003-2012)**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Deposit/GDP (%)	32.9	38.5	44.9	53.5	71.7	67.2	77.9	89.4	79.1	n.a
Credit/GDP (%)	48	56.9	65.4	69.2	88.2	86.9	112.8	124.7	110.2	104.9
Deposit growth (%)	37.8	34.1	33.7	31.8	50.9	23.0	27.3	32.1	10.0	29.5
Credit Growth (%)	28.4	41.6	31.6	25.5	53.9	25.4	39.6	32.4	14.4	9.1

Source: World Bank; IMF, 2014

Table 3.3 shows that Vietnam banking sector experienced a remarkable growth for both deposit and credit. For the period 2003 to 2012, the growth of deposit and credit was 28.9% and 28.3%, respectively. During the period of 2003-2007, the deposit and credit growth reached the fastest pace. The growth mounted its peak in 2007 at 50.9% for deposit and 53.9% for credit. After the period of extensive growth in deposit and credit, the pace of growth since 2009 dropped substantially. The market witnessed the lowest growth in both credit and deposit since the 1990s. Together with the credit growth, the Vietnam banking industry's size relative to the whole economy or the financial depth also changed extraordinarily. The credit to GDP ratio increased from only 48% in 2003 to 104.9% in 2012.

One characteristic of Vietnam banking sector is the mix of concentration and fragmentation. On one hand, SOCBs are still heading the market though slowly losing share to JSCBs in both deposit and credit market share (Vuong & Pham, 2009). This circumstance resulted in a serious disproportion in allocating funds to different

economic sectors. Small and medium enterprises and private companies always find it unfavorable and difficult to access loans from banks, comparing to state-owned companies. On the other hand, the number of branches and transaction offices has been rising extensively, but primarily in urban areas.

**Table 3.4: Vietnam Credit Market Share (%) (2007-2012)**

	2007	2008	2009	2010	2011	2012
SOCBs	59.3	58.1	54.1	51.4	51.3	51.8
JSCBs	27.7	26.5	32	35.1	35.5	34.8
Joint venture, Foreign Banks	9.2	11	9.1	9	8.6	8.5
Others	3.8	4.4	4.8	4.5	4.6	4.9

Source: VCBS report on Vietnam Banking sector, 2011

For all that, with just five SOCBs, lending still accounted for approximately 50% of total, meanwhile 34 JSCBs and others' lending made up the rest of total domestic lending as of the end 2010. SOCBs are still involving in non-commercial or politically favor lending, especially in rural areas. They often apply a “soft credit” policy for SOEs such as preferential interest rates, granting debt extensions, higher credit limits, easy credit process, priority in the handling bad debt, etc. This circumstance results in a serious disproportion in allocating funds to different economic sectors. Small and medium enterprises and private companies always find it unfavorable and difficult to access loans from banks, comparing to state-owned companies. Now, however, SOCBs are striving to diversify the risk of their loan books and maximize the profit margins by expanding their presence in high-margin retail services, and with foreign-capitalized companies also entering the market, that sector is becoming very competitive. Restrictions on the participation of foreign capitalized firms have been loosened in order to make domestic banks, which are lacking human and other resources, more globally competitive, a move that will undoubtedly result in an increase in overseas investors

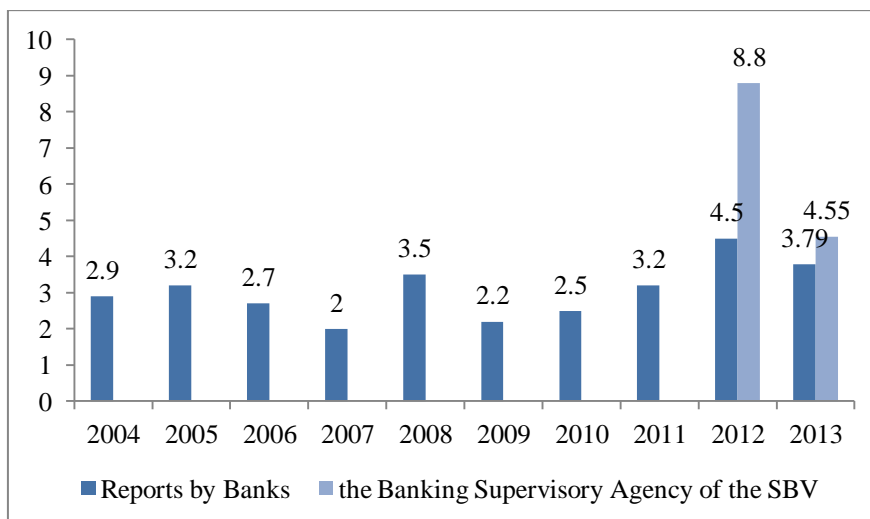


taking ownership stakes in domestic banks and in overseas banks forming alliances with domestic banks. Currently, foreign investors hold approximately 20% of the banking market in terms of assets, through nearly 30 branches and strategic investments in domestic banks.

Regarding weaknesses of Vietnam banking sector, the main problems are unreasonable separation of market, the deficiency of credit data, poor lending practices, and high non-performing loan ratios. This leads to the consequence that the Vietnam credit market is relatively risky and exposes various threats to the credit institutions. First, with respect to the irrational division of market, there is still an indefinable separation among the markets of SOCBs, JSCBs and foreign banks. Commonly, SOCBs often offer services to the state-owned sector and big companies. JSCBs target SMEs and consumers because “they are largely locked out of the commercial lending market due to the lack of capital” (Tran, 2008). Foreign banks are geared toward foreign-based firms and multinational companies in Vietnam. This discrimination undoubtedly results in the poor competition in the banking industry. Second, with respect to lending practices, it is said that relationship-based lending and collateral based lending prevail in transactions between banks and firms. Borrowers’ financial health and proper evaluation of the borrowers’ creditworthiness are not emphasized in the bank loan approval process (Tran, 2008). In addition, many SOEs own stocks in JSCBs and therefore, providing credits to the firms within their group is to some extent smooth with a slight apprehension about the risk (Leung, 2009). Third, one of the critical issues that weakens the banking sector and restrains credit transactions in Vietnam is the lack of information. The credit histories of Vietnamese small firms and consumers are either unavailable or short, and consequently, many loans are reportedly driven by personal

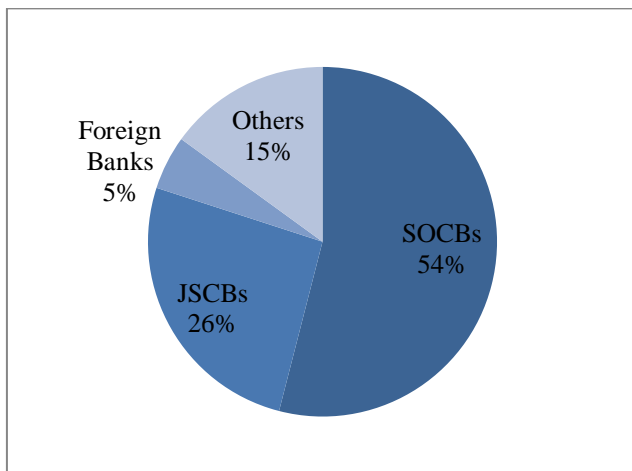
relationships instead of financial performance analysis (Tran, 2008). Last but not least, Vietnam commercial banks are demonstrated as fragile (Oh, 1999). The quantity and level of non-performing loans (NPLs) are high in most commercial banks. NPLs are the loans that the interest is delinquent and the principal cannot be completely collected. NPLs were distressing since the Asian crisis in 1997. Most of NPLs came from SOEs who were unable to pay their obligations to SOCBs. NPLs are hard to appraise since Vietnam commercial banks have not conformed to international standards in the loan categorization. NPLs were officially reported at 4.55% by SBV in December 2013. However, it is broadly accepted that this is far below the real figure. According to the international standards, it is estimated that NPLs made up 15-20% of outstanding loans in the state-owned sector (i.e. Moody estimated). Fortunately, JSCBs and foreign banks follow better practices of credit risk management and have a lower rate of NPLs (Tran, 2008).

**Figure 3.2: Banking System NPL's Ratio (%)**



Source: VCBs report on Vietnam Banking sector, 2013

**Figure 3.3: NPLs by Credit Institutions (2013)**



Source: VCBs report on Vietnam Banking sector, 2013

In brief, Vietnam financial market, which is characterized as a bank-based financial system, has been recently boosted and became an important source of financing for enterprises. However, the quantity and quality of its banks are inadequate. Many issues related to division of market, lending practices regulations and policies, information infrastructure, low penetration and high non-performing loans obstruct the development of this market.

### ***3.2.2 Informal credit market***

#### ***3.2.2.1 Overview***

Because of the underdevelopment and strict criteria in lending procedures of the formal financial sectors in developing countries like Vietnam, the informal financial sectors exist as alternatives to meet the firm's demand of capital. However, it is extremely difficult to estimate the size of the informal credit market precisely regarding financial services supplied. According to Far Eastern Economic Review (1993), it was estimated that the informal credit channels accounted for approximately 60% of total credits given in the early 1900s. The Asian Banker (1996) revealed that 35% of total financial

transaction value occurred outside the banking system. According to a survey conducted by Vietnam Ministry of Agriculture and Rural Development, more than 65% of households borrowed from informal credit sources, of which specialized moneylenders made up about 30% and relatives and friends accounted for 35%. O'Connor (2000) reported that a large amount of savings was held in non-liquid assets or in foreign currencies, USD particularly, outside the Vietnam banking system. Mr. Vo Tri Thanh, Deputy Director of Central Institute for Economic Management stated, recently, shadow banking in Vietnam is making up to 30% of total lending in Vietnam, translating to a big number of USD50 billion. Informal credit sources have their own advantages such as flexible arrangements in terms of time and paperwork, not-strict requirement of collaterals, low transaction costs, but they are also unreliable sources, illegal and expensive with the interest rate around three to five times the rate charged by banks.

#### *3.2.2.2 Borrowers participant*

Constrained consumers, especially the rural poor, have no choice but to rely on informal lenders such as relatives, friends, neighbors and moneylenders to meet their urgent consumption such as funeral, wedding, illness, etc. Many businesspersons also participate in the informal credit market for small loans or quick loans to meet their demand of working capital. There are also those who borrowed from informal credit grantors to repay the borrowings they get from formal credit institutions such as banks in order to sustain relationships with the banks, which charge much lower interest rates than moneylenders do.

Generally, the informal credit market has been developing not only in rural areas but in urban areas as well. Not only poor households or individuals who need a small amount of money go to informal credit market but also people with medium income or

SMEs also come to this market for assistance. The existence of a big informal economy with more than 70% Vietnam people working in and the barriers from formal credit channels pushes many people and small businesses to choose informal credit market as a choice for financing. Besides, we doubt that psychology also affects the financing decisions of SME's managers (also owners, usually) and household business' owners. Researchers currently proved that some types of psychology have an impact on borrowing behaviors of consumers and business managers.

### *3.2.2.3 Lender participants*

In the Vietnam context, there are three types of major lenders in the informal credit market: i) relatives and friends; ii) professional moneylenders; iii) self-help groups. Relatives and friends are considered as the very first channel for raising capital for small firms, especially for start-up businesses. Borrowings from this source depend on personal close ties of the borrower and therefore, they can include interests or not.

Regarding professional moneylenders, they may satisfy to some extent the shortage of capital for firms and individuals that are rationed from the formal credit market. Moneylenders are typically wealthy people living in the localities, meaning that they own a big advantage over formal credit institutions like banks in gathering and verifying information to assess the creditworthiness of their clients. Owing to close ties to clients, moneylenders can also monitor the borrowers properly, guarantee that the borrowers do not involve in risky or imprudent activities and recover loans if necessary when the clients are still solvent. Correspondingly, it is not necessary for moneylenders to require the borrowers' assets as collaterals. Mutual trust, which is established through long-term and close relationships between moneylenders and borrowers, is the foundation of their lending decisions. In other words, intimate relationship and private

information about borrowers allow moneylenders to lessen the troubles of the adverse selection and moral hazard.

Furthermore, moneylenders in Vietnam appear to be likely to get loans from commercial banks on the basis of collateral and then relend the money they borrowed to end clients. Moneylenders still earn huge profits for this activity due to the big gap between the interest rates they must pay to the banks and the interest rates they charge to their end borrowers.

Irrespective of the alternative financing source for firms and individuals, moneylenders do not seem to play a critical role regarding financing investment. There are some reasons for this. First, moneylenders might face the restrictions in resources, meaning that they cannot replace the lending role of a formal credit institution. It is hard for moneylenders to lend long-term loans or big amounts of loans. Additionally, from the perspective of the government, informal lending is illegal and a cause of several scandals in the financial market. This makes moneylenders hesitant to provide as many loans as what investments often have need of.

In relation to self-help groups, there are two types: one organized with the support of a certain non-government organization and/or a formal credit institution and one arranged by the members themselves and operating as a rotating saving and credit association (ROSCA). The former type of self-help groups is usually defined as semi-formal credit institutions and not common in Vietnam. The later type exists almost everywhere in the country as an informal financing source. ROSCA is defined as “a setting in which a group of individuals who know and trust each other meet on a regular basis to place a fixed amount of money in a kitty; the kitty will then be allocated to a

particular group member at each meeting...[The] setting continues until every group member receives the kitty once. The earlier a member wins the kitty, the higher (implicit) interest rates he/she has to pay; those members who lean to the end of the circle are interest recipients” (USA International Business Publications-Ibp Usa, 2007). There are two types of ROSCA, bidding ROSCA and random ROSCA. The discrimination comes from the way of winning the kitty. For bidding ROSCA, “Who wins the kitty is decided on the basis of the bidding principle: the one who bids higher, i.e., pledging higher contributions, will receive the kitty first” (Ibp Usa, 2007). As for random ROSCA, “the winning of the kitty is decided by random drawing of a lot but not by pledging higher contributions” (Besley et al., 1993). In a ROSCA, both savers and borrowers exist with the late winners of the kitty being savers and the early ones being savers (Callier, 1990).

ROSCAs in Vietnam present themselves in the form of ‘huis’ or ‘hui’ (Ibp USA, 2007). It is also an informal credit source for those who are discouraged from the formal credit market. To some extent huis also contributes to fill the gap between the formal credit supply and the borrowing demand of individuals as well as private enterprises (Ipb USA, 2007). In the same vein, huis in Vietnam is not protected by legal regulations and may influence negatively on the financial market. For instance, huis may become “dangerous financial pyramids in which members of a given hui borrowed money and invest it at higher rates in other huis where the newly acquired money was used to pay interest on old loans. This led to serious financial scandals” (Ipb USA, 2007).

### 3.3 Characteristics of Vietnam SME Sector

#### 3.3.1 Definition of SME in Vietnam

The most recent definition of SME is stipulated in Decree 56/2009/ND-CP as follow:

“SMEs comprise the businesses registered in accordance with the Enterprise Law, cooperatives and individual business households, of either micro, small, or medium size.

There are two criteria for defining the type of SME, namely scale of total assets (as the prior criterion), and annual average number of employees” (Vo et al., 2011)

**Table 3.5: Definition of SME based on Total Assets and Number of Employees**

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

Source: Translated from Decree 56/2009/ND-CP in Vietnam (2009)

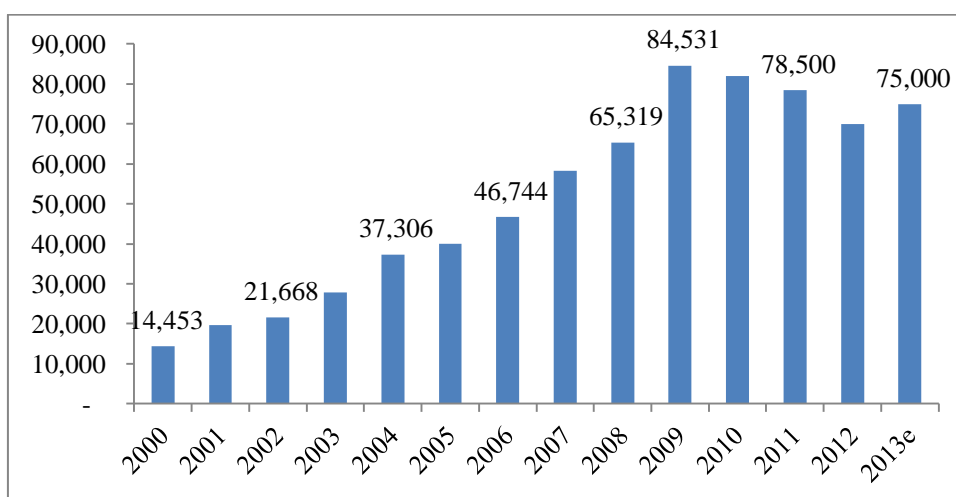
#### 3.3.2 The SMEs’ role and obstructions in socio-economic development

Vietnam economy has been undergoing major changes, underpinned by economic revolution – Doi Moi since 1986. These policy initiatives have transformed the economy from being public-sector-led to private sector- driven. The SME sector plays an important role in this emerging economic structure. Especially, the proclamation of the new Enterprise Law in 2000 promoted the establishment of thousands of newly



private enterprises. The development of private sector is momentous to the Vietnam economy. It is generally believed that the domestic private sector is indispensable for creating jobs, especially new employment. The private sector, of which SMEs make up the most, constitutes 97% of total number of businesses in Vietnam. This sector employs around 60-70% of the labor force and contribute 40-60% to the GDP (Trong Hieu Ng., 2010). The number of new enterprises has been increasing significantly during the last decade. From 14,453 newly established firms in 2000, this number mounted up more than seven times larger in 2012. Until December 2012, the total number of SMEs in Vietnam was around 400,000.

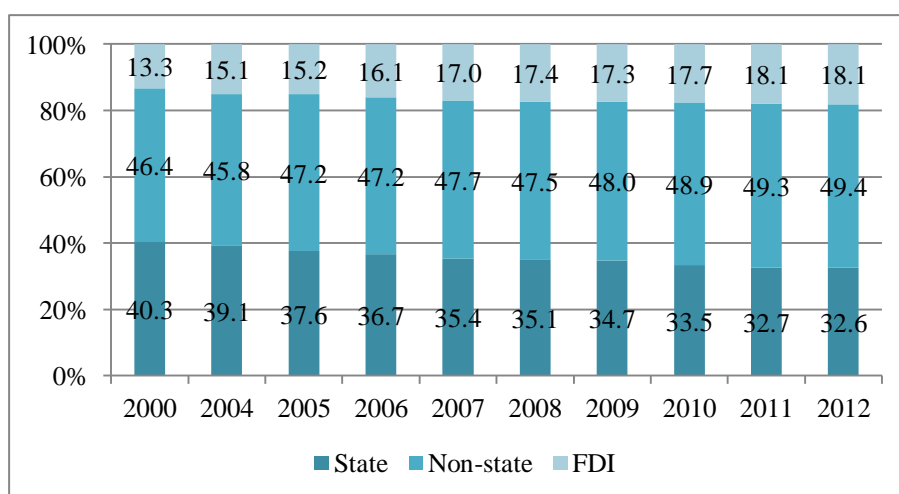
**Figure 3.4: Newly Established Enterprises from 2000 to 2013**



Source: Vietnam GSO website

As described in Figure 3.4, the non-state sector has contributed to Vietnam GDP the most during the last decade. The ratio of the contribution of non-state sector to GDP slightly increased from 46.4% in 2000 to 49.4% in 2012.

**Figure 3.5: Non-state Sector Contribution to GDP in Comparison with FDI and Public Sector (%)**



Source: GSO Vietnam

The importance of the SME sector to the Vietnam economy is not unique and is consistent with the trends observed by Bateman (1996), Hallberg (2000), Lee (1996) and Wellford & Prescott (1996) who all argue that SMEs have important contributions to make in micro and macro levels of the economic development.

In order to appreciate the contribution of SMEs in Vietnam economic development, it is important to understand the context of economic development challenges which the country faces. First, Vietnam's economy is characterized primarily by the pressure of population dynamics. According to the Ministry of Finance, Planning and Economic Development, the population is predominantly young with 52% of the total population below the age of 14. This characteristic makes self employment, through the establishment of a vibrant and sustainable small and micro business sector, become essential in absorbing the growing labor force and enhance economic growth and poverty eradication.

Second, according to the results drawn from the Labor Force Survey by Vietnam GSO in 2007 and 2009, the informal economy is predominant in Vietnam. A large number of small businesses in Vietnam belong to the informal sector. It is estimated that the informal sector contributes to 20% of GDP, without knowing what share is already included in the national accounts (Jean-Pierre Cling, 2010).

Third, Vietnam economy is still at low level of annual income per capita. It also points out that this high incidence of poverty is coupled with high levels of income inequality, where the gap between the majority poor and the minority rich has been widening over time.

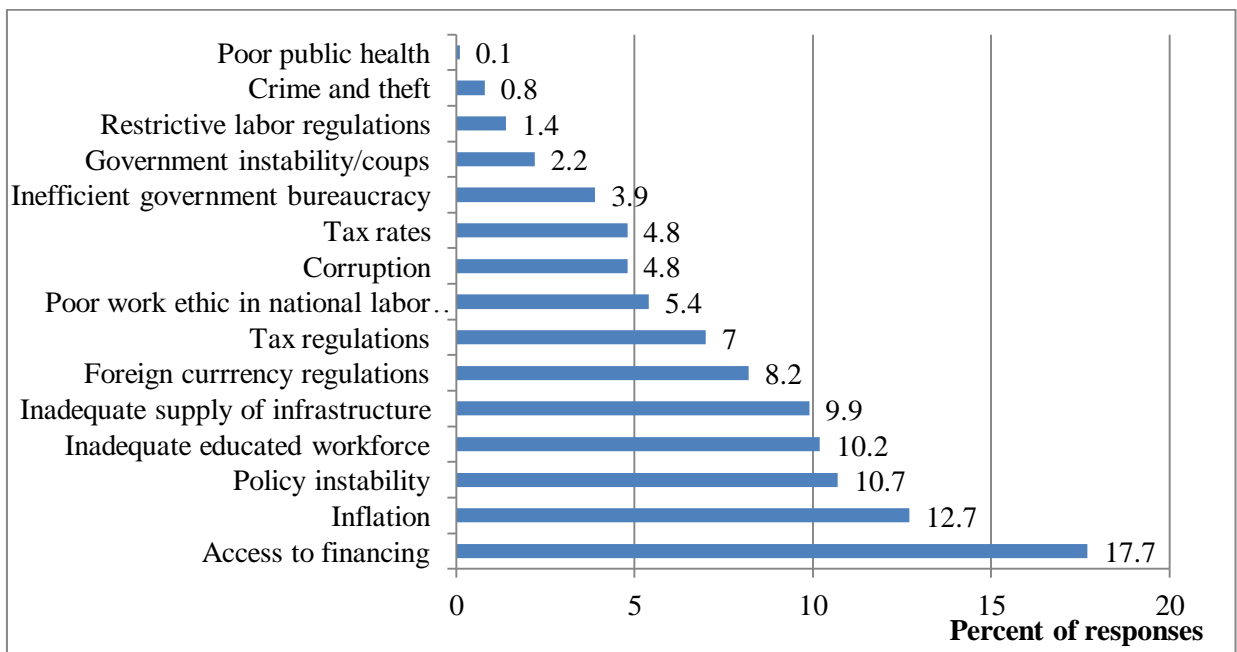
Fourth, regarding business enabling environment for Vietnamese SMEs, according to a survey of Doing business in 2014 from World Bank, Vietnam is ranked 99 out of 183 economies. Combined with other factors such as ease of doing business, starting a business, registering property etc., the Vietnam's business environment compares relatively well to other comparators such as neighboring and/or mineral rich low-income countries. This brings Vietnamese SMEs a comparatively fair environment in local business market and in the globalised market context.

These features of the Vietnam economy demonstrate that there are opportunities for SMEs to exploit as the country seeks to reduce and eliminate poverty and improve the welfare of its people. The SME sector is expected to play an important role in the drive to address this poverty situation.

Despite the important role of the private sector in general and the SME sector in particular in the Vietnam economy, there are a number of constraints which act as barriers to the emergence and growth of a sustainable SME sector. According to the

World Bank Investment Climate Survey in 2009, the three most significant impediments listed by Vietnamese firms were: 1) access to financing (acknowledged by almost a quarter of respondents); 2) the practices of the informal sector (remarked by 19% of surveyed firms); and 3) transportation infrastructure (mentioned by 13% of surveyed firms). By the same token, as stated in the World Economic Forum’s Global Competitiveness Report 2012-2013, the access to finance is also the primary consideration for doing business in Vietnam (mentioned by 17.7% of surveyed firms).

**Figure 3.6: The Most Problematic Factors for Doing Business in Vietnam**



Source: World Economic Forum’s Global Competitiveness Report 2012-2013

The recent survey from the Agency of Small and Medium-sized Enterprises Development (ASMED) in Vietnam also revealed that the SMEs’ capital sources are ineffective, small and unstable. Over 66.9% of SMEs have problems in lacking finance. Regarding the ability to access budget from the government: the data from the survey has stated that 32.38% SMEs, mainly are State-owned privatized enterprises, could

access the financial resource; 35,24% SMEs found it hard to access the resource; and 32,38% SMEs could not access the resource. Meanwhile, access to finance from others is also an issue for SMEs. There is only 48.65% SMEs could access the resources, 30.43% SMEs found it hard to access it and 20.92% SMEs inaccessible.

Other surveys in 2007, 2009 and 2011 also showed that there were 26.5%, 20.3% and 25.5% of the SMEs having loan requests rejected by banks and financial institutions, respectively (CIEM, 2011). The most recent survey conducted in HCMC and Da Nang City by the Financial National Financial Supervisory Committee (April 2012) reported that there was 63% of businesses which were unable to access credit.

It is noteworthy that conforming to the IFC Doing Business Indicators of 2013, Vietnam with the ranking at the 40th out of 183 economies, is relatively doing very well on the “Getting Credit” indicator. However, this indicator does not reflect exactly the situation of ‘getting credit’ in Vietnam because it is scored based on some aspects such as the strength of legal rights and the existence of credit information such as the credit bureau coverage rather than on perceptions of entrepreneurs of the ease of obtaining loans. As described in the table 3.6 below, Vietnam currently only has public registry coverage but no private bureau coverage. It is inferred that it is easier for SOEs to get credits compared with private enterprises.

**Table 3.6: Components of Getting Credit Indicator of Vietnam**

	2005	2006	2007	2008	2009	2010	2011	2012
Strength of legal rights index (0-10)	6	6	6	8	8	8	8	8
Depth of credit information index (0-6)	2	3	3	3	4	4	4	4
Public registry coverage (% of adults)	0.8	1.1	2.7	9.2	13.4	19	26.4	39.1
Private bureau coverage (% of adults)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Overall getting credit rank								42

Source: IFC Doing Business Reports

From the relatively contrast results from IFC getting credit indicator estimation and the World Bank enterprise survey, it can be deduced that the legal financial scenery and information infrastructure are comparatively promotive to lending in the formal credit market. However, at the same time, the fact that firms find it difficult to access to credit signifies that there may be a restraint in Vietnam banking sector instead.

In addition, Vietnam SMEs face a lot of threats of failure during the development process by their own weaknesses such as weak management skills and unqualified human resources, ineffective labor productivity, limited technological and technical capacity, unknown trade name, small size, simple structure, lack of distribution channels, and poor linkage with large and FDI enterprises. A recently report by ASMED based on a survey of 63,000 enterprises over 30 provinces and cities in the North showed that 33.64% of SMEs lack finance and accounting skills, 31.62% lack management skills, 24.14% lack expanding market strategies skills, 20.17% lack business planning strategies skills, 12.89% lack new product strategies skills, 12.89% lack negotiation and signing contract strategies skills, 11.62% lack human resource management strategies and 10.85% lack accessing to information and technology. As a result, SMEs tend to lead their business based on experiences.

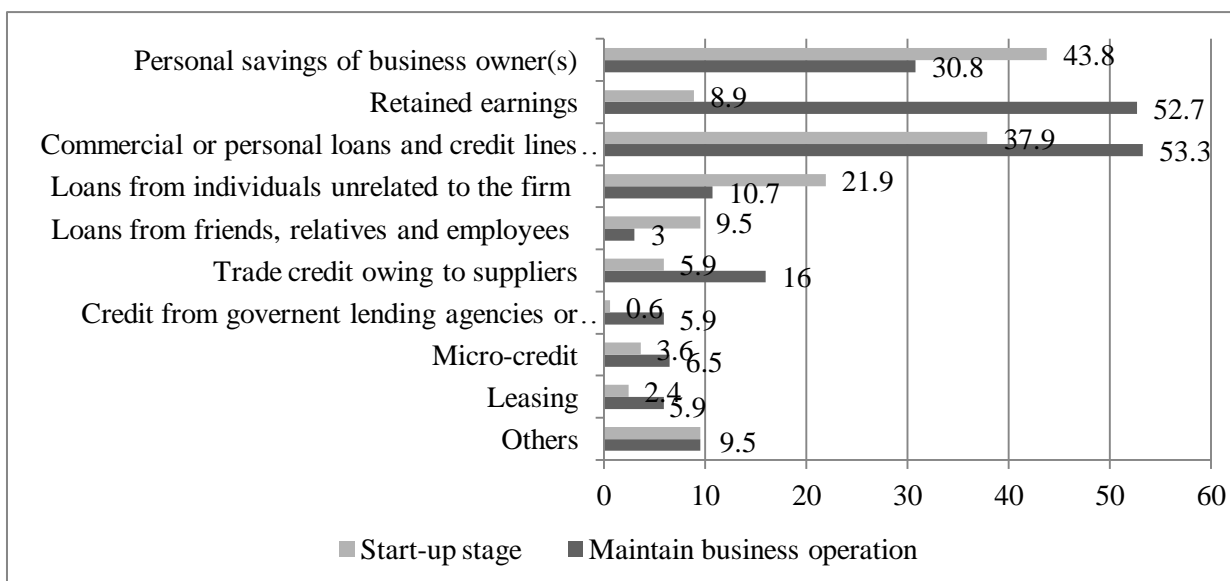
In sum, Vietnam SME sector plays a crucial role in the country's socio-development process. However, this sector has exposed many weaknesses as well as faced a number of hindrances in their operation, especially the issue of finance access.

### 3.4 Issues of SME Debt Financing in Vietnam

#### 3.4.1 Sources of SME financing

Theoretically, there are a variety of financing sources for SMEs to select. A survey conducted by CIEM in 2011 revealed that a large proportion of Vietnam SMEs frequently used informal sources such as personal savings, retained earnings, loans from relatives, friends and employees and moneylenders (around 75%). Meanwhile, a much smaller proportion of SMEs relied on formal financing sources such as banks and capital markets (around 20%). For firms at the start-up phase, the ratio of borrowings from loans was even much lower, compared with businesses asking for funding for maintaining operations.

**Figure 3.7: CIEM Survey Results on Financing Sources for SMEs**



Source: CIEM survey data, 2011

##### 3.4.1.1 External formal financing sources

There are some formal financing sources which SMEs can rely on, including bank loans, government-lending grants, capital market, venture capital, trade credit, leasing and factoring, etc.

First, regarding **banking sector and credit cooperatives**, despite the low rate of penetration of banking services in Vietnam, commercial banks are considered as the most significant external financing sources for the SME sector. This is because in Vietnam, the financial system is dominated by the banking sector. Commercial banks has currently offered a variety of financing products and services to businesses, from short, medium to long-term loans, from trade credit, factoring, export financing to discounting. Some banks, especially SOCBs, are favor of offering special loans for priority sectors pinpointed by the government such as SOEs, export-related businesses and firms operating in the agriculture industry. Meanwhile, JSCBs are considered as the important financing source for the SME sector, comparing with SOCBs. Beside commercial banks, there are also other formal non-bank credit institutions providing lending services for SMEs such as credit cooperatives or credit funds at localities, microfinance institutions and financial companies. However, along with the fact that banks have accounted for 90% of financial intermediation, poor knowledge and perceptions of SMEs about non-bank credit institutions obstruct them from accessing to these sources.

Second, with respect to **government grant programs** for SMEs, there are few programs taking into account SME financing. There is a common agreement that support policies as well as government's programs have not been as fruitful as initially intended. There are many reasons contributing to this result. Those are the lack of financial capacity of the government, inexperience in managing such programs, the misdirection in foreground lending to SOEs, the reluctance of private commercial banks owing to inadequate regulations to protect their interests and the poor perceptions of SMEs about such programs. Literature on such supporting programs insisted that "these



government measures have generated unfavorable trade-offs and negative externalities such as crowding out of private sector banks and viable businesses, and the emergence of a dependency syndrome and non-repayment culture” (RAM Consultancy - REPSF Project, 2005). However, there are also other successful programs for SME financing which are funded by international entities. These international organizations form an alliance with the government ministries to manage financing programs to the SME sector. In Vietnam, for instance, there are several international programs like that such as the European (EU) SME Development Fund, Japan Bank for International Cooperation (JBIC), SME Finance Program and the SME development programs which are executed by the Asian Development Bank (ADB). Nevertheless, the limitation in funds, strict requirements for approval as well as the unawareness of the SME community about such programs make this source become an insignificant financing channel for SMEs.

Third, with respect to the **capital market**, Vietnam stock market is still in its infancy, especially regarding the depth and liquidity; therefore, this market does not support SMEs much in raising funds. In particular, with the limitations of the company size, management skills and information providing, Vietnam SMEs almost cannot access to this financing source. Additionally, as regards corporate bonds, they have not yet become a common financing choice for large corporations, not to mention SMEs. The underdevelopment of corporate bond market can be partially explained by the lack of awareness among corporations, the lack of a benchmark yield curve, the lack of price discovery capacity, the weak signaling effect, the insufficiency of a diversified investor base and the inadequacy in market infrastructure, etc. In brief, both the equity market and bond market have not made much headway with SME financing.

Fourth, concerning **venture capital**, the availability of venture capital in transition economies like Vietnam is limited. There are several major venture capitals in Vietnam, such as Dragon Capital Fund, IDG Venture Vietnam, Mekong Capital, VinaCapital, CyberAgent Ventures. These funds seek to invest in larger SMEs which are potentially profitable with professional management and impressive track records. Venture capitalists usually seek investments that yield the return on the investment ratio of 30% on average per year. For venture capitalists, different from banks, instead of requiring stringent information and documents from SMEs, they emphasize on the potentiality of SME products or services or ideas, management capacity and strategic plans of SMEs. However, raising funds from the venture capital is not common in developing countries like Vietnam because of the inadequacy of feasible exit routes and the unwillingness of SMEs to welcome venture capitalists to participate in the management team. Therefore, venture capital has not been an important financing source for the majority of Vietnam SMEs.

Fifth, regarding **trade credit**, this is a relatively vital source provided by suppliers to Vietnam SMEs, following internal sources and bank loans, especially in the stage of maintaining business operations. Suppliers know their trading partners better than banks and other financial institutions. Therefore, the information asymmetry between lenders and borrowers is less of an issue for suppliers than for banks and financial institutions. To access this financing source, social network could be very useful. However, this financing source only meets the short-term demand of working capital for SMEs.

Sixth, in reference to **leasing**, Vietnam leasing market is still underdeveloped. The disadvantages of Vietnam leasing companies include small size, modest networks, fragmentation since all located in big cities, poor awareness of leasing as a source of

financing among the SME community and ineffective legislation to protect the lessors' right in the case of the lessees' failure to pay. Furthermore, most Vietnam leasing companies are subsidiaries of commercial banks; hence, they mainly depend on their mother banks for equity and funding capital. Generally, with limited funds, no short-term deposits, small networks, it is difficult for leasing to become an important financing source for SMEs.

Lastly, about **factoring**, it seems that little factoring is indeed being carried out in Vietnam. Factoring is a type of credit granting offered by credit institutions to the firms which "sell their credit-worthy accounts receivable at a discount (generally equal to interest plus service fees) and receive immediate cash. Factoring appears to be a powerful tool in providing financing to high-risk, informationally opaque sellers" (Leora, 2006). There are some foreign banks and domestic commercial banks offer factoring services in Vietnam at present such as Asia Commercial Bank (ACB), Bank for Foreign Trade of Vietnam (Vietcombank or VCB), Vietnam Technological and Commercial Joint Stock Bank (Techcombank), Vietnam Export Import Bank (EximBank), Saigon Thuong Tin Commercial Joint Stock Bank (Sacombank), Deutsche Bank, The Bank of Tokyo-Mitsubishi UFJ. Nonetheless, there is no specialized factoring company in Vietnam. Moreover, the development of factoring in Vietnam is obstructed by a number of factors, including limited awareness of factoring of the firms, the habit of using traditional payment, the excessive financial requirements from the bank, the high service cost, insufficient law system and poor contract enforcement.

Generally, banking sector is the major formal external financing channel which Vietnam SMEs rely on. Other sources such as capital market, venture capital, leasing and factoring are less common financing sources to be selected by SMEs.

#### *3.4.1.2 Informal financing sources*

In addition to formal financing sources, informal financing arrangements are the most commonly used financing mechanisms for SMEs in Vietnam. The main informal sources of SME financing involve use of personal sources, especially savings and reinvestment of profits, loans and grants from a social network of family and friends, liquidation of family assets, informal operating leases, rotating savings and money lenders. The CIEM's survey (2011) revealed that though informal financing sources accounted for a small amount in SMEs' capital structure, they are the frequent sources of SMEs to finance the need of working capital. The survey showed that twice as many firms obtained informal loans as compared to formal ones. Hanoi SME Association even estimated that in Vietnam, informal channels are likely to meet 60-70% of SME borrowing demand, compared with 20-30% financed by the formal sources. Informal financing sources also play a paramount role in financing SMEs in the start-up stage.

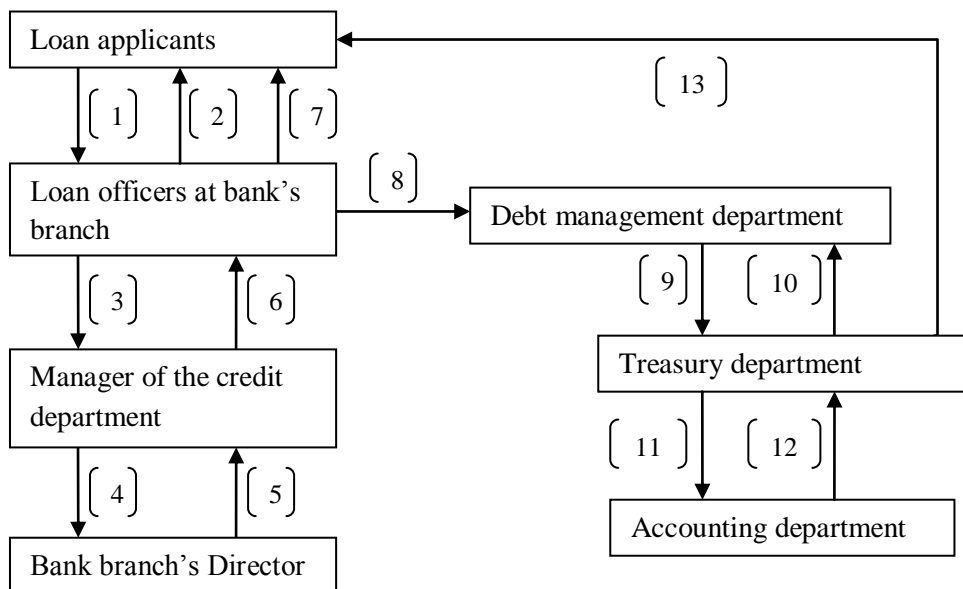
#### *3.4.2 Bank's Lending Procedure and Practices in SME lending*

Bank lending procedure is the basis progress to manage credit risks of a bank. It describes the procedure from the time when a client (individual or business) applies for a loan until the time when that client obtains the money he or she asks for. During this procedure, the loan documents or information of the applicant are transferred among bank departments. The purpose of lending procedure is to assess the applicant's creditworthiness and then to make decisions of loan acceptance or rejection. Bank lending procedure can vary from bank to bank, depending on the bank's policies. The average processing time for a loan application is also different considerably among commercial banks. Empirical evidence pointed out that private banks are more rapidly

in processing a loan application, compared with state-owned banks owing to the superior flexibility of private banks.

The commonly following lending procedure is primarily applied to SME applicants. This procedure is relatively burdensome, along with the problems of poorly skilled and unmotivated bank loan officers, leads to one of the barriers for SMEs in accessing to bank loans.

**Figure 3.8: Bank Lending Procedure for SME Applicants**



**Note:** [1] Bank officials get loan application forms from the potential borrower;

[2] The loan officer assesses the applicant, basically based on the ability to pledge collateral;

[3] The loan officer notifies the manager of the credit department about the applicant;

[4] The manager of the credit department appraises the information and informs the bank branch's director;

[5]The director decides on the loan and informs the head of the credit department;

[6] The head of credit department informs the in-charge loan officer about the decision;

[7] The loan officer informs the applicant about lending decision;

[8], [9], [10], [11], [12] Internal information flow and recording among the bank's specialized departments;

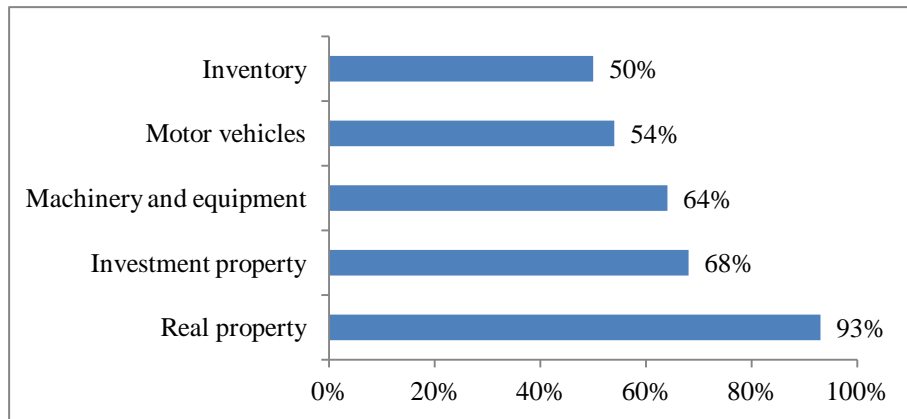
[13] The treasury department release funds to the borrower, if the application is accepted.

Source: Documents of lending procedures to SMEs of Vietcombank, ACB and Sacombank

As regards lending practices, lending decisions of Vietnam commercial banks still depend more on relationships and collateral pledgeability than the firm's actual financial performance. In other words, the assessment of borrowing applicants, especially SMEs, is primarily motivated by the relationship between the banks and the applicants as well as the quality and quantity of assets being offered as collaterals. The assessment of cash flow or financial statements and credit history records without emphasized much on the bank-borrower relationship and collateral pledgeability is mainly reserved for large corporations only. There are many reasons causing these lending practices. Those include the absence of IT infrastructure, the lack of professional guidance, the inadequacy of information about credit history of the owners/managers and firms, the absence of independently professional credit rating agencies and the unskilled loan officers.

With regard to the types of assets which are accepted as collateral, lending in Vietnam is biased toward real estate. As reported by a survey in 2006 by International Financial Corporation (IFC) and Vietnam Banker Association, real estates or properties are the most preferred collateral (93% of surveyed banks) and the second preferred collaterals are machinery and equipment (64% of surveyed banks) (Figure 3.9). Real estates and land use rights are preferred the most because it is easier for banks to verify and to liquidate, in the case of default, since a relative liquid market exists for such assets rather than for other fixed assets.

**Figure 3.9: Top five assets used as collateral by 24 banks**



Source: WB-IFC and Vietnam Bankers Association's financial sector survey (2006)

Besides, in assessing the creditworthiness of SMEs, banks necessitate a variety of information and documentation such as the business plans, (audited) financial statements, contracts and proof of payment habits, proof of income, asset ownership certificates, etc. During the loan approval process, bankers often visit the firm's manufacturing sites or business sites to verify the information. Informal inspection with other banks is also a common method of verification which is applied by bank loan officers.

The operations of Vietnam credit institutions are administered under the Law on Credit Institutions (1997). Actual lending practices of credit institutions in Vietnam are currently administrated under the SBV's Decision 1627-2001-QD-NHNN (2001). Under the Decision, credit institutions are now unrestricted to establish their own interest rates for loans depending on the risk assessment of loans. The Decision does not stipulate that banks have to require collateral or take plentiful assets as collateral for every loan. It is undoubted that credit institutions currently benefit from quite a lot of autonomy at least in terms of regulations, in how they supply credit to customers.

### *3.4.3 SME's constraints to credit access*

Capital is one of the most significant factors which has a huge impact on the business operations of SMEs as well as their competitive capability concerning the capacity to seize investment opportunities. Because of the inadequacy of formal financing alternatives, SMEs are limited in few options of financing patterns: informal financing sources that are undersized, illegal and expensive or retained earnings that can take substantial time to accumulate. As a result, the incapability to expand business operations or production capacity blocks the growth rate of small firms.

The SME's difficulty in credit access is stemmed from both the demand side (SMEs) and the supply side (financial institutions, especially banks). From the viewpoint of demand side, there are some impediments faced by SMEs to access bank loans:

(i) **The lack of collateral:** Like SMEs in other developing countries, with the limitation in the firm size, Vietnam SMEs often lack fixed assets to use as collateral such as real estates, machinery and equipment, etc. Especially, as mentioned above, the most preferred collateral by Vietnam commercial banks is property or land use rights that a majority of small firms is inadequate.

(ii) **Inability to prepare comprehensible and feasible projections and business plans in terms of knowledge and financial means:** Many SME entrepreneurs are not formally educated and do not have experience in working with banks. Even though SME entrepreneurs sometimes have very good business ideas, if the business plan is not presented coherently but simplistically, unprofessionally or unfeasibly, bankers will query the creditworthiness of borrowers.



**(iii) The absence of strategic orientation and management skills, especially finance and accounting management skills:** Management capability is believed to affect the firm's success. Though collateral pledgeability and relationship lending are emphasized by banks in lending, loan officers also examine the entrepreneur's management ability during the loan approval process. However, from our interviews with loan officers who are in charge of assessing SME loan applications, it can be said that the interior management of most Vietnam SMEs is poor and unprofessional and generally rested on the imperfect personal experience of the owners and/or managers. Some SMEs do not actually focus on a specific business field but tend to change from one business area to another. They do not establish long-term business strategies but only "take and run" or "run after the market" to aim short-term profits.

**(iv) The shortage of knowledge about available financial assistance schemes or supporting programs by the government and financial institutions for SMEs.** This could be because of the insufficient publicity by the promoters. Therefore, supporting programs of the government to SME financing is ineffective.

**(v) Low capital base:** As many SMEs have been established from households, they have the low level of legal capital. Many SMEs only have the registered capital of less than VND5 billion, since most of these firms have been established from households or family firms. This makes loan officers difficult to trust in the firm's creditworthiness. Besides, this lead to high transaction costs for both banks and SMEs when banks assess loans with small amounts.

**(vi) Poor practice of accounting and reporting:** O'Connor (2000) and Nguyen D.N. (2002) said that Vietnamese small enterprises often do not have booking, not to

mention audited financial statements. Furthermore, to avoid tax, generally many SMEs have three types of financial statement: (1) the internal financial statement reflecting the true loss/profit of the company (only managers can have this statement, sometimes they also show loan officers), (2) the financial statement prepared to apply for a bank loan; (3) the financial statement to submit to tax agencies. As a result, it is struggling for SMEs to communicate information to the banks and also tricky for the banks to obtain information about SMEs. This is the reason why lending based on financial statements cannot work in the case of Vietnam SMEs lending.

**(vii) SMEs' poor practices of conducting transactions through bank:** Because of the small size of firms and transactions, many SMEs conduct their business transactions with customers and suppliers in cash instead of through the banking system. This inhibits the bankers from assessing the borrower's actual cash flow and financial performance. Furthermore, if credit disbursement is conducted in cash, banks cannot verify and assure that the loan will be used for the proper purpose.

From the **supply side's** drawbacks, the following obstacles hinder bank from involvement in lending to SMEs:

**(i) Weaknesses in institutional framework** such as poor contract enforcement, weak property rights, high costs of registering collateral, complicated bankruptcy procedures, and inefficient legislation: These institutional drawbacks make banks face the challenges of liquidating and seizing assets pledged as collateral on defaulted loans. This partly explains why banks prefer properties with clearer proof of ownership as collaterals rather than other assets and why business potentialities and financial performance are not taken into account seriously.

**(ii) The weak regulatory guidelines administering the banking sector:** It is recognized that Vietnam banking sector lacks strong institutional infrastructure that empowers asset registration, facilitates credit guarantee and the liquidation of collateral, encourages corporate governance and promotes professional accounting and bookkeeping practices.

**(iii) The weaknesses of credit information facilities:** The Credit Information Centre (CIC) was founded in 1999 as an independent entity under the SBV. Until 2012, CIC was the exclusive center which collected and disseminated credit information about businesses and individuals for the Vietnam credit market. In the near future, Vietnam credit information joint stock company (PCB), the first private credit bureau established in Vietnam, in 2010, will start to provide credit reports to its members. Both CIC and PCB are generating based on the principle of reciprocity. This principle is generally applied by many credit bureaus all over the world. It is a set of rules governing the sharing of credit information between the credit bureau and its member only. For instance, only credit institutions that provide data to PCB can obtain PCB's credit reports while those that do not provide information cannot. The difference between Vietnam CIC and PCB is that the participation of commercial banks in CIC is mandatory while in the case of PCB, it is a voluntary basis. Additionally, CIC is a State-owned institution, serving as a supervisory tool of the State Bank, meanwhile PCB is a joint-stock company, operating with the target of profit optimization. Moreover, the target markets of PCB are consumer credit and small business credit markets. PCB commits to collect and distribute a full credit report with both positive and the negative information from the financial institutions and non-financial institutions such as retailers and utility companies. Meanwhile, CIC has more advantages regarding the

large database, but the information from credit reports issued by CIC is still limited because CIC has not yet covered information from non-financial institutions. The emergence of private credit bureaus will improve the competitiveness of the Vietnam credit information market and bring more benefits to underserved borrowers such as consumers and small enterprises.

Besides, there are a variety of databases on SME that are preserved by several agencies and accessible to the public, some at a small fee such as the Agency for SME Development, Vietnam Chamber of Commerce and Industry, Hanoi SME Association and the Business Promotion and Service Center. However, the data of these agencies is not updated frequently and it takes time and costs if loan officers need to collect information from all these sources.

**(iv) Low level of credit officers' expertise in assess borrower's creditworthiness or the lack of knowledge or ability to appraise and govern liquidation of other comparatively secure collaterals** such as tools and machinery. The main reason is that most loan officials graduate from economic universities; therefore, the lack of specialized technical knowledge hinders them from evaluating collaterals which are equipment or machinery. This makes bank reluctant to accept other assets as collateral other than property.

**(v) Considerable information asymmetry between credit grantors and SME borrowers:** In order to assess the borrower's creditworthiness, loan officers need updated and reliable information about the firm and the industry in which the firm is operating. However, in the loan approval process, loan officers in Vietnam often face the challenges of gathering and verifying reliable data of the borrower and business

information. The problem of insufficient data occurs at three levels: national, industry and firm level.

At the national level, loan officers often criticized that there is insufficient information about existing firms. According to the Enterprise Law in Vietnam, it is not very hard to establish an enterprise, but there is often limited information about whether there have been any significant modifications such as change in addresses, industry, management structure and chartered capital since it were first established or even whether that firm still exists.

At the industry level, there is almost no database about the industry data, especially relating to SME operations. Loan officers said that their knowledge about industries is mainly gathered from the database of listed companies provided by stock companies.

At the firm level, information provided by SMEs themselves, especially financial information seems to be untrustworthy. In most cases, SMEs do not provide banks with audited financial statements. As mentioned above, since SMEs often have more than one accounting book, it is tricky to know the actual profit of borrowers. Even some SMEs are unwilling to show full accounting records and other documents, while others do not have appropriate bookkeeping.

**(vi) The SOCBs give the priority in lending to SOEs rather than private sector firms.** The SOCBs do not have the independence in making commercially feasible decisions. Since SOEs often receive the implicit guarantee from the government and they are also considered “too big to fail”, SOCBs assess the SOEs as being lower risk borrowers than private firms. As a consequence, this creates a market distortion

where credit flows to SMEs is rationed, hinders fair competition among enterprises as well as bankers, aggravates moral hazard problems and creates the dependent syndrome and non-repayment culture for SOEs.

**(vii) Burdensome lending procedure and documentation:** This is particularly the case for borrowers requiring small loan amounts. SME borrowers must make a business plan that takes time and expense to prepare, provide bankers financial reports and other documentations and then wait for the application to be accepted. The lending procedure can last from several days to several weeks or even months.

**(viii) Weak savings mobilization:** In developing countries like Vietnam, it appears that people do not feel confidence in the national currency as well as the banking sector. Vietnam households still prefer to hold savings in foreign currency or in gold at home instead of making deposits at banks. This partly results in the banking sector's small and short-term deposit base. In turn, it impedes bankers from providing medium and long-term loans to SMEs.

### **3.5 The Role of the Government**

The 'Doi Moi' reform program in 1986 is considered as an important milestone of Vietnam private sector development. Following this program, various policies and regulations were introduced and executed to promote the development of Vietnam business private sector such as the Private Company and Enterprises Law in 1990, the new Enterprise Law in 2000. Furthermore, the government also promulgated specific policies for SMEs such as the SME Development Plan from 2006-2010, the SME Development Plan from 2011-2015 (Decision No. 1231/QD-TTg). One of significant issues and solutions in these policies was to support access for finance and to improve

credit accessibility and efficiency generation of capital for SMEs. In addition, a central government agency under the control of the Minister of Planning and Investment, namely Agency for SME Development (ASMED), was established to take charge of construction and implementation of SME policies.

During the last decade, the government also implemented a variety of programs on human resource training, intellectual property development in order to support SMEs. For instance, during the period 2004-2008, the ASMED implemented 3,704 training programs for SMEs, comprising “1,372 courses on starting businesses, 2,304 courses on business management and 28 courses of training for trainers, with 182,870 participants” (Vo et al., 2011).

Regarding methods to support SMEs’ access to finance, the government implemented many programs to support SMEs. Those include encouraging financial institutions to broaden loans for SMEs; founding credit guarantee funds for SMEs; providing training programs for SMEs to help them enhance their capability in management skills and preparation of business plans; establishing SME development funds, export support funds, development assistance funds at the localities.

Moreover, in order to support enterprises, SMEs included, in access to credit in the circumstance of economic recession since 2008, the government applied a flexible monetary policy, implemented measures to control inflation to maintain the stability of the economy, diminishing the required reserve ratio of credit institutions, reducing the basic interest rate, etc.

In sum, the private business sector, particularly SMEs, receives a significant consideration from the Vietnam government. As yet, there is no study assessing the

effectiveness of these supporting programs and policies of the government. Regardless of the government's efforts, SMEs still reported that they face difficulties in accessing formal loans and bankers still complain about the hindrances and risks in lending to SMEs.

### **Chapter Summary**

In addition to the introduction of Vietnam economy and finance sector, the chapter presented characteristics of Vietnam SME sector, issues of SME debt financing, the bank's lending procedure and practices in SME lending as well as the constraints to credit access from the viewpoint of both SMEs and lenders. The chapter also briefly covered the role of Vietnam government in supporting and promoting SME development, particularly SME access to finance.



## **CHAPTER 4**

### **RESEARCH METHODOLOGY**

By examining behavioral finance factors, social capital factors, and information involved in the lending screening process, the study is an attempt to provide a further insight into the micro level supply and demand factors that influence the debt financing decisions as well as credit accessibility of Vietnam SMEs. The research methodology is designed to address the aforementioned purpose. The next part discusses the methods applied in the study. This chapter also describes the construction of questionnaire, instrument reliability and validity. Detailed information regarding data collection and analysis techniques are also provided.

#### **4.1 Research Design**

The research design involves the strategies that assist the methodical organization of data collection (Cooper & Schindler, 2006). There is no single way to conduct a research. According to Cooper & Schindler (2006), selecting any particular type of approach for a study depends on the researcher's decision based on several specific contexts such as the nature of the research, the nature of phenomena, the overall aims of the research, the characteristics of the participants, the targeted audiences, the funders, and the status or position of the researchers. Zikmund (2003) acknowledges that there are three fundamental types of research design, including qualitative design, quantitative design and a hybrid between qualitative and quantitative research design.

Quantitative research, by and large, refers to the production of statistical data from surveys using techniques such as questionnaires and interviews in order to “generalize the results to a wider setting” (Zikmund, 2003). Quantitative approach will help the

researchers to gain the research phenomenon in width, to measure variables, to test hypotheses and to estimate or calculate the prevalence of the research results. Quantitative method is considered as a particularly efficient approach for collecting information or data, especially for large groups of population. One advantage of quantitative approach is that it generates the objectivity and accuracy of received results. In addition, this approach also assures designated methods to investigate both validity and reliability. Another dominance of the quantitative method is that it altogether eradicates bias and produces actual results because it generally filters all external factors. It also allows analysts to maintain a short distance from engaging subjects. Furthermore, quantitative approach is a good method to “finalize results and disprove or prove a hypothesis” (Cooper & Schindler, 2006).

The dissertation employs the quantitative research design in collecting data from SMEs and credit officers. We opt for the quantitative approach because of the advantages of this method such as the convenience in analyzing data and testing hypotheses through statistics as well as the generalization of the outcomes to a wider population. Additionally, the results acquired through the quantitative approach are unbiased and the design is more systematic compared with qualitative research approach (Zikmund, 2003).

We decide to go with a study design strategy involving conducting questionnaire surveys to lenders and SMEs. Besides, the survey method is employed in conjunction with other methods such as interviews and expert consultations as well as econometric analysis such as factor analysis and logistic regression. Furthermore, before implementing surveys to Vietnam SMEs and credit officers, we conducted in-depth interviews with eight Vietnamese bank loan officers at various commercial banks and

eight Vietnam SME owners in Ho Chi Minh City. The interviews with bank loan officers and SME owners were complemented by documents available from the commercial banks (such as lending policies and lending procedure to SMEs). Each interview lasted from one to two hours. The purpose of these interviews was to help us to better apprehend the Vietnam SME sector background from the perspectives of both the SME owners and the credit grantors. This stage also supports us to investigate the face validity of the surveys and serve as a foundation for the subsequent survey design.

## **4.2 Attribute Selection and questionnaire instrumentation**

### ***4.2.1 Attribute selection and questionnaire instrumentation for the demand side***

#### ***4.2.1.1 Attribute selection***

The survey for the demand side was designed to measure the impact of behavioral finance factors and social capital factors on SME financing decision such as credit participation and credit source selection. In fact, measurements of thoughts and attitudes are always controversial issues in the behavioral sciences. Estimations of behavioral finance factors such as present bias preference, risk attitude, debt attitude, and overconfidence are not exceptions. Literature review on behavior finance and firm networking indicated that these factors can be quantified through sets of questionnaire. Therefore, our study utilized questionnaire in previous studies and modified them to fit the context of Vietnam SME sector.

Specifically, regarding the present biased preference factor, a set of experimental choice questions to measure it was modified from previous studies which quantified present biased preference among credit card individuals or micro-finance service users (Harrison et al., 2002; Tanaka et al., 2010; Bauer et al., 2012). Respondents were inquired to select accepting between a smaller amount of money earlier in time and

larger amounts with three-month postponement. We proposed two set of questions with each set included five questions that each increased the future amount while maintaining the earlier amount stable. The first set of questions was offered at a present time frame and the second set was aimed at a future time frame. For example, one of the first question set asked the respondent to select between “Receive 1000\$ today and receive 1100\$ three months later.” By the same token, the second set included the choice between “Receive 1000\$ one year later and receive 1100\$ one year and three months later.” The point at which the respondent swaps from selecting the earlier amounts to the future amounts allows us to calculate his or her discount rate and categorize the respondent into various groups of present-biased preference.

Concerning risk aversion or risk attitude factor, we followed previous empirical studies on the relationship between debt (household debt, credit card using, microfinance) and attitude toward risk (Dohmen et al. 2009; Daly et al., 2010; Bauer et al., 2012; Brown, 2012). To be specific, following sets of questions measuring risk attitude by Sarah Brown (2012), respondents were queried the following question (R1): *“Suppose your business had been running very well and have an ability to guarantee your income for your family. And this current business was your/your family’s only source of income. Then you are given the opportunity to take a new and quite good investment with 50-50 chance that it will double your income. But there is a 50-50 chance that it will cut your income and spending power by a third. Would you accept this new investment?”* The individuals who answered ‘yes’ to this question, were then asked (R2): *“Now, suppose the chances were 50-50 that the new investment would double your income/profit, and 50-50 chance that it would cut it in half. Would you still accept?”* Those individuals who answered ‘yes’ to this question were then asked (R5):

*“Now, suppose that the chances were 50-50 that the new investment would double your income, and 50-50 that it would cut it by 75%. Would you still accept?”* Individuals who answered ‘no’ to Question R1 were asked (R3): *“Now, suppose the chances were 50-50 that the new investment would double your income/profit, and 50-50 that it would cut it by 20%. Then would you accept?”* Those individuals who replied ‘no’ were asked (R4): *“Now, suppose that the chances were 50-50 that the new investment would double your profit and 50-50 that it could it by 10%. Then would you accept the new investment/business?”* Thus, the above sets of questions vary the risk associated with taking the new opportunity.

With respect to the factor of attitude toward debt financing, the construction of debt attitude scale questions was adapted from the studies by Davies & Lea (1995) and Callender & Jackson (2010). Davies & Lea (1995) designed and validated a series of 14 statements to estimate the debt attitude of students. Callender & Jackson (2010) also estimated the debt attitude of individuals through seven Likert scale questions. To the best of our knowledge, there is no study quantifying debt attitude of the SME owners/managers. In our study, debt attitude was estimated through a series of seven Likert-scale questions regarding two facets: general perception of debt aversion and benefit/cost tradeoff of debt financing.

About the overconfidence factor, there is no consistency in measure managerial overconfidence in previous empirical studies. Park & Kim (2009) used the average of twelve months Business Survey Index as proxy measure of overconfidence. Oliver (2005) utilized Consumer Sentiment Index by University of Michigan to measure overconfidence of the U.S. firm managers. Arabsheibani et al. (2000) computed overconfidence index by using questionnaires applied to a large sample, including

entrepreneurs (self-employed) and employees, recording individuals' forecasting errors about their income (or financial condition) perspectives for the subsequent year. In this study, we followed Dai & Ivanow (2010) to measure overconfidence in financing decisions. The authors considered the difference between the practical likelihood that the entrepreneur's request for loans will be rejected given the firm characteristics and the entrepreneur's subjective estimation of this likelihood as the measure of optimism. Generally, the measure of optimism is simply expressed by the following equation:

$$\text{Optimism} = E_U(d|x) - E_S(d|x).$$

Where:

- $E_U(d|x)$  is the objective or realistic likelihood that the firm's loan application is rejected given the firm characteristics  $x$ .
- $E_S(d|x)$  is the expected evaluation of the entrepreneur on the likelihood that the firm's loan application is rejected.

By using their method, there was no need to create so many questions that it would make our survey too long. To measure overconfidence, we just need to include one question in the survey: "During the last three years, were there times when the firm needed credit, but did not apply because it thought the application would be turned down?" (Dai & Ivanow, 2010). The SME owner's response to this question is influenced by the personal estimation of the owner on the firm's true credit condition. This also reflects the owner's level of optimism. The answer for this question is denoted as  $E_S(d|x)$ . Then a logistic regression model is used to predict the relatively actual and objective probability that the firm's loan application will potentially be denied. The value of  $E_U(d|x)$  is the predicted likelihood based on the logistic regression.

Regarding firm networking factors, according to Lechner et al. (2006) there is no concrete measure of networking. However, networking can be measured through a series of questions that were included in the questionnaire. Because of the sensitive nature of our inquiry, detailed questions like "How much did you spend on gifts to government officials?" could have easily triggered non response. Likewise, the inquiry to ask the entrepreneurs to name their business contacts was found to be ineffective in our field study, because managers' personal ties were considered as a personal and business secret. Given these conditions, we followed Peng & Luo (2000) to ask more general questions in order to obtain reliable responses. Networking factors are mainly measured through questions using a five-point Likert scale design, of which six questions were adapted from Peng & Luo (2000), three questions were applied from Nguyen et al. (2006) and three were newly developed. For networking with officials, respondents were queried the extent to which they exploited relationships with government officials for business goals. In the same manner, for networking with business community, respondents were asked the extent to which they made use of social networks with other firm managers such as competitors, buyers and suppliers. For networking with formal credit grantors, the owners/managers were asked the extent to which they utilized relationships with loan officers at banks, people credit funds and microfinance institutions. For networking with informal lenders, respondents were asked the extent to which they have relationship with informal credit providers, such as friends and relatives, business association members, social club members and moneylenders. In special, for networking with credit information bureaus, because of the special role of this institution in firm credit accessibility, five-point Likert scale questions were newly developed to measure attitude of SMEs toward general credit

information sharing activities. Besides, because the activities of credit information bureaus are still vague to many enterprises in developing countries like Vietnam, we also asked for general perceptions of respondents about credit information bureaus, specifically the role and functions of Vietnam credit information center. The True/False questions used to estimate the perception of SMEs are modified from Dunkelberg et al. (1978).

#### *4.2.1.2 Questionnaire instrumentation*

After conducting a quantitative pilot study for checking the instrument validity, some minor editorial adaptation was done to fit the context. The final instrument for the demand side consisted of three main sections. Section 1 refers to question 1 to 20, asking about demographic background of firms and owners such as firm size, firm age, location, firm ownership type, export activities involvement, auditing practice, industry, fixed asset ratio, the owner's gender, age, education and experience years in the field. Section 2 includes 11 questions, which are sets of experimental choice questions to identify behavior finance traits of the firm owners. Section 3 comprises one question, asking about the firm networks. This section is structured using the five-point Likert scale, ranging from "very little" (1) to "very extensive" (5).

Likert scale format is regarded as one of the most prevalent scaled-response format questionnaires in the survey design. Comparing to other commonly used scales, Likert scale is simpler and easier to use for researchers. One of the advantages of Likert scale design is the ability of excluding the answer bias amongst the respondents as well as interviewer bias. It also allows the respondents to answer the survey effortlessly (Newman, 2000). Moreover, this research instrument allows the researchers to effectively carry out the quantitative approach by using statistics for data interpretation



because it is easy to code, analyze and compare the responses among respondents. Moreover, the Likert scale questions can be employed to estimate “attitudes, beliefs, opinions and perception” (Cooper & Schindler, 2003). There have been suggestions that researchers can use either five- or six-point Likert-type scale or even in a range from four-point to eight or nine-point (Neuman, 2007). However, often five ordered response levels are used, although many psychometricians advocate using seven or nine levels (Neuman, 2007). Most modern researchers agree that the neutral rating in a five-point scale is needed when conducting survey research. The respondents might really feel indifferent about a given subject; therefore, if the respondents are presented with a scale without a midpoint (such as a six-point scale), respondent bias happens since the respondents are enforced to select a more negative or positive reply. Neutral is a legitimate judgment that exists among surveyed respondents. Overall, if we canvass every viewpoint of the people that are surveyed, a scale with a neutral rating is necessary. Therefore, five-point Likert scale is used in designing questionnaires of this study for both the demand side and supply side.

#### ***4.2.2 Attribute selection and questionnaire instrumentation for the supply side***

##### ***4.2.2.1 Attribute selection***

A preliminary phase of qualitative research was carried out to identify the principal attributes influencing small business lending decisions of commercial banks. The result of this phase is a list of attributes, which are potentially important to the lending decision of loan officers and will be tested in the empirical phase.

Based on the review of literature on information’s impact on the loan approval process, the attributes selected for the survey belong to two main groups: soft

information and hard information. More specifically, 16 factors selected in the literature review section are developed into necessary attributes for the questionnaire design.

In addition, the attributes were then further supplemented by unstructured interviews with two managers of Credit Committee at Asia Commercial Bank and Sai Gon Thuong Tin Commercial Joint Stock Bank, respectively and eight loan officers at SMEs Credit Department of commercial bank branches including Asia Commercial Bank, Sacombank, Vietcombank, An Binh Bank, Techcombank, Sai Gon Commercial Bank.

Based on the findings of this phase, a set of 52 attributes was established as potentially influences on bank lending decisions (Table 4.1 & 4.2). This set is divided into seven main categories: (i) business organization, (ii) The entrepreneur's financial information, (iii) Collateral Eligibility, (iv) The entrepreneur/owner's capability and integrity (or Trust), (v) firm networks, (vi) relationship lending, (vii) credit history record on the firm and its owner. The attributes serve as initial assumption and hypothesis for the empirical phase.

**Table 4.1: Potential Attributes Influence on Bank Lending Decisions – Hard Information**

No.	Attributes
<b>Business organization</b>	
A1	Firm Size
A2	Corporate brand name
A3	Information about resources of firm
A4	Management philosophy & system
A5	Promising businesses
A6	Business schedules
A7	Information on Customers, market, supplier
<b>The entrepreneur's financial information</b>	
A8	Clear and professional accounting system and reports
A9	Sales and profit
A10	Assets & Capital Sources
A11	Liquidity Ratio
A12	Capital structure Ratios
A13	Profitability Ratios
A14	Operating Ratios
A15	Cash Flow Statement
<b>Collateral Eligibility</b>	
A16	Personal assets of the SME's representative
A17	Pledgeability of real estate collateral
A18	Pledgeability of tangible assets collateral
<b>Credit history record on the firm and its owner</b>	
A45	Positive credit information in transactions with banks
A46	Type and value of collateral securing the loan in the past
A47	Negative credit information in transactions with banks
A48	Bankruptcies of owner
A49	Personal financial information on the owners
A50	Utility payment records
A51	Court judgments
A52	Credit enquiries from other lenders

**Table 4.2: Potential Attributes Influence on Bank Lending Decisions – Soft Information**

No.	Attributes
<b>The entrepreneur/owner’s capability and integrity</b>	
A19	The entrepreneur has relevant background and education
A20	Experience in the field of business
A21	Experience in management
A22	Strategic Planning Ability
A23	Uses IT in managing business
A24	Good at selecting the needed resources
A25	Good at understanding market evolution
A26	Makes positive impression with bankers
A27	Shows positive learning in working with bank
A28	Positive referral on integrity
A29	Willingness to share sensitive and real information
A30	Positive experience with working with banks
A31	Adapts interests with those of commercial partners
A32	Pays attention to the needs of employees
A33	Honest during negotiations with commercial partners
A34	Consistent in behavior and decisions
<b>Firm networks</b>	
A35	Strong personal network with banks
A36	Strong personal network with government officials
A37	Strong network with the entrepreneurs at other firms
A38	Relationship with customers
A39	Relationship with suppliers
<b>Relationship lending</b>	
A40	The length of the bank-entrepreneur relationship
A41	The entrepreneur has been borrowing your bank
A42	The entrepreneur has been borrowing other banks
A43	Your bank is main bank
A44	Number of your bank products the firm is using

#### 4.2.2.2 Questionnaire

The survey questionnaire is employed as the principal data-gathering tool for this study.

The questionnaire includes three sections. Section 1 refers to question 1 to 9, asking

characteristics and basic features relating to loan officers' loan approval process. Section 2 refers to question 10, asking respondents (loan officers) to retrospect the most recent SMEs loan application that they were in charge and give their opinions to the extent of reliability and importance of information supposed to influence lending decisions. This section is structured using the Likert scale, in which five choices are provided for every statement. The choices range from "very little" (1) to "very extensive" (5). Section 3 includes question 11 to 19 asking about characteristics of the firm that applies for loan.

In the stage of designing questionnaire, great attention was paid to the phrasing or parlance, focus, and sequence of the questions. At the first place, the questionnaire was designed in English and then translated into Vietnamese. We also asked two credit managers at commercial banks to proofread and check the questions in order to avoid confusing or difficult phraseologies or terminologies. Through consulting with professors and loan officers as well as pilot testing, the issues of misunderstanding and inappropriate questions were lessened.

### **4.3 Data collection**

#### ***4.3.1 Data collection of the demand side***

We decided to choose Ho Chi Minh City (HCMC) to conduct the survey. The survey was carried out during June–August 2013. Urban-based SMEs were selected mainly because they are located in the most dynamic cities where formal and informal financial institutions gather with high density level; therefore, they have a variety of ways to choose the source for financing their operations. HCMC and Ha Noi are always the leading cities in terms of the number of business start-ups, cumulatively accounting for 50% of established business. In Southeast region particularly, there were 39.08% of the

total of enterprises located at the end of 2009, according to Vietnam SMEs White Book (2011). Moreover, HCMC, the “economic capital” and the biggest finance centre in Vietnam, is the highest populous city where not only informal and formal firms but also informal and formal household businesses and traders converge on. The banking system’s revenue of the city accounts for approximately one-third of the total national banking system’s revenue. Over 50 banks with hundreds of branches and around 20 insurance companies are also located in HCMC.

After obtaining a list of registered SMEs from The Assistance Center for Small and Medium Sized Enterprises in the South of Vietnam, we used simple random sampling method to select 1,500 firms to deliver the survey. Simple random sampling is uncomplicated to apply and data analysis is relatively simple to conduct. Additionally, simple random sampling has a firm mathematical foundation (Cooper & Schindler, 2006). Besides, to diminish the bias and have adequate power in some statistical tests (such as logistic regression and factor analysis), the analysis requires the number of respondents at least as four or five times as the number of variables. The pilot test to 100 companies in HCMC in April, 2013 gave a response rate of 13%; hence, to obtain a sample size of around 130, the questionnaires need to be distributed to at least 1,000 enterprises. Therefore, we managed to approach 1,500 companies to attain a satisfactory number of respondents.

The target respondents are owners or key managers of the companies. With the support of Small and Medium Business Association of Ho Chi Minh City (SMBA), on one hand, we sent the survey through post-mail; on the other hand, we applied personal approach to obtain high response rate. In order to amplify the response rate, in addition to the survey content, we also took into account techniques regarding mail sending. The

questionnaire was sent along with a recommendation letter of an APU's professor, a recommendation letter of SMBA chairman, a cover letter that apparently explained the purpose of the study, and a postage-paid and an addressed return envelope. The questionnaires were sent at the middle of the week and not in a holiday period.

Out of 1,500 surveys distributed, 293 questionnaires were collected. After discarding inappropriate and missing value, 263 completed questionnaires were used to analyze. The response rate achieved 17.5%. This low response rate is understandable in the context of developing country like Vietnam where linkage between the academic world and companies is poor and respondents, especially 'busy' individuals such as firm owners or managers do not have a practice of response to outside researches. Nevertheless, the sample size of 263 is sufficient to conduct further analysis such as factor analysis and logistic regression, given the number of independent variables.

The surveyed firms demonstrated diverse types of ownership such as private enterprises, limited liability enterprises, join-stock companies, and foreign-invested enterprises. Such a diversity results in an objective and comprehensive knowledge of the financial behaviors as well as networks of the urban SME community.

#### ***4.3.2 Data collection of the supply side***

The target respondents of the survey are loan officers working at Credit Departments for SMEs at commercial banks, including state-owned banks and joint stock banks. In order to achieve the highest response rate in a limited time and relative cost, we employed the snowball sampling method. Snowball sampling is a non-probability sampling method that is employed by scholars in order to access to populations that can be difficult to approach and/or unknown. We prefer this sampling method because it is fast,

inexpensive and convenient. Besides, the population of bank loan officers at credit departments cannot be identified exactly, not to mention the difficulty in approaching them. We utilized our available networks in Vietnam banking system to distribute the questionnaire to about 50 voluntary bank loan officers and asked them to introduce other officers to participate in the study. Finally, we distributed the questionnaire to approximately 250 loan officers at credit departments of commercial bank branches in HCMC where most Vietnam commercial banks select to locate their head office. In order to avoid the problem of sampling bias, at the first stage, we tried to contact with 50 voluntary bank loan officers working at different branches of commercial banks. We also asked this first wave of participants to recommend potential participants who works at different branches in the city. By this way, snowballing can be used to approximate a random sample.

The implementation process was carried out from May 2013 to September 2013. The replies collected comprise of 218 cases, achieving 86% of the sample. According to Cooper & Schindler (2006), the response rates from 30% to 50% are typical for survey researches. A response rate of 80% or higher will show that respondents have great interest in the research topic and researchers cannot expect to get 100% of response rate. This indicates that the 86% response rate of the research was high and acceptable.

#### **4.4 Validity and Reliability**

Neuman (2007) emphasized the importance of validity and reliability when indicating that they are the three key concepts in conducting a quantitative research. Reliability and validity are the two necessary pre-established quantitative measures of a research. According to Bryman & Bell (2003), validity and reliability in research design refer to the need to ensure that concepts used in the study measure what they are actually



intended to and that this measurement is consistent and stable for all respondents. They argued further that it is essential that validity and reliability checks are recognized and incorporated in the study using different approaches in order to have results that adequately address the objectives of the study.

#### ***4.4.1 Validity***

Validity, according to Newman (2007), is the most important single characteristic of a standardized test. It ensures that the instrument items measures what they need to measure. There are four types to measure validity, including: i) face validity which displays the assessment by the scientific society that the indicator actually measures the construct; ii) content validity that assures all ideas should be represented in the conceptual area; iii) construct validity that targets at the consistent approach of the measure with various indicators; iv) criterion validity that focuses on the comparison between and indicator and other measures of the similar construct from external sources.

The research methods were designed to satisfy the validity of the study; therefore, the validity was guaranteed at least on the face. The content validity was also assured since numerous attributes that are greatly related to a sphere of content were cautiously selected. Moreover, to ensure the criterion validity, the methods were constructed and modified based on previous studies. The methodology also counted on numerous theories on the impact of behavior finance, firm networking and lending technologies on credit accessibility and the empirical findings of determinants of SMEs credit accessibility in developing countries. Besides, a preliminary qualitative pilot study through interviews with some SMEs owners and bank loan officers was conducted to guarantee the research questionnaire was valid to them. They were also asked to examine language clarity, spelling and grammar, depth and breadth of the instrument

items, and the overall structure. Therefore, the survey approach in investigating SMEs credit access determinants from both the demand side and supply side and other techniques such as factor analysis and logistic regression, all in combination guaranteed the construct validity of the research.

#### ***4.4.2 Reliability***

In the case of the quantitative survey, reliability of the questionnaire instrument was assured in the following manner. The first assurance was that since the questions were derived from the responses of loan officers and borrowers in the qualitative study, the resulting questionnaires were deemed to reflect their views. The questionnaire instrument reliability was also ascertained by carrying out reliability index tests. The target is that for all the questionnaires, the alpha ( $\alpha$ ) values were greater than 0.5 indicating that the questionnaires were reliable instruments for assessing the loan officers' and borrowers' experiences about credit availability to SMEs

Finally, the interim results obtained during the study were subjected to respondent validation at different intervals through discussions by the loan officers and borrowers whose feedback was then incorporated into further analysis.

Reliability, according to Newman (2007), means dependability or consistency. "It suggests that the numerical results produced by an indicator do not vary because of characteristics of the measurement process or measurement instrument itself" (Newman, 2007). Three types of reliability include stability reliability (across time), equivalent reliability (across diverse specialists or across various indicators) and representative reliability (across groups of respondents).

Test and retest method were employed to assure the stability reliability. Accordingly, the questionnaire was redistributed to the identical group of respondents at different points of time. A group of five companies and a group of five bank loan officers were picked out to respond to the survey twice within a month. The content of the questions was remained similarly, but the order of them was altered. As a result, we did not find significant difference in the response, which revealed that the survey instrument satisfy the requirement of stability reliability.

Furthermore, a subpopulation analysis was conducted on five enterprises' demographic information (such as total labors, total capital, the year of establishment, industry, ownership, etc.). Through comparing information from the firms' websites as well as other documents by firms and the response on the questionnaire, we ensured that the respondents gave relatively accurate information on their firms. It indicated that the questionnaire instrument has the representative reliability, at least regarding demographic questions.

Additionally, the Cronbach's alpha test was used to test the internal consistency of the surveys or the fact that attributes of each facets in the questionnaire all reliably measure the same latent variable. A generally accepted rule of thumb for illustrating internal consistency using Cronbach's alpha indicator is as follows (George & Mallery, 2003; Kline, 2000).

**Table 4.3: Thresholds for Cronbach's Alpha Assessment**

<b>Cronbach's alpha</b>	<b>Internal consistency</b>
$\alpha \geq 0.9$	Excellent (High-Stakes testing)
$0.7 \leq \alpha < 0.9$	Good (Low-Stakes testing)
$0.6 \leq \alpha < 0.7$	Acceptable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

The Cronbach's alpha indicator was employed to check the reliability of scales of the owners 'attitude toward debt', 'attitude toward credit information sharing', the firm networks (the demand side survey) and scales of information types used in the bank loan approval process.

**Table 4.4: Reliability Statistics of Cronbach's Alpha Test**

	<b>Total valid cases</b>	<b>Cronbach's alpha</b>	<b>N of items</b>
<b>The survey on SME owners</b>			
Attitude toward debt	263	0.883	6
Attitude toward credit information sharing	263	0.826	5
Firm networks	263	0.889	12
<b>The survey on bank loan officers</b>			
Business Organization	218	0.685	7
Financial Information	218	0.88	8
Collateral Eligibility	218	0.725	3
The entrepreneur's Capability	218	0.75	8
The entrepreneur's Integrity	218	0.802	8
The entrepreneur 's Network	218	0.866	5
Relationship Lending	218	0.77	5
Credit History Records	218	0.817	8

The reliability statistics (Table 4.4) shows that the Cronbach's alpha indicators of all scales indicate a good level of internal consistency for the survey scale (George & Mallery, 2003).

#### **4.5 Data Analysis**

After collecting the completed questionnaires from the respondents, the responses for each question were retrieved, tabulated and coded for analysis. Different analysis techniques were applied to resolve each research issue.

After the data was coded, examined and cleaned, the following data analysis techniques were employed: reliability test of scales with Cronbach's alpha indicator,

explanatory factor analysis (EFA), research model adjustment, confirmatory factor analysis (CFA) with testing validity and reliability of the model, normality tests, parametric or non-parametric tests based on the results of normality tests, and finally logistic regression. The statistical parameters of each step were compared with the criteria applied in the analysis of multivariate data by Newman (2007) and Hair et al. (2010). Two main statistical techniques used in this study are factor analysis and forward stepwise logistic regression.

#### ***4.5.1 Normality of the data***

An estimation of the normality of data is a requirement for various statistical tests because normal data is a primary assumption in parametric tests. Two common methods of assessing normality consist of graphical and numerical methods. Statistical tests have the power of making an objective assessment of normality, but sometimes are disadvantaged due to the insensitivity at low sample sizes or excessively sensitive to large sample sizes. Graphical interpretation has the plus of allowing good estimation of the normality of data in circumstances that numerical tests might be over or under sensitive, but graphical methods are short of the objectivity. In our study, we mainly rely on the numerical methods to examine the normality of the data.

The normality of the population distribution was tested in order to determine whether the data was normally distributed using the Kolmogorov-Smirnov test (K-S) and Shapiro-Wilk (S-W) test. These tests are used to test normality “by comparing the data to a normal distribution with the same mean and standard deviation of the sample” (Alreck & Settle, 2004). If the test result is not significant (p-value above 0.05), the data is normal and vice versa. In particular, the Shapiro-Wilk Test is more suitable to test normality of small sample sizes (< 50 samples), but it can also deal with sample sizes as

big as 2000. Therefore, we decided to apply the Shapiro-Wilk test as the mean of assessing normality.

Applying the Shapiro-Wilk test for independent variables such as risk attitude, debt attitude, firm networks, attitude toward credit information sharing (CIS), owner's age, experience, firm age, fixed assets, the results showed that the Sig. value of the Shapiro-Wilk Test was below 0.05, indicating that the data deviated from a normal distribution. Therefore, in further steps, we decided to use non-parametric tests such as Mann-Whitney Test and Kruskal-Wallis Test to examine the association among variables.

#### ***4.5.2 Association tests***

##### *4.5.2.1 Chi-square test and symmetric measures*

The chi-square test of association or Pearson's chi-square test is employed to examine if there is an association between two categorical variables. The formula for computing chi-square ( $\chi^2$ ) is:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

Where: O is the observed frequency in each category and E is the expected frequency in the corresponding category.

One of limitations of chi-square test is that the association between two variables may not be substantially important, especially when the dimensions of the table or the sample sizes vary. Other measures of association supporting to estimate the relative strength of a statistically significant association include Phi, Pearson's contingency

coefficient and Cramer's V (Alreck & Settle, 2004). The value of these measures ranges from 0 (no association) to 1 (perfect association).

### **Phi**

Phi is a measure of association that regulates the chi-square statistic by the sample size.

The equation to compute Phi ( $\varphi$ ) is:

$$\varphi = \sqrt{\frac{\chi^2}{n}}$$

### **Pearson's Contingency coefficient**

Pearson's Contingency Coefficient is another chi-square based measure of association, and it also regulates for different sample sizes. The contingency coefficient (C) can be defined as:

$$C = \sqrt{\frac{\chi^2}{n + \chi^2}}$$

### **Cramer's V Coefficient**

Another chi-square based measure of association is Cramer's V Coefficient (V). This measure is defined as:

$$V = \sqrt{\frac{\chi^2}{n(q - 1)}}$$

Where: q is the smaller number of rows or columns

#### *4.5.2.2 Mann-Whitney U Test*

Non-parametric tests are commonly applied instead of parametric tests in the case that certain assumptions about the underlying population are problematic, such as the violation of the normality. The Mann-Whitney U test (also called the Mann-Whitney-

Wilcoxon) is a non-parametric test of whether two independent samples of observations are drawn from the same or identical distributions. It is the non-parametric analogue to Student's t-test. “The logic behind the Mann-Whitney test is to rank the data for each condition, and then see how different the two rank totals are. If there is a systematic difference between the two conditions, then most of the high ranks will belong to one condition and most of the low ranks will belong to the other one” (Alreck & Settle, 2004). The formula for Mann Whitney U Test is as follows:

$$U = n_1n_2 + \frac{n_2(n_2 + 1)}{2} - \sum_{i=n_1+1}^{n_2} R_i$$

Where: samples of size  $n_1$  and  $n_2$  are pooled and  $R_i$  are the ranks; U can be solved as the number of times observations in one sample precede observations in the other sample in the ranking.

#### 4.5.2.3 Kruskal-Wallis Test

The Kruskal–Wallis test is the most frequently employed when there is one nominal variable and one measurement variable, and the measurement variable does not satisfy the normality assumption of an ANOVA. “It is the non-parametric analogue of a one-way ANOVA and an extension of the Mann-Whitney U test to allow the comparison of more than two independent groups” (Alreck & Settle, 2004). A one-way ANOVA may produce imprecise estimates of the P-value when the data does not follow the normality distribution. Meanwhile, the Kruskal–Wallis test does not require assumptions about normality. Similar to most non-parametric tests, it is computed on ranked data, so the measurement observations are switched to their ranks in the overall data set. The Kruskal-Wallis test statistic (K) is given by:



$$K = (N - 1) \frac{\sum_{i=1}^g n_i (\bar{r}_i - \bar{r})^2}{\sum_{i=1}^g \sum_{j=1}^{n_i} (r_{ij} - \bar{r})^2}$$

Where:

- N is the total number of observations across all groups
- $n_i$  is the number of observations in group i
- $r_{ij}$  is the rank (among all observations) of observation j from group i

### ***4.5.3 Factor analysis***

Factor analysis is defined as one of the multivariate statistical methods whose principal purpose is to reduce and summarize data. Generally speaking, it can be used to analyze the interrelationships among a large number of variables and then explain these variables in terms of their common, underlying dimensions or factors (Hair et al., 2010). Factor analysis is regularly applied in the psychological fields and behavior measurements and is regarded as a great method for construing self-reporting questionnaires. There are two chief types of factor analysis, including Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). EFA is generally a heuristic method. In EFA, the researcher has no prospect of the nature and the number of the variables and as the name of EFA indicated, is exploratory in nature (Pett et al., 2003). In other words, EFA helps the investigator to “explore the main dimensions to generate a theory, or model from a relatively large set of latent constructs often represented by a set of items” (Henson & Roberts, 2006). The EFA’s primary objective is to decrease and group the abundant measured variables into a few more dependable latent constructs. Meanwhile, in CFA, the investigator applies this method to examine a prospective theory or expected model. In opposition to EFA, CFA has assumptions and expectations based on predetermined theoretical framework in terms of the number of factors, and which factor theories or models best fit. Generally speaking, the goal of

CFA is to investigate a priori theory or a model when the researcher has an sufficient foundation or hypothesis regarding the data structure (Henson & Roberts, 2006).

Our study uses EFA approach to explore the latent factors affecting bank lending decisions to SMEs and to compute composite indices measuring behavior factors such as attitude toward debt financing and attitude toward credit information sharing. One of the topics the researchers discuss around factor analysis issues is the number of factors to retain, which is the most important decision to make after factor extraction. Misstep at this stage, such as extracting too many or too few factors, is likely to cause incorrect conclusions in the analysis (Fabrigar et al., 1999; Hayton et al., 2004). In deciding how many factors should be retained, researchers are often advised to consider several criteria:

- A predetermined number of factors based on research objectives and/or prior research (Hair et al., 2010): When apply this criterion, the investigator already knew how many factors to be retained before conducting the factor analysis. The researcher simply assigns the computer or statistic software to stop the analysis when the expected number of factors have been extracted. The disadvantage of this criterion is subjectivity.

- Percentage of variance criterion: The researcher stops factoring when achieves a specified cumulative percentage of total variance extracted. However, there is no absolute threshold for all applications. In the social sciences, the percentage of variance explained is usually recommended to be 60% or higher (Hair et al., 2010).

- Kaiser's eigenvalue-greater-than-one rule (K1 or Kaiser criterion): According to this rule, factors with eigenvalues greater than 1.0 should be retained. However, this procedure often leads to over-factoring and sometimes under-factoring. Furthermore, “this criterion is precise when there are less than 30 variables and communalities after

extraction are greater than 0.7 or when the sample size exceeds 250 and the average communality is greater than 0.6” (Fabrigar et al., 1999). Since our sample sizes were below 250 and initial analysis showed that the average of the communalities was below 0.7, Kaiser’s rule may not be accurate.

- Cattell's scree plot: This approach inspects the graph to decide the last considerable fall in the magnitude of eigenvalues. The number of plotted points before the last fall is the number of factors retained in the model. However, many researchers do not opt for this method because of its subjective nature (Hayton et al., 2004).

- Horn's Parallel analysis (PA): This is one of the methods most suggested to determine the number of factors retained problem, but is not accessible in regularly used statistical packages. PA is a technique based on the generation of random variables, to decide the number of factors to retain. PA was introduced by Horn (1965), contrasting the observed eigenvalues extracted from the correlation matrix to be analyzed to those acquired from uncorrelated normal variables. From the perspective of computation, PA refers a Monte Carlo simulation process, “since expected eigenvalues are obtained by simulating normal random samples that parallel the observed data in terms of sample size and number of variables” (Ruben & Pedro, 2007). A factor is regarded as significant if the associated eigenvalue is bigger than the mean of those obtained from the random uncorrelated data. Numerous researches suggested that PA is a suitable technique to decide the number of factors to retain (Zwick & Velicer, 1986; Humphreys & Montanelli, 1975). Zwick & Velicer (1986) proved that, among the techniques analyzed, PA is “the most accurate, showing the least variability and sensitivity to different factors”. Therefore, in this study, we chose PA to determine the number of factors retained.

Other issues need to be taken into account are the selection of the threshold for the satisfactory communality value and the significant factor loadings. In this study, the significant communality value and the satisfactory factor loadings that may promise convergent validity for the analysis are 0.4 and 0.6 (or higher), respectively. There are some reasons we choose these thresholds. First, if communalities for a certain variable are low (between 0.0-0.4), it is hard for that variable to load significantly on any factor. Thus, higher communalities are better (Hair et al., 2010). Second, regarding the threshold used for factor loading cut-off, according to Hair et al. (2010), the threshold for sufficient factor loadings depends on the sample size of the data set. With the sample size below 250, the sufficient factor loadings were recommended to be approximately 0.5 or higher. Furthermore, Field (2005) suggested that a factor is considered reliable if it has four or more loadings of at least 0.6 regardless of the sample size. When the items have dissimilar frequency distributions, Tabachnick & Fidell (2007) proposed using more rigorous cut-offs going from 0.32 (poor), 0.45 (fair), 0.55 (good), 0.63 (very good) to 0.71 (excellent). However, in our case, since there were lots of attributes and the dataset just met the minimum requirement of sample size for conducting factor analysis, the stricter threshold (0.6) were set up for sufficient factor loadings in order to guarantee the convergent validity for the analysis.

Generally, the principal criteria for factor analysis were set as follows:

- Kaiser-Meyer-Olkin (KMO): from 0.50 to 1.00;
- Number of factors to retain is decided according to the result of Parallel Analysis;
- Significant level: less than 0.01;
- The satisfactory communality value: 0.4 or higher
- The cumulative percentage of variance: 0.6 or higher

- Orthogonal rotation with variance maximizing rotation (Varimax), the most common rotation used by published articles, were selected (Fabrigar et al., 2004).

After EFA was used to develop scales, we also applied CFA to verify the factor structure of a set of observed variables getting from EFA results. EFA and CFA have the similar purpose in determining the number and nature of factors or latent variables that mainly explain the variation and covariation among a set of indicators or observed variables. Both types of analysis try to reproduce the observed relationships among a set of indicators with a smaller set of latent variables. One advantage of CFA over EFA is that it supports specification of the covariance structure for scales (George & Mallery, 2003). Another advantage of CFA is the ability to estimate the relationships among variables adjusting for measurement errors. Additionally, CFA is beneficial for researchers in terms of the flexibility and the power in assessing the dimensionality of their scales, the reliability of their scales, and, conclusively, the validity of their scales (convergent validity, discriminant validity). Some researchers insisted that CFA has advantages over other statistical techniques such as EFA and regression and indices like coefficient alpha (John & Benet-Martinez, 2000; McArdle, 1996). Commenting on the utility of confirmatory factor analysis, Gorsuch (1983) stated: "Confirmatory factor analysis is powerful because it provides explicit hypothesis testing for factor analytic problems....Confirmatory factor analysis is the more theoretically important-and should be the much more widely used-of the two major facto analytic approaches."

In a common cross-validation study, CFA is implemented on the new data collected independently of the primary study in which a factor structure was derived by EFA. However, if the two techniques are used to dissimilar data sets, it is hard to conclude whether methodological causes such as "incomparability of EFA and CFA,

inappropriate applications of EFA and inappropriate applications of CFA accounts for a lack of correspondence between EFA and CFA” (Prooijen & Kloot, 2001). George & Mallery (2003) suggested that “In any case, it seems prudent to supplement a CFA with an EFA applied to the same data and include EFA-generated scales along with theory-based scales in CFA comparisons.” Therefore, our study use EFA and CFA for the same data to finalize the measurement indices of soft and hard information affecting bank lending decisions or SME credit accessibility.

To evaluate the appropriateness of CFA model, there are numerous measures helping the analyst in deciding whether to reject or cautiously keep a priori specified over-identified model. In other words, various goodness-of-fit tests were used to assess the fit between the hypothesized model and the data to conclude if the model being tested should be rejected or accepted. These are the Comparative Fit Index (CFI), the Root Mean Square Error Approximation (RMSEA), the Adjusted Goodness of Fit Index (AGFI), Standardized Root Mean Square Residual (SRMR) and the minimum fit function Chi-Square ratio degrees of freedom (CMIN/DF) (Steiger & Lind, 1980; Marsh & Hocevar, 1985; Bentler, 1990; Hair et al. 2009). CFI greater than 0.90 suggests a good fit to the data, and the RMSEA of about 0.05 expresses a close fit of the model and 0.08 shows a reasonable error of approximation. The AGFI equal or greater than 0.8 and the SRMR with a value of 0.08 or less generally indicate acceptable model fit (Hair et al., 2009). In addition, though Chi-square test is commonly used in the literature, it is dependent on the sample size and it is not recommended for evaluating a single model. Instead, Chi-Square is helpful to compare between two nested models (Kline, 2005). Hence, in our study, CMIN/DF indicator was applied instead of chi-

square test. According to Arbuckle (2006), CMIN/DF value ranging from 2 to 1 or from 3 to 1 suggests an acceptable fit between the sample data and the hypothetical model.

With respect to validity and reliability when doing a CFA, there are a few useful measures: Composite Reliability (CR), Average Variance Extracted (AVE), Maximum Shared Variance (MSV), and Average Shared Variance (ASV). The thresholds for these values are exhibited in Table 4.5:

**Table 4.5: Thresholds to Evaluate Reliability and Validity**

	Composite reliability	Convergent validity	Discriminant validity
Thresholds	AVE > 0.5 CR > 0.7	CR > AVE AVE > 0.5	MSV < AVE ASV < AVE

Source: Hair et al., 2010

Especially, regarding factor loadings of a CFA, according to the rule of thumb in CFA, loadings should be 0.7 or higher to validate that independent variables diagnosed a priori are represented by a particular factor. Nonetheless, the threshold of 0.7 is relatively high and actual data may not satisfy this requirement. This explains why some researchers, particularly for exploratory purposes, will use a lower threshold such as 0.4 or 0.5. In fact, in any circumstance, factor loadings should be clarified under the light of theory, not by arbitrary cutoff levels. In this study, we follow the threshold of factor loadings suggested by Hair et al. (2010): Factor loading should be greater of 0.5. Generally, the criteria for CFA were set as presented in Table 4.6.

**Table 4.6: Criteria for Evaluating CFA Model**

Measure	Threshold
Chi-square/df (cmin/df)	<3 good
p-value for the model	>0.05
CFI	>0.95 great; >0.90 traditional; >0.80 sometimes permissible
AGFI	>0.80
SRMR	<0.09
RMSEA	<0.05 good; 0.05-0.10 moderate; >0.10 bad
PCLOSE	>.05
Factor loading	>0.5
Validity and Reliability	See Table 4.6

Source: Hair et al., 2010

#### **4.5.4 Logistic regression**

Logistic regression is a mathematical modeling approach that can be used to describe the relationship of several independent variables to a dichotomous or categorical dependent variable. It is a type of probabilistic statistical classification model. The logistic regression model presents the influence of each explanatory variable on the outcome of the dependent variable and it is also applied to predict the outcome of an event. In this study, the binary logistic regression was used to quantify the impact of each potential factor that could affect the SME credit participation, SME credit source selection, and SME credit accessibility from the perspective of bank loan officers (or bank lending decisions).

The logit model is expressed as:

$$p_i = P(y_i = 1) = F(z_i) = \frac{1}{1 + e^z}$$

Where:

$$z_i = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$$

Where:

- $p_i$  is the probability that a considered event occurs



- $x_1: x_k$  is the observation of the  $k^{\text{th}}$  independent variable
- $\beta_0, \beta_1, \dots, \beta_k$  are the regression coefficients that will be estimated

In other words, logistic regression formula can be simply expressed as follows:

$$\text{logit}[p(x)] = \log \left[ \frac{p(x)}{1 - p(x)} \right] = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$$

The fit of the model is evaluated through the classification table, which suggests the percentage correct of the model and the value of  $-2 \log$  likelihood, which describes how well the model explains variations in the outcome.

The Hosmer-Lemeshow test is used to measure how well the model performs. This test provides a measure of the agreement between the observed outcomes and the predicted outcomes. This statistic is a test of the null hypothesis that the model is good. Therefore, a good model is indicated by a high p-value (higher than 0.05).

In addition, binary logistic regression model can be developed either by using forward/back step methods or by using all the independent variables in the model. Forward/backward step methods are usually used in explorative study where it is not known whether the independent variable has some effect on the target variable or not or in the case the hypotheses are not very strongly supported by previous research (Menard, S., 2001). Alternatively, all the independent variables are used in developing a model if the effect of independent variables is known in advance and one tries to authenticate the model. In addition, the single ‘enter’ method in SPSS or the ‘Forced Entry’ method does not release the final model with all variables at significantly statistical level. Therefore, we decided to use forward method that is considered to be the most efficient method. “Forward selection is the usual option for a stepwise regression, starting with

the constant-only model and adding variables one at a time. The forward stepwise logistic regression method utilizes the likelihood ratio test (chi square difference) which tests the change in  $-2LL$  between steps to determine automatically which variables to add or drop from the model” (Hosmer & Lemeshow, 2004).

Especially, for the demand side analysis, we applied the multiple binary regression with two steps in testing our hypotheses instead of a multi-nominal logit model. In step 1, the data is divided into two groups: the firms that did borrow from either formal credit institutions or informal credit institutions or both and those that completely did not use debt in their capital structure. We then used binary logistic regression to inspect if the factors hypothesized affect the probability of participating in a certain credit source. In step 2, we selected firms that have debt in their capital structure, we then examined if the variables of interest affect credit source selection among SMEs to interpret motivations of SMEs when they choose bank loan or informal loans as the main financing source. Some empirical studies suggested that binary logistic model was superior to multi-nominal logistic model in predicting the probability of a considered event. Binary logistic regression model has some advantages over multi-nominal logistic regression: first, smaller misclassification errors help to improve the accuracy of forecasting (Bi-Huei Tsai, 2012); second, binary logistic model helps to detect outliers easily and require the smaller sample size than the one of multi-nominal model (Menard, S., 2001). Thus, in our study, the multiple binary logistic regression is preferred instead of a single multi-nominal logistic model.

We have also taken care to check the absence of any serious problems of multicollinearity between the explanatory variables, after calculating the variance inflation factors (VIF). The model validation is checked by the Hosmer-Lemeshow statistic and

R-squared, while the model adequacy is tested by the correct predicted percentage and the deviation obtained when guesstimating the selected model. In addition, cross-validation test is employed to estimate the performance of predictive models. “One round of cross-validation involves partitioning a sample of data into complementary subsets, performing the analysis on one subset (called the training set), and validating the analysis on the other subset (called the validation set or testing set)” (Ricci et al., 2011). Random sub-sampling validation method is used in our study to divide data. Random sub-sampling, which is also known as Monte Carlo cross-validation as a multiple holdout or as a repeated evaluation set, is based on randomly splitting the data into subsets, whereby the size of the subsets is defined by the user. A common division of data is 80% train and 20% test. “The 80/20 proportion should be taken as a rule of thumb as, in general, any value over 2/3 for the training set is appropriate” (Ricci et al., 2011).

### **Chapter Summary**

This chapter provided a discussion of the research methodology applied to the present study. The steps in the business research process were discussed. This included a comprehensive discussion of the scope of the survey, the sampling method and the organization of the survey. In addition, the data collection techniques and data analyses employed in the dissertation were also highlighted.

**CHAPTER 5**  
**FINDINGS OF THE CREDIT DEMAND SIDE –**  
**DETERMINANTS OF CREDIT PARTICIPATION AND CREDIT SOURCE**  
**SELECTION AMONG VIETNAM SMEs**

This chapter presents the research findings from the perspective of credit demand side. The chapter starts with the description of the background data of the research respondents – SME owners. Then it highlights the survey results concerning the determinants of SMEs debt financing decisions such as credit participation and credit source selection.

From 1,500 distributed questionnaires, 263 valid completed replies returned. The questionnaires are considered as “valid” if they are cautiously answered in most items of the questions. The survey on SMEs owners achieved a response rate of 17.53%. Though the response rate is at moderate level, it is considered a relatively acceptable rate for a mail survey (Neuman, 2007). Moreover, according to Choung et al. (2013), a low response rate does not indicate that the accuracy of the survey is low.

## **5.1 Definition and Measurement of Variables**

### ***5.1.1 Description of dependent variables***

There are two dependent variables used to test the hypotheses in this study. They are defined as:

CREDITPART: Participation of the SME in a credit program, regardless of informal or formal credit source. This is a dichotomous variable that takes the value 1 if the SME use debt in their capital structure or have access to credit and 0 otherwise.

CRESOURCE: A binary variable that receives the value 1 if the SME choose formal credit sources (bank loans) as their main financing source and 0 otherwise. In the survey, the value is assigned based on the differential between the formal bank loan ratio and informal debt ratio. For instance, if the bank loan ratio of the firm is higher than the informal debt ratio, CRESOUCE is assigned the value of 1 and 0 otherwise. In the case there is no differential between formal and informal debt ratio, the value of the variable will depend on the very subjectively individual assessment of the respondents/owners about the importance of financing sources in their business operations.

### ***5.1.2 Description of independent variables***

Explaining variables include the variables measuring behavioral finance factors, the variables represent social capital factors and control variables.

#### ***5.1.2.1 Behavioral finance factors***

Measurements of thoughts and attitudes are always controversial issues in the behavioral sciences. Estimations of behavioral finance factors such as present bias preference, risk attitude, debt attitude, and overconfidence are not exceptions.

PRESENTBIAS: It is a categorical variable measuring the present biased preference of respondents. This variable is measured through a set of experimental choice questions modified from previous studies (Harrison et al., 2002; Ashraf et al., 2006; Andersen et al., 2008; Tanaka et al., 2010; Bauer et al., 2012). Based on the selection of respondents, we divided the population of respondents into four groups: time consistency (current and future discount rates are equal); patient now-impatient later (Less patient over future tradeoffs than current tradeoffs); weakly present biased

(Slightly more patient over future tradeoffs than current tradeoffs); and strongly present biased (Strongly more patient over future tradeoffs than current tradeoffs).

**Table 5.1: Time Preference Responses Classification**

		Future Discount rate						Grand Total
		Patient			Impatient			
		DR=0.03	DR=0.08	DR=0.15	DR=0.25	DR=0.35	DR=0.53	
Current discount rate	Patient DR=0.03	11 4.8%	0 0%	1 0.4%	0 0%	0 0%	1 0.4%	13 5.7%
	DR=0.08	14 6.1%	7 3.1%	3 1.3%	1 0.4%	0 0%	0 0%	25 11%
	DR=0.15	3 1.3%	29 12.7%	41 17.9%	3 1.3%	5 2.2%	4 1.8%	85 37.1%
	DR=0.25	1 0.4%	4 1.8%	16 7%	6 2.6%	2 0.9%	7 3.1%	36 15.7%
	DR=0.35	1 0.4%	1 0.4%	4 1.8%	10 4.4%	10 4.4%	2 0.9%	28 12.2%
	DR=0.53	0 0%	1 0.4%	4 1.8%	7 3.1%	13 5.7%	17 7.4%	42 18.3%
Impatient	Grand Total	30 13.1%	42 18.3%	69 30.1%	27 11.8%	30 13.1%	31 13.5%	229 100%

	Weakly present-biased (light blue)	35.81% (next to the diagonal)
	Patient now, impatient later (white)	12.66%
	Strongly present-biased (dark blue)	11.35% (further off the diagonal)
	Time consistency (red)	40.17% (on the diagonal)

RISKATTI: This is an ordinal variable measuring risk attitude or risk aversion of SME owners/managers. Following previous empirical studies on the relationship between debt (household debt, credit card using, microfinance) and attitude toward risk, we designed a set of six hypothetical gamble questions to quantify the risk aversion (Bauer et al., 2012; Daly et al., 2010; Dohmen et al. 2009; Eisenhauer & Ventura, 2006).

**Table 5.2: Distribution of Risk Attitude Response**

	Value	Definition	Percentage (%)
RA	1	if R1=Yes & R2=Yes & R5=Yes	12.5
	2	if R1=Yes & R2=Yes & R5=No	20.5
	3	if R1=Yes & R2=No	25.9
	4	if R1=No & R3=Yes	21.7
	5	if R1=No & R3=No & R4=Yes	12.9
	6	if R1=No & R3=No & R4=No	6.5

DEBTATTI: It is a ratio scale variable measuring the attitude toward debt of the SME owners/managers. Principle component analysis was used to calculate the debt attitude index. Based on the rule of thumb that significant factors should have eigenvalues greater than 1.0, the scree plot and the results of parallel analysis, only one factor is retained (see Appendix C). KMO Test reached 0.84, showing the adequacy of sampling to conduct the principal component analysis. Factor score was used as a Non-standardized Index (NSI) to measure overall attitude to credit information sharing activities. The value of the index can be positive or negative and therefore, making it difficult to explain. Thus, a standard index (SI) was developed by Min-Max method:

$$SI = \frac{(NSI \text{ of each case} - \text{Min NSI})}{(\text{Max NSI} - \text{Min NSI})} \times 100$$

The standard attitude index is easier to interpret: the higher the value, the more positive the attitude toward borrowing.

OVERCONFI: We followed Dai Na & Ivanow (2010) to measure overconfidence in financing decisions. They measured the overconfidence as the difference between the feasible probability that the firm application for loans will be refused given the firm characteristics as well as credit conditions and the firm owners/managers' subjective

evaluation of this likelihood. This is a dichotomous variable with a value of 1 if the firm owner is considered 'overconfident' and 0 otherwise. (see Appendix E).

NETWORKS: We followed Peng and Luo (2000) in using average method to create a composite measure of the networks of SMEs with officials, business communities, formal credit grantors and informal credit grantors.

NETOFFICIAL: Networking with officials, respondents were queried the extent to which they made use of relationships with government officials at all levels for business purposes.

NETBUSINESS: Networking with business community, respondents were inquired the extent to which they exploited social networks with executives of other firms such as competitors, buyers and suppliers.

NETFORMAL: Networking with formal credit sources, respondents were asked the extent to which they utilized relationships with loan officers at banks, people credit funds and microfinance institutions.

NETINFORM: Networking with informal credit sources, respondents were asked the extent to which they have relationship with informal credit providers, such as friends and relatives, business association members, social club members and moneylenders.

CICAWARE: General perceptions of respondents about credit information bureaus, specifically the roles and functions of Vietnam credit information center. The True/False questions used to estimate the perception of SMEs are modified from Dunkelberg et al. (1978). It is a binary variable with a value of 1 if the firm owner



completely has accurate perception about the credit information bureaus and 0 otherwise.

CIATTITUDE: Five-point Likert scale questions were newly developed to measure attitude of SMEs toward general credit information sharing activities. Similar to debt attitude calculation, exploratory factor analysis was used to compute factor scores on these items and create and standardize one variable by Min-Max Method that reflected credit information sharing attitude (see Appendix D).

#### *5.1.2.2 Control variables*

The dissertation also considers several control variables regarding SME owner and firm characteristics to enhance the external validity of the results.

GENDER: A binary variable that receives the value 1 if firm is owned by a man and 0 otherwise.

EDUCATION: A categorical variable that describes the education levels of respondents.

EXPERIENCE: A ratio scale variable characterizes the experience of respondents. It is measured by the number of years spent in the field of the owner/manager.

AGEOWNER: Age of the respondents, measured in years.

INCOME: A categorical variable that measures the income of the owner.

FIRMAGE: Age of the firm, measured in number of years as the difference between 2013 and the establishment year of the firm.

AUDIT: A binary variable receive the value of 1 if the firm has audited financial statement and 0 otherwise.

EXPORT: A dichotomous variable receives the value of 1 if the firm has activities related to export.

FIRMSIZE: It is a categorical variable with three groups in terms of size of the firm: micro, small and medium enterprises.

FIXASSET: It is an ordinal variable, measuring the ratio of fixed assets to total assets of surveyed SMEs.

INDUSTRY, OWNERSHIP: They are categorical variables depicting industry and ownership of the firms surveyed, respectively.

The summarized descriptions of both dependent and independent variables are given in the Table 5.3 as follows:

**Table 5.3: Dependent & Independent Variables Used in the Models**

<b>Code</b>	<b>Description of Variables</b>	
<b>Dependent Variables</b>		
CREDPART	Credit participation of SMEs	1-Use debt, 0-otherwise
CREDSOURCE	Selection of the main credit source	1-formal credit source, 0-otherwise
<b>Independent Variables</b>		
PRESENTBIAS	Present biased preference of respondents	Categorical variable
RISKATTI	Risk attitude or risk aversion of respondents	Ordinal variable
DEBTATTI	Attitude toward debt of the SME owners/managers	Ratio scale variable
OVERCONFI	Overconfidence of SME owners/managers	1-Overconfidence, 0-otherwise
NETOFFICIAL	Networking with officials	Ratio scale variable
NETBUSINESS	Networking with business community	Ratio scale variable
NETFORMAL	Networking with formal credit sources	Ratio scale variable
NETINFORM	Networking with informal credit grantors	Ratio scale variable
CICAWARE	General perceptions of respondents about credit information bureaus	1-Aware, 0-otherwise
CIATTITUDE	attitude of SMEs toward general credit information sharing activities	Ratio scale variable
GENDER	Gender of respondents	1-Male, 0-otherwise
EDUCATION	Education levels of respondents	Categorical variable
EXPERIENCE	Experience of respondents	Ratio scale variable
AGEOWNER	Age of the respondents, measured in years	Ratio scale variable
INCOME	Income of the respondents	Categorical variable
FIRMAGE	Age of the firm, measured in number of years	Ratio scale variable
AUDIT	Whether the firm has audited financial statements	1-has audited reports, 0-otherwise
EXPORT	Involving in export activities	1-export, 0-otherwise
FIRMSIZE	Size of firm	Categorical variable
FIXASSET	Fixed Asset Ratio of the firm	Ordinal variable
INDUSTRY	Industry the firm operating in	Categorical variable
STATEOWNSHIP	Ownership of the firm	1-Partly or Full State Ownership; 0-otherwise

## 5.2 Characteristics of the Respondents

### 5.2.1 Demographic characteristics

#### 5.2.1.1 Characteristics of firm owners or key managers

Table 5.4 & 5.5 describe the characteristics of surveyed SME owners regarding gender, marital status, average income, education level (Table 5.4), respondent age, experience years in the industry and years of firm operation (Table 5.5).

**Table 5.4: Characteristics of Firm Owners regarding Gender, Marital Status, Income and Education**

		Frequency	Percent	Cumulative Percent
Respondent Gender	Male	171	65	65
	Female	92	35	100
Respondent Marital Status	Single	45	17.1	17.1
	Married	218	82.9	100
Respondent Average Income per month	<=20m VND	108	41.1	41.1
	21-50m VND	108	41.1	82.1
	51-100m VND	36	13.7	95.8
	100-150m VND	8	3	98.9
	>150mVND	3	1.1	100
Respondent Education	Elementary/ Secondary School	2	0.8	0.8
	High School	48	18.3	19
	College/University	166	63.1	82.1
	Graduate School	47	17.9	100
	<b>Total</b>	<b>263</b>	<b>100</b>	

Regarding respondent gender, there is significant difference in gender of SME owners. Only 35% of the surveyed enterprises are owned and/or managed by female whereas male owner group makes up to 65%.

Besides, most of respondents got married (83%) and had the average income per month below VND 50m (82%). In addition, 63% of the surveyed owners/managers reached college/university education level.

**Table 5.5: Characteristics of Respondent Age, Experience and Firm Age**

	N	Minimum	Maximum	Mean	Std. Deviation
Respondent Age	263	22	76	39.46	10.148
Respondent's experience	263	1	45	11.79	8.559
Firm Age	263	1	51	9.99	8.997

As revealed in Table 5.5, the respondents' age and experience in the field ranged from 22 to 76 and from 1 to 45 (years), respectively. These two variables also had a correlation with each other and with years of firm operation or firm age. The older the owner is, the more the experience he or she has. And the firm which was established for a long time is often owned or managed by an experienced person. It is understandable because many private firms are family owned enterprises. The owners will often control their business until their family members (often their children) could take over.

#### *5.2.1.2 Firm ownership, industry and size*

Table 5.6 reports the characteristics of the sample regarding firm ownership types, industry, and firm size. As for the ownership types, among 263 surveyed enterprises, the common ownership forms of SMEs were limited liability, private enterprise and joint stock company with no state ownership with the total proportion of 75.3%. Limited liability companies took up the largest proportion of the sample with 38.8%. Other forms of ownership such as state-owned enterprise, joint stock company with partly state ownership, cooperative, joint-venture company with foreign capital that was often believed to get priority in getting credit from banks just accounted for 13.7% of the sample. Especially, only 2.7% of the surveyed firms were in the form of state-owned enterprise. Firms in the form of 'joint-venture company with foreign capital' made up the smallest proportion of the sample with only 1.1%.

**Table 5.6: Overview of SMEs regarding Ownership, Industry and Firm Size**

	<b>Ownership</b>	Frequency	Percentage
1	Household business	29	11.0
2	Private enterprise	58	22.1
3	Cooperative	9	3.4
4	Limited liability company	102	38.8
5	Joint stock company with partly state ownership	17	6.5
6	Joint stock company with no state ownership	38	14.4
7	Joint-venture company with foreign capital	3	1.1
8	State-owned enterprise	7	2.7
	<b>Total</b>	<b>263</b>	<b>100.0</b>
	<b>Firm's Industry</b>		
1	Industrials & Construction	90	34.2
2	Consumer Goods	67	25.5
3	Consumer Services	78	29.7
4	Telecommunication-Technology	28	10.6
	<b>Total</b>	<b>263</b>	<b>100.0</b>
	<b>Firm's Size</b>		
1	Micro Enterprise	65	24.7
2	Small Enterprise	149	56.7
3	Medium Enterprise	49	18.6
	<b>Total</b>	<b>263</b>	<b>100.0</b>

Referring to industry types, the distribution of industry in which surveyed enterprises are operating diversified in industrials, consumer goods, consumer services and technology. The largest proportion of the total surveyed firms came from the small scale enterprise sector (56.7%). Firms operating in ‘Telecommunication-Technology’ sector took the smallest account of 10.6% of the total respondents. This proportion reflects one of the limitations of Vietnam SMEs sector. Small enterprises make up a small market share of technology – related business fields.

For the firm size, 56.7% of the firms belonged to ‘small enterprise’ group; micro enterprises accounted for 24.7% and medium enterprises took up a proportion of 18.6%.

**Table 5.7: Overview of Surveyed SMEs Characteristics regarding Fixed Assets, Export, Audited Financial Statement**

		Frequency	Percent	Cumulative Percent
Fixed Assets Ratio	0-10%	38	14.4	14.4
	11-30%	77	29.3	43.7
	31-50%	60	22.8	66.5
	51-70%	57	21.7	88.2
	>70%	31	11.8	100.0
	<b>Total</b>	<b>263</b>	<b>100.0</b>	
Export-related activities	No	205	77.9	77.9
	Yes	58	22.1	100.0
	<b>Total</b>	<b>263</b>	<b>100.0</b>	
Audited Financial Statement	No	184	70.0	70.0
	Yes	79	30.0	100.0
	<b>Total</b>	<b>263</b>	<b>100.0</b>	

Regarding the fixed assets ratio of surveyed firms, a high proportion of enterprises (67%) has the fixed asset/total asset ratio below 50%. Almost half of the firms have this ratio below 30%, meaning that half of them may find it difficult to meet the strict requirement of collateral from the credit grantors, especially commercial banks.

Concerning export-related activities, only 22% of the sample involve in export activities. As mentioned in the literature review, export-related firms often receive the priority from the credit grantors, especially banks because of the firm's high legitimacy.

Table 5.7. also depicted that only 30% of the surveyed firms comply with the Vietnam accounting and auditing standard. According to the Decree No. 17/2012/ND-CP of Vietnam Government about guidelines for implementation of some articles in the Law on Independent Audit, there are six types of businesses required conducting auditing financial statements every five years. Those include companies with foreign capital; credit institutions, banks and development supporting funds included; financial

institutions, insurance companies included; listed companies; Joint stock company with state ownership proportion above 50% and State-owned enterprises; Final accounts of national scale or important investment projects. Besides, under the provisions of the law on credit activities in Vietnam, organizations or enterprises which applied for bank loans need to carry out financial statement auditing practices. However, the majority of SMEs do not have audited financial statements, even when they apply for bank loans.

### 5.2.1.3 Characteristics of SMEs debt financing

Table 5.8 presents the characteristics of SMEs debt financing behaviors and capital structure such as important debt source, bank loan/asset ratio, informal debt/asset ratio.

**Table 5.8: Overview of Surveyed SMEs regarding Debt Financing Behaviors**

		Frequency	Percent	Cumulative Percent
Borrowing Declined by Bank	Never ask for bank loan	88	33.5	33.5
	Declined	32	12.2	45.6
	Accepted partly	59	22.4	68.1
	Accepted completely	84	31.9	100
Use Debt in capital structure	No debt	83	31.6	31.6
	Use debt	180	68.4	100
Important Debt Source	Owner Equity	83	31.6	31.6
	Informal Debt	78	29.7	62.7
	Bank Loan	102	38.8	100
Bank Loan/Total Assets	No bank loans	113	43	43
	<=10%	80	30.4	73
	11-30%	38	14.4	87.8
	31-50%	20	7.6	95.4
	>50%	12	4.6	100
Informal Debt/Total Assets	No informal loans	134	51	50.2
	<=10%	58	22.1	73.8
	11-30%	41	15.6	88.6
	31-50%	22	8.4	97
	>50%	8	3	100
<b>Total</b>		<b>263</b>	<b>100</b>	



The survey result showed that 35% of the firms had refused loan requests (partly or fully). It is worth mentioning that 34% of the surveyed enterprises never ask/request for bank loans. In general, 46% of the surveyed firms are discouraged borrowers ('never ask for bank loan' or 'being declined completely by banks'). This proportion is similar to the results from CIEM survey, which indicated that more than 50% of SMEs in Vietnam was out of formal credit market (CIEM, 2012). The bank loan/total asset ratio also supported this argument: 43% of surveyed firms did not use bank loan to finance their asset. Only 32% of the sample had full access to bank loan.

A number of SMEs did not made any external financial requests to both informal and formal credit grantors. They accounted for approximately 32% of surveyed SMEs. In other words, one-third of SMEs only use their own equity to run the business. Bank loan still played the most important role in SMEs financing: 57% of the sample employed bank loan in their capital structure and 39% of the surveyed firms affirmed that bank loan was their major financing source. It is noteworthy that both the bank loan/total asset ratio (or bank loan ratio) and the informal debt/total asset ratio (or informal debt ratio) were not high (below 30%). It is inferred that urban surveyed SMEs did not depend too much on external debt sources. Internal sources (owner equity, retained earnings) and trade credit might play a significant role in SMEs business activities. It is also assumed that because of the difficulty in accessing formal finance sources, constrained SMEs or discouraged borrowers are satisfied with their current business situation and discouraged from new risky investments or business expanding opportunities. It seems that some business entities are at the start-up stage, they might not in urgent need of loans for their activities. The proportion of firms that chose owner

equity, informal debt or bank loan as the major financing source were 32%, 29% and 39%, respectively.

The survey also revealed that almost half of questioned SMEs regularly used informal loans to finance their business operations though the ratio of informal loan in their capital structure is not very high.

### 5.2.2 Characteristics of behavioral finance related factors

Table 5.9 describes descriptive statistics of behavioral finance related factors among surveyed SMEs.

**Table 5.9: Overview of Surveyed SMEs Behavioral Finance Factors**

		Frequency	Percent	Cumulative Percent
<b>Present Biased</b>	Time consistence	80	30.4	30.4
	Weakly present-biased	96	36.5	66.9
	Strongly present-biased	42	16.0	82.9
	Patient now, impatient later	45	17.1	100.0
	<b>Total</b>	<b>263</b>	<b>100.0</b>	
<b>Risk Attitude</b>	Almost no risk aversion (+100%,-75%)	22	8.4	8.4
	Low risk aversion (+100%,-50%)	65	24.7	33.1
	Average risk aversion (+100%,-33.3%)	75	28.5	61.6
	High risk aversion (+100%,-20%)	54	20.5	82.1
	Strongly high risk aversion(+100%,-10%)	30	11.4	93.5
	Not take any risk (+100%,- <10%)	17	6.5	100.0
	<b>Total</b>	<b>263</b>	<b>100.0</b>	
<b>Overconfidence</b>	Not overconfidence	187	71.1	71.1
	Overconfidence	76	28.9	100.0
	<b>Total</b>	<b>263</b>	<b>100.0</b>	

For the factor of ‘Present biased Preference’, the statistics in Table 5.9 illustrates that more than half of surveyed SMEs are ‘present biased’ or impatient. Weakly present-biased and strongly present-biased level accounted for 37% and 16% of the sample, respectively. Association Tests between ‘Present biased preference’ and

respondent characteristics showed that Present biased factor had relationships with owner/managers' gender, age and experience but no association with respondent income, marital status and education level (Table F.1 & F.2, Appendix F). Specifically, 'strongly present biased preference' mainly happened in the female/ younger/ fewer experience group. It means that if our hypotheses are correct, the firms whose owners are young, female and less experience in their business field tend to be strongly present biased and have a tendency to participate in the informal credit market.

With respect to the 'risk attitude' factor, it is apparent that the majority of respondents (approximately 70%) were risk-averse at different levels. The common levels of risk aversion were 21%, 27%, 22% for low, average and high level, respectively. In addition, Chi-square tests and non-parametric tests showed that there was a similarity about the association of the risk aversion and respondents' characteristics between this study and previous studies about risk attitude that concluded that female, younger people had a lower tolerant level of risk, compared with male, older ones (Table F.3 & F.4, Appendix F).

Regarding overconfidence, the descriptive analysis also depicts that approximately 30% of the surveyed owners/managers were overconfident in their firms' credit accessibility. Parametric and non-parametric tests demonstrated that overconfidence and respondents' age and experience had an association, meaning that less experienced and younger owner/managers were likely to be overconfident, comparing with more experienced and older ones (Table F.5, Appendix F). Moreover, Mann-Whitney test results also revealed that there was a difference in the firm age between overconfidence and non-overconfidence groups: owners/managers often

showed the overconfidence in their credit accessibility if they owned/managed a firm with a long history of establishment. (Table F.6, Appendix F).

For the ‘debt attitude’ factor, Table 5.10 reports the descriptive statistics of items measuring debt attitude in detail.

**Table 5.10: Distribution of Items Measuring Debt Attitude (5-point Likert Scale)**

	N	Mean	Std. Deviation
1. Debt is an integral part of doing business because it help firm to extend investment chances and have tax shield.	263	3.73	1.063
2. The entrepreneur should be discouraged from using debts since interest expense can become a burden causing bankruptcy and the control of the firm will be lost.	263	3.42	1.063
3. The entrepreneur should satisfy with your current situation rather than borrow money to expand your business.	263	3.25	0.998
4. It is OK to have a loan if you know you can pay if off.	263	3.79	1.010
5. Once you are in debt it is very difficult to get out.	263	3.31	0.861
6. Owing money is basically wrong.	263	3.33	0.986

Debt Attitude Index was computed by the principal component analysis and min-max method, ranging from 0 to 100 with the average of 61 (Table 5.9). It is clear from the Table 5.10 that the average attitude toward debt of surveyed enterprises was relatively positive (above 3.0). Besides, correlation and ANOVA tests depicted that there was no difference in debt attitude among groups in terms of respondents’ gender, education level, marital status, income, age and experience. It means that positive or negative debt attitude does not depend on individual backgrounds.

We also conducted association tests between behavioral finance factors and surveyed enterprises’ background. However, the results suggested that there was no association at a statistically significant level between behavioral factors with the majority of firms’ characteristics such as firm size, ownership, fixed asset ratio, audited

financial statement, export-related activities. Behavioral finance factors mostly affected directly on owners/managers who made financial decisions, credit participation or credit source selecting decisions included, but not depend on the firm characteristics.

### 5.2.3 Characteristics of firm social capital factors

#### 5.2.3.1 Firm networks with officials, business communities, formal lenders and informal lenders

Table 5.11 illustrates the descriptive statistics of surveyed firms networking in terms of network with government officials, network with business communities, network with formal lenders, and network with informal lenders.

**Table 5.11: Distribution of SMEs Networking**

	Minimum	Maximum	Mean	Std. Deviation
Network with officials	1.00	5.00	2.97	0.85
Network with business communities	1.50	5.00	3.27	0.67
Network with formal lenders	1.00	5.00	2.44	0.98
Network with informal lenders	1.00	5.00	2.95	0.73

Using the five-point Likert scale to measure social and business networks of SMEs, we select the middle point (3) as the average level to assess the extension of SMEs networking level.

As is clear from Table 5.11, the network with business community was the only one reaching the mean score above the average level. On average, the network with formal credit grantors had the lowest score (2.4) that was beneath the average level. On the contrary, the network with informal credit providers had the higher score than those of the formal credit networking. This character confirms the argument by recent social capital studies: small businesses often have strong ties with informal strands but weak ties with formal strands (Stam et al., 2013).

Regarding the correlations between networks and control variables, only the network with officials and the network with business communities were shown to have a positive relationship with owners/managers' age, experience, firm age and firm size. Firms with experienced managers/owners and/or a long history of establishment often have advantages in building and enhancing their legitimacy as well as business networks (Table G.1 & G.2, Appendix G)

#### *5.2.3.2 SMEs perceptions and attitudes toward credit information sharing General Perceptions*

##### *SME perceptions on Credit Information Center*

The study reveals that the majority of borrowers did not have an accurate concept of the function of the credit bureau. The distribution of respondents' perceptions of credit information center is shown in table 5.12 & 5.13. When SME owners were asked "Have you ever heard about Vietnam Credit Information Center?", only 35% said "Yes." However, when being checked about perceptions of the credit information center (CIC), only 26.2% of respondents answered all four statements about CIC accurately. Most of respondents (74.5%) identified CIC as a government credit history record keeping agency. Few respondents (8.7%) misunderstood CIC as a private collection agency. Interestingly, many SME owners confused the function of a credit information center and a credit institution. 61.2% reckoned that CIC is a rating agency determining lending decision. Furthermore, the questionnaire about perception of CIC is also the section that respondents skipped at most although they reply all other sections such as the attitude to credit information sharing activities or awareness of the existence of CIC. It indicates that respondents did not make sure of their knowledge about CIC's main function.

**Table 5.12: Distribution of SME Perception about Credit Information Center**

	Incorrect	Correct	Missing	Total
1. CIC is government agency that collects and maintains credit records of firms and individuals.	58 22.1%	196 74.5%	9 3.4%	263 100%
2. CIC is a private corporation that collects unpaid bills of firms & consumers.	230 87.5%	23 8.7%	10 3.8%	263 100%
3. The main role of CIC is to rate firms and consumers and determines whether or not they could receive credit	99 37.6%	161 61.2%	3 1.1%	263 100%
4. Credit history report issued by CIC could affect the accessibility to credit of the entrepreneur	54 20.5%	197 74.9%	12 4.6%	263 100%

The replies based on four questions about perceptions of credit information center will be utilized as dichotomous variable of borrowers' awareness of CIC.

**Table 5.13: Descriptive Statistics of SME Awareness of CIC**

	Frequency	Percent	Cumulative Percent
Wrong	194	73.8	73.8
Completely Correct	69	26.2	100.0
Total	263	100.0	

#### *Attitude to Credit Information Sharing Activities*

Respondents' attitudes toward credit information sharing activities are measured based on the five-point Linkert scale. In general, SME owners showed relatively positive attitudes toward credit information sharing activities (Table 5.14).

**Table 5.14: Descriptive Statistics of SME Attitude toward CIS**

	Mean	Std. Deviation
1. The lender I apply for loan can check the entrepreneur's previous borrowing information at other financial institutions, especially about collateral and late or non-repayment activities.	3.86	0.932
2. Late repayment or default in the past does not affect the decision of the lender that I apply for loan.	3.46	0.868
3. I have been always trying to keep my credit record good to get loan easily by repaying principles and interest amounts of my personal loan and firm's loan in time.	3.84	0.974
4. When I applied for credit, I am willing to let the loan officer check the information about me and the firm on file with CIC Vietnam.	3.27	1.070
5. The credit information about me and my firm provided by CIC make the bank trust my creditworthiness.	3.66	0.922

The credit information sharing attitude index was calculated following the principle component analysis and the min-max method, similar to the calculation method of debt attitude index. The attitude index ranged from 0 to 100 with a mean of 64.2 and a standard deviation of 19.3. The higher the value, the more positive the attitude toward credit information sharing activities.

**Table 5.15: Descriptive Statistics of Attitude toward CIS Index**

	N	Minimum	Maximum	Mean	Std. Deviation
Attitude toward CIS	263	.00	100.00	64.244	19.25304

Clearly, most of respondents have positive attitudes toward credit information sharing activities. SME owners believe that late repayments or defaults recorded by CIC in the past affect their credit accessibility at commercial banks. They are also willing to let the banks check their credit information with CIC Vietnam. In addition, many SME's owner supposed that credit information sharing activities would enhance the trust between banks and borrowers.



### 5.3 Association Tests between Independent Variables and Dependent Variables

#### 5.3.1 Credit participation and explanatory variables

##### 5.3.1.1 Credit participation and the owner/firm characteristics

Association tests showed that there is no association between credit participation or credit source selection and owner characteristics or firm characteristics except the ‘audited financial statement practice’ factor at a significant level (Table 5.16). In other words, the decision to participate in a certain credit program happens in all types of firms, regardless of their ownership, size, industry, age, owner’s gender, owner’s experience and education.

**Table 5.16: Chi-square Test and Symmetric Measures of the Association between Credit Participation and Audited Financial Statement**

Chi-square Test	Value	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.262	0.004
Likelihood Ratio	8.756	0.003
Linear-by-Linear Association	8.231	0.004
Symmetric Measures	Value	Approx. Sig.
Phi	0.177	0.004
Cramer's V	0.177	0.004
Contingency Coefficient	0.175	0.004
N of Valid Cases		263

It could be explained from the viewpoint of credit grantors, especially formal credit providers who often take a serious notice of the enterprise’s audited financial statements because in transactions with SMEs, audited financial statements seem to be one of the most important objective and transparent documents helping loan officers assessing their potential borrowers’ creditworthiness.

5.3.1.2 Credit participation and behavioral finance factors

Table 5.17 summarizes the proportion of surveyed enterprises using debt in their capital structure by present biased preference and overconfidence.

**Table 5.17: Proportion of SMEs ‘Using Debt’ or ‘Non-Debt Use’ by Present Biased Preference and Overconfidence**

			Credit participation		Total
			No debt	Use debt	
Present Biased	Time consistence	Count % within Present Biased	48 60.0%	32 40.0%	80 100.0%
	Weakly present-biased	Count % within Present Biased	13 13.5%	83 86.5%	96 100.0%
	Strongly present-biased	Count % within Present Biased	3 7.1%	39 92.9%	42 100.0%
	Patient now, impatient later	Count % within Present Biased	19 42.2%	26 57.8%	45 100.0%
Total	Count % within Present Biased	83 31.6%	180 68.4%	263 100.0%	
Overconfidence	Not overconfident	Count % within Overconfidence	74 39.6%	113 60.4%	187 100.0%
	Overconfident	Count % within Overconfidence	9 11.8%	67 88.2%	76 100.0%
Total	Count % within Overconfidence	83 31.6%	180 68.4%	263 100.0%	

As can be seen from Table 5.17, the owners/managers with "weakly present-biased", "strongly present biased" and "overconfident" often employ debt to maintain or expand their business operations. For example, among 42 strongly present-biased respondents, almost 93% of them decided to employ debt, meanwhile only 7% of them was discouraged from the credit market. Similarly, regarding overconfident respondents, the majority of them (88%) decided to use financial leverage.

The results from association tests indicated that the credit participation was associated with personal traits of SME owners/managers such as present biased preference and overconfidence (Table 5.18).

**Table 5.18: Chi-square Tests and Symmetric Measures of the Association between Credit Participation and Present Biased and Overconfidence**

	Present Biased		Overconfidence	
	Value	Asymp. Sig.	Value	Asymp. Sig.
<b>Chi-Square Tests</b>				
Pearson Chi-Square	58.349	0.000	19.238	0.000
Likelihood Ratio	61.236	0.000	21.625	0.000
Linear-by-Linear Association	8.665	0.003	19.165	0.000
<b>Symmetric Measures</b>	Value	Approx. Sig.	Value	Approx. Sig.
Phi	0.471	0.000	0.270	0.000
Cramer's V	0.471	0.000	0.270	0.000
Contingency Coefficient	0.426	0.000	0.261	0.000
N of Valid Cases	263		263	

With respect to the association between credit participation and debt aversion & risk attitude, since risk aversion and debt attitude index did not follow normal distribution, we decided to use non-parametric tests to investigate their relationship. From the Mann-Whitney Test which is shown in Table 5.19, it was found that the enterprises which used debt have the lower mean rank in terms of risk aversion and the higher mean rank in terms of debt attitude index, compared with non-debt using enterprises.

**Table 5.19: Results of the Mann Whitney U Test on the Credit Participation by Risk Attitude and Debt Attitude**

Credit participation		N	Mean Rank	Sum of Ranks	U	Z	P
Risk Aversion	No debt	83	185.7	15413.5	3012.5	-7.974	0.000
	Use debt	180	107.24	19302.5			
Debt Attitude Index	No debt	83	53.62	4450.5	964.5	-11.348	0.000
	Use debt	180	168.14	30265.5			

5.3.1.3 Credit participation and SMEs social capital factors

Credit participation and firm networks

Man-Whitney Test suggested that the firm networks, including networks with officials, networks with business communities, networks with formal lenders and network with informal lenders, did have a relationship with credit participation (Table 5.20).

**Table 5.20: Mann-Whitney Tests of Credit Participation – Networks**

	Network with officials	Network with formal lenders	Network with informal lenders	Network with business communities
Mann-Whitney U	4507.0	2321.5	3248.5	3139.0
Wilcoxon W	7993.0	5807.5	6734.5	6625.0
Z	-5.219	-9.280	-7.430	-7.612
Asymp. Sig. (2-tailed)	0.000	0.000	0.000	0.000

Interestingly, higher mean score of the debt-using group in comparison with the non-debt using group at all types of networks indicated that firms with poor networks or social capital found it difficult to access credit; meanwhile firms which have strong and broad networks could have some advantages and motivations to participate in the loan market.

Credit participation and SME's perception on Credit information bureaus

Association tests show that there is a significant difference among level of CIC awareness in credit participation decision. Specifically, the group that has 'completely correct' awareness of CIC is inclined to use debt in capital structure than another (Table 5.21 & 5.22).

**Table 5.21: Awareness of CIC \* Use Debt in Capital Structure Crosstabulation**

			Use debt in capital structure		Total
			No debt	Use debt	
Awareness of CIC	Wrong	Count	75	119	194
		% within CIC Awareness	38.66%	61.34%	100.00%
	Completely Correct	Count	8	61	69
		% within CIC Awareness	11.59%	88.41%	100.00%
Total		Count	83	180	263
		% within CIC Awareness	31.56%	68.44%	100.00%

**Table 5.22: Chi-square Test and Symmetric Measures of Credit Participation and CIC Awareness**

Chi-square Test	Value	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.262	0.004
Likelihood Ratio	19.578	0.003
Linear-by-Linear Association	17.196	0.004
Symmetric Measures	Value	Approx. Sig.
Phi	0.256	0.000
Cramer's V	0.256	0.000
Contingency Coefficient	0.248	0.000
N of Valid Cases		263

Besides, according to Mann-Whitney Test result, there was also a statistically significant difference among attitude toward credit information sharing and SME credit participation (Table 5.23). The firms that showed positive attitude toward credit information sharing were often motivated to involve in the credit market.

**Table 5.23: Mann-Whitney Test of Credit Participation and Attitude toward CIS**

Credit Participation	N	Mean Rank	Sum of Ranks	U	Z	P
No debt	83	86.46	7176.5	3690.5	-6.594	0.000
Use debt	180	153.00	27539.5			

### ***5.3.2 Credit source selection and explanatory variables***

#### ***5.3.2.1 Credit source selection and the firm & owner's characteristics***

Table 5.24 summarizes the descriptive statistics of the firms that chose informal credit sources as their main financing source in comparison with the whole sample. Investigation of those enterprises that selected informal finance source as their main/important financing source revealed some features:

**Table 5.24: Proportion of Enterprises Selecting Informal Credit as the Main Financing Source (%)**

<b>1. Owner's gender</b>	The sample <sup>a</sup>	Informal Group <sup>b</sup>	<b>5. Firms industry</b>	The sample	Informal Group
Male	67.8	56.4	Industrials & Construction	35.6	28.2
Female	32.2	43.6	Consumer Goods	26.7	25.6
<b>2. Respondent Education Level</b>			Consumer Services	27.8	29.5
Elementary/Secondary School	1.1	1.3	Telecommunication-Technology	10	16.7
High School	18.9	17.9	<b>6. Firms size</b>		
College/University	66.1	69.2	Micro	21.7	37.2
Graduate School	13.9	11.5	Small	60.6	50
<b>3. Respondent Income</b>			Medium	17.8	12.8
<=20m VND	40.6	50	<b>7. Fixed asset ratio</b>		
21-50m VND	41.7	38.5	0-10%	14.4	21.8
51-100m VND	13.3	6.4	11-30%	26.7	25.6
100-150VND	3.9	5.1	31-50%	22.2	19.2
>150mVND	0.6	0	51-70%	23.9	17.9
<b>4. Firms ownership</b>			>70%	12.8	15.4
Household business	10.6	19.2	<b>8. Export related activities</b>		
Private enterprise	23.9	23.1	No	76.1	84.6
Cooperative	3.9	3.8	Yes	23.9	15.4
Limited liability company	40.6	38.5	<b>9. Audited Financial Reports</b>		
Joint stock company with partly state ownership	5	5.1	No	64.4	82.1
Joint stock company with no state ownership	12.2	7.7	Yes	35.6	17.9
Joint-venture company with foreign capital	1.1	1.3			
State-owned enterprise	2.8	1.3			

a. N of valid cases: 180; b. N of valid cases: 78

First, with respect to owners/managers characteristics, male owners had a trend to use formal loan sources as the main source meanwhile female owners prefer informal

debt sources. Chi-square tests and symmetric measures show there is a difference in selecting the external debt source between gender groups at a significant level. Association tests also showed that the owners with higher income level prefer to select bank loan as their business main financing source. It is obvious that higher income individuals could make bank loan officers trust in their payment because it might be a sign of the enterprises' performance and the owners could use their own assets as effective collaterals for their business (Table 5.25). In addition, Mann-Whitney tests depicted that owners' age and experience had an association with the credit source selection (Table 5.26): older and/or more experienced owners/managers could have a bias in favor of formal debt sources because they were more risk averse, they might have some experience in transactions with banks, and they might be owners/ managers of firms which have higher legitimacy (firm age and firm size were proved to have association with networks). Yet, education level did not have any influence in the decision of selecting financing source, according to chi-square test results.

**Table 5.25: Chi-Square Tests and Symmetric Measures of Owner Gender, Income and Credit Source Selection**

	<b>Chi-Square Tests</b>	Value	Asymp. Sig.	<b>Symmetric Measures</b>	Value	Approx. Sig.
	Gender*Credit Source Selection	Pearson Chi-Square	8.144	0.004	Phi	-0.213
Likelihood Ratio		8.125	0.004	Cramer's V	0.213	0.004
Linear-by-Linear Association		8.099	0.004	Contingency Coefficient	0.208	0.004
	<b>Chi-Square Tests</b>	Value	Asymp. Sig.	<b>Symmetric Measures</b>	Value	Approx. Sig.
	Income*Credit Source Selection	Pearson Chi-Square	9.623	0.047	Phi	0.231
Likelihood Ratio		10.391	0.034	Cramer's V	0.231	0.047
Linear-by-Linear Association		4.647	0.031	Contingency Coefficient	0.225	0.047



**Table 5.26: Mann-Whitney Test of the Owner’s age, Experience and Firm Age and Credit Source Selection**

Important Debt Source		N	Mean Rank	Sum of Ranks	U	Z	P
Respondent Age	Informal Debt	78	78.19	6099.00	3018	-2.773	0.006
	Formal Debt	102	99.91	10191.00			
Respondent's Experience	Informal Debt	78	82.69	6449.50	3368.5	-1.77229	0.056
	Formal Debt	102	96.48	9840.50			
Firm Age	Informal Debt	78	77.13	6016.50	2935.5	-3.01835	0.003
	Formal Debt	102	100.72	10273.50			

Second, regarding firms background, the credit source selection showed a relationship with the following variables: firm size, firm age, industry, export-related activities and audited financial reports. Firms with longer years of operation had a tendency to select formal credit market instead of informal one (Table 5.26). Besides, firms which chose informal debt as their main external financing sources often had following characteristics: micro or small size; not related to export activities, no audited financial statements. In sum, the fewer factors enhancing the legitimacy the firm had, the higher the probability the firm selected to be indebted with informal credit. Furthermore, firms with low ratio of fixed assets were likely to use more informal debt though the association between fixed asset ratio and credit source selection was not at strongly statistically significant ( $0.05 < p < 0.1$ ) (Table 5.27).

**Table 5.27: Chi-Square Tests and Symmetric Measures of Firms Background and Credit Source Selection**

	Chi-Square Tests	Value	Asymp. Sig.	Symmetric Measures	Value	Approx. Sig.
Firm Size*Credit Source Selection	Pearson Chi-Square	19.724	0.001	Phi	0.331	0.001
	Likelihood Ratio	20.004	0.001	Cramer's V	0.331	0.001
	Linear-by-Linear Association	14.597	0.001	Contingency Coefficient	0.314	0.001
Export*Credit Source Selection	Pearson Chi-Square	5.475	0.019	Phi	0.174	0.019
	Likelihood Ratio	5.665	0.017	Cramer's V	0.174	0.019
	Linear-by-Linear Association	5.445	0.02	Contingency Coefficient	0.172	0.019
Audited*Credit Source Selection	Pearson Chi-Square	18.622	0.015	Phi	0.322	0.015
	Likelihood Ratio	19.516	0.010	Cramer's V	0.322	0.015
	Linear-by-Linear Association	18.519	0.000	Contingency Coefficient	0.306	0.015
Industry*Credit Source Selection	Pearson Chi-Square	8.408	0.082	Phi	0.216	0.078
	Likelihood Ratio	8.489	0.078	Cramer's V	0.216	0.078
	Linear-by-Linear Association	6.74	0.118	Contingency Coefficient	0.211	0.078
Fixed Asset	Pearson Chi-Square	8.522	0.038	Phi	0.218	0.034
	Likelihood Ratio	8.546	0.037	Cramer's V	0.218	0.034
	Linear-by-Linear Association	1.785	0.009	Contingency Coefficient	0.213	0.034

*5.3.2.2 Credit source selection and behavioral finance factors*

Behavioral finance factors such as present biased preference, overconfidence and risk attitude were shown to have a relationship with the decision of selecting credit sources.

From the data, firms had chosen to use more informal debt often happened in the group with weakly or strongly present-biased preference, and/or overconfidence (Table 5.28).

**Table 5.28: Chi-Square Tests and Symmetric Measures of Behavioral Finance Factors and Credit Source Selection**

	Chi-Square Tests	Value	Asymp. Sig.	Symmetric Measures	Value	Approx. Sig.
Present Biased *Credit Source Selection	Pearson Chi-Square	47.241	0.005	Phi	0.512	0.005
	Likelihood Ratio	51.576	0.005	Cramer's V	0.512	0.005
	Linear-by-Linear Association	1.85	0.174	Contingency Coefficient	0.456	0.005
Overconf * Credit Source Selection	Pearson Chi-Square	11.644	0.001	Phi	0.254	0.001
	Likelihood Ratio	11.67	0.001	Cramer's V	0.254	0.001
	Linear-by-Linear Association	11.58	0.001	Contingency Coefficient	0.246	0.001
Awareness of CIC * Credit Source Selection	Pearson Chi-Square	2.981	0.084	Phi	0.129	0.084
	Likelihood Ratio	3.018	0.082	Cramer's V	0.129	0.084
	Linear-by-Linear Association	2.965	0.085	Contingency Coefficient	0.128	0.084

It is noteworthy that there was no relationship between debt attitude and credit source selecting decision. It is reasonable because once firms have a need of borrowing, they (the firm owner/manager) often have a positive attitude toward indebtedness. Furthermore, it was not our expectation that the awareness of CIC should have an association with the credit source selection. Pearson Chi-square results and other association indicators presented that there was no difference in selecting credit source between fully awareness and non-awareness groups at a significant level of 0.05 (Table 5.29). As mentioned in the previous literature review, firms that are fully aware of credit information sharing practices might try to maintain their reputation in payments in order to utilize it as "effective collateral". As a result, they often go to the formal credit market instead of the informal one. However, because of the limitation in the acknowledgement of credit information sharing among small enterprises and due to the limited sample size, this variable did not show the expected relationship with the firm's credit source selection.

Additionally, firm owners/managers that could tolerate a higher level of risk had a higher likelihood to go with informal credit market (Table 5.29).

**Table 5.29: Mann-Whitney Test of Risk Attitude and Credit Source Selection**

Important Debt Source	N	Mean Rank	Sum of Ranks	U	Z	P
Informal Debt	78	68.59	5350.0	2269.0	-5.125	0.000
Formal Debt	102	107.25	10940.0			

### 5.3.2.3 Credit source selection and firm networks

Table 5.30 illustrates the relationship between the firm network variables and the firm decision on credit source selection. According to Mann-Whitney test results, firm network variables are expected to have an impact on the firm's credit source selection at a statistically significant level.

**Table 5.30: Mann-Whitney Test of Firm Networks and Credit Source Selection**

	Network with officials	Network with formal lenders	Network with informal lenders	Network with business communities
Mann-Whitney U	2574.50	3324.50	1587.50	3343.00
Wilcoxon W	5655.50	6405.50	6840.50	6424.00
Z	-4.11	-1.99	-6.98	-1.85
Asymp. Sig. (2-tailed)	0.000	0.046	0.000	0.051

In summary, bivariate analyses with crosstabs and association tests were conducted to investigate the relationship between each potential independent variable and dependent variables. Association tests were selected based on the characteristics of the variables as well as the results of normality tests. Though bivariate analysis is the simple form of the quantitative analysis, it is necessary to determine the empirical relationship among variables before we continue to employ multivariate analysis in further steps.

#### **5.4 A Statistical Model for Credit Participation**

In the step 1, we used logistic regression to examine if the independent variables affect the probability of SMEs credit participation. Though a common practice is to include in multivariate analysis only those variables that are statistically significant in bivariate analysis, some variables may be non-significant in bivariate analysis but may become significant in multivariate analysis and enhance the prediction value of the model through increasing the total R-square. Such variables are suppressor variables. Therefore, the independent variables included in the model comprise all variables shown in the Table 5.3: behavioral finance factors (present biased preference, risk aversion, debt attitude and overconfidence), networks (network with officials, business communities, formal lenders and informal lenders), CIC awareness, CIS attitude, characteristics of the firm and the owner. The initial model including all variables is displayed in Table H.1 (Appendix H). We also investigated the interaction effect among variables related to firm characteristics with industry and ownership variables as moderating variables. Table 5.31 summarizes the final logistic regression results. Explanatory variables are remained based on the statistical significance.

**Table 5.31: Credit Participation and Explanatory Variables<sup>a</sup>**

	B	S.E.	Wald	df	Sig.	Exp(B)
PresentBiased <sup>b</sup>			15.600	3	0.001	
PresentBiased(1)	3.123	1.002	9.713	1	0.002	22.721
PresentBiased(2)	6.618	1.889	12.279	1	0.000	748.317
PresentBiased(3)	.983	.873	1.267	1	0.260	2.672
RiskAttitude	-.793	.371	4.582	1	0.032	0.452
DAIndex	.130	.029	19.859	1	0.000	1.139
OverConf	4.135	1.242	11.076	1	0.001	62.462
Network_formlend	2.693	.704	14.658	1	0.000	14.783
Network_inform	-1.577	.833	3.584	1	0.058	0.207
Network_business	1.850	.853	4.702	1	0.030	6.357
CISAttitude	.100	.028	12.513	1	0.000	1.105
FirmSize <sup>c</sup>			7.657	2	0.022	
FirmSize(1)	1.535	.915	2.812	1	0.094	4.641
FirmSize(2)	.850	1.066	.637	1	0.425	0.427
Income	1.375	.545	6.358	1	0.012	3.957
Constant	-22.439	5.138	19.075	1	0.000	0.000
Observations	263					
-2 Log Likelihood	61.958					
R-Squared <sup>d</sup>	0.636 (Cox & Snell)			0.863 (Nagelkerke)		

Note: a. Variables tested to enter: Present biased preference, Risk aversion, Debt attitude, Risk attitude, Overconfidence, Network\_Officials, Network\_business, Network\_formallend, Network\_informal, CIC Awareness, CIS Attitude, Gender, Education, Income, Experience, Ageowner, FirmAge, Audited FS, Export, FirmSize, Fixed Asset, Industry, StateOwship

b. Categorical Variable Codings: Reference Category - Time consistency; Present biased (1) - Weakly present biased; Present biased (2) - Strongly present-biased; Present biased (3) - Patient now, impatient later

c. Variable Codings: Reference Category-Micro enterprise; FirmSize (1) – Small enterprise; FirmSize(2) – Medium Enterprise

d. R-square estimated at Step 8 (the final step)

In the model for credit participation, the dependent variable is dichotomous, taking the value of 1 if the firm uses debt in their capital structure, (comprising any type of borrowing, regardless of whether the debt come from formal or informal sources) and 0 otherwise.

From the estimation results in the Table 5.31, present biased preference, risk aversion, debt attitude, overconfidence, network with formal lenders, network with informal lenders, network with business communities, attitude toward credit information sharing, firm size and owner's income have impacts on the credit participation of surveyed SMEs at a statistically significant level. More specifically, enterprises with impatient (weakly or strongly-present-biased) owners/managers are more likely to employ debt to run business rather than patient (or "time-consistent") firm owners (other things being equal). Of time preference types, the strongly-present-biased group show a significantly different need of borrowing from the "time-consistent" group. The respective probabilities of firms deciding to use leverage are 23 and 748 times higher than that of "patient" firms (The values of  $\text{Exp}(B)$  for weakly and strongly present biased groups were 22.7 and 748.3, respectively).

With respect to the risk aversion, the value of  $\text{Exp}(B)$  for the survey respondents was 0.452 which implies a decrease in the odds of 54.8% ( $0.452 - 1.000 = -0.548$ ). In other words, for each unit increase in "risk aversion", firms were 55% less likely to employ debt in their capital structure. It could be said that higher risk-tolerant firms (also meaning lower risk aversion) are often motivated to involve in risky investments or business expanding opportunities and therefore, they have higher need of borrowing.

In the case of the debt attitude index, the estimated results indicate that firms with positive attitude toward debt (higher score of  $\text{DAIndex}$ ) are more likely to participate in the credit market with the probability larger by 1.14 times per additional unit of debt attitude index. From the cross-sectional analysis, the proportion of enterprises using leverage has higher score of debt attitude than that of non-debt using enterprises.

About overconfidence, the positively estimated coefficient for overconfidence factor depicts that overconfident respondents are more likely to use debt in the capital structure. In other words, the likelihood of a company with an overconfident owner/manager is 62 times higher than that of a company with a non-confident owner/manager. Previous studies suggested that overconfident managers are often optimistic about their success in investment opportunities and their capability in accessing credit. Hence, such managers have a trend to use financial leverage to finance their business operations.

Regarding social capital factors or in this case, the firm networks, estimation results show that efforts to build and maintain good relationships or networking with business communities (sellers, buyers, competitors, business association members) and formal lenders motivate and help firms to access credit, no matter what source of credit comes from. The respective probabilities of enterprises with a highly intense degree of networking with business communities and formal lenders participating in the credit market are 6 and 15 times higher than that of enterprise with a looser degree of similar networks. Interestingly, the negative estimated coefficients for networks with informal lenders suggest that firms are less likely to employ debt if they have more intense relationships with informal lenders (which include moneylenders, friends and relatives, members at social clubs). This could be explained by the argument that intense networks with potential informal lenders could motivate firms be out of the formal credit market and make use of their relationships to have non-interest debt from relatives and friends.

Besides, estimated coefficient of CIS attitude shows that the attitude toward credit information sharing activities has a small impact on the decision of credit participation.



Firms with higher positive attitude are likely to participate in the credit market than firms with lower attitude, with the probability higher by only 1.06 times per additional unit of attitude score.

Regarding firm size, the results show that the small enterprise group is more likely to participate in the credit market rather than the micro enterprise (with a  $p < 0.1$ ). Last, estimation results indicate that the higher the owner's income is, the more likely the firm employs debt in the capital structure. It is noteworthy that firm size and income are suppressor variables that tend to appear useless as separate predictors but increase the predictive validity of other variables and improve the R-square.

The result also shows that networks with officials, audited financial reports, CIC awareness and other control variables are insignificant determinants of SMEs credit participation.

### **5.5 A Statistical Model for Credit Source Selection**

In step 2, we selected only enterprises that had debt in their capital structure. We then performed binary logistic regression with forward stepwise selection of variables to investigate the impact of potential factors on the credit-source-selection decision among SMEs. The initial model with all variables is presented in the Table H.2 (Appendix H). The table 5.32 below reports the final result of the regression analysis after the model is finalized based on the statistical significance. The dependent variable – credit source selection - takes the value of 1 if the firm chose formal credit source such as bank loan as their main external financing source and 0 otherwise.

**Table 5.32: Credit Source Selection and Explanatory Variables<sup>a</sup>**

	B	S.E.	Wald	df	Sig.	Exp(B)
PresentBiased			9.639	3	0.022	
PresentBiased(1)	.350	.661	.279	1	0.597	1.419
PresentBiased(2)	-1.947	.906	4.623	1	0.032	0.143
PresentBiased(3)	.809	.863	.879	1	0.348	2.246
RiskAttitude	.474	.203	5.423	1	0.020	1.606
Network_formlend	1.541	.426	13.102	1	0.000	4.670
Network_inform	-4.311	.786	30.098	1	0.000	0.013
Network_business	1.740	.637	7.456	1	0.006	5.698
FirmSize			12.783	2	0.002	
FirmSize(1)	2.496	.720	12.029	1	0.001	12.137
FirmSize(2)	2.576	.905	8.101	1	0.004	13.145
DAIndex	.051	.021	6.057	1	0.014	1.052
Constant	-3.088	2.729	1.280	1	0.258	0.046
Observations	180					
-2 Log Likelihood	102.787					
R-Squared <sup>d</sup>	0.550 (Cox & Snell)			0.737 (Nagelkerke)		

Note:

- a. Variable(s) tested to enter: similar to Credit Participation Model.
- b. Categorical Variable Codings: Reference Category - Time consistency; Present biased (1) - Weakly present biased; Present biased (2) - Strongly present-biased; Present biased (3) - Patient now, impatient later.
- c. Categorical Variable Codings: Reference Category – Micro enterprises; Firmsize (1) – Small Enterprises; Firmsize (2) – Medium enterprises
- d. R-square estimated at Step 6 (the final step)

A total of 180 cases were analyzed and the model significantly predicted the firm's credit source selection (omnibus chi-square=143.536, df=10, p<0.001). The model accounted for between 55.3% and 73.7% of the variance in credit source selection, with 85.9% of the informal source selection successfully predicted and 90.2% of accurate predictions concerning formal source. Overall 88.3% of predictions were accurate.

The results, as seen in Table 5.32, indicate that present biased preference, risk attitude, network with formal lenders, network with informal lenders, network with business communities, firm size and debt attitude index are statistically significant determinants of the credit source selection.

Among present-biased preference sub-categories, only the strongly-present biased group demonstrates the inverse relationship with credit source selection at the 5% level of significant. The value of  $\text{Exp}(B)$  for strongly-present biased was 0.143 which implies a decrease in the odds of 85.7% ( $0.143 - 1.000 = -0.857$ ). That is to say, the strongly-present biased firm owners/managers are 85.7% less likely to carry large debt from formal credit suppliers than the rest (if other factors are equal). Instead, they have a tendency to employ more debt from informal sources.

A strong evidence of the impact of risk aversion factor on credit source selection was also found. At the 99% confidence interval, the higher risk aversion level the firms have, the more likely they are to go with formal credit source as their main financing source. For each unit increase in “risk aversion”, the probability of selecting formal credit sources is 1.6 times higher. The most likely explanation of this result is the difference in risk between credit formal and informal sources. Informal credit sources have their own advantages such as flexible arrangements, not strict requirement of collaterals, low transaction costs but they are also expensive and unreliable sources. This contrasts with the formal lender practices, which charge relatively low interest rates, but often impose procedures on borrowers that increase their transaction costs. Informal credit sources are believed that their inherent risks are always higher than that of formal credit sources like bank loans (Aryeetey, 1996; Rosemary, 2001). Borrowing from informal credit sources, especially from moneylenders is able to increase the risk

of bankruptcy for enterprises. Therefore, it is reasonable that if an entrepreneur has a high tolerant level of risk (or low risk aversion) he/she is more willing to choose informal credit to finance his/her business.

With regards to the firm networking, estimation results illustrate that intense networks with formal lenders and business communities could enhance the probability of formal credit access; consequently, firms with high score of such networks have trends to go with formal credit source as their important financing source. In detail, for each unit increasing in network score with formal lenders and business communities, surveyed SMEs were approximately 4.7 and 5.7 times more likely to select formal credit source, respectively. On the contrary, for each unit increasing in “network with informal lenders”, respondents were about 98% less likely to go with formal credit source. To put it another way, the highly intense network with informal credit providers increases the probability of firms to select informal sources.

Finally, positive coefficients of firm size sub-categories show that the firm size factor plays a role in explaining the firm’s credit source selection. Specifically, the firms that belong to the small-size group and medium-size group were approximately 2.4 and 1.8 times respectively more likely to select formal credit sources compared to micro-size enterprises. Besides, though debt attitude index has a negligible correlation with the dependent variable, it can act as a predictor of the firm’s decision in selecting credit sources.

The regression analysis also show that at the 5% significant level, independent variables such as Owner Gender, Age, Firm Age, Industry, StateOwnership, Export, Audited Financial reports, overconfidence, CIC awareness and interacting variables did not play a role in

predicting the credit source selection. The reason may be due to numeric problems when estimating the model.

## 5.6 Usefulness of Prediction Models

In order to evaluate the usefulness of the logistic regression model, we compare the classification accuracy rate computed by the model and the accuracy rate achievable by chance alone. In general, the actual classification accuracy rate of the model should be 25% or higher than the accuracy rate achievable by chance.

**Table 5.33: Classification Accuracy Rates Computed by the Model and by Chance**

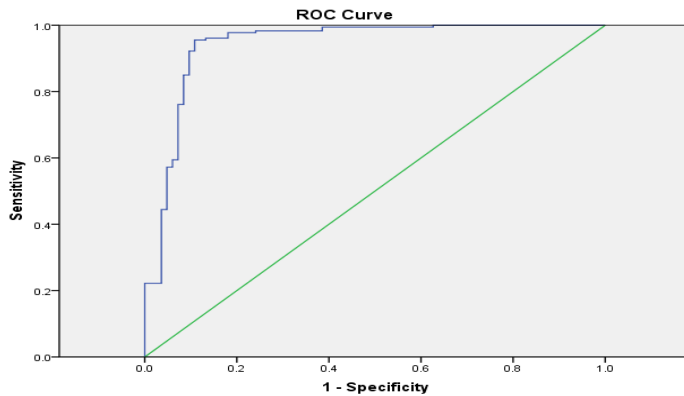
	Step 0 Classification rate		By-chance accuracy rate	1.25*By-chance rate	Model accuracy rate
	The largest group	The other group			
Model 1	0.684	0.316	0.568	0.710	0.928
Model 2	0.567	0.433	0.509	0.636	0.883

Note: The by-chance accuracy rate was calculated by computing the proportion of cases for each group based on the number of cases in each group in the classification table at step 0, and then squaring and summing the proportion of cases in each group

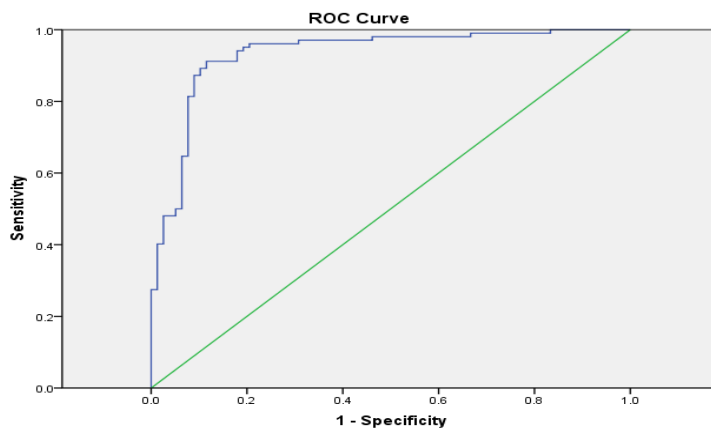
As shown in Table 5.33 the model accuracy rate computed by SPSS was greater than 25% of by-chance accuracy rate. Thus, the criteria for classification accuracy are satisfied.

For visual representation of the classification accuracy of the models, it is referred to Figure 5.1 & 5.2 which shows the ROC curve (Receiver Operating Characteristic).

**Figure 5.1: ROC Curve for Model 1 – Credit Participation Prediction**



**Figure 5.2: ROC Curve for Model 2 – Credit Source Selection Prediction**



As can be seen from Figure 5.1 and 5.2, the area under the ROC curve, which ranges from zero to one, offers a measure of the model's capacity to distinguish between those subjects who experience the response of interest versus those who do not. The area under the ROC curve for the full model 1 and 2 was 0.941 and 0.932 with 95% confidence interval, respectively. This is considered excellent discrimination.

## **5.7 Conclusion**

Our results generally support the hypothesis that firms' financing decisions are significantly affected by behavior finance factors and firm social capital. We found that personal behavior traits of firm owners/managers such as present-biased preference, debt attitude, risk aversion and overconfidence could play important roles in explaining

the decision of debt using as well as credit source selection for small enterprises. In addition, the results also suggested that social capital, which was represented and measured through firm networks, has effects on SMEs credit participation and credit source selection. Besides, attitudes toward credit information sharing, the factor more or less reflects the firm's creditworthiness and efforts to be transparent in the eyes of credit grantors, and firm size also contributed in explaining the SMEs financing decisions.

### **Chapter Summary**

This chapter provided the background information of the credit demand-side respondents, SME owners. In addition, the chapter tested the relationship between SME owner and firm characteristics and firm debt financing behaviors. More importantly, the chapter addressed the determinants or factors influencing the SME credit participation and credit source selection from the perspective of behavioral finance and social capital theories.

## **CHAPTER 6**

### **FINDINGS OF THE CREDIT SUPPLY SIDE – LENDING TECHNOLOGIES & DETERMINANTS OF SMES CREDIT ACCESSIBILITY**

This chapter presents findings related to the credit supply side. First, the chapter briefly outlines the characteristics of participants in the survey – bank loan officers. Then it discusses findings concerning the determinants of bank lending decisions through the loan approval process by highlighting the importance of information types or attributes in the perceptions of loan officers, and the principal factors explaining the bank lending decision. The chapter also discusses the relationship among lending technologies used in lending SMEs of Vietnam commercial banks. Finally, the levels of firm response to correspondingly important information types were calculated and used as potential variables in a logistic regression model to examine the credit accessibility of SMEs.

#### **6.1 Characteristics of the Survey Participants**

From 250 distributed questionnaires, 218 valid completed ones were obtained. The survey reached a response rate of 87.2%, a high rate for a mail survey through the snowball sampling method. Similar to the survey on SMEs owners, the completed questionnaires were considered “valid” if they were cautiously answered in most items of the questions.

Table 6.1 demonstrates the characteristics of the participants regarding the bank loan officer’s gender, education level and position.



**Table 6.1: Characteristics of Surveyed Loan Officers regarding Gender, Education and Position**

		Frequency	Valid Percent	Cumulative Percent
Gender	Male	124	56.9	56.9
	Female	94	43.1	100.0
Education Level	Bachelor Degree	168	77.1	77.1
	Master Degree	50	22.9	100.0
Position	Credit Specialist	186	85.3	85.3
	Credit Officer	25	11.5	96.8
	Bank branch Manager	7	3.2	100.0
Total		218	100.0	

Referring to the respondent's gender, male loan officers took the largest account of 56.9% of the total. For the education level, all of surveyed loan officers achieved bachelor degree or higher. About the respondent's positions which reflect the management level, surveyed loan officers were categorized into three groups: 85.3% of the respondents were credit specialists, 11.5% of the respondents were credit officers and the rest which accounted for 7% were bank branch managers. All of them were involved in the SMEs loan approval process directly.

Other characteristics of surveyed loan officers regarding age, experience in credit assessment, number of responsible borrower profiles and average time to process SMEs loan application are reported in Table 6.2.

**Table 6.2: Characteristics of Surveyed Loan Officers regarding Age, Experience, Number of Responsible Files and Time to Process**

	N	Minimum	Maximum	Mean	Std. Deviation
Age	218	22.00	43.00	28.3165	3.50718
Experience years	218	.50	12.00	4.2913	2.37959
Number of borrower profiles in charge	218	2.00	40.00	8.2064	6.90278
Time to process loan application	218	2.00	30.00	6.5000	5.28736

The minimum age and experience years among 218 surveyed loan officers were 22 and 0.5 respectively. The maximum ones are up to 43 and 12 years, respectively. It is noteworthy that the average number of borrower profile which loan officers is responsible per month and the time for them to process a loan application spread in a wide range. We realized that bank loan officers of private commercial banks were responsible for much more borrower profiles with shorter time to process a loan application, compared with SOCBs. It is understandable because private commercial banks target SMEs as potential borrowers much more than state-owned banks that are assumed to offer services to SOEs as stable customers.

## 6.2 Types of Information Used in the Loan Approval Process

### 6.2.1 Attributes influencing lending decisions to SMEs

The responses to questions about attributes influencing lending decisions to SME were structured using the five-point Likert scale. The scale for each attribute ranged from ‘very unimportant’ (1) to ‘very important’ (5). Table 6.3 shows the perception of loan officers on attributes influencing their lending decisions to SMEs.

**Table 6.3: Descriptive Statistics of Attributes Influencing Lending Decisions**

Attributes	Mean	Std. Deviation
A1_Firm Size	3.59	0.777
A2_Corporate brand name	3.10	0.836
A3_Information about resources of firm	3.85	0.744
A4_Management philosophy & system	3.34	0.783
A5_Promising businesses	3.82	0.837
A6_Business schedules	4.04	0.701
A7_Information on Customers, market, supplier	3.67	0.672
A8_Clear and professional accounting system and reports	4.18	0.625
A9_Sales and profit	4.41	0.625
A10_Assets & Capital Sources	4.20	0.669
A11_Liquidity Ratio	4.06	0.686
A12_Capital structure Ratios	4.17	0.665

A13_Profitability Ratios	4.27	0.714
A14_Operating Ratios	4.07	0.768
A15_Cash Flow Statement	3.74	0.808
A16_Personal assets of the SME's representative	4.50	0.537
<b>A17_Pledgeability of real estate collateral</b>	<b>4.66</b>	<b>0.512</b>
<b>A18_Pledgeability of tangible assets collateral</b>	<b>4.68</b>	<b>0.506</b>
A19_The entrepreneur has relevant background and education	3.08	0.886
A20_Experience in the field of business	3.48	0.51
A21_Experience in management	3.44	0.516
A22_Strategic Planning Ability	3.29	0.486
A23_Uses IT in managing business	2.65	0.773
A24_Good at selecting the needed resources	3.44	0.525
A25_Good at understanding market evolution	3.26	0.608
A26_Makes positive impression with bankers	3.26	0.768
A27_Shows positive learning in working with bank	3.22	0.704
A28_Positive referral on integrity	2.94	0.826
A29_Willingness to share sensitive and real information	2.97	0.839
A30_Positive experience with working with banks	3.06	0.735
A31_Adapts interests with those of commercial partners	2.86	0.707
A32_Pays attention to the needs of employees	1.99	0.826
A33_Honest during negotiations with commercial partners	3.09	0.673
A34_Consistent in behavior and decisions	3.25	0.641
A35_Strong personal network with banks	3.21	0.659
A36_Strong personal network with government officials	2.97	0.675
A37_Strong network with the entrepreneurs at other firms	3.11	0.642
A38_Relationship with customers	3.11	0.66
A39_Relationship with suppliers	2.96	0.691
A40_The length of the bank-entrepreneur relationship	3.64	0.499
A41_The entrepreneur has been borrowing your bank	4.02	0.595
A42_The entrepreneur has been borrowing other banks	4.27	0.624
A43_Your bank is main bank	3.68	0.515
A44_Number of your bank products the firm is using	2.85	0.584
A45_Positive credit information in transactions with banks	4.30	0.566
A46_Type and value of collateral securing the loan in the past	4.36	0.51
A47_Negative credit information in transactions with banks	4.62	0.548
A48_Bankruptcies of owner	4.28	0.705
A49_Ppersonal financial information on the owners	3.92	0.701
A50_ Utility payment records	3.23	0.816
A51_Court judgments	3.94	0.706
A52_Credit enquiries from other lenders	4.12	0.618

As revealed in the descriptive statistics, the firm's collateral eligibility was the most important attribute to bank lending decisions to SMEs with the highest mean. The

finding is in good agreement with the results by the survey conducted by CIEM in 2011, which consisted that the most hindrance of SMEs in accessing bank loans is the lack of collateral. In addition, the second important factors influencing bank lending decisions are attributes related to the information on credit history and the financial performance of firms. Other relative important factors include attributes related to social capital variables such as the entrepreneur's capability, integrity or trust and the firm networking. Generally speaking, hard information still plays the critical role in loan approve process of Vietnam commercial banks. Soft information is also utilized in loan application assessment but it just plays supplementary role in this procedure. In contrast to our expectation and some studies in the literature which have shown that banks use soft information more than hard information in dealing with SMEs lending, Vietnam commercial banks make hard information a priority in the SMEs loan approval process. There are several likely explanations for this issue. (i) First, the ability of loan officers in gathering and verifying private and soft information is confined; (ii) Second, the survey was conducted in the most important economic center in Vietnam where has the highest density of large commercial banks. Thus, the competition in the credit market among banks in the city is more intense than in other areas. This requires bank loan officers to shorten the application processing time and reduce the cost of information collection. Meanwhile, soft information requires much more time and cost than hard information, not to mention that it is very difficult to test the reliability of soft information. (iii) Third, Vietnam SMEs are still poor in the capacity of management and inexperienced in dealing with banks; therefore, the ability to provide soft information is also limited. (iv) Fourth, the majority of commercial banks have currently established the general credit committee or center directly under the headquarter which final

lending decisions are made. This structure is suitable for applying transaction – based lending technologies that use the primary source of hard information because of the easy collection, storage and transmission characteristics of this information type. Thus, reducing the autonomy of bank branches is an obstacle to the encouragement of soft information collection.

In sum, the emphasize on hard information of banks deters SMEs from accessing bank credit since small firms often lack sufficient fixed assets to be used as collateral, comprehensive credit information as well as reliable financial reports.

### ***6.2.2 Tests of the reliability of scales***

The reliability statistics indicated that the Cronbach’s alpha of all facets reached a good level (above 0.7), while the ‘business organization’ facet was still acceptable (0.685). However, the Corrected Item-Total Correlation coefficients of attribute A1, A7, A10, A19, A26, A44 and A50 were low ( $\leq 0.3$ ), indicating that the corresponding item did not correlate very well with the overall scale and, therefore, it should be eliminated (Field A., 2005). The removal of those attributes would result in a higher Cronbach’s alpha. Therefore, the attributes A1, A7, A10, A19, A26, A44 and A50 were removed in turn to ensure the highest reliability of scales (see Appendix H).

### ***6.2.3 Explanatory factor analysis***

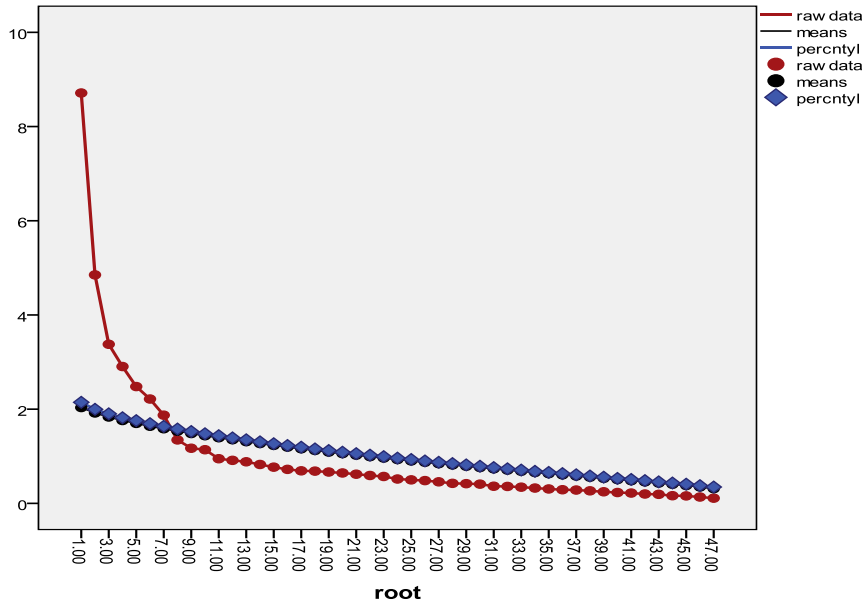
Regarding the sample size, it is suggested that the sample size required for running factor analysis should be 100 or larger. Hair et al. (2010) proposed that in general, the requirement of the sample size is to achieve the ratio of five observations per variable. Totally, 45 attributes are considered to put into the analysis, the desired sample should be 225. Our database included 218 observations, which nearly meet the requirement.

Although common statistical packages do not offer parallel analysis, we utilized the SPSS syntax created by O'Connor (2000) to run PA. As a general rule, only those factors or components whose eigenvalues are larger than the eigenvalues from the random data should be retained. Therefore, according to Table 6.4 & Figure 6.1, only seven factors should be retained. The figure 6.1 provides a graphical analogy to better understand for the solution of the PA application. According to the PA results, only seven factors should be retained.

**Table 6.4: Parallel Analysis Results**

	Raw data Eigenvalues	Means	Percentile random data Eigenvalues
1	8.3405	2.0346	2.1457
2	4.7796	1.9195	1.9969
3	3.3108	1.8338	1.9013
4	3.1132	1.7591	1.8182
5	2.5119	1.6978	1.7570
6	2.2240	1.6378	1.6923
7	1.8547	1.5844	1.6353
8	1.3334	1.5325	1.5789
...	...	...	...
45	0.1476	0.3791	0.4073

**Figure 6.1: Eigenvalues of Raw Data and Random Data**



Next, we carried out the principal component analysis with seven factors extracted. Only attributes or facets that had a high communality value and significant factor loading would be retained. The satisfactory communality value and significant factor loadings that may guarantee convergent validity for the analysis were 0.4 and 0.6 (or higher), respectively. Accordingly, ten attributes were removed alternately from the model after principal factor analysis (PCA) had been applied at the very first step, including: A2, A3, A51, A4, A5, A32, A29, A6, A15 and A46. The final PCA result is displayed in Table 6.5 and 6.6.

**Table 6.5: KMO and Bartlett's Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.806
Bartlett's Test of Sphericity	Approx. Chi-Square
	3906.179
	df
	595
	Sig.
	0.000

**Table 6.6: Final PCA results**

	Component						
	1	2	3	4	5	6	7
<b>Cronbach's Alpha</b>	0.876	0.849	0.844	0.849	0.868	0.809	0.763
<b>Eigenvalues</b>	6.885	4.083	3.102	2.835	2.350	1.746	1.576
<b>Cumulative variance explained (%)</b>	11.065	21.592	31.842	41.843	51.508	58.288	64.507
A12	0.782						
A13	0.778						
A14	0.771						
A9	0.736						
A11	0.699						
A8	0.693						
A33		0.799					
A30		0.775					
A34		0.729					
A28		0.725					
A31		0.719					
A27		0.689					
A20			0.812				
A21			0.802				
A24			0.766				
A22			0.723				
A25			0.685				
A23			0.679				
A48				0.805			
A47				0.779			
A45				0.765			
A52				0.688			
A49				0.654			
A42				0.615			
A37					0.873		
A38					0.836		
A39					0.775		
A35					0.731		
A36					0.719		
A40						0.845	
A43						0.833	
A41						0.754	
A17							0.839
A18							0.783
A16							0.771



As can be seen in Table 6.5, the final analysis result showed the KMO value of 0.806, which indicated a high appropriateness of the use of the principal component analysis. Kaiser (1974) suggested the KMO value of 0.5 or higher is regarded as acceptable. In addition, the KMO value ranging from 0.5 to 0.7 is moderate, the value from 0.7 to 0.8 is good, the value from 0.8 to 0.9 is great and above 0.9 is superb (Hair et al., 2010). Furthermore, the value of Bartlett's test of sphericity at a statically significant level (Sig = 0,000 <5%) reveals the strength of the relationship among variables.

As indicated in the Table 6.6, the factor analysis stopped at the eigenvalue of 1.576 with seven factors extracted according to the above PA result. The cumulative percent of these factors could clarify a considerable height of 64.51 % of the total variance.

The results of the rotated component matrix are shown in Table 6.6. Comparing the pattern of loadings in the table with the initial suggestion, we can see that there are few changes in the categorization of important attributes affecting bank lending decisions. "Firm's outstanding loan at other banks" attribute is associated with "Credit History Information" factor instead of being included in "Bank Relationship" category. However, in terms of empirical meaning, the recombination is still acceptable. As the explanation of each factor is based on the variables having large loadings, the seven factors were identified as follows:

Factor 1 – "Financial Information" comprised six attributes: capital structure ratios, profitability ratios, operating ratios, sales and profits, liquidity ratios, clear and professional accounting system.

Factor 2 – “Integrity of the entrepreneur” consisted of six attributes which were honest during negotiations with commercial partners, positive experience with working with banks, consistent in behaviors and decisions, positive referral on integrity (from third party), adapt interests with those of commercial partners, and show positive learning in working with banks.

Factor 3 – “Capability of the entrepreneur” contained six attributes: experience in the field of their business, experience in management, good at selecting the needed resources, strategic planning ability, good at understanding market evolution and use IT in managing business.

Factor 4 – “Credit History Information” included seven attributes namely bankruptcies of the owner, negative credit information in transactions with banks, positive credit information in transactions with banks, credit enquires from other lenders, Income and other personal financial information, and the firm’s outstanding loan at other banks.

Factor 5 – “Information on the firm’s network” was the combination of five attributes: strong network with the entrepreneurs at other firms, relationship with customers, relationship with suppliers, strong network with banks or other financial institutions, and strong network with government officials.

Factor 6 – “Bank Relationship of the firm” was composed of the length of the bank – entrepreneur relationship, the surveyed bank is the firm’s main bank and the entrepreneur has been borrowing the surveyed bank.

Factor 7 – “Collateral Eligibility” included the attribute of pledgeability of real estate collateral, pledgeability of tangible asset collaterals (other than real estate) and personal assets of the SME’s representative/entrepreneur.

With respect to validity and reliability, the analysis satisfied the requirements of convergent validity, discriminant validity, face validity and the consistency of the item-level errors within a single factor (reliability). First, the convergent validity means that the variables within a single factor are highly correlated. This is evident by the factor loadings. With the sample size of approximately 200, sufficient factor loadings should be at least 0.50 (Hair et al., 2009). Table 6.6 showed that all factor loadings on every factor were above 0.6, indicating a good convergent validity. Second, the discriminant validity refers to the extent to which factors are uncorrelated and distinct. The general rule is that variables or attributes should associate or connect more strongly to their own factor than to another factor. Examining the rotated component matrix, all variables loaded significantly only on one factor. In other words, there was no issue of cross-loadings. Therefore, the analysis met the requirement of discriminant validity. Third, regarding the face validity, it is easy to label the components since variables are generally similar in nature loading together on the same factor. Finally, in respect of reliability, the Cronbach’s alpha for each component or factor was above 0.7, revealing that the analysis was reliable.

#### ***6.2.4 Confirmatory factor analysis***

After PCA was used to develop scales, we moved on to Confirmatory Factor Analysis (CFA). This study conducted a CFA with AMOS software to test the fit between the data and the seven-factor model. We decided to use the maximum likelihood estimation

method. Furthermore, various criteria were applied to evaluate the goodness-of-fit between the data and the model as suggested in the literature.

It is apparent from the model that the seven factors of lending decisions correlated with each other. The results of the CFA also indicated that the seven-factor model showed a good fit with acceptable fit indices. All coefficients are significant at  $p < 0.01$ , CFI=0.91, RMSEA=0.054, AGFI=0.80, SRMR < 0.08, and CMIN/DF=1.63

The factor loadings of the CFA are shown in the Figure 6.2 and measures of validity and reliability are presented in the Table 6.7:

**Table 6.7: Measurement of Validity and Reliability of CFA Model**

	<b>CR</b>	<b>AVE</b>	<b>MSV</b>	<b>ASV</b>
<b>Relationship</b>	0.780	0.542	0.238	0.066
<b>Finance</b>	0.882	0.557	0.134	0.081
<b>Credit_History</b>	0.858	0.548	0.238	0.073
<b>Integrity</b>	0.815	0.478	0.100	0.039
<b>Capability</b>	0.835	0.583	0.100	0.030
<b>Network</b>	0.871	0.632	0.066	0.039
<b>Collateral</b>	0.816	0.598	0.088	0.018

To evaluate the suitability of those measures, we followed the thresholds suggested by Hair et al. (2010). Except the value of AVE of “Integrity” factor, measures of CR, AVE, MSV, ASV of all factors met the requirement of composite reliability, convergent validity and discriminant validity. However, since the “Integrity” AVE was not too far from the suggested threshold of AVE (0.478 and 0.5, respectively), we decided to retain this factor in the model.

**Figure 6.2: Standardized Coefficients (Factor Loadings) for the Seven-Factor Model**

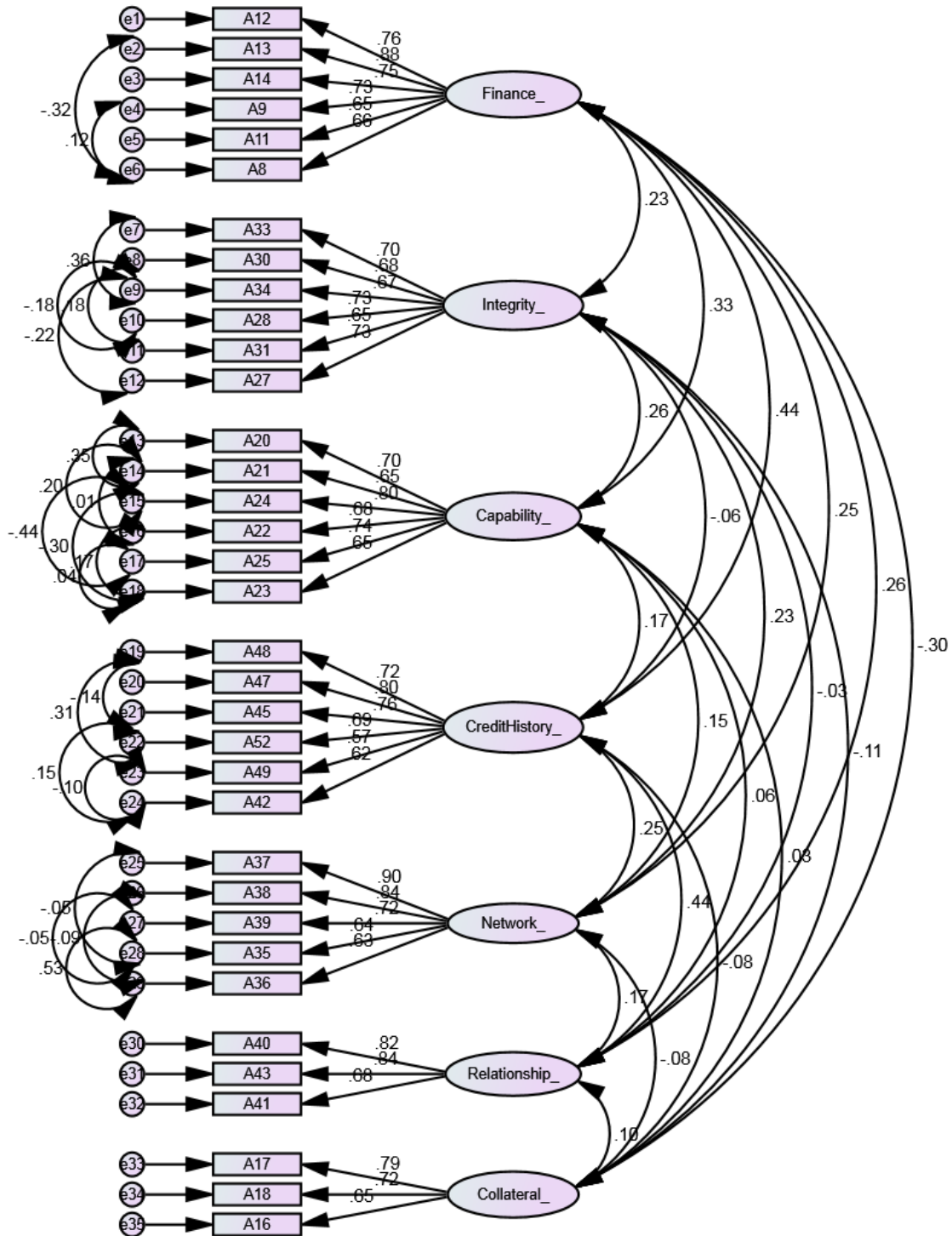


Figure 6.2 shows the factor loadings of the CFA. We followed the measure set by Hair et al. (2010) who suggested that factor loadings should be 0.5 or higher. The minimum factor loading of our CFA model was 0.57, thus indicating that the independent variables identified a priori represented by a particular factor.

In sum, CFA results confirmed that the seven-factor model with 35 attributes was a good measurement model. Therefore, factors extracted from the model can be used to estimate the importance of information facets in the bank loan approval process.

### ***6.2.5 Discussion on the information used for the loan approval process***

#### ***6.2.5.1 The relative importance of individual information indices***

To characterize actual loans from the perspective of information used for lending decision, we constructed composite scores or indices to represent to what extent loan applications are approved based on the aggregate combination of hard and soft information. The indices were constructed by utilizing the factor analysis's results in the previous part, in which factor loadings were used to compute weights of attributes or items. Factor loadings indicate how strongly the attribute influences the measured variable. The individual weights of each attribute were calculated as the square values of each factor loading divided by the sum of the squared values of the factor loadings of all the attributes (Barrios & Schaechter, 2009). The information indices which represent their important level in the loan approval process were shown in the Table 6.8:

**Table 6.8: Descriptive Statistics of Information Indices Used in the Loan Approval Process**

	N	Minimum	Maximum	Mean	Std. Deviation
COLLATERAL	218	3.00	5.00	4.5939	.44966
CREDITHISTORY	218	3.00	5.00	4.2988	.47473
FINANCE	218	2.98	5.00	4.1957	.54069
RELATION	218	2.29	4.65	3.7311	.47549
CAPABILITY	218	2.24	4.14	3.2840	.42925
NETWORK	218	1.56	4.19	3.0868	.52217
INTEGRITY	218	1.84	4.00	3.0547	.53512

From the Table 6.10, it is clear that COLLATERAL with the highest mean (4.59) played the most important role in the loan approval process. This suggests that collateral lending is the most widespread used lending technology in Vietnam banks. Along with collateral, information on credit history of the firm (CREDIT.HISTORY) and financial performance (FINANCE) also influence substantially on bank lending decisions to SMEs. It is noteworthy that these three important information indices all belong to the “hard information” category. In other words, regardless of the fact that soft information also plays a certain role in bank lending decisions (the mean values of soft information indices such as relation, capability, network and integrity are above 3.0), the loan approval process in Vietnam bank system is mainly a hard-information based system. The descriptive statistics show us the relative importance of individual information indices but cannot reveal the possibility that these information types may not be strictly distinct from each other and, as a result, some complementarity may exist among them. In other words, there is a likelihood that different information types complement each other and loans may have characteristics of different lending technologies at the same time. Thus, the analysis of interrelationships among information types is examined in further steps.

### 6.2.5.2 Complementarity/ Substitution among the information indices

Before proceeding with the analysis of the complementarity among information types, we decided to make a combination of three following factors: capability, integrity and network. There are several reasons: first, in theoretical meaning, they share the common literature regarding social capital theory. They are facets of trust (capability, integrity) and networks which are major attributes of the firm social capital; second, in order to ease the problem of multicollinearity and to have the ideal sample size for multivariate regression which will be conducted in further steps, the reduction of high correlated independent variables is necessary. Therefore, integrity, capability and network were combined in a composite index namely “SOCIALCAP” by simply taking the average of the three factors. Table 6.11 shows the summary statistics of information indices after calculating the SOCIALCAP index. The combination of three soft information indices did not change the important order of information indices.

**Table 6.9: Descriptive Statistics of Information Indices Used in the Loan Approval Process after Combining Integrity, Capability and Network**

	N	Minimum	Maximum	Mean	Std. Deviation
COLLATERAL	218	3.00	5.00	4.5939	.44966
CREDITHISTORY	218	3.00	5.00	4.2988	.47473
FINANCE	218	2.98	5.00	4.1957	.54069
RELATION	218	2.29	4.65	3.7311	.47549
SOCIALCAP	218	2.35	3.94	3.1418	.33770

In the first step, we checked the simple correlations among the five information indices.

Table 6.10 shows their coefficients of correlation.



**Table 6.10: Pearson Correlation of the Five Information Indices**

	COLLATERAL	FINANCE	CREDIT. HISTORY	RELATION	SOCIALCAP
COLLATERAL	1				
FINANCE	-0.236** (0.000)	1			
CREDIT.HISTORY	-0.062 (0.362)	0.415** (0.000)	1		
RELATION	0.079 (0.248)	0.243** (0.000)	0.383** (0.000)	1	
SOCIALCAP	-0.052 (0.449)	0.323** (0.000)	0.179** (0.008)	0.076 (0.264)	1

Note: \*\* Correlation is significant at the 0.01 level (2-tailed).

Far beyond our expectation, Table 6.10 revealed some interesting results. First, there was a significant negative correlation between COLLATERAL and FINANCE, which indicated that these two types of information are not complementary but substitutive. In other words, collateral-based lending and financial statement-based lending technologies were not used in tandem. Moreover, the COLLATERAL variable showed no association with other information indices at a significant level. It seemed that the collateral based-lending technology was used relatively independent from other lending technologies. To put differently, if a small firm can satisfy the strict requirements of collateral pledgeability by banks, it is highly likely that the bank will accept the firm's loan application without taking into account information on financial statements, credit history reports or consuming time to check other information types such as the firm's relationship with banks, integrity, capability and networks. For banks, sufficient collateral is the highest guarantee for the creditworthiness of borrowers. These unexpected results are also different from previous studies on the choice of lending technologies for SMEs that empirically proved that collateral based-lending technology

is used in a complementary way with other lending technologies (Uchida et al., 2006; Bartoli et al., 2013).

Second, SOCIALCAP and RELATION showed no statistically significant correlation with each other though both of them were categorized as soft information. It is probable that the firm-bank relationship was measured in a quantitative manner with attributes of “hard information” such as the length of the firm-bank relationships, number of bank products used by the firm; meanwhile, social capital’s attributes were mainly constructed from “soft information”. There are significant differences between soft and hard information in screening and monitoring processes; therefore, these two types of information might not be used concurrently.

For other combination of indices, there was a relatively highly significant positive correlation. Interestingly, the magnitude of correlation is very high between FINANCE and CREDIT\_HISTORY, between CREDIT\_HISTORY and RELATION, SOCIALCAP and FINANCE. This implies that these pairs of information types are highly complementary and frequently used at the same time by loan officers in the loan approval process. Alternatively, for small firms which is difficult to meet the requirement of collateral, there is a likelihood that bank loan officers still accept loan applications by taking into consideration information on the financial status, credit history, relationship with their bank and social capital at the same time.

However, a basic correlation may not be completely instructive. Therefore, in further steps, multivariate regression models among the information indices were implemented. This analysis could provide suggestions about what combination of

information types is the most significant when all information types are to some extent applied simultaneously (Table 6.11).

**Table 6.11: Results of Multivariate Regression Models among the Information Indices**

Dependent Variable	(Intercept)	COLLATERAL	CREDIT. HISTORY	FINANCE	RELATION	SOCIAL CAP	Adjusted R Square
COLLATERAL	4.958 (0.000)		-0.008 (0.913)	-0.230 (0.000)	0.139 (0.042)	0.037 (0.687)	0.058
CREDIT. HISTORY	1.790 (0.000)	-0.007 (0.913)		0.285 (0.000)	0.300 (0.000)	0.072 (0.412)	0.245
FINANCE	2.091 (0.000)	-0.256 (0.000)	0.355 (0.000)		0.138 (0.055)	0.395 (0.000)	0.275
RELATION	1.224 (0.017)	0.139 (0.042)	0.337 (0.000)	0.125 (0.055)		-0.033 (0.725)	0.156
SOCIAL CAP	2.114 (0.000)	0.020 (0.687)	0.044 (0.412)	0.193 (0.000)	-0.018 (0.725)		0.091

Note: P-values are in the parenthesis

It is apparent from Table 6.11 that the results are generally compatible with the results presented in Table 6.10. Again, judging from the magnitudes of the coefficients, collateral lending and financial statement lending were substitutive; credit information was closely linked with financial information and relationship lending; and financial information was highly tied with almost all other types of information.

However, there are few differences between bivariate analysis (Table 6.10) and multivariate analysis (Table 6.11). First, the collateral-based lending was actually linked with the relationship lending at a significant level. Second, the social capital index and credit information index had no impact on each other. This means these two types of information were not employed at the same time. Social capital was also the factor having a poor impact on other information indices. This suggests that taking into

consideration the mutual interrelationship among the information types, social capital information was not emphasized and frequently used.

Furthermore, our finding here suggests that financial information and the relationship lending were extensively employed in the combination with other information types in the loan approval process.

### **6.3 Determinants of Lending Decisions**

#### ***6.3.1 The level of firm response to important information for lending decisions***

In the survey, besides asking loan officers about the importance level of each type of information, we also asked them to reminisce a recently specific firm loan application which they were in charge and then evaluated about the level of firm response to the corresponding information which is considered important for the loan approval process. The level of firm response here is understood as the availability and the reliability of information the firm can provide loan officers (or conversely, information which loan officers can find and confirm from the firm or the third party like credit information bureaus) to serve the purpose of the assessment of the firm's creditworthiness. It can be understood as the firm's willingness to provide necessary information for the loan approval process.

Table 6.12 described the fundamental statistics of the firm's level of important - information response. It is notable that we just display the level of response to important attributes for the loan approval process based on the results of the previous factor analysis part.

**Table 6.12: Descriptive Statistics of the Level of Firm Response to Correspondingly Important Attributes**

<b>Firm response (FR) to correspondingly important attributes</b>	<b>Mean</b>	<b>Std. Deviation</b>
RA11_FR to “Liquidity Ratio”	3.21	0.85
RA12_FR to “Capital structure Ratios”	3.31	0.87
RA13_FR to “Profitability Ratios”	3.31	0.89
RA14_FR to “Operating Ratios”	3.17	0.94
RA16_FR to “Personal assets of the SME’s representative/ entrepreneur”	3.15	0.93
RA17_FR to “Pledgeability of real estate collateral”	3.12	1.06
RA18_FR to “Pledgeability of tangible assets collateral (other than real estate)”	3.25	1.22
RA20_FR to “Experience in the field of business”	3.18	0.78
RA21_FR to “Experience in management”	3.15	0.71
RA22_FR to “Strategic Planning Ability”	3.00	0.79
RA23_FR to “Uses IT in managing business”	3.05	0.76
RA24_FR to “Good at selecting the needed resources”	3.02	0.87
RA25_FR to “Good at understanding market evolution”	3.05	0.97
RA27_FR to “Shows positive learning in working with bank”	2.95	0.81
RA28_FR to “Positive referral on integrity (from third party)”	2.8	0.84
RA30_FR to “Positive experience with working with banks”	2.82	0.96
RA31_FR to “Adapts interests with those of commercial partners”	2.69	0.82
RA33_FR to “Honest during negotiations with commercial partners”	2.83	0.91
RA34_FR to “Consistent in behavior and decisions”	2.97	0.8
RA35_FR to “Has strong personal network with banks or other FIs”	2.94	0.96
RA36_FR to “Strong personal network with government officials”	2.72	0.92
RA37_FR to “Has strong network with the entrepreneurs at other firms”	2.89	0.8
RA38_FR to “Relationship with customers”	2.94	0.84
RA39_FR to “Relationship with suppliers”	2.92	0.82
RA42_FR to “The entrepreneur has been borrowing other banks”	3.72	0.92
RA45_FR to “Positive credit information in transactions with banks”	3.39	1.27
RA46_FR to “Type and value of collateral securing the loan in the past”	3.3	1.13
RA47_FR to “Negative credit information in transactions with banks”	3.71	1.24
RA48_FR to “Bankruptcies of owner”	3.16	1.12
RA49_FR to “Income and other personal financial information on the owners”	3.05	0.97
RA52_FR to “Credit enquiries from other lenders”	3.43	1.25
RA8_FR to “Clear and professional accounting system and reports”	3.33	0.86
RA9_FR to “Sales and profit”	3.25	0.86

Judging from the Table 6.12, hard information such as information on credit history records, financial statement and collateral are those loan officers can find and verify. It is also noteworthy that information on the firm-bank relationship is considered as one of the highest available and reliable information. The reason is that we qualified relationship lending information under specific measures such as the years of the firm-bank relationship, the number of bank products used by the firm, whether the firm used to be an ex-borrower of the bank or not, and whether the bank is the firm's main bank or not. This information can be easily found out and verified by surveyed loan officers. Therefore, there is no need to ask loan officers about the firm response to this kind of information.

On the contrary, social-capital-related attributes such as capability of the entrepreneur, the entrepreneur's integrity and networks express the poor response of the firm. The firm's representatives may be less willingness to share such information or they may lack capability to show those information.

By comparing the mean value of Table 6.12 and Table 6.3, it can be deduced that there is a "gap" in information flow between lenders and borrowers. For example, information on collateral attributes almost got the highest mean value of five-point Likert scale (above 4.5, shown in Table 6.3). Meanwhile, the level of the firm response to this type of information was around the average point of the scale (above 3.0, shown in Table 6.12). Although the comparison is relative, we can infer that to some extent, there exists the problem of information asymmetry between bank loan officers and small businesses. Therefore, the firms that can provide important information from the bank's viewpoint, such as collateral pledgeability, credit information and financial statement will have a high probability of accessing bank loans. To put differently, the

higher the level of firm response to important information is, the greater the likelihood of credit access is. In the next section, we investigated the impact of the level of firm response to required information on bank lending decisions through a binary logistic regression model.

In addition, in order to integrate the important level of attributes into the level of firm response to corresponding attributes, we used the factor loadings from the previous factor analysis results as weights to construct the composite scores of factors that were revealed to have influence on the bank loan approval process. Table 6.13 displays the statistics of composite scores describing the firm response level to important information (response indices)

**Table 6.13: Composite Scores of the Firm Response Level to Important Information**

	N	Minimum	Maximum	Mean	Std. Deviation
R-CREINFO	218	1.12	4.88	3.40	0.91
R-FINANCE	218	1.31	5.00	3.26	0.78
R-COLLATERAL	218	1.62	5.00	3.17	0.65
R-CAPABILITY	218	1.70	4.53	3.08	0.58
R-NETWORK	218	1.00	4.24	2.89	0.66
R-INTEGRITY	218	1.47	4.28	2.84	0.64

Among the response indices, RCREINFO had the highest mean value (3.40), followed by RFINANCE (3.26) and RCOLLATERAL (3.17). These indices are categorized as the firm-response-level to hard information required for the loan approval process. It is reasonable that loan officers find it easy to collect and verify hard information, especially information provided by a third party such as credit history report from credit bureaus. On the other hand, for the firms that have clear and professional reporting system or sufficient fixed assets to pledge as collateral, they are

completely confident to provide reliable hard information required by loan officers. On the contrary, the level of firm response to soft information such as the entrepreneur's capability, integrity and networks was not very well. It may be because loan officers have not emphasized on these types of information due to high costs and time-consuming of soft information collection. Moreover, since small businesses are often short of management skills and experience in working with banks, they are lack capability to show off themselves and to create the trust between them and bank loan officers.

### ***6.3.2 Logistic regression on determinants of lending decisions***

#### *6.3.2.1 Sample sizes, dependent and independent variables*

##### *Dependent and Independent Variables*

Dependent variables and predictors or independent variables used in the logistic regression are defined and displayed in Table 6.14.



**Table 6.14: Description of Variables Used in the Logistic Regression Model of Determinants of Lending Decision**

Code	Description of Variables	
<b>Dependent Variables</b>		
Lending-De	Bank Lending Decision	1-Accept, 0-otherwise
<b>Independent Variables</b>		
R-CreditHistory	Firm Response to Credit Information	Ratio scale variable
R-Finance	Firm Response to Financial Information	Ratio scale variable
R-Collateral	Firm Response to Collateral Information	Ratio scale variable
R-Capability	Firm Response to Information on Capability	Ratio scale variable
R-Integrity	Firm Response to Information on Integrity	Ratio scale variable
R-Network	Firm Response to Information on Network	Ratio scale variable
R-SocialCap*	Composite score of R-Capability, R-Integrity, and R-Network	Ratio scale variable
Rel-Years**	The length of the bank-firm relationship in years	Ratio scale variable
MainBank	The surveyed bank is the firm's main bank	1-Main Bank, 0-otherwise
ExBorrower	The firm used to borrow at the surveyed bank	1-Ex-borrower, 0-otherwise

Note:

\*The construct of R-Capability, R-Integrity and R-Network into a composite score, namely R-SocialCap is to meet the requirement of sample size for binary logistic regression

\*\*The last three variables measure the relationship lending of the firm

### The sample size

Regarding the sample size, as a general rule of thumb, logistic regression models necessitate a minimum of 10 events per independent variable (Peduzzi et al., 1996). According to this rule of thumb, with nine independent variables (six response index variables and three variables measure relationship lending), our data should have 90 observations for the rejected outcome. Meanwhile, our data included only

approximately 60 rejected observations. In order to meet the requirement of sample size for binary logistic regression, it is necessary to increase the number of observations or decrease the number of explanatory variables. Though it had better increase the number of observations, it is usually impossible in the analysis stage. Instead, most researchers will attempt to reduce the number of predictors (Michell, 2011). Michell (2011) suggested several ways to reduce the number of independent variables: (1) excluding extraneous variables, redundant variables or variables with a lot missing data, (2) excluding variables that are not empirically operating as confounders, (3) choosing one variable to represent two or more related variables, (4) combining variables into a single variable, score or scale. Following these suggestions, after examining the data and predictors, we decided to exclude the variable “number of bank products used by the firm” because of lots of missing data. Additionally, this variable is moderately correlated with other variables of interests such as “the length of bank-firm relationship”, “main-bank” variables. Therefore, other variables of interests can represent to some extent the frequent use of bank products. Moreover, independent variables such as “CAPABILITY”, “INTEGRITY” and “NETWORK” are theoretical facets of social capital. They are also correlated with each other and each variable’s mean score is almost equivalent; therefore, we combined these three independent variables into a composite score, namely R-SOCIALCAP indicating the response level to information on “social capital” of a firm by simply calculating the average of their value. This newly-constructed variable also showed the association with both the independent variable of interest and the outcome variable in bivariate analyses (Hair et al., 2010).

6.3.2.2 Association tests between independent variable and dependent variables

By using Shapiro-Wilk Test to examine the normality of the data, the results showed that several independent variables did not follow normal distribution. Thus, we decided to apply nonparametric tests to investigate the association between those independent variables and the dependent variable.

**Table 6.15: Results of the Mann-Whitney U Test on the Bank Lending Decision by Firm Response Level to Information on Collateral, Finance, Credit history, Social Capital and the Length of Relationship with Banks**

Bank Lending Decision		N	Mean Rank	Sum of Ranks	U	Z	P
RCOLLATERAL	Reject	56	51.04	2858	1262.0	-8.049	0.000
	Accept	162	129.71	21013			
RFINANCE	Reject	56	37.64	2108	512.0	-9.894	0.000
	Accept	162	134.34	21763			
RCREINFO	Reject	56	35.38	1981	385.0	-10.202	0.000
	Accept	162	135.12	21890			
RSOCIALCAP	Reject	56	44.96	2518	922.0	-8.882	0.000
	Accept	162	131.81	21353			
Rel_Years	Reject	56	54.13	3031.5	1435.5	-7.748	0.000
	Accept	162	128.64	20839.5			

An examination of the findings in Table 6.17 shows that the results of Mann Whitney U test, which was applied to compare the firm response level to information types in the reject group and accept group, revealed a statistically significant difference ( $p=0.000 < .05$ ). The results indicate that the accept group had the higher level of firm response toward information types and a longer relationship with the bank.

**Table 6.16: Proportion of Reject & Accept Group by Main-Bank and Exborrower**

			Bank Lending Decision		Total
			Reject	Accept	
MainBank	No	Count	50	58	108
		% within MainBank	46.3%	53.7%	100.0%
	Yes	Count	6	104	110
		% within MainBank	5.5%	94.5%	100.0%
Total		Count	56	162	218
		% within MainBank	25.7%	74.3%	100.0%
ExBorrower	No	Count	41	35	76
		% within ExBorrower	53.9%	46.1%	100.0%
	Yes	Count	15	127	142
		% within ExBorrower	10.6%	89.4%	100.0%
Total		Count	56	162	218
		% within ExBorrower	25.7%	74.3%	100.0%

Concerning the relationship between the bank lending decision and the main-bank, the results from chi-square tests show that that there was a statistically significant difference between the proportion of rejected borrowers and accepted borrowers with accepted borrowers being more likely to get loan from their main bank than rejected borrowers.

For the association between the bank lending decision and exborrower, the Chi square tests also indicate that this relationship was significant: Chi-square = 48.8,  $p < .05$ . In other words, accepted borrowers were more likely to exborrowers than rejected borrowers. The association of the main-bank and exborrowers with bank lending decision was of moderate strength with the phi value of 0.467 and 0.473, respectively (Table 6.17).

**Table 6.17: Chi-square Tests and Symmetric Measures of the Association between Bank Lending Decision and Main-bank and Exborrower Variables**

	<b>MainBank</b>		<b>ExBorrower</b>	
	Value	Asymp. Sig.	Value	Asymp. Sig.
<b>Chi-Square Tests</b>				
Pearson Chi-Square	47.619	0.000	48.811	0.000
Likelihood Ratio	52.721	0.000	47.745	0.000
Linear-by-Linear Association	47.400	0.000	48.587	0.000
<b>Symmetric Measures</b>	Value	Approx. Sig.	Value	Approx. Sig.
Phi	0.467	0.000	0.473	0.000
Cramer's V	0.467	0.000	0.473	0.000
Contingency Coefficient	0.423	0.000	0.428	0.000
N of Valid Cases	218		218	

In sum, all potential independent variables, through bivariate analysis, showed statistically significant relationship with dependent variables. Therefore, all of them were qualified to be put into the logistic regression model in the next step.

### *6.3.2.3 Logistic regression results*

We used the forward stepwise logistic regression to explore if the independent variables mentioned in the previous part affect the probability of loan application acceptance. The independent variables included in the model include those were shown to have a correlation with the dependent variable, according to association test results. The dependent variable is dichotomous, taking the value of 1 if the firm loan application is accepted and 0 otherwise. The independent variables consist of response to credit information index, response to financial information index, response to collateral information, response to information on the firm's social capital, the length of the bank-firm relationship, the surveyed bank is the firm's main bank, and the firm used to borrow at the surveyed bank. Table 6.18, 6.19 & 6.20 summarize the logistic regression results at the last step.

**Table 6.18: Omnibus Tests of Model Coefficients**

	Chi-square	df	Sig.
Step	5.073	1	.024
Block	199.911	4	.000
Model	199.911	4	.000

**Table 6.19: Classification Table of Bank Lending Decision**

Observed		Predicted		
		Bank Lending Decision		Percentage Correct
		Reject	Accept	
Bank Lending Decision	Reject	51	5	91.1
	Accept	4	158	97.5
Overall Percentage				95.9

Note: The cut value is .500

Table 6.18 describes the fitness of the model. The test of the full model against a constant-only-model was statistically significant, revealing that the predictors accurately differentiated between the “accepted-firms” and “rejected-firms” (Omnibus chi-square = 199.9; df=8 and Sig.=0.000). By the same token, the Hosmer-Lemeshow test, which gives a measure of the agreement between the observed outcomes and the predicted outcomes, showed a high p value ( $p = 0.472$ ), indicating that the model adequately fit the data. The model accounted for between 60.0% and 88.3% of the variance in bank acceptance status, with 97.5% of the accepted firms successfully predicted. On the other hand, 91.1% of prediction for the rejected group was accurate. Overall, 95.9% of predictions were accurate. We also examined the issue of multi-collinearity through computing the VIF indicator. The result is that though independent variables were correlated with each other to some extent, there was no serious problem of multi-collinearity.

Table 6.20 provides coefficients and the Wald statistic and probability values for each of the predictor values. This shows that only the firm response to collateral (RCOLLATERAL), the firm response to financial information (RFINANCE), the firm response to credit information (RCREINFO), and main-bank together reliably predicted the bank lending decision. The result also shows that the firm response to social capital, the length of bank-firm relationship and ex-borrower are insignificant determinants of the bank lending decision though these variables show a significant association with the independent variable in the bivariate analyses.

**Table 6.20: Logistic Regression Results – Lending Decision and Explanatory Variables**

<b>Variables<sup>a</sup></b>	<b>B</b>	<b>S.E.</b>	<b>Wald</b>	<b>Sig.</b>	<b>Exp(B)</b>
R-Collateral	4.515	1.295	12.167	0.000	91.423
R-Finance	1.728	0.841	4.222	0.040	5.631
R-CreditHistory	2.151	0.776	7.677	0.006	8.596
MainBank	2.26	0.897	6.35	0.012	9.581
Constant	-24.722	5.538	19.931	0.000	0.000
<b>Observations</b>	218				
<b>-2 Log Likelihood</b>	48.509				
<b>R-Squared<sup>b</sup></b>	0.600 (Cox & Snell)		0.883(Nagelkerke)		

Note: a. Variable(s) tested to enter: R-Collateral, R-Finance, R-CreditHistory, R-SocialCap, Rel-Years, MainBank, ExBorrower

b. R-square estimated at Step 4 (the last step).

Based on the logistic coefficient (B), the regression model could be written as follows:

$$\text{Logit}(\rho) = \text{Log}[\rho_i/(1-\rho_i)] = -24.722 + 4.515* \text{R-Collateral} + 1.728* \text{R-Finance} + \\ + 2.151* \text{R-CreditHistory} + 2.260* \text{MainBank}$$

The value of Exp(B) presents how a change of raising the corresponding measure influences the odds ratio. Specifically, the value of the coefficient reveals that an increase of one unit of the firm response to collateral information is associated with an

increase in the odds of acceptance by a factor of 91.4. Similarly, for each unit increase in the firm response to financial information and credit information, loan officers were approximately 5.6 and 8.5 times more likely to approve the firm loan application, respectively. Furthermore, strong evidence of the influence of relationship lending factor on lending decision was also found. At the 95% confidence interval, the firm that applied for a loan to their main bank was approximately 9.5 times more likely to get the loan. Judging from the magnitude of coefficients, it can be said that the firm response to collateral requirement is the most important factor affecting bank lending decisions to SMEs. This finding also coincides with our previous conclusion that collateral-based lending is the most frequently used lending technology. This reflects the collateral principle, a common lending practice in Vietnam.

#### **6.4 Discussion**

Overall, our analysis provides empirical evidences that hard information such as financial statement, information on collateral and credit history report is superior to soft information in affecting bank lending decisions to SMEs. In particular, the information attributes related to collateral-based lending technology were relatively more frequently emphasized and in fact, the index of the important level of collateral information is the largest among the seven indices. Furthermore, the findings from logistic regression analysis once again suggested that the firm response to collateral requirement was the most crucial factor which affected the bank lending decisions. There are similarities in the finding of information for lending decisions to SMEs between the present study and those described by Uchida et al. (2006) and Bartoli et al. (2013). Uchida et al. (2006) through using the Management Survey of Corporate Finance issues in the Kansai Area in Japan, found the strong evidence of using financial statement lending as the most



frequent lending technologies among banks in general. By the same token, Bartoli et al. (2013) through the Survey on Italian Manufacturing Firms in 2007, came into the conclusion that financial statement lending was the most widespread lending technology. Both of them also insisted that lending technologies were complementary and that multiple lending technologies are often used at the same time. Findings in the present study are also consistent with those of the two above empirical studies from the viewpoint that hard information play a significant role in bank lending decisions and that hard information is connected with soft information to some extent. However, different from those two studies, our study found that collateral-based lending technology was used the most frequently. Moreover, to some extent the correlation between collateral information and other information types is not complementary but substitutive. There are several possible explanations for this result. First, this could be explained by the context of bank lending activities in Vietnam: loan officers' ability of collecting and verifying soft information is limited due to both subjective and objective reasons. Second, the majority of Vietnam SMEs has no audited financial statements. The survey results from demand side perspective, which was displayed in chapter 5, showed that only around 30% of surveyed SMEs implemented the practice of auditing financial statements. In fact, when loan officers require a borrower to provide information on the firm's finance status, the firm often gives the bank tax statements or internal financial reports. As a result, the reliability of the firm's financial statement is poor. This leads to the fact that loan officers cannot rely upon only financial reports provided by small firms to make lending decisions. Third, regarding credit history information, Vietnam Credit Information Center (CIC) is the only public credit bureau that provides credit reports in which negative information (e.g. information on the

firm's bankruptcy, default, late payment) accounts for the large part of the content. Moreover, CIC's database is still incomplete since it has been collecting and disseminating credit information of medium and large companies with the source of information coming from the bank system. The information sources from other financial institutions or non-bank institutions (e.g. financial companies, retail companies, utility companies, courts) is still excluded from this information system. Consequently, regardless of the highly relative reliability of credit information reports, loan officers only consider credit information as an important reference source and used it along with other types of information. Fourth, the firm's humble capacity of professional management and inexperience in providing the banks with soft information is one of the characteristics of SMEs in general, Vietnam small businesses in special (Nguyen et al., 2001). Accordingly, from the perspective of lenders, collateral pledgeability is the most transparent, specific and reliable information when they assess the borrower's creditworthiness. Last, the survey served for this study was conducted in the most dynamic city in Vietnam, HCMC, where many large banks and their branches locate. Under the pressure of competition among banks in achieving the target credit growth rate, assessing borrowers' creditworthiness through collecting soft information will lead to costly and time-consuming problems. In this circumstance, relying on hard information is the safer choice. This argument also corresponds with previous studies that argued large banks hold a comparative advantage in transactional lending, while the local banks have an edge in relationship lending (Stein, 2002).

Leaving hard information aside, the firm-bank relationship is also considered by loan officers in the loan approval process. This is to say, relationship lending contributes to some extent the final lending decision, especially when hard information

is insufficient. This could be explained by the argument that the stronger the firm–bank relationship is, the more information (including soft and hard information) the bank can accumulate about the firm. Hence, loan officers can assess the firm’s creditworthiness accurately. The finding is in a good match with several empirical studies of relationship lending the financing of SMEs. For example, Cole (1998), found that a lender was less likely to grant credit to a firm if the customer relationship had lasted for 1 year or less. Angelini et al. (1998) showed that the intensity of relationship banking reduces the probability that borrowing enterprises would be rationed. In the study, the relationship lending was expressed by “the length of the firm-bank relationship in years”, “the current bank is the main bank”, and “the firm is the bank’s ex-borrower.” Through relationship lending, not only hard information is collected, but also soft information such as the entrepreneur’s capability, network and integrity is also incorporated.

Overall, this study presents an empirical evidence to find an answer to the question of determinants affecting the bank lending decisions to SMEs from the perspective of soft and hard information. Our observations suggest that hard information plays a crucial role in lending decision though soft information is also incorporated in the loan approval process. The findings may be not new, though they indicated that lending technologies was used in both substitutive way (in the case of collateral based lending) and complementary way (in the case of other lending technologies). However, if most of previous studies investigated lending technologies from the viewpoint of borrowers through using SMEs survey data (Berger & Udell 2006; Uchida et al. 2006; Bartoli et al. 2013), our study presents a new approach by analyzing the use of lending technologies from the perspective of lenders – bank loan officers. We believe that this is somehow a good approach to explore the bank lending

technologies and corresponding information types necessary for the loan approval process since it had better to examine the choice of lending technologies from the standpoint of those who make that kind of decision. Furthermore, the study also contributes to the literature of lending technologies by including new measures of soft and hard information. Those are credit history information and information on firms' social capital. Although multivariate analyses only showed the statistically significant impact of credit history information on bank lending decisions, soft information expressed through social capital (including the entrepreneur's trust and networks) is still considered by bank loan officers in the procedure of loan application assessment, especially in case of lacking hard information. In addition, the study is different from several previous researches in computing composite indices of information types or lending technologies. Instead of using simple average method (Uchida et al. 2006; Bartoli et al. 2013), we used a variety of attributes which is consulted from experienced loan officers and bank managers and then put them in factor analysis (principal component analysis and confirmatory factor analysis included) to achieve good scales of information types necessary for the loan approval process. This procedure allows us to construct information indices considering the important level of each attribute toward the corresponding factor.

### **Chapter Summary**

In this chapter, by using data from a unique survey for bank loan officers in Vietnam, we addressed the issue of the deployment of alternative lending technologies or information types which can be used in lending to Vietnam SMEs. Our results highlighted that lending technologies in Vietnam bank system have the characteristics of both the complementarity and substitution. In other words, a given firm may receive

credit via different lending technologies. The study also provided empirical evidences that Vietnam bank lending is indeed a collateral-based lending system. The research findings also analyzed the firm capability in response to required information for the lending procedure as well as defined the determinants of SME credit accessibility from the perspective of the bank side.

## **CHAPTER 7**

### **IMPLICATIONS AND CONCLUSION**

This chapter summarizes the research findings and offers its implication in four sections. The first section reinstates the objectives that the research aims to achieve and presents the summary of the research findings. The next section indicates the implications of the research. The final part of the chapter illustrates the limitations that the research faces and suggests recommendations for further research.

#### **7.1 Overview of the Study Findings**

The general objective of this research is to investigate debt financing behaviors of the Vietnam SMEs comprehensively by examining the determinants of credit participation, credit source selection and bank credit accessibility from both the demand side and the supply side. In order to achieve this research goal, the study covered SMEs expansively, including SMEs which participated in the credit market and those which were discouraged from the credit market. From the credit demand side analysis, this study was an attempt to investigate the motivation behind the decision to participate in the credit market of SMEs from the perspectives of behavioral finance and social capital theories. In addition, the study also examined the effect of behavioral finance and social capital factors on the credit source selection among SMEs. From the credit supply side analysis, the study explored the use of soft and hard information for bank lending decisions to SMEs in Vietnam. By constructing indices of the firm response capability to information types, the study identified factors affecting the SME credit accessibility. Generally speaking, the study provided a full description of the SME debt financing

situation in a developing country like Vietnam from credit participation to credit accessibility and from the credit demand side analysis to the credit supply side analysis.

### ***7.1.1 Major findings of the credit demand side analysis***

Generally, this dissertation supported the argument that non-financial factors do have an impact on debt financing decisions of SMEs such as credit participation and credit source selection. Non-financial factors which were considered in the study consist of behavioral finance factors such as present – biased preference, risk aversion, debt attitude and overconfidence. We also examined social capital factors which were measured by the firm networks as another important non-financial factors. The firm networks which were supposed to affect debt financing decisions of SMEs were categorized into five groups: 1) networks with government officials, 2) networks with the business communities (suppliers, buyers, competitors, and business association members), 3) networks with the formal credit officers, 4) networks with informal lenders (moneylenders, friends and relatives and others), 5) and networks with credit information bureaus.

Regarding the SME credit participation, we found that the large portion of SMEs desperately needs external financial resources for growth but there are still many enterprises who “avoid” debt in their capital structure. In general, personal traits of SME owners/managers in terms of behavioral finance factors and firm networks have an impact on the motivation behind the decision to participate in the credit market of SMEs. Specifically, at a statistically significant level, present biased preference, risk aversion, debt attitude, overconfidence, network with formal lenders, network with informal lenders, network with business communities, attitudes toward credit information sharing, the firm size and owner’s income have impacts on the credit participation of surveyed

SMEs. Less important factors determining the SME credit participation includes network with officials, audited financial reports, CIC awareness and other control variables such as SME owner characteristics and firm demographic characteristics.

As for the SME credit source selection, the study confirmed the argument of the common use of informal credit market in developing countries. Though informal credit sources from moneylenders, friends, relatives and others only took up a small portion in the SME capital structure, they played an important role in meeting frequent, urgent and short-term demand of working capitals of SMEs. Factors influencing the SME selection of credit sources (formal or informal sources) included present biased preference, risk attitude, debt attitude, network with officials, network with formal lenders, network with informal lenders, and firm size. For instance, strongly-present biased firm owners/managers are less likely to carry large debt from formal credit suppliers. The higher risk aversion level the firms have, the more likely they are to go with formal credit source as their main financing source. Intense networks with officials and formal lenders could enhance the probability of formal credit access. Moreover, the firms that belong to the small-size group and medium-size group were more likely to select formal credit sources compared to micro-size enterprises. Other factors that are supposed to have impacts on the SME credit source selection included owner gender, age, firm age, industry, export, audited financial reports, overconfidence and CIC awareness. However, the research findings only proved so in the bivariate analyses but did not find strong evidences in the multivariate analysis.

Though we did not find any strong evidence of the role of awareness and attitude toward credit information sharing practices (indirectly measuring the firm networks with credit information bureaus) on SMEs financing decisions, the role of credit



information bureaus in enhancing credit accessibility for firms, which have been confirmed by many empirical studies, is undeniable. The role of credit information bureaus and “reputation collateral” is only promoted in an information-based lending system. Yet, there is still a long way for a transition market like Vietnam to go to transform from a collateral-based and relationship-based lending system to an information-based one. Peng (2003) mentioned that in the circumstance of developing countries, the procedure of economic transition commonly experiences two stages. At the first stage, the relationship-based structure generally predominate most of transactions while at the second stage, the rule-based structure prevails. Vietnam might still experience the first stage of its transition in which relationship-based transactions and/or collateral-based lending transactions are common practices. In such a context, businesses, especially the small ones, and individuals may not pay a serious attention to credit information bureaus and may not try their best to keep good records on their credit history profile. In addition, the database of the Vietnam credit information center is still limited with credit information data collected from financial institutions in the market. As a consequence, Vietnam CIC does not have sufficient information to give a well-founded estimation about potential borrowers’ creditworthiness. It also means that the only public credit bureau in Vietnam is not powerful enough to make borrowers cautious in their payment practices as well as help credit institutions to make precise lending decisions based on CIC credit reports.

### ***7.1.2 Major findings of the credit supply side analysis***

From the supply side analysis, the study investigated to what extent different types of information were used for loan approval, whether the two types of information were used in a complementary manner, and what factors determined Vietnam bank lending

decisions. The factor analysis describes the information types used in the loan approval process in seven factors, comprising of (1) financial information, (2) integrity of the entrepreneur, (3) capability of the entrepreneur, (4) credit history information, (5) information on the firm's network, (6) bank relationships of the firm, (7) collateral eligibility. Among these factors, collateral eligibility played the most important role in the loan approval process. Along with collateral, other types of hard information such as information on credit history of the firm and financial performance also influenced substantially on bank lending decisions to SMEs. In other words, hard information is superior to soft information in affecting bank lending decisions to SMEs in Vietnam. Nevertheless, loan officers also consider soft information in the loan approval process, especially the firm-bank relationship.

Furthermore, research results indicate that although collateral-based lending was the most widespread method and could substitute for other lending technologies, usually a combination of lending information types were employed. For instance, loan officers often consider and assess finance information and credit history information, relationship lending and credit history information, social capital information and financial information at the same. This suggests that both complementarity and substitutability were found in the use of the two information types for bank lending decisions in Vietnam.

Regarding the impact of the level of firm response to required information on bank lending decisions, the firm response to collateral, the firm response to financial information, the firm response to credit information and relationship lending factors together reliably predicted bank lending decision. The firm response to social capital, the length of bank-firm relationship and ex-borrower status are insignificant

determinants of the bank lending decision, though these variables show a significant association with the independent variable in the bivariate analyses.

## **7.2 Study Implications**

Enhancing SMEs' access to finance depend on efforts from all related parties, consisting of the government, the demand side and the supply side.

### ***7.2.1 Implications for Vietnam Government***

The study showed that collateral-based lending plays an important role in SME lending. However, the weak judicial and legal frameworks and the lack of property rights obstruct credit grantors in applying this lending technology. This technology is also time-consuming and costly due to those issues. Therefore, in order to create motivations for credit institutions to supply financing to SMEs, the government has to guarantee that both borrowers and lenders have transparent and defined property rights. Once the government creates the enabling environment, especially in terms of legitimacy, to protect the credit grantors' priority and enhance the ease of collateral liquidation in the case of default, the lending procedure becomes smoother owing to the reduction in the risk of future losses. On the other hand, if the borrowers' real estate and other assets which can be pledged as collaterals are secured, small businesses have a higher chance in obtaining cheap and long-term credits.

From both the demand side and supply side analyses, the study showed that the credit information records as well as the SME perceptions of credit information sharing activities were important factors that influenced the SME credit participation and credit accessibility. Moreover, collateral-based lending and relationship lending are not good ways to fill the financing gap among SMEs. Therefore, transforming from a collateral-

based lending to an information-based lending system gradually is necessary to improve the credit access for SMEs. Credit information registries are proved to help enhance the transparency of the credit market and create special collateral called “reputation collateral,” which is particularly important to consumer, microfinance and small business lending (Luoto et al., 2007). Furthermore, credit bureaus play an important role in reducing information asymmetry between lenders and borrowers (Jappelli & Pagano, 2002; Gehrig & Stenbacka, 2007), acting as a “borrower discipline device” (Padilla & Pagano, 1997) and helping to lessen the borrowers’ motivation to become over-indebted or default (Jappelli & Pagano, 2002). Besides, when commercial credit reporting works properly, creditors can rely less on relationship lending and soft information, and more on facts and fact-based analyses found in credit reports and other credit reporting products. These arms-length lending technologies open the possibilities to all types of non-niche creditors to also engage in SME lending. This, in turn, does not only expand the menu of options for SMEs in terms of the number of creditors willing, in principle, to lend to them, but may also entail new possibilities in terms of a greater diversity of financing products, repayment schedules and other relevant elements.

The development of a credit information system, especially in developing countries depends on a great number of factors, including the legal framework, the availability of data, data quality, the willingness of financial institution to share data, customer consent, ease of customer identity, human resources skills and a technical perspective. Among these elements, Vietnam credit reporting needs to improve its shortcomings in the areas of data availability and quality, human resources skills and customer awareness. CIC as well as commercial banks have completely ignored the role of borrowers in the credit information system. The system cannot fully work, and non-

performing loans cannot be reduced if borrowers do not pay attention to the existence and role of the credit information system. Vietnam's credit information sharing system is better developed than that of other East Asian and Pacific countries. However, the survey revealed that although the Vietnamese business people are aware of the Credit Information Center and have a generally positive attitude toward credit information sharing, they do not have an accurate understanding of what the CIC does and why it serves an important function in the economy. Thus, to improve the performance of the credit information system in Vietnam, credit information bureaus and credit institutions should coordinate to diffuse knowledge about the role of credit information practices to borrowers and potential customers. This can be done by providing financial education for customers through media channels or directly improving customer awareness when they come to banks. Additionally, for the purpose of directly improving the accuracy of the data stored by credit information systems, borrowers should be encouraged to review and correct inaccurate information about themselves. Such feedback not only enhances the credit data quality, but also helps to amend the negative biases in inaccurate credit reports that credit bureaus are often blamed for (Jappeli & Pagano, 2006). Furthermore, credit bureaus need to enlarge the data provider base (including non-banking financial institutions, utilities and retailers). To complete this task, the Vietnam government has to create a common platform for various entities to discuss information sharing. Additionally, in Vietnam as well as in most developing countries, the role of informal lending is much larger than in developed economies (Jappeli & Pagano, 2006). Still, both CIC and PCB have collected information from formal lenders; therefore, their function is much weakened. If informal lenders such as the non-governmental organizations that manage microcredit programs are allowed to exchange

and access data of credit bureaus, the whole credit system will be benefited. Furthermore, Many SMEs are not included in the credit reporting system, especially if they have not had a loan or other credit facility with a regulated financial institution. Others are included only if they have had late payments or have defaulted their financial obligations. Authorities could seek for ways for all relevant data providers, including non-bank creditors, to increase reporting of SME positive and negative data.

It is indispensable for SMEs to have informative and transparent financial statements. Therefore, they should be encouraged to adhere to strong accounting and bookkeeping standards. To avoid tax, generally SMEs today have three types of financial statement: (1) the internal financial statement reflecting the true loss/profit of the company (only managers can have this statement, sometimes they also show loan officers), (2) the financial statement prepared to apply for a bank loan; and (3) the financial statement to submit to tax agencies. Thus, it is important for the government to have a simplified tax system that encourages their compliance at low cost. At the same time, banking institutions should provide assistance to small enterprises for their adequate record keeping, accounting, and disclosure of information. Besides, SME's opacity can be diminished by means of simplified, standardized accounts that in turn supports the bank lending procedure.

Our findings pinpointed a current supply–demand gap in the Vietnam capital market and also call for the reconsideration of current SMEs supporting programs such as credit guarantee schemes, equity finance and other instruments which target firms with high cash-flow. In fact, there are many credit guarantee funds (CGFs) operating in Vietnam under the control of provincial governments. However, these CGFs have a lot of weaknesses such as limited capital availability, the disinterest and reluctance of local

banks in committing funds, limited human capacity and the lack of confidence and knowledge of SMEs and banks alike in CGFs. As a consequence, these local CGFs have not been successful in supporting SME financing. Therefore, the government should create more legal framework, provide technical assistances, training programs and offer incentives for banks to be more involve with CGFs activities.

In addition, it appears that non-bank financial institutions (NBFIs) such as financial companies, leasing companies and people's credit funds may be more appropriate in lending to SMEs since these NBFIs are more experienced in financing to SMEs given their conventionally strategic emphasize on consumers, micro and small businesses in the credit market. Furthermore, factoring and leasing or so many other tools which are always ready for use at NBFIs can satisfy better to SME' funding requirements. Therefore, improving the credit accessibility for SMEs is definitely possible by encouraging bigger commitment of NBFIs in SME lending. The participation of NBFIs in the SME lending market become more expanded if NPFIs are encouraged by financial incentives such as reducing tax of some special expense or branch privileges and capital allowances. Meanwhile, the government can also provide such incentives to commercial banks to promote SME lending. Next to that, encouraging the connection between banks and NBFIs in which NBFIs act as a main channel is also another way to improve the SME credit accessibility.

Finally, though credit financial institutions, especially commercial banks with specific financial tools are conventionally considered as the primary channels for SME finance, there exist various alternatives to support SMEs in financing such as venture capital, factoring, leasing, e-finance, microfinance and securitization of SME loans. Some of these financing schemes are in the early phase of development in Vietnam (e.g.

leasing, microfinance, factoring, venture capital), several of these schemes are not even available yet, (e.g.-finance, securitization of SME loans) but from empirical evidences in developed countries, researchers proposed that the government should prepare and improve necessary institutional and legal infrastructure to promote the development of these financial schemes.

### ***7.2.2 Implications for Vietnam SMEs and business associations***

Our data suggested that social capital is critical to SMEs credit participation and credit source selection. When market institutions and infrastructures in developing country like Vietnam is incomplete with high level of information asymmetry problems, social and business networks will play important roles in helping SMEs to ease business procedures and transactions, borrowing included. This suggests that it is necessary to provide education and training programs for SME owners to develop their networks effectively, in addition to conventional practices such as well-prepared business plans, financial statements, audit execution and reporting.

Besides, building network with credit information bureaus through keeping good credit records and updating credit reports with the bureaus annually is also important for enterprises to access formal credit sources easily. According to Decree 10/2010/NĐ-CP on credit information activities by the Vietnam Government in 2010 and Circular 03/2013/TT-NHNN by the State Bank of Vietnam, borrowers have the right to request that credit information companies provide credit information about themselves at least once a year for free. Borrowers also have the right to request credit information bureaus to consider and adjust the content of their credit information if errors are detected. However, limited awareness about credit bureaus makes SMEs not pay attention to



maintain good credit records as well as check their credit history regularly. This can obstruct SMEs to obtain loans from the formal credit institutions.

Another important implication of the findings from the supply side analyses is that SMEs should choose the bank with a lending technology that maximizes their chance of obtaining a desired funding source. In addition, conducting a clear and professional reporting system and enhancing the relationship with the main bank will increase the opportunities of accessing bank credit. In the near future, enriching and improving management skills and the ability to provide bank loan officers with soft information need to be taken into account.

SMEs need to be fully aware that in order to obtain external financing from creditors, the latter must have adequate information to facilitate their process of decision. This includes qualitative and quantitative information such as financial statements or financial projections as part of the business plan for a start-up or expansion. SMEs could therefore seek to ensure that the information they generate about the business to apply for external financing (and other purposes) is sufficient and reliable. When needed, SMEs could seek training from authorities and other parties to develop the necessary skills for this.

Business associations can play an important role in mitigating the information gap between banks and small businesses seeking bank loans. The associations, particularly those operating in a geographical area, usually have the best information about their members including the nature and prospects of their businesses and the capacity and trustworthiness of the entrepreneurs. By feeding this information to the loan application and evaluation process, they can enhance the access of small enterprises to bank credit.

A scheme specifically geared to this role is mutual guarantee associations formed by small-scale entrepreneurs and/or various promotional entities. They offer guarantees to banks in order to support small businesses in accessing credit (on favorable terms) by operating a guarantee fund contributed by individual members and public agencies.

### ***7.2.3 Implications for credit institutions***

Networking is not only critical to SMEs but bankers as well. It is undeniable that common skills such as financial performance analysis and forecast and credit scoring are essential but in the case of lending to Vietnam SMEs, they may not be appropriately applicable. As a substitute, skills such as data collection and crosschecking, relationship building and management auditing would be more useful. Bank loan officers should be prepared to work with private businesses under uncertainty and trained to collect and verify valuable information through formal and informal networks.

The findings on the impact of behavioral finance factors have implications that banks should consider in order to create lending products that are suitable for personal traits of SME owners. Formal credit institutions can learn about lending policies and practices from informal credit providers. Micro-finance studies indicated that group lending services or lending forms of ROSCA (rotating savings and credit association) attract individuals with present-biased preferences. Formal credit institutions could learn and create more creative credit line products like the case of informal finance.

The findings from the supply side analyses have some implications for the bankers. Banks have the choice of lending technology and determine the trade-offs in developing their lending strategy but they can combine several lending technologies at the same time. The competition in the credit market becomes even fiercer with the participation of not only domestic financial institutions but also foreign players.

Defining the bank's competition position in the local market to choose appropriate lending technologies is a necessary strategy. Currently, the common practice in lending activities is to use hard information, especially emphasizing on the firm's collateral pledgeability. However, this trend can change in the direction of incorporating more soft information in order to get competitive advantages and become more suitable to the majority of SMEs' conditions that are often characterized with insufficient collateral and unreliable financial information. Bank loan officers should be prepared to work with private businesses under uncertainty and trained to collect and verify valuable information through formal and informal networks. Furthermore, banks should organize courses to train SMEs about bank lending procedure and also equip SMEs with the skills needed to prepare business plans and financial projections.

Lending based mainly on collaterals cannot fill the gap in SME financing because start-up businesses, as well as other small businesses, often lack the fixed assets needed as collaterals. Therefore, in order to fill the gap between the credit demand and supply side, in addition to methods to enhance the transparency, knowledge and skills for bankers and SMEs, designing and creating innovative lending methodologies also paves the way for increasing SME credit accessibility. This is also successful experiences from the microfinance field. For instance, methods applied by microfinance credit grantors include "giving loan officers incentives for maintaining high-quality portfolios; undertaking loan analysis that focuses on prospective clients' ability to pay with less emphasis on collateral; introducing appropriate decision-making and control mechanisms supported by management information systems and information technology to help manage and administer the loan portfolio" (World Bank, 2006).

Vietnamese banks have now begun to consider SMEs as potential clients and intend to expand their activities aggressively to increase their market share. Commercial banks, private banks in particular, are attempting to develop new technologies, business models, experiences and risk management tools to approach and assess opaque SMEs more effectively. To have more knowledge and to create a closer relationship with SMEs, banks are advised to approach SMEs in a comprehensive and integrated way through a broad variety of banking services and products, not only lending services. Foreign universal banks and big domestic banks have advantages and capabilities in terms of capital, technologies and human resource to do this due to the exploitation of economies of scale. They can choose to approach potential and well-functioning SMEs via their good corporate customers in which SMEs have relations as suppliers, outsourcees or customers. These banks can also lend to promising SMEs on a large scale and offer long-term provisions, along with a variety of supplemental banking services and products that are attractive to SMEs. Moreover, once banks have a relationship with SMEs, they can utilize their well-established retail banking basis to provide more services to stakeholders which connect to those SMEs such as SME owners, workers and their families. By this way, banks can establish strong relationships with SMEs as well as set up a huge database with formal and informal information about SMEs. This in turn enhances the chances for SMEs to get better access to formal credit.

Banks should explore the possibilities of creating sector-specific departments, to help meet the needs of SMEs. Having a sector specific approach enables financial institutions to develop a thorough knowledge of a specific sector, develop a product that matches the needs of that sector, and makes it easier to make loan decisions (Mitchell,

2012). This will address the problem of the lack of expertise in the proposed segment of a loan applicant.

The study also confirmed the widespread use of informal credit among SMEs. However, the biggest drawback of informal credit sources is that since they are not subject to government financial or fiscal policies and regulations, they often charge exorbitantly high interest rates and the protection of their clients is not ensured. Nevertheless, they might be good intermediaries in several aspects. Due to proximity to potential borrowers, they usually have good information about the clients, and their transaction and monitoring costs are rather low. Lending procedures are typically simple and speedy, loan terms are often flexible to meet the needs of borrowers, still, the default rate is relatively low. The question is how to capitalize the advantages of informal finance while reducing constraints on their business base that are bound by personal and social networks. They may be encouraged, with adequate legal and regulatory frameworks, to come under the formal financial sector and convert into community-based savings and loan companies or similar non-bank financial intermediaries. Also, various arrangements of linking banks and these informal or semi-formal intermediaries may be considered. For instance, banks may provide financial resources to the informal or semi-formal intermediaries for on-lending (with their guarantees) to small enterprises. Banks may also provide various training and consultancy services to these intermediaries to upgrade their financial services capabilities. In these ways, they can enhance their professionalism, sustainability and outreach as well as their role in deepening the financial intermediation.

## **7.3 Contributions, Limitations and Recommendation for Further Studies**

### **7.3.1 Contributions**

There are several imperative contributions our research has made to the literature of business management. In the first place, the research is one of the few studies that consider the influence of behavioral finance factors on firms' financing decision. Especially, from the perspective of behavioral finance and social capital, our study helps to investigate the latent motivations to explain the reason why there is a significant proportion of firms that are completely non-debt using (no formal and informal loan as well) and why informal loans still play an important role in the financing of SMEs.

Second, while the role of social capital is mentioned as an important determinant in enhancing firms' performance and finance accessibility worldwide, the study highlight its role in constructing legitimacy for small enterprises in developing markets. A key difference between advanced countries and developing countries like Vietnam in terms of information supplied for transactions is the role of public information and informal information. In advanced countries, publicly verifiable data such as firm history, audited reports and business data plays a key role in the bank loan approval process in terms of important information to assess the borrower's creditworthiness (Hertzberg et al., 2010). Meanwhile, informal information from informal networks is just an add-on, and often considered as the auxiliary information for bankers to make lending decisions. However, in developing countries like Vietnam, it appears that informal information from social networks, for example, is though to serve as the foundation of the lenders' assessment of borrowers' creditworthiness. Public information, if it is available, serves as supplemental data that may support to make the application packages legally admissible (Nguyen et al., 2006). Findings in the present

study regarding the importance of informal networks are consistent with this argument. Our study indicated that network with informal/formal lenders even affect the SMEs decision of credit source selection.

Third, from the supply side analyses, our study contributes to the literature of lending technologies by including new measures of both soft and hard information, namely the credit history information and information on firms' social capital. The current literature has not sufficiently concretized soft information and hard information, especially the former one. Among lending technologies, soft information is often understood as the primary information source of relationship lending. However, when measuring relationship lending, scholars often use specifically quantitative indicators such as the duration of the bank-firm relationship, the number of bank products the firm using, the number of lending relationships or a high share of debt financing by one bank (Petersen & Rajan, 1994; Ongena & Smith, 2001). However, in practice, for potential borrowers or non-regular customers which apply for loans, loan officers also consider soft information, such as the entrepreneur's management skills and integrity instead of hard information, such as financial reports, credit history or collateral. Therefore, this becomes a serious shortcoming if we do not concretize soft information when we examine types of information used for the loan approval process in the context of transitional economies like Vietnam. In such countries, banks face greater uncertainties and struggle to deal with collecting reliable information, stemming in part from the immature business environment and the low level of regulatory oversight (Nguyen et al., 2006).

Fourth, this study is also different from several previous researches in computing composite indices of information types or lending technologies. Instead of using a

simple average method (Uchida et al., 2006; Bartoli et al., 2013), we used a variety of attributes obtained from experienced loan officers and bank managers and used factor analysis to achieve good scales of the information types used for the loan approval process. Thus, we were able to construct information indices considering the level of importance of each attribute for the corresponding factor.

Lastly, although previous studies have investigated the lending technologies from the standpoint of SMEs in developed countries (Uchida et al., 2006; Bartoli et al., 2013), our study attempts to address the issue of information types' influences on lending decisions from the perspective of the lender side. We believe this is a good approach to explore the bank lending technologies and SMEs' credit accessibility since it examines the choice of lending technologies from the standpoint of those who make the loan decision. This approach also contributes to the comprehensiveness in analyzing SME debt financing when both the demand side and the supply side are investigated throughout using our original surveys.

### ***7.3.2 Limitations and recommendations for further studies***

This study reflects the current situation of Vietnam SME debt financing behaviors as well as lending technologies used in the bank loan approval process. However, some factors might have certain impacts on the findings of the research. Further research in the future could produce more appropriate outcomes if these challenges are solved.

The first limitation of this dissertation is our cross-sectional design that restrains the validity of the implicit causal links of the models. We suggest lengthwise analyses on how networks and behavioral finance factors influence the SME debt financing over time. Besides, our measure of debt ratios only covered "interest loans" but ignored other



types of “non-interest credit” such as trade credit, capital leases, etc. Thus, our study might not reflect all the financing forms of SMEs. Further researches should include other forms of firms’ liabilities like trade credit, leases, etc. In addition, the data obtained for the study was restricted regarding detailed figures of surveyed SMEs’ financial statement. Future researches could consider to collect financial information about SMEs in detail and generate other models using continuous variables such as “the amount of loan”.

Our research was carried out in HCMC in Vietnam, which limits us to conduct comparison research among countries as well as investigate the difference in SME debt financing between rural and urban areas. Future studies could extend the research into cross-national or cross-area settings.

Furthermore, our measures on behavioral factors such as debt attitude, risk aversion and overconfidence are still controversial among researchers. For example, though our study suggests that debt attitude has some correlation with debt financing behaviors of firms, it is still difficult to imply that a tolerant attitude to debt makes people to go with debt. It is likely that causality follows the other direction. Bern (1972) proposed that if individuals cannot avoid using debt, they would adapt their attitudes and perceptions to be more tolerant of it. Other efforts to measure such factors could contribute to this field.

Another limitation regarding borrower’s perspective is that the borrowers might suspect that the researchers were from the banks and tax agencies to investigate their businesses. The SMEs might also think that the providing information would affect their opportunities to access credit in the financial institutions. Hence, the entrepreneurs had

incentives to manipulate their replies. Regarding loan officers, they may expect that the researcher would use the information they provide to plead for them regarding their incentives which they claimed were not enough compared to the work load which they said was overwhelming.

The third challenge of the research was the timing for the field study. The research was a cross-sectional study. The researcher could not spend much time for the fieldwork; however, it took time to understand, gain trust, and access the informants. A longitudinal research could explore deeper insights into the research issues and detect the possible changes of SME debt financing behaviors over time.

Furthermore, the researcher also faced difficulties in accessing the interviewees after the initial interview. Despite the fact that contacts of loan officers and borrowers were acquired, some clients and loan officers were difficult to track and those who were accessible had a tendency to forget proceedings of previous interviews. Some respondents refused to continue with the follow up interviews claiming that they had planned their time for other things. To obtain further information from such people, the researcher had to create close relationships with these respondents by using a network of friends.

The study used simple random sampling for the demand side survey and snow-ball sampling for the supply side survey. The research would be more reliable and have higher generalized capacity if more urban SMEs such as SMEs located in the Southeast region of Vietnam could have participated in the study.

Another limitation is that the entire loan process from credit initiation to loan repayment was not observed because it was too long and practically impossible to

observe in the timeframe available. The study concentrated on credit evaluation and decision stages of granting credit to SMEs. The other areas of the process such as management initiation of credit request and the post disbursement period were not considered and this limited the information that was acquired from both loan officers and clients.

Besides, the quantitative approach has its own limitation. One of the main disadvantages of quantitative research is that the context of the study is generally neglected. Therefore, further researches can use a mix method by including qualitative methods such as case studies and interviews.

Last but not least, SME credit participation and credit accessibility could be affected by many other factors outside the items listed in the questionnaire. These include macroeconomic factors, institution factors and location of SMEs and banks. A longitudinal study with observational techniques over long periods of time might deal with this limitation.

### **Chapter Summary**

This chapter provided a summary of the research findings. It contained the main findings discussed in detail in chapter five and six. The chapter also presented several underlying implications and suggestions related to SME debt financing and bank lending technologies. Other issues discussed in this chapter included the research limitations and the suggestions to deal with these limitations for further research in the future.

## BIBLIOGRAPHY

- Adler, PS. & Kwon, S. (2002). *Social capital: Prospects for a new concept*. The Academy of Management Review, 27(1), 17-34.
- Agarwal, S. & Hauswald, R. (2007). *The choice between arm's-length and relationship debt: Evidence from eLoans*. Working Paper.
- Agrebi, M. (2009). Financing SMEs. *OECD Observer* No. 275.
- Ainslie, G. (1991). Derivation of rational economic behavior from hyperbolic discount curves. *American Economic Review*, 81(2), 334-340.
- Akoten, J.E., Yasuyuki S., & Keijiro O. (2006). The determinants of credit access and its impacts on micro and small enterprises: the case of garment producers in Kenya. *Economic Development and Cultural Change*, 55, 927-944.
- Aliber, M. (2002). Informal finance in the informal economy: Promoting decent work among the working poor. *Working Paper on the Informal Economy*. Geneva: International Labor Office.
- Alicia, R. & Wolken, J. D. (2002). Firm, owner and financing characteristics: Differences between female- and male-owned small businesses. *FEDS Working Paper* No. 2002-18.
- Alreck, P. L. & Settle, R. B. (2004). *The survey research handbook* (3rd ed.). Boston: McGraw-Hill/Irwin.
- Anderson, C., Locker, L., & Nugent, R. (2002). Micro-credit, social capital and common pool resources. *World Development*, 30 (1), 95–105.
- Ang, J. S. (1991). Small business uniqueness and the theory of financial management. *The Journal of Small Business Finance*, 1(1), 1-13.
- Angelini, P., Di Salvo, R. & Ferri, G. (1998). Availability and cost for small businesses: Customer relationships and credit cooperatives. *Journal of Banking and Finance*, 22, 925-954.

- Apiro, R. (2002). Uganda's Financial Sector and Capital. Presentation at the Symposium on Modalities for Financing Small and Medium-Scale Enterprises in Uganda, United Nations.
- Arabsheibani, G., D. de Meza, J. Maloney, & B. Pearson. (2000). And a vision appeared unto them of great profit: evidence of self-deception among the self-employed. *Economics Letters*, 67, 35-41.
- Aristeidis, S. & Dimitris, K. (2005). Entrepreneurship, small and medium size business markets and European economic integration. *Journal of Policy Modeling*, 27(3), 363-374.
- Arbuckle, J.L. (2006). *Amos 7.0 User's Guide*. Chicago,IL: SPSS.
- Armstrong, C.S., Guay, W.R. & Weber, J.P. (2010). The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics*, 50, 179-234.
- Atieno, R. (2009). Linkages, access to finance and the performance of small-scale enterprises in Kenya. *Journal of Accounting and Business Research*, 3(1), 33-48.
- Audretsch, D. (2000). *The economic role of small-and medium-sized enterprises: the United States*. Institute for Development Strategies.
- Ayyagari, M., Beck T. & Demirguc-Kunt, A. (2003). Small and medium enterprises across the Globe. A New Database. *Policy Research Working Paper 3127*, Washington, D.C: World Bank.
- Baas, T. & Schrooten, M. (2005). Relationship banking and SMEs: A theoretical analysis. Berlin: *German Institute for Economic Research*.
- Baker, M., Ruback, R. & Wurgler, J. (2005). Behavioral corporate finance: A survey. *Working paper*.
- Baker, M., Ruback, R. & Wurgler, J. (2007). Behavioral corporate finance: A survey. In E. Eckbo (Ed.), *In The Handbook of Corporate Finance: Empirical Corporate Finance*. New York: Elsevier/North Holland.

- Baldwin, J., Guy, G. & Valerie, G. (2002). Financing innovation in new small firms: New evidence from Canada. *Statistics Canada Analytical Studies Series* 11F0019MIE, Working Paper No. 190. Statistics Canada
- Barrios, S. & Schaechter, A. (2009). Gauging by numbers: A first attempt to measure the quality of public finances in the European Economy. *Economic Papers* 382. Brussels.
- Barron, J. & Staten, M. (2003). The Value of Comprehensive Credit Reports: Lessons from the U.S. Experience. Pp. 273-310 in *Credit Information Systems and the International Economy*, ed. Margaret J. Miller. Cambridge, Massachusetts: The MIT Press.
- Bartoli F., Ferri G., Murro P. & Rotondi Z. (2013). SME financing and the choice of lending technology in Italy: Complementarity or substitutability?. *Journal of Banking & Finance*, 37(12), 5476–5485.
- Bateman, M. (2000). Neo-Liberalism, SME Development and the Role of Business Support Centres in the Transition Economies of Central and Eastern Europe. *Small Business Economics*, 14(4), 275–298.
- Bauer, M., Chytilova, J. & Morduch, J. (2012). Behavioral Foundations of Microcredit: Experimental and Survey Evidence from Rural India. *American Economic Review*, 102(2), 1118-1139.
- Beck, B., Demirguc-Kunt, A., Laeven, L. & Levine, R. (2005). Finance, Firm Size and Growth. *World Bank Policy Research Working Paper* 3485.
- Beck, T & Levine, R. (2004). Stock markets, banks and growth: Panel evidence. *Journal of Banking & Finance*, 28(3), 423-442
- Bellucci A., Borisov A.V. & Zazzaro, A. (2010). Does gender matter in bank firm relationships?: Evidence from Small Business Lending. *Journal of Banking and Finance*, 34(12): 2968-2984.
- Berger A. N. & Udell, G. F. (2006). A more complete conceptual framework for SME finance. *Journal of Banking and Finance*, 30(11), 2945-2966.

- Berger A., Miller N., Petersen M., Rajan R. & Stein J. (2005). Does function follow organizational form? Evidence from the lending practices of large and small banks. *Journal of Financial Economics*, 76, 237-269.
- Berger A. & Udell G. (1995). Small firms, commercial lines of credit, and collateral. *Journal of Business* 68, 351-382.
- Berger, A. & Udell, G. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking and Finance*, 22, 613-673.
- Berger, A & Udell, G. (2002). Small business credit availability and relationship lending: The importance of bank organizational structure. *Economic Journal*, 112, F32–F53.
- Bern, D. J. (1972). Self-perception theory. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, 6, 1-62. New York: Academic Press.
- Berry, A., Faulkner, S., Hughes, M. & Jarvis, R. (1993). Financial information: The banker and the small business. *British Accounting Review*, 25(2), 131-150.
- Besley, T., Coate, S. & Loury G. (1993). The economics of rotating savings and credit associations. *American Economic Review*, 83(4), 792-810.
- Biggs, T. & Shah, M. (2006). African SMEs, networks, and manufacturing performance. *Journal of Banking and Finance* 30(11), 3043–3066.
- Bi-Huei T. (2012). Comparison of binary logit model and multinomial logit model in predicting corporate failure. *Review of Economics and Finance*, 2 (11), 99-111.
- Binks, M. R. & Ennew, C. T. (1997). Smaller business and relationship banking: The impact of participative behavior. *Entrepreneurship Theory and Practice*, 21(4), 83–92.
- Blackwell, D. & Winters, D. (2000). Local lending markets: what a small business owner/manager needs to know. *Quarterly Journal of Business and Economics*, 39(2), 62–79.

- Blumberg, B. F., & Letterie, W. A. (2008). Business starters and credit rationing. *Small Business Economics*, 30(2), 187-200.
- Boisot, M. & Child, J. (1996). From fiefs to clans and network capitalism: Explaining China's emerging economic order. *Administrative Science Quarterly* 41, 600–628.
- Boot WA (2000). Relationship banking: What do we know?. *Journal of Financial Intermediation*, 9(1), 7-25.
- Booth, L., Aivazian, V., Demirguc-Kunt, A. & Maksimovic, V. (2001). Capital structures in developing countries. *The Journal of Finance*, 56, 87-130.
- Bourdieu, P. (1983). Forms of Capital. In John G. Richardson, Ed., *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood Press, 241-258.
- Bradley, M., Jarrell, G.A. & Kim, E. H. (1984). On the existence of an optimal capital structure: Theory and Evidence. *The Journal of Finance*, 39(3), 857-878.
- Brettel M., M. Kasch, & A. Mueller, (2008). CFO overconfidence, optimism and corporate financing. *Working Paper*.
- Bris, A. & Welch, I. (2005). The optimal concentration of creditors. *Journal of Finance*, 60(5), 2193-2212.
- Brown, S., Garino, G. & Taylor, K. (2013). Household debt and attitudes towards risk. *Review of Income and Wealth*, 59(2), 283-304.
- Brown, S. & Taylor, K. (2008). Household Debt and Financial Assets: Evidence from Great Britain, Germany and the US. *Journal of the Royal Statistical Society, Series A* 171, 414-417.
- Bruns, V. & Fletcher, M. (2008). Banks' risk assessment of Swedish SMEs. *Venture Capital*, 10(2), 171-194.
- Bryman, A. & Bell, E. (2003). *Business Research Methods*. Oxford University Press.
- Callender C. & Jackson J. (2008). Does the fear of debt constrain choice of university and subject of study? *Studies in higher education*, 33 (4), 405-429.



- Callier, P. (1990). Informal finance: The rotating saving and credit association – An interpretation. *Kyklos*, 43(2), 273-276.
- Carey, D. & Flynn, A. (2005). Is bank finance the Achilles' heel of Irish SMEs?. *Journal of European Industrial Training*, 29(9), 712-729.
- Carter, S. & Rosa, P. (1998). The financing of male- and female-owned businesses. *Entrepreneurship and Regional Development*, 10, 225–241.
- Cassar, G. & Holmes, S. (2003). Capital structure and financing of SMEs: Australian evidence. *Accounting and Finance*, 43(2), 123-147.
- Cassar, G. (2004). The financing of business start-ups. *Journal of Business Venturing*, 19(2), 261-283.
- Chang X., Dasgupta, S., & Hilary, G. (2006). Analyst following and financing decisions. *Journal of Finance*, 61, 3009-3048.
- Chaplinsky, S. & Niehaus, G. (1993). Do inside ownership and leverage share common determinants? *Quarterly Journal of Business and Economics*, 32, 51–65.
- Chittenden, Hall, & Hutchinson. 1996. Small firm growth, access to capital markets and financial structure: Review of issues and an empirical investigation. *Small Business Economics*, 8(1), 59-67.
- Choung R.S., Locke R., Schleck C., Ziegenfuss J., Beebe T., Zinsmeister A.& Talley N. (2013). A low response rate does not necessarily indicate non-response bias in gastroenterology survey research: a population-based study. *Journal of Public Health* 21(1), 87-95.
- CIEM [Central Institute for Economic Management]. (2012). *Characteristics of the Vietnamese Business Environment: Evidence from a SME Survey in 2011*. Report. November. Hanoi: Central Institute for Economic Management
- Cole, R.A. (2011). What do we know about the capital structure of privately held U.S firms? Evidence from the survey of small business finance. *Financial Management* 45, 777-813.

- Cole, R.A. (1998). The importance of relationships to the availability of credit. *Journal of Banking and Finance*, 22, 959-977.
- Coleman, S. & Richard C. (2000). The role of debt in small business finance: A comparison of men- and women-owned firms. *Academy of Entrepreneurship Journal* 6 (2), 87-103.
- Coleman, S. (2007). The role of human and financial capital in the profitability and growth of women-owned small firms. *Journal of Small Business Management*, 45(3), 303-319.
- Cook P. & Nixon, F. (2000). Finance and medium- sized enterprise development. IDPM, University of Manchester, *Finance and Development Research Program, Working Paper No 14*.
- Cooper, D. R. & Schindler, P. S. (2006). *Business Research Methods* (9th edition). USA: McGraw-Hill.
- Cornelli, F., Portes, R. & Schaffer, M. (1996). The capital structure of firms in Central and Eastern Europe. *CEPR Discussion Paper*, 1392, 1-35.
- Cowen, C. D. & Cowen A.M. (2006). *A survey based assessment of financial institution use of credit scoring for small business lending*. Office of Advocacy, The United States Small Business Administration.
- Cressy, R. (1995). Business borrowing and control: A theory of entrepreneurial types. *Small Business Economics*, 7(3), 291–300.
- Dai Na & Vladimir, I. (2010). Entrepreneurial optimism, credit availability, and cost of financing: Evidence from US small businesses. *SSRN eLibrary*.
- Daly, M., Delaney, L. & McManus, S. (2010). Risk attitudes as an independent predictor of debt. *University College Dublin. Geary Institute*. Available at <http://ideas.repec.org/p/ucd/wpaper/201049.html>
- Davies, E. & Lea S.E.G. (1995). Student attitudes to student debt. *Journal of Economic Psychology*, 16(4), 663-679.

- DeBondt, W.F. & Thaler, R. (1995). Financial decision-making in markets and firms: A behavioral perspective. In: Robert AJ, Vojislav M & William TZ (eds). *Handbooks in Operations Research and Management Science*, chapter 13, 385-410. Amsterdam: North Holland.
- Devereux, M. & Schiantarelli, F. (1990). Investment financial factors and cash flow: Evidence from UK panel data, in R. G. Hubbard (ed.), *Asymmetric Information Corporate Finance and Investment*, Chicago: University of Chicago Press, 279–306.
- Dohmen, T., Falk, A. & Huffman, D., Sunde, U., Schupp, J. & Wagner, G.G. (2011). Individual risk attitudes: Measurement, determinants, and behavioral consequences. *Journal of the European Economic Association*, 9(3), 522-550.
- Dunkelberg, J. & DeMagistris. (1978). Consumer perceptions of credit bureaus. *Working paper* no. 26. Credit Research Center
- Ebben, J. J. & Johnson, A. (2006). Bootstrapping in small firms: An empirical analysis of change over time. *Journal of Business Venturing*, 21(6), 851–865.
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 3, 272-299.
- Fairchild, R. (2005). Behavioral Finance in a Principal-agent model of Capital Budgeting. *Journal of Behavioral Finance*, 2(1), 34-44.
- Ferrary, M. (2003). Trust and social capital in the regulation of lending activities. *Journal of Socio-Economics*, 31, 673-699.
- Field, A. P. (2005). *Discovering Statistics using SPSS*. 2<sup>nd</sup> edition. London: Sage.
- Frame, S., Srinivasna, A. & Woosley, L. (2001). The effect of credit scoring on small-business lending. *Journal of Money, Credit, and Banking*, 33(3), 813–825.
- Freeman, N.J. & Le, B. N. (2007). SME Finance in Vietnam: Reviewing Past Progress and Scoping Future Developments. *Working Draft of Technical Report*. United Nations Industrial Development Organization.

- Friend, I. & Lang, L. (1988). An empirical test of the impact of managerial self-interest on corporate capital structure. *Journal of Finance*, 43, 271-281.
- Fukuyama, F. (2001). Social capital, civil society, and development. *Third World Quarterly*, 22(1), 7-20.
- Gana, R.M. & Ayari, R.S. (2013). Social Interactions and access to credit: The case of Tunisian SMEs. *Journal of Business Studies Quarterly*, 4(4), 153-165.
- Gehrig, T. & Stenbacka, R. (2007). Information Sharing and Lending Market Competition with Switching Cost and Poaching. *European Economic Review*, 51(1), 77-99.
- George, D. & Mallery, P. (2003). *SPSS for Windows step by step: A simple guide and reference*, 4th ed. Boston: Allyn & Bacon
- Gertler, M. (1988). Financial capacity, reliquification, and production in an economy with long term financial arrangements. *University of Wisconsin, mimeo*.
- Glatthorn, A. A. & Joyner, R. L. (Eds.). (2005). *Writing the winning thesis or dissertation: A step-by-step guide*. Corwin Press.
- Gompers, P., Kovner, A., Lerner, J. & Scharfstein, D. (2010). Performance persistence in entrepreneurship. *Journal of Financial Economics*, 96, 18-32.
- Gorsuch, R.L. (1983). *Factor analysis* (2<sup>nd</sup> ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Gorton, G. & Winton, A. (1998). Banking in Transition Economies: Does Efficiency Require Instability?. *Journal of Money, Credit and Banking*, Blackwell Publishing, 30(3), 621-50.
- Grable, J. E. & Lytton, R. H. (2003). The development of a risk assessment instrument: A follow-up study. *Financial Services Review*, 12, 257–274.
- Graham, J. & Harvey, C. (2001). The theory and practice of corporate finance. *Journal of Financial Economics*, 60, 187-243.
- Graham, J., Harvey, C. & Puri, M. (2013). Managerial attitudes and corporate actions. *Journal of Financial Economics*, 109(1), 103-121.

- Graham, J. (2000). How big are the tax benefits of debt?. *Journal of Finance*, 55, 1901-1941.
- Griffith, D. & Harvey, M. (2004). The Influence of Individual and Firm Level Social Capital of Marketing Managers in a Firm's Global Network. *Journal of World Business*, 39 (3), 244–254.
- Griffiths, F. (2002). Financing of Small and Medium Enterprises: The Banker's Perspective. *Presentation at the Symposium on Modalities for Financing Small and Medium-Scale Enterprises in Uganda*. United Nations.
- Grunert, J., Norden, L. & Weber, M. (2005). The role of non-financial factors in internal credit ratings. *Journal of Banking and Finance*, 29, 509-531.
- Hackbarth, D. (2008). Managerial traits and capital structure decisions. *Journal of Financial and Quantitative Analysis*, 4, 843-881.
- Hair, J., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate data analysis* (7th ed.). Prentice-Hall, Inc. Upper Saddle River, NJ, USA.
- Hallberg, K. (2000). A Market-Oriented Strategy for Small and Medium-Scale Enterprises. *Discussion Paper No. 40, International Finance Corporation, The World Bank*.
- Hannan, M. & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review*, 49, 149–164.
- Harhoff, D. & Körting, T. (1998). Lending relationships in Germany: Empirical results from survey data. *Journal of Banking and Finance*, 22, 1317-1354.
- Harrison, G., Morten L. & Melonie W. (2002). Estimating individual discount rates in Denmark: A field experiment. *American Economic Review*, 92 (5), 1606–1617.
- Hartog, J., A. Ferrer-i Carbonell & Jonker, N. (2002). Linking measured risk aversion to individual characteristics. *Kyklos*, 55(1), 3-26.
- Hayton, J.C., Allen, D.G. & Scarpello, V. (2004) Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods*, 7, 191-205.

- Heaton, J.B. (2002). Managerial optimism and corporate finance. *Financial Management*, 31(2), 33-45.
- Henson, R. K. & Roberts, J. K. (2006). Use of exploratory factor analysis in published research. *Educational and Psychological Measurement*, 66(3), 393-416.
- Hertzberg, A., Liberti, J.M. & Paravisini, D. (2010). Information and incentives inside a firm: Evidence from loan officer rotation. *Journal of Finance*, 65(3), 795-828.
- Ho Sy Hung. (2007). *Strengthening supporting industries in Vietnam: Linking Vietnamese SMEs into global value chains*. Agency for SME Development. Ministry of Planning and Investment, Ha Noi.
- Hosmer, D.W. & Lemeshow, S. (2004). *Applied Logistic Regression* (2<sup>nd</sup> ed). Wiley, New York.
- Howorth, C. & Moro, A. (2012). Trustworthiness and interest rates: An empirical study of Italian SMEs. *Small Business Economics*, 39(1), 161–177.
- Hughes, J.P., Lang, W., Mester, L.J. & Moon, C.G. (2000). Recovering risky technologies using the almost ideal demand system: An application to U.S. banking. *Journal of Financial Services Research*, 18, 5-27.
- Humphreys, L. G. & Montanelli, R. G. (1975). An investigation of the parallel analysis criterion for determining the number of common factors. *Multivariate Behavioral Research*, 10, 193-206.
- Hussain, J., Millman, C. & Matlay, H. (2006). SME financing in the UK and in China: A comparative perspective. *Journal Small Business and Enterprise Development*, 13(4), 584–599.
- Ikeda, S. & Myong-II K. (2011). Generalized hyperbolic discounting, borrowing aversion and debt holding. *ISER Discussion Paper 0817*, Institute of Social and Economic Research, Osaka University.
- International Monetary Fund (IMF). Doing Business Report. Getting Credit. Available at: <http://www.doingbusiness.org/data/exploretopics/getting-credit> (accessed 10.06.2014)

- International Monetary Fund (IMF). World Economic Outlook Database. Available at <http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/weoselser.aspx?c=582&t=1> (accessed 10.06.2014).
- Irwin D. & Scott M. (2010). Barriers faced by SMEs in raising bank finance. *International Journal of Entrepreneurial Behavior & Research*, 16(3), 245 – 259.
- Jankowicz, A. D. & Hisrich, R. D. (1987). Intuition in small business lending decisions. *Journal of Small Business Management*, 25(3), 45–52.
- Jappelli, T. & Pagano, M. (2002). Information sharing, lending and defaults: Cross-country evidence. *Journal of Banking and Finance*, 26(10), 2017-2045.
- John, O.P. & Benet-Martinez, V. (2000). Measurement: Reliability, construct validation, and scale construct. In: *Handbook of Research Methods in Social and Personality Psychology*, edited by H.T.Reis & C.M. Judd, 339-369.
- Kauffman, C. (2005). *Financing SMEs in Africa; African economic outlook*. A joint publication of the African Development Bank and the OECD Development Centre; Policy Insights No. 7.
- Kester, V. (1986). Capital Structure Ownership Structure: A comparison of United States and Japanese Manufacturing Corporations. *Financial Management*, 5-16
- Khwaja A., Mian A. & Qamar A. (2011). Bank credit and business networks. *Working Paper Series*. Harvard University, John F. Kennedy School of Government.
- Kim, W.S. & Sorensen, E.H. (1986). Evidence on the impact of the agency costs of debt in corporate debt policy. *Journal of Financial and Quantitative Analysis*, 21, 131–144.
- Kinari, Y., Ohtake, F. & Tsutsui, Y. (2009). Time discounting: Declining impatience and interval effect. *Journal of Risk and Uncertainty*, 39, 87-112.
- Klaus Schwab (Editor), World Economic Forum. (2014). *The Global Competitive Report 2012-2013*.
- Kline, P. (2000). *The handbook of psychological testing* (2nd ed.). London: Routledge

- Koford & Tschoegl, (1999). Bank lending in Bulgaria: problems, explanations and policy solution. *EBRD Law in Transition*, 35-41.
- Kon, Y. & Storey, D.J. (2003). A theory of discouraged borrowers. *Small Business Economics*, 21(1), 37-49.
- Krusell, P., Kuruşçu, B. & Smith, A. (2002). Equilibrium welfare and government policy with quasi-geometric discounting. *Journal of Economic Theory*, 105, 42-72.
- Laibson, D. (1996). Hyperbolic discount function, undersaving, and saving policy. *NBER Working Paper 5635*.
- Laibson, D., Reppeto, A. & Tobacman, J. (2003). A debt puzzle, in: Aghion, P., Frydman, R., Stiglitz, J. & Woodford, M. (eds.), *Knowledge, Information, and Expectations in Modern Economics*. Princeton University Press, Chap.11, 228-266.
- Laibson, D., Reppeto, A. & Tobacman, J. (2007). Estimating discount functions with consumption choices over lifecycle. *NBER Working Paper Series 13314*.
- Landier, A. & Thesmar, D. (2009). Financial contracting with optimistic entrepreneurs: theory and evidence. *Review of Financial Studies*, 22, 117-150.
- Le, Xuan Ba, Tran, Kim Hao & Nguyen, Huu Thang. (2006). Vietnam's SMEs in the context of economic integration. *Politics Publishing House*, Ha Noi.
- Le, Ngoc T.B. & Nguyen Thang V. (2009). The impact of networking on bank financing: The case of small and medium-sized enterprises in Vietnam. *Entrepreneurship Theory and Practice*, 33(4), 867-887.
- Le, Phuong Nu Minh. (2012). What determines the access to credit by SMEs? A case study in Vietnam. *Journal of Management Research*, 4(4), 90-115.
- Lea, S.E.G., Webley, P. & Walker, C.M. (1995). Psychological factors in consumer debt: Money management, economic socialization and credit use. *Journal of Economic Psychology*, 16(4), 681-701.
- Leary, M.T. & Roberts, M.R. (2010). The Pecking Order, Debt Capacity, and Information Asymmetry. *Journal of Financial Economics*, 95, 332-355.



- Lechner, C., Dowling, M. & Welppe, I. (2006). Firm networks and firm development: The role of the relational mix. *Journal of Business Venturing* 21, 514-540.
- Lefilleur, J. (2009). Financing SMEs in a context of strong information asymmetry; SME Financing in Sub-Saharan Africa. *Proparco's Magazine*, 1, 13 – 15
- Lehmann, E. & Neuberger, D. (2001). Do lending relationships matter?: Evidence from bank survey data in Germany. *Journal of Economic Behavior & Organization, Elsevier*, 45(4), 339-359.
- Leland, H. & Pyle, D. (1977). Informational Asymmetries, Financial Structure, and Financial Intermediation. *Journal of Finance*, 32, 371-387.
- Levin, R. I. & Travis, V. R. (1987). Small company finance: what the books don't say. *Harvard Business Review*, 65(6), 30–32.
- Liberti, J. & Mian, A. (2009). Estimating the Effect of Hierarchies on Information Use. *Review of Financial Studies*, 22 , 4057-4090.
- Livingston, S. M. & Lunt, P.K. (1992). Predicting personal debt and debt repayment: Psychological, social and economic determinants. *Journal of Economic Psychology*, 13, 111-134.
- Malhotra, M. (2006). *Expanding Access to Finance: Good Practices and Policies for Micro, Small, and Medium Enterprises*. World Bank Institute.
- Malmendier, U., Tate, G. & Yan, J. (2011). Overconfidence and early-life experiences: the effect of managerial traits on corporate financial policies. *Journal of Finance*, 66(5), 1687 -1733.
- Marsh, P. (1982). The choice between equity and debt: An empirical study. *Journal of Finance*, 37(1), 121-144.
- Mason, C. & Stark, M. (2004). What do Investors look for in a business plan; A comparison of the Investment Criteria of bankers, venture capitalists and business angels. *International Small Business Journal*, 222-227.
- Mayer, R.C., Davies, J.H. & Schoorman, F.D. (1995). An integrative model of organisational trust. *Academy of Management Review*, 20(3), 709-734.

- McArdle, J. J. (1996). Current directions in structural factor analysis. *Current Directions in Psychological Science*, 5, 11 – 18.
- McGrath, R.G. & MacMillan, I.C. (1992). More like each other than anyone else? A cross-cultural study of entrepreneurial perceptions. *Journal of Business Venturing*, 7(5), 419-429.
- McMillan, J. & Woodruff, C. (1999). Interfirm relationships and informal credit in Vietnam, *The Quarterly Journal of Economics*, 114 (4), 1285-1320.
- Meier, S. & Sprenger, C. (2007). Impatience and credit behavior: Evidence from a field experiment. *FRB of Boston Working Paper No. 07-3*.
- Menard, S. (2001). *Applied Logistic Regression Analysis (Quantitative Applications in the Social Sciences)*. SAGE Publications, Inc; 2nd edition.
- Miller, M. J. (2003). Credit Reporting Systems around the Globe: The State of the Art in Public Credit Registries and Private Credit Reporting Firms. Pp. 25-79 in *Credit Reporting Systems and the International Economy*, ed. M. Miller. Cambridge, Massachusetts: The MIT Press.
- Minton, A. (2006). SMEs in Bangladesh. *CACCI Journal*, 1(1), 12 – 19.
- Modigliani, F. & Miller, M.H. (1963). Corporate income taxes and the cost of capital: A correction. *American Economic Review*, 53(3), 433-443.
- Modigliani, F. & Miller, M.H. (1958). The cost of capital, corporation investment, and the theory of investment. *American Economic Review*, 48, 261-297.
- Moro, A. & Fink, M. (2013). Loan managers' trust and credit access for SMEs. *Journal of Banking and Finance*, 37, 927-936.
- Myers, S. C. (1984). The capital structure puzzle. *The Journal of Finance*, 39(3), 575-592.
- Natarajan, G.S. & Wyrick, D.A. (2011). Framework for implementing sustainable practices in SMEs in the United States. *Proceedings of the World Congress on Engineering* (WCE 2011), London, U.K.

- Neuman, W. L. (2007). *Basics of social research: Qualitative and quantitative approaches*. Boston: Pearson Education.
- Nguyen, T.D.K. & N. Ramachandran (2006). Capital structure in small and medium-sized enterprises: The case of Vietnam. *ASEAN Economic Bulletin*, 23(2), 192-211.
- Nguyen, V.T., Le, N.T.B. & Freeman, N.J. (2006). Trust and uncertainty: A study of bank lending to private SMEs in Vietnam. *Asia Pacific Business Review*, 12(4), 547–568.
- Nooteboom, B., Berger, H. & Noorderhaven, N.G. (1997). Effects of Trust and Governance on Relational Risk. *Academy of Management Journal*, 40(2), 308-338.
- O'Connor, D. (2000). Financial sector reform in China and Vietnam: A comparative perspective. *Comparative Economic Studies*, 42(4), 45-66.
- O'Donoghue, T. & Rabin, M. (2000). The economics of immediate gratification. *Journal of Behavioral Decision Making*, 13(2), 233–250.
- Oh, S. (1999). Financial deepening in the banking sector – Vietnam, in *Rising to the Challenge in Asia. A Study of Financial Markets*, 12. ADB, Manila
- Oliver, B.R. (2005). The impact of management confidence on capital structure. *Working Paper*.
- Ongena, S., & Smith, D. (2000). What determines the number of bank relationships? Cross-country evidence. *Journal of Financial Intermediation*, 9, 26-56.
- Ono, A. & Uesugi, I. (2009). The role of collateral and personal guarantees in Relationship lending: Evidence from Japan's SME loan market. *Journal of Money, Credit, and Banking*, Vol. 41(5), 935-960.
- Pagano, M. & Jappelli, T. (1993). Information Sharing in Credit Markets. *Journal of Finance*, 48(5), 1693-1718.
- Park, C. & Kim, H. (2009). The effect of managerial overconfidence on leverage. *International Business & Economics Research Journal*, 8(12), 115-126.

- Park, S.H. & Luo, Y. (2001). Guanxi and organizational dynamics: Organizational networking in Chinese firms. *Strategic Management Journal*, 22(5), 455-477.
- Peirson, G., Brown, R. & Howard, P. (1999). *Essentials of Business Finance*. The McGraw Hill Companies Inc., Australia.
- Peng, M, & Luo, Y. (2000). Managerial ties and firm performance in a transition economy: The nature of a micro-macro Link. *Academy of Management Journal*, 43(3), 486–501.
- Peng, M.W. & Heath, P.S. (1996). The growth of the firm in planned economies in transition: institutions, organizations, and strategic choice. *Academy of Management Review*, 21(2), 492–528.
- Peng, Y. (2004). Kinship networks and entrepreneurs in China's transition economy. *The American Journal of Sociology*, 109(5), 1045–1074.
- Perotti, E. (1993). Bank lending in transition economies. *Journal of Banking and Finance*, 17, 1021-1032.
- Petersen M. & Rajan R. (1994). The benefits of lending relationships: Evidence from small business data. *Journal of Finance*, 49(1), 3-37.
- Petersen M., & Rajan R. (2002). Does distance still matter? The revolution in small Business Lending. *Journal of Finance*, 57(6), 2533-2570.
- Petersen M. (2004). Information: Hard and Soft. *Working Paper*.
- Pett, M., Lackey, N. & Sullivan, J. (2003). *Making sense of factor analysis*. Thousand Oaks: Sage Publications, Inc.
- Psillaki, M & Daskalakis, N. (2009). Are the determinants of capital structure country or firm specific? *Small Business Economics*, 33, 319-333.
- Putnam, R. (2000). *Bowling Alone: the Collapse and Revival of American Community*. New York: Simon and Schuster.
- Quach, T.L. (2011). *Vietnam Banking Sector Report*. Vietcombank Securities (VCBS).

- Rajan, R.G & Zingales, L. (1995). What do we know about capital structure? Evidence from international data. *The Journal of Finance*, 50 (5), 1421-1460.
- RAM Consultancy Services Sdn Bhd. (2005). *SME Access to Financing: Addressing the Supply Side of SME financing*. REPSF Project No.04/003.
- Ravina, E. (2012). Love & loans: the effect of beauty and personal characteristics in credit markets. *Working paper*, New York University.
- Rice, T. & Strahan, P.E. (2010). Does credit competition affect small-firm finance?. *The Journal of Finance*, 65(3), 861–889.
- Romano, C.A., Tanewski, G.A & Smyrnios, K.X. (2001). Capital structure decision-making: A model for family business. *Journal of Business Venturing*, 26(3), 285-310.
- Ruben D.L. & Pedro V.M. (2007). Determining the Number of Factors to Retain in EFA: an easy-to-use computer program for carrying out Parallel Analysis. *Practical Assessment, Research & Evaluation*, 12(2)
- Runckel, C. (2011). *Small and Medium Enterprises (SME) in Vietnam*. [Report]. Business in Asia.
- Saparito P. & Gopalakrishnan, S. (2009). The influence of communication richness, self interest, and relational trust on banks' knowledge about firms within the small-cap debt finance markets. *IEEE Transactions on Engineering Management*, 56(3), 436-447.
- Schiffer M & Beatrice W (2001) Firm size and the business environment: Worldwide survey results. *IFC Discussion Paper* Number 43.
- Scott, D.F. (1972). Evidence on the importance of financial structure. *Financial Management*, 1, 97-109.
- Scott, J. & Dunkelberg, W. (1999). Bank consolidation and small business lending: A small firm perspective. In *Business Access to Capital and Credit* (eds. J. Blanton, A. Williams and S. Rhine), pp. 238-361.

- Shefrin, H. (2001). Behavioral corporate finance. *Journal of Applied Corporate Finance* 14(3), 113-126.
- Sherif, K., Borish, M., & Gross, A. (2005). *State-owned banks in the transition: origins, evolution and policy responses*. World Bank Research.
- Simon, Herbert A. (1983). *On the Behavioral and Rational Foundation of Economic Theory*. Working Paper Series 115, Research Institute of Industrial Economics.
- Sogorb-Mira, F. (2005). How SME uniqueness affects capital structure: Evidence from a 1994–1998 Spanish data panel. *Small Business Economics* 25(5), 447–457.
- Soo, N.O. (1999). *Financial Deepening in the Banking Sector: Vietnam*. Asian Development Bank.
- Stam, W. & Arzlanian, S. & Elfring, T. (2013). Social Capital of Entrepreneurs and Small Firm Performance: A Meta-Analysis of Contextual and Methodological Moderators. *Journal of Business Venturing*, Forthcoming.
- Stein, J.C. (2002). Information production and capital allocation: Decentralized versus Hierarchical Firms. *Journal of Finance*, 57(5), 1891-1921
- Stiglitz, J.E. & Weiss, A. (1981). Credit Rationing in Markets with Imperfect Information. *American Economic Review*, 71, 393-410.
- Storey, D.J. (1994). *Understanding the Small Business Sector*. Routledge, London.
- Suchman, M.C. (1995). Managing Legitimacy: Strategic and Institutional Approaches. *Academy of Management Journal*, 20(3), 571 - 610.
- Tabachnick, B.G. & Fidell, L.S. (2007). *Using multivariate statistics*. Fifth Edition. Pearson Education Inc.
- Tagoe, N., Nyarko, E. & Anuwa-Amarh, E. (2005). Financial challenges facing urban SMEs under financial sector liberalization in Ghana. *Journal of Small Business Management*, 43(3), 331-343.
- Talavera, O., Lin Xiong & Xiong Xiong. (2012). Social Capital and Access to Bank Financing: The Case of Chinese Entrepreneurs. *Emerging Markets Finance and Trade*, 48(1), 55-69.

- Tambunan, T. (2008). SME development, economic growth, and government intervention in a developing country: The Indonesian story. *Journal of International Entrepreneurship*, 6(4), 147 – 167.
- Tanaka, T., Colin F. C, & Quang Nguyen. (2010). Risk and Time Preferences: Linking Experimental and Household Survey Data from Vietnam. *American Economic Review*, 100(1), 557-71.
- Thanh, V., Cuong, T. T., Dung, B., & Chieu, T. D. U. C. (2011). *Small and Medium Enterprises Access to Finance in Vietnam*. Jakarta: Economic Research Institute for ASEAN and East Asia (ERIA).
- Tran, B.T. (2008). *Analysis of the Vietnamese Banking Sector with special reference to Corporate Governance*. Doctoral Dissertation. University of St. Gallen.
- Tsang, E. (1994). In Search of legitimacy: The private entrepreneur in China. *Entrepreneurship Theory and Practice*, 21(1), 21–30.
- Uchida, H., Udell, G.F. & Yamori, N. (2006). SME financing and the choice of lending technology. *RIETI Discussion Paper Series 06-E-025*.
- Ulrich, A. T. & Cassel, S. H. (1975). Factors influencing the extension of bank credit to small business. *Journal of Small Business Management*, 13(1), 28–34.
- USA International Business Publications (Ibp Usa). (2007). *Vietnam Financial and Trade Policy Handbook*.
- Uzzi, B. (1999). Embeddedness in the making of financial capital: How social relation and networks benefit firms seeking financing. *American Sociological Review*, 64, 481-505.
- Valverde, S.C, Fernández F.R & Udell G.F. (2008). Bank lending, financing constraints and SME investment. *Working Paper Series WP-08-04*, Federal Reserve Bank of Chicago.
- Van Auken, E.H. (2001). Financing small business technology-based companies: The relationship between familiarity with capital and ability to price and negotiate investment. *Journal of Small Business Management*, 39(3), 240–258.

- Verheul, I. & Thurik, R. (2000). Start-up capital: Differences between male and female entrepreneurs. Does gender matter? (EIM Research Report 9910/E). Rotterdam, the Netherlands: Erasmus University.
- Vietnam General Statistics Office (Vietnam GSO). Data of Vietnam's GDP. Available at: <http://www.gso.gov.vn/default.aspx?tabid=388&idmid=3&ItemID=14480> (accessed 02 May 2014).
- Vo, T.T., Tran T.C, Bui, V.D. & Trinh, D.C. (2011). Small and medium enterprises access to finance in Vietnam', in Harvie, C., S. Oum, and D. Narjoko (eds.), *Small and Medium Enterprises (SMEs) Access to Finance in Selected East Asian Economies*. ERIA Research Project Report 2010-14, Jakarta: ERIA. pp.151-192
- Vuong, Q.H & Pham, M.C. (2009). *Kinh te Viet Nam – Thang tram va dot pha* (English: *Vietnam's Economy – The rises, falls and shifts*) (in Vietnamese). National Political Publisher, Hanoi.
- Watson, J.J. (2003). The relationship of materialism to spending tendencies, savings, and debt. *Journal of Economic Psychology*, 24, 723–739.
- Weinstein, N.D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social Psychology*, 39, 806–20.
- Weller, J. (2004). Policy recommendations on job creation: Promoting SME development. Presented at the seminar “*Job Creation in the Western Hemisphere: Reviewing Best Practices and Setting a New Policy Agenda*”.
- Winborg, J., & Landstrom, H. (2000). Financial bootstrapping in small businesses: Examining small business managers' resource acquisition behaviors. *Journal of Business Venturing*, 16, 235-254.
- World Bank Group. (2009). *Doing Business 2010: Reforming through Difficult Times*.
- World Bank. (2013). World Development Indicators Database. Available at: <http://data.worldbank.org/data-catalog/world-development-indicators> (accessed 09.06.2014).



- World Bank. Data of Vietnam. Available at: <http://data.worldbank.org/country/vietnam> (accessed 06.06.2014).
- Wu, J., Song, J. & Zeng, C. (2008). An empirical evidence of small business financing in China. *Management Research News*, 31, 959-975.
- Xin, K. R., & Pearce, J. L. (1996). Guanxi: Good connections as substitutes for institutional support. *Academy of Management Journal*, 39, 1641–1658.
- Yu, M., Xia, X. & Zou, Z. (2006). The relationship between manager's overconfidence and enterprises' radical behavior in incurring debts. *Managing World*, 8, 104-125.
- Zhang, Q. & Fung, H.G. (2006). China's social capital and financial performance of private enterprises. *Journal of Small Business and Enterprise Development*, 13(2), 198-207.
- Zia, B. (2007). Export Incentives, Financial Constraints, and the Misallocation of Credit: Micro-level Evidence from Subsidized Export Loans. *Journal of Financial Economics*, 87(2), 498-527.
- Zikmund, W.G. (2003). *Business Research Methods* (7th edition). Thomson/South-Western.
- Zwick, W.R. & Velicer, W.F. (1986). Comparison of five rules for determining the number of components to retain. *Psychological Bulletin*, 99, 432-442.

## Appendix A

### Research Questionnaire for SME owners/managers (English version)

Dear Sir/Madam,

My name is Nguyen Hoang Anh. I am a student of Ph.D program at Ritsumeikan Asia Pacific University in Japan. I am conducting my doctoral dissertation on the topic: “Small and Medium Enterprise (SME) Financing in Vietnam: Evidences from the Credit Demand Side and the Credit Supply Side.”

The small and micro-enterprise sector has been found to play a significant role in the economies and societies of nations, especially in developing countries. However, the shortage of capital and the inability to obtain official credit sources are the major barriers to the growth of this sector. In our research, we aim to provide further insight into the micro level supply and demand factors that influence the lending decisions of credit grantors and credit participation of SMEs.

Therefore, we would be very grateful if you could help us by answering the questionnaire. The information obtained from the questionnaire will be used for the purposes of this study only. Your identity and other personal information will be kept completely confidential without sharing with anyone under any circumstances.

It will take no more than 30 minutes to complete the questionnaire. Your answer is of great importance to the research results. Once you have completed answering the questionnaire, please kindly send us by using the attached envelop.

If you have any questions, you may contact:

Ms. Nguyen Hoang Anh

Tel: (+81) 90-9479-1233

Email: [hoanng12@apu.ac.jp](mailto:hoanng12@apu.ac.jp)

Thank you very much for your time and your cooperation.

Best regards,

Nguyen Hoang Anh.

**Section A:**

1. Position:  a. Owner  b. Manager  c. Other

2. Sex:  a. Male  b. Female

3. Age: .....

4. The entrepreneur's Name: .....

5. The year of establishment: .....

**6. Ownership:**

- |                                                      |                                                                            |
|------------------------------------------------------|----------------------------------------------------------------------------|
| <input type="checkbox"/> a Household Business        | <input type="checkbox"/> e Joint-stock company with partly state ownership |
| <input type="checkbox"/> b Private enterprise        | <input type="checkbox"/> f Joint-stock company with no state ownership     |
| <input type="checkbox"/> c Cooperative               | <input type="checkbox"/> g Joint-venture company with foreign capital      |
| <input type="checkbox"/> d Limited liability company | <input type="checkbox"/> h State-owned enterprise                          |

**7. Industry/Business Field:**

- a. Industrials & Construction (Industrials, Basic materials, construction, Real estate)  
 b. Consumer Goods (Food & Beverage, Personal & Household Goods)  
 c. Consumer Services (Retail, Healthcare included)  
 d. Telecommunication & Technology

8. The number of experience years you have been working in this industry/field (even before establishing this entrepreneur): ..... years

**9. Educational level:**

- a. Primary/Secondary  b. High school  c. College/University  d. Master or higher

10. Marital status:  a. Married  b. Single (or widow, divorced)

**11. Owner's average income per month:**

- a. < 20 million VND  b. 21-50m VND  c. 51-100m VND  
 d. 101- 150m VND  e. > 151m vnd

12. Does the entrepreneur participate in export activities?  Yes  No

**13. Total assets of your business:**

- a. <1billion Vnd  b. 1-10b Vnd  c. 11-50b Vnd  d. 50-100b Vnd

**14. Fixed assets as a percentage of total assets in your business:**

- a. 0%-10%  b. 11%-30%  c. 31%-50%  d. 51-70%

**15. Bank loans as a percentage of total assets in your business:**

- a. No bank loan  b. <10%  c. 11%-30%  d. 31%-50%  e. >50%

16. Informal loans (borrowing from relatives, friends, moneylenders) as a percentage of total assets:

- a. No informal loans  b. <10%  c. 11%-30%  d. 31%-50%  e. >50%

**17. Have you ever repayed loan (principle or interest) late?**

- Yes  No  My business does not use debt

**18. In the past two years, has your firm ever been turn downed by banks?**

- a. No borrowing from banks  
 b. Banks accepted short-term (or long-term) loans but declined long-term loans (or short-term)  
 c. Banks declined both short-term and long-term loans  
 d. Banks always accepted

**19. (For firms which use debt in capital structure) In your opinion, which credit source is more important to your business?**

- a. Formal credit sources such as banks  
 b. Informal credit sources such as relatives, friends, partners, moneylenders

**20. Do your company conduct an audit of financial statements every year?**  Yes  No

**Section B:**

**Q1.** Given your present circumstances, suppose you won a tax-free prize at a local bank and were offered a choice between two prizes. Please choose **one among each pair of prizes** as follows:

**Option A –Getting money today Or Option B – Getting money three months later**

- (1)  A. Getting 1000\$ today Or  B. Getting 1050\$ three months later  
(2)  A. Getting 1000\$ today Or  B. Getting 1100\$ three months later  
(3)  A. Getting 1000\$ today Or  B. Getting 1200\$ three months later  
(4)  A. Getting 1000\$ today Or  B. Getting 1300\$ three months later  
(5)  A. Getting 1000\$ today Or  B. Getting 1400\$ three months later

**Q2.** By the same token, among each pair choices of prize, please choose one you prefer.

**Option A –Getting money a year later Or Option B – Getting money a year and three months later**

- (1)  A. Getting 1000\$ a year later Or  B. Getting 1050\$ a year and three months later  
(2)  A. Getting 1000\$ a year later Or  B. Getting 1100\$ a year and three months later  
(3)  A. Getting 1000\$ a year later Or  B. Getting 1200\$ a year and three months later  
(4)  A. Getting 1000\$ a year later Or  B. Getting 1300\$ a year and three months later  
(5)  A. Getting 1000\$ a year later Or  B. Getting 1400\$ a year and three months later

**Q3.** Suppose your business had been running very well and have an ability to guarantee your income for your family. And this current business was your/your family's only source of income. Then you are given the opportunity to take a new and quite good investment with 50-50 chance that it will double your income. But there is a 50-50 chance that it will cut your income and spending power by a third. Would you accept this new investment?  Yes  No

For those who answer "yes" for Q3, please answer Q4; "no" for Q3, please answer Q5

**Q.4** Now, suppose the chances were 50-50 that the new investment would double your income, and 50-50 chance that it would cut it in half. Would you accept? Yes  No

If you answer “yes” to Q4, please answer Q7, “no” for Q4, please answer Q8

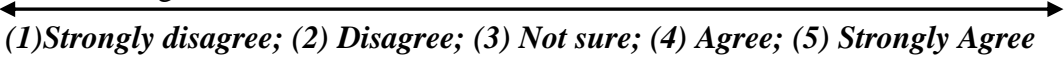
**Q.5** Now, suppose the chances were 50-50 that the new investment would double your income (profit), and 50-50 that it would cut it by 20%. Then would you accept? Yes No

For those who answer “yes” to Q5, please answer Q8; “no” to Q5, please answer Q6

**Q.6** Now, suppose that the chances were 50-50 that the new investment would double your profit and 50-50 that it could it by 10%. Then would you accept? Yes No

**Q.7** Now, suppose that the chances were 50-50 that the new investment would double your income, and 50-50 that it would cut it by 75%. Would you still accept? Yes No

**Q8.** Please indicate by ticking in the appropriate box to what extent you agree/disagree to the statement about borrowing:



1. Debt is an integral part of doing business because it help firm to extend investment chances and have tax shield.	1	2	3	4	5
2. The entrepreneur should be discouraged from using debts since interest expense can become a burden causing bankruptcy and the control of the firm will be lost.	1	2	3	4	5
3. The entrepreneur should satisfy with your current situation rather than borrow money to expand your business.	1	2	3	4	5
4. It is OK to have a loan if you know you can pay if off.	1	2	3	4	5
5. Once you are in debt it is very difficult to get out.	1	2	3	4	5
6. Owing money is basically wrong.	1	2	3	4	5

**Q9:** During the last three years, were there times when you needed credit for your business, but did not apply because you thought the application would be turned down?  Yes  No

**Section C:**

**Q10.** Please indicate by ticking in the box whether statements about **Vietnam Credit Information Center (CIC)** is Right or Wrong:

	Right	Wrong
1. CIC is a government agency that collects and maintains credit records of firms and individuals.	<input type="checkbox"/>	<input type="checkbox"/>
2. CIC is a private corporation that collects unpaid bills of firms and consumers.	<input type="checkbox"/>	<input type="checkbox"/>
3. The main role of CIC is to rate firms and consumers and determine whether or not they can receive credit	<input type="checkbox"/>	<input type="checkbox"/>
4. Credit history report issued by CIC could affect the accessibility to credit of the entrepreneur	<input type="checkbox"/>	<input type="checkbox"/>



## Appendix B

### Research Questionnaire for Bank Loan Officers (English version)

#### **Section A:**

1. **The branch bank name:** .....
2. **Age:** .....
3. **Gender:**            Male            Female
4. **Education Background:**  
 a. Certificate            b. Bachelors degree    c. Master            d. Ph.D
5. **Title/Position:**  
 a. Loan Officer            b. Credit Manager    c. Branch Manager    d. Other (specify)
6. **How long do you have experience in lending to SMEs?** ..... years
7. **How many borrowers (as SMEs) do you manage in your loan portfolio monthly on average?** .....
8. **Marital status:**    Married            Single
9. **Time to process the loan application in general (on average)** ..... business days

#### **Section B:**

**Q1:** Please retrospect the most recent enterprise loan application you were in charge and give your opinion to the extent of the importance of information to the loan approval process and the level of firm response to that information (information can be provided by SMEs or through the interaction between the bank and the firm, or through collection from third party officially or personally)

	←—————→ <i>Very little (1)</i> <i>Very extensive (5)</i>					<b>Important level of information to loan approval process</b>					<b>The level of firm response to this information</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1.SME's size	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
2. Corporate brand name recognition (reputation)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
3.Information about resources of firm (office, plant, car, managers, etc.)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
4.Management philosophy & system (strategy, structure, culture, policy)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
5. Promising businesses (products and markets)	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
6. Business schedules	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
7. Information on Customers, market, supplier	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
8.Clear and professional accounting system and reports	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5

9.SME's revenue and profit	1	2	3	4	5	1	2	3	4	5
10. SME's asset and capital sources	1	2	3	4	5	1	2	3	4	5
11.Liquidity Ratio (e.g. Current Ratio)	1	2	3	4	5	1	2	3	4	5
12.Capital structure Ratios (e.g. Debt/Asset)	1	2	3	4	5	1	2	3	4	5
13.Profitability Ratios (e.g. ROS, ROE)	1	2	3	4	5	1	2	3	4	5
14.Operating Ratios	1	2	3	4	5	1	2	3	4	5
15.Cash Flow Statement	1	2	3	4	5	1	2	3	4	5
16.Personal assets of the SME's entrepreneur	1	2	3	4	5	1	2	3	4	5
17.SME's pledgeability of real estate collateral	1	2	3	4	5	1	2	3	4	5
18.SME's pledgeability of tangible assets collateral (other than real estate)	1	2	3	4	5	1	2	3	4	5
19.The entrepreneur has relevant background and education	1	2	3	4	5	1	2	3	4	5
20.The entrepreneur has experience in the field of business	1	2	3	4	5	1	2	3	4	5
21.The entrepreneur has experience in management	1	2	3	4	5	1	2	3	4	5
22.The entrepreneur has strategic planning ability	1	2	3	4	5	1	2	3	4	5
23.The entrepreneur uses IT in managing business	1	2	3	4	5	1	2	3	4	5
24.The entrepreneur is good at selecting and managing the needed resources	1	2	3	4	5	1	2	3	4	5
25.The entrepreneur is good at understanding market evolution	1	2	3	4	5	1	2	3	4	5
26. The entrepreneur makes positive impression with bankers through demonstrating business knowledge and skills	1	2	3	4	5	1	2	3	4	5
27.The entrepreneur shows positive learning in working with banks' procedure	1	2	3	4	5	1	2	3	4	5
28.The entrepreneur has positive referral on integrity (from third party)	1	2	3	4	5	1	2	3	4	5
29.The entrepreneur has willingness to share sensitive and real information with the banks	1	2	3	4	5	1	2	3	4	5
30.The entrepreneur has positive experience with working with banks	1	2	3	4	5	1	2	3	4	5
31.The entrepreneur adapts his/her interests with those of his/her commercial partners	1	2	3	4	5	1	2	3	4	5
32.The entrepreneur pays attention to the needs of his/her employees	1	2	3	4	5	1	2	3	4	5
33.The entrepreneur is totally honest during negotiations with commercial partners	1	2	3	4	5	1	2	3	4	5
34.The entrepreneur is consistent in his /her behavior and decisions	1	2	3	4	5	1	2	3	4	5
35.The entrepreneur has strong personal network with banks or other financial institutions	1	2	3	4	5	1	2	3	4	5
36.The entrepreneur has strong personal network with government officials	1	2	3	4	5	1	2	3	4	5



37.The entrepreneur has strong network with the entrepreneurs at other firms	1	2	3	4	5	1	2	3	4	5
38. Relationship with customers	1	2	3	4	5	1	2	3	4	5
39. Relationship with suppliers	1	2	3	4	5	1	2	3	4	5
40.The years of the bank-entrepreneur relationship	1	2	3	4	5	1	2	3	4	5
41. Has the owner/firm ever borrowed from your bank?	1	2	3	4	5	1	2	3	4	5
42. Is the owner/firm in debt at other banks?	1	2	3	4	5	1	2	3	4	5
43.Whether the bank is the SME's main bank	1	2	3	4	5	1	2	3	4	5
44. The number of bank products that the entrepreneur is using at your bank	1	2	3	4	5	1	2	3	4	5
45.Positive credit information in transactions with banks (e.g. loan type, interest rate, maturity, outstanding amount of loan, on-time payments)	1	2	3	4	5	1	2	3	4	5
46.Type and value of collateral securing the loan in the past	1	2	3	4	5	1	2	3	4	5
47.Negative credit information in transactions with banks (e.g.default or late repayment)	1	2	3	4	5	1	2	3	4	5
48.Bankruptcies of owner	1	2	3	4	5	1	2	3	4	5
49.Income and other personal financial information on the owners	1	2	3	4	5	1	2	3	4	5
50.Utility payment records	1	2	3	4	5	1	2	3	4	5
51.Court judgments	1	2	3	4	5	1	2	3	4	5
52.Credit enquiries from other lenders	1	2	3	4	5	1	2	3	4	5

**Q2.** How many years has your bank had a relationship with this firm? ..... years.

**Q3.** Has this firm ever borrowed from your bank?  Yes  No

**Q4.** Is this firm in debt at other banks?  Yes  No

**Q5.** Is your bank the main bank of this firm?  Yes  No

**Q6.** How many bank products/services has the firm been using at your bank? ..... products/services

**Q7. Did your bank accept this firm's loan application?**

a. Accept with no constraint

b. Accept with loan amount constraint

c. Decline

*Thank you very much for your time and cooperation*

## Appendix C

### Construction of Debt Attitude Index by Principal Component Analysis

**Table C.1: KMO and Bartlett's Test (Debt Attitude Measurement)**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.887
Bartlett's Test of Sphericity	Approx. Chi-Square	780.589
	df	15
	Sig.	0.000

**Table C.2: PCA results (Debt Attitude Measurement)**

	<b>Component 1</b>
<b>Eigenvalues</b>	3.796
<b>Cumulative variance explained (%)</b>	63.261
1.The entrepreneur should satisfy with your current situation rather than borrow money to expand your business.	0.879
2.Debt is an integral part of doing business because it help firm to extend investment chances and have tax shield.	0.835
3.The entrepreneur should be discouraged from using debts since interest expense can become a burden causing bankruptcy.	0.826
4.Owing money is basically wrong.	0.768
5.It is OK to have a loan if you know you can pay if off .	0.744
6.Once you are in debt it is very difficult to get out.	0.708

## Appendix D

### Construction of Attitude toward Credit Information Sharing (CIS) Index by PCA

**Table D.1: KMO and Bartlett's Test (CIS Attitude Measurement)**

<b>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</b>		<b>0.844</b>
Bartlett's Test of Sphericity	Approx. Chi-Square	442.724
	df	10
	Sig.	0.000

**Table D.2: PCA results (CIS Attitude Measurement)**

	Component 1
<b>Eigenvalues</b>	2.963
<b>Cumulative variance explained (%)</b>	59.257
1. The lender I apply for loan can check the entrepreneur's previous borrowing information at other financial institutions, especially about collateral and late or non-repayment activities	0.817
2. The credit information about me and my firm provided by CIC make the bank trust my creditworthiness	0.806
3. I have been always trying to keep my credit record good to get loan easily by repaying principles and interest amounts of my personal loan and firm's loan in time	0.805
4. When I applied for credit, I am willing to let the loan officer check the information about me and the firm on file with CIC Vietnam	0.755
5. Late repayment or default in the past does not affect the decision of the lender that I apply for loan	0.654

## Appendix E

### Measurement of Overconfidence

As mentioned in the methodology chapter, we applied logistic regression analysis to measure the value of  $E_U(d|x)$ , indicating the realistic likelihood that the firm's loan application is rejected given the firm characteristics  $x$ .

**Table E.1: Variables in the Equation (Overconfident Measurement)**

	B	S.E.	Wald	df	Sig.	Exp(B)
FixedAssetRatio	-1.574	0.495	10.11	1	0.001	0.207
FirmSize <sup>a</sup>			5.578	2	0.061	
FirmSize(1)	2.349	1.331	3.115	1	0.078	10.476
FirmSize(2)	0.67	1.299	0.266	1	0.606	1.954
Ln_FirmAge	-2.2	0.726	9.177	1	0.002	0.111
Export	-2.181	1.086	4.035	1	0.045	0.113
AuditFS	2.908	1.523	3.648	1	0.056	18.325
Constant	6.739	2.334	8.338	1	0.004	845.009
Hosmer & Lemeshow Test	Chi-square = 3.820, df = 7, p-value = 0.800					
-2 Log Likelihood	54.345					
R-Squared	0.536 (Cox & Snell)			0.715 (Nagelkerke)		

a. Categorical Variable Codings: Reference Category – Micro enterprises; FirmSize (1) – Small Enterprises; FirmSize (2) – Medium enterprises

## Appendix F

### Association Tests between Behavioral Finance Factors and Owner characteristics

**Table F.1: Chi-square Test and Symmetric Measures of Present Biased – Respondent Gender**

Chi-square Test	Value	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.108	0.000
Likelihood Ratio	22.82	0.000
Linear-by-Linear Association	0.152	0.696
Symmetric Measures	Value	Approx. Sig.
Phi	0.296	0.000
Cramer's V	0.296	0.000
Contingency Coefficient	0.284	0.000
N of Valid Cases		263

**Table F.2: Kruskal-Wallis Test of Present Biased – Owner’s Age & experience**

Present Biased	N	Respondent Age -Mean Rank	Respondent Experience - Mean Rank
Time consistence	79	143.04	141.87
Weakly present-biased	98	139.14	141.62
Strongly present-biased	42	99.44	104.87
Patient now, impatient later	44	127.34	118.74
Total	263		
Chi-square		10.406	9.689
df		3	3
Asymp. Sig.		0.015	0.021

**Table F 3: Mann-Whitney Test of Risk Attitude – Owner’s Gender**

Respondent Gender	N	Mean Rank	Sum of Ranks	U	Z	P
Risk Attitude Male	171	119.78	20482.0	5776.0	-3.627	0.000
Female	92	154.72	14234.0			

**Table F.4: Correlation of Risk Attitude – Owner’s Age**

		Age	Risk Attitude
Spearman's rho	Respondent Age	Correlation Coefficient	1
		Sig. (2-tailed)	.0003
	Risk Attitude	Correlation Coefficient	0.181**
		Sig. (2-tailed)	.0003
		N	263

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Table F.5: Mann-Whitney Test of Overconfidence – Owner’s Age & Experience**

	Overconfidence	N	Mean Rank	Sum of Ranks	U	Z	P
Respondent Age	Not overconfidence	187	140.46	26266.5	5523.5	-2.832	0.005
	Overconfidence	76	111.18	8449.5			
Respondent Experience	Not overconfidence	187	137.63	25737.5	6052.5	-1.895	0.058
	Overconfidence	76	118.14	8978.50			

**Table F.6: Mann-Whitney Test of Overconfidence – Firm’s Age**

	Overconfidence	N	Mean Rank	Sum of Ranks	U	Z	P
Years of operation	Not overconfidence	187	139.43	26072.5	5717.5	-2.491	0.013
	Overconfidence	76	113.73	8643.5			

## Appendix G

### Association Tests among Firm Network Factors and Respondent & Firm Characteristics

**Table G.1: Correlation among Firm Networks and Owner's Age, Experience & Firm Age**

		Respondent Age	Respondent's experience	Firm age	Network -officials	Network -formal lenders	Network -informal lenders	Network -business communities
Respondent Age	r Sig.	1						
Respondent's experience	r Sig.	.727 .000	1					
Firm age	r Sig.	.550 .000	.653 .000	1				
Network -officials	r Sig.	.203 .001	.294 .000	.328 .000	1			
Network-formal lenders	r Sig.	.024 .697	.104 .094	.104 .091	.540 .000	1		
Network -informal lenders	r Sig.	.026 .674	.109 .077	.008 .894	.376 .000	.531 .000	1	
Network -business communities	r Sig.	.175 .004	.328 .000	.249 .000	.736 .000	.566 .000	.533 .000	1

**Table G.2: Kruskal-Wallis Test of Firm Networks – Firm Size**

	Firm's Size	N	Mean Rank	Chi-square	P
Network with officials	Micro Enterprise	65	114.01	8.595	.014
	Small Enterprise	149	132.03		
	Medium Enterprise	49	155.78		
Network with formal lenders	Micro Enterprise	65	120.87	2.142	.343
	Small Enterprise	149	134.44		
	Medium Enterprise	49	139.35		
Network with informal lenders	Micro Enterprise	65	131.93	.207	.902
	Small Enterprise	149	133.42		
	Medium Enterprise	49	127.78		
Network with business communities	Micro Enterprise	65	109.25	8.472	.014
	Small Enterprise	149	137.02		
	Medium Enterprise	49	146.91		

## Appendix H

### Initial Models of Credit Participation and Credit Source Selection

**Table H.1: Initial Model of Credit Participation and Explanatory Variables**

	B	S.E.	Wald	df	Sig.	Exp(B)
PresentBiased <sup>a</sup>			11.419	3	.010	
PresentBiased(1)	4.163	1.426	8.523	1	.004	64.287
PresentBiased(2)	6.416	2.048	9.812	1	.002	611.478
PresentBiased(3)	1.517	1.094	1.921	1	.166	4.557
RiskAttitude	-.860	.466	3.404	1	.065	.423
DAIndex	.137	.037	13.781	1	.000	1.147
OverConf	5.121	1.636	9.802	1	.002	167.503
Network_Officials	-.045	.764	.003	1	.953	.956
Network_formlend	2.643	.825	10.266	1	.001	14.056
Network_inform	-1.509	1.030	2.148	1	.143	.221
Network_business	1.159	1.101	1.108	1	.293	3.186
CICAware	1.057	1.528	.478	1	.489	2.876
CISAttitude	.086	.032	7.086	1	.008	1.090
AuditFS	2.232	1.498	2.221	1	.136	9.320
FirmAge	.064	.078	.681	1	.409	1.066
Industry <sup>b</sup>			1.090	3	.780	
Industry(1)	1.257	1.280	.965	1	.326	3.516
Industry(2)	.258	1.083	.057	1	.812	1.294
Industry(3)	.211	1.322	.025	1	.873	1.234
FirmSize <sup>c</sup>			5.751	2	.056	
FirmSize(1)	1.754	.944	3.453	1	.063	5.776
FirmSize(2)	-.550	1.375	.160	1	.689	.577
FixedAsset	.533	.383	1.943	1	.163	1.705
Export	.363	1.229	.087	1	.768	1.438
Stateownership	-2.329	1.841	1.601	1	.206	.097
Gender	-1.059	1.010	1.101	1	.294	.347
Income	1.530	.760	4.046	1	.044	4.616
Experience	.011	.090	.015	1	.904	1.011
OwnerAge	-.053	.058	.845	1	.358	.948
Constant	.253	24099.238	.000	1	1.000	1.288
Observations	263					
-2 Log Likelihood	58.819					
R-Squared <sup>d</sup>	0.641 (Cox & Snell)			0.899 (Nagelkerke)		



**Table H.2: Initial Model of Credit Source Selection and Explanatory Variables**

	B	S.E.	Wald	df	Sig.	Exp(B)
PresentBiased			7.088	3	.069	
PresentBiased(1)	.623	.834	.557	1	.455	1.864
PresentBiased(2)	-1.634	1.242	1.729	1	.189	.195
PresentBiased(3)	1.130	1.084	1.087	1	.297	3.097
RiskAttitude	.546	.230	5.651	1	.017	1.727
Network_Officials	1.087	.638	2.902	1	.088	2.965
Network_formlend	1.317	.485	7.380	1	.007	3.733
Network_inform	-4.883	.985	24.552	1	.000	.008
Network_business	1.532	.865	3.142	1	.076	4.629
CICAware	.278	.811	.117	1	.732	1.320
OverConf	-.674	.652	1.068	1	.301	.510
Age	.076	.050	2.314	1	.128	1.079
Gender	-.450	.774	.338	1	.561	.637
Income	.055	.393	.020	1	.889	1.056
Experience	-.071	.066	1.154	1	.283	.932
FirmAge	-.041	.050	.689	1	.407	.960
FirmSize			9.716	2	.008	
FirmSize(1)	3.077	1.003	9.410	1	.002	21.690
FirmSize(2)	2.913	1.168	6.216	1	.013	18.408
FixedAsset	-.208	.302	.476	1	.490	.812
Export	.568	.793	.513	1	.474	1.765
DAIndex	.066	.026	6.678	1	.010	1.069
CISAttitude	-.014	.022	.421	1	.517	.986
Education	-.008	.597	.000	1	.990	.992
Industry			1.790	3	.580	
Industry(1)	.071	.359	.039	1	.844	1.073
Industry(2)	.112	.855	.047	1	.721	1.294
Industry(3)	.181	.754	.035	1	.874	1.234
StateOwn	.005	1.138	.000	1	.997	1.005
Constant	-5.030	4.811	1.093	1	.296	.007
Observations	180					
-2 Log Likelihood	91.32					
R-Squared <sup>d</sup>	0.577 (Cox & Snell)			0.774 (Nagelkerke)		

Note: a. Categorical Variable Codings: Reference Category - Time consistency; Present biased (1) - Weakly present biased; (2) - Strongly present-biased; (3) - Patient now, impatient later

b. Variable Codings: Reference Category-Industrials & Construction; Industry (1) - Consumer goods; Industry(2) – Consumer services; Industry (3) – Telecommunication-Technology

c. Variable Codings: Reference Category-Micro enterprise; FirmSize (1) – Small enterprise; FirmSize(2) – Medium Enterprise

## Appendix I

### Reliability Statistics of Cronbach's Alpha Test on Attributes to the Loan Approval Process

**Table I.1: Reliability Statistics of Cronbach's Alpha Test**

	Scale Mean if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
<b>Business Organization - Alpha = 0.685</b>			
<i>A1</i>	<b>21.92</b>	<b>0.166</b>	<b>0.709</b>
A2	22.44	0.484	0.623
A3	21.7	0.467	0.630
A4	22.21	0.484	0.624
A5	21.71	0.453	0.633
A6	21.5	0.469	0.632
A7	<b>21.88</b>	<b>0.241</b>	<b>0.687</b>
<b>Financial Information - Alpha = 0.88</b>			
A8	28.65	0.581	0.871
A9	28.47	0.633	0.866
<i>A10</i>	<b>28.62</b>	<b>0.309</b>	<b>0.899</b>
A11	28.77	0.669	0.863
A12	28.75	0.652	0.864
A13	28.69	0.709	0.858
A14	28.9	0.714	0.858
A15	29.08	0.596	0.871
<b>Collateral Eligibility - Alpha = 0.725</b>			
A16	8.64	0.526	0.662
A17	8.51	0.586	0.587
A18	8.69	0.529	0.657
<b>The entrepreneur's Capability - Alpha = 0.75</b>			
<i>A19</i>	<b>24.76</b>	<b>0.313</b>	<b>0.763</b>
A20	24.17	0.493	0.717
A21	24.13	0.548	0.711
A22	24.24	0.596	0.701
A23	24.62	0.455	0.723
A24	24.32	0.598	0.699
A25	24.21	0.548	0.708
<i>A26</i>	<b>24.6</b>	<b>0.235</b>	<b>0.77</b>
<b>The entrepreneur's Integrity - Alpha = 0.802</b>			
A27	20.36	0.533	0.778
A28	20.68	0.559	0.773
A29	20.65	0.392	0.801
A30	20.53	0.576	0.771

A31	20.75	0.542	0.776
A32	21.47	0.413	0.799
A33	20.5	0.616	0.767
A34	20.33	0.545	0.778
<b>The entrepreneur 's Network - Alpha = 0.866</b>			
A35	12.14	0.58	0.864
A36	12.38	0.658	0.846
A37	12.26	0.809	0.808
A38	12.25	0.763	0.820
A39	12.41	0.644	0.850
<b>Relationship Lending - Alpha = 0.77</b>			
A40	14.8	0.579	0.718
A41	14.4	0.567	0.718
A42	14.13	0.438	0.763
A43	14.9	0.608	0.705
<b>A44</b>	<b>15.31</b>	<b>0.289</b>	<b>0.783</b>
<b>Credit History - Alpha = 0.817</b>			
A45	27.9	0.566	0.793
A46	28.09	0.434	0.809
A47	27.66	0.584	0.791
A48	27.94	0.668	0.777
A49	28.3	0.703	0.771
<b>A50</b>	<b>29.13</b>	<b>0.304</b>	<b>0.830</b>
A51	28.46	0.512	0.804
A52	28.14	0.583	0.790