Determinants of Successful Access to Bank Loans by Vietnamese SMEs: New Evidence from the Red River Delta

NGUYEN S

Southampton Business School, University of Southampton, SO17 1BJ, UK, Tel: 00442380593118

Email: **ssjw@soton.ac.uk**

WOLFE S

Southampton Business School, University of Southampton, SO17 1BJ, UK

Abstract

A key target of Small and Medium sized Enterprise (SME) development is facilitating their access to finance, therefore drivers in SME credit decision making by banks are important to understand in every region and country. This paper provides an empirical analysis of the factors affecting the availability and affordability of SME loans in Vietnam. We use Ordinary Least Squares (OLS) and Logit as measures for analysing results from a survey of 20 banks and 180 SMEs conducted in 2012. The results indicate that collateral and relationship lending have positive impacts on successful access. In addition, developing relationships with lenders or seeking a guarantee from a third party can help firms mitigate stringent terms and conditions for credit approvals. On the demand side, the sector where firms operate has an influence on barriers to finance. From the supply side, with various sizes and ownerships, has different

perceptions about legal uncertainties and requirements in SME lending.

Keywords: **SMEs; Banks; Access to credit; Relationship lending; Collateral**

INTRODUCTION

The determinants of SME loan access are a major concern of policy makers and researchers all across the world. In Vietnam, where SMEs account for about 95% of all enterprises, financing SMEs has been regularly identified as a priority amongst its economic goals. Although the government has issued an array of regulations and removed barriers in order to facilitate SMEs' loan access, this sector appear to be bounded by financial constraints. This study aims to contribute to the empirical literature by investigating the drivers that underpin SME credit decision making by banks in Vietnam.

More specifically, our study aims to examine the impact of (i) SME tailored lending technologies (ii) firm-specific factors and (iii) characteristics of the SME credit market. There is a paucity of evidence for transition countries while significant differences across banks in developed and developing countries. This paper, therefore, seeks to shed some light on factors that hinder SME access to finance in the context of Vietnam. To this end, we first conduct a survey in the Red River Delta of Vietnam for the period between August and October 2012. This survey is comprised of two questionnaires for banks and SMEs with in-depth questions for quantitative analysis and open questions to identify new determinants of SME lending. Afterwards, we use different estimation procedures to analyse two separate data sets collected from 183 SMEs and 35 branches from 20 different banks.

In Vietnam, studies focused on uncertainty in SME lending that arises from legal weakness, especially collateral laws. However, there is no research on the behaviour of firms by size or age and decisions of banks by size or ownership form under the impact of the legal framework in Vietnam. Therefore, the main contribution of this study is providing an understanding of the links between different groups of firms or banks and the legal environment. Our results also suggest that collateral and relationship lending are viewed as the determinants for successful access.

THE CONTEXT OF VIETNAM AND PRIORI

SMEs account for approximately 95% in total enterprises in Vietnam and significantly contribute to GDP. Following an approach that underscores SMEs role, the Vietnamese Government has issued an array of regulations to release targeted funding at SMEs or to facilitate access to finance for these firms. For example, in order to address the major

financial constraint of SMEs which is to blame for a lack of valuable assets to pledge, the Government has stimulated establishment of Credit Guarantee Funds in provinces and issued Decree 178/1999/ND-CP on loan security by which the banks lend to SMEs with or without collateral providing that the borrowers' projects or business plans are viable. In additional, the Government has launched regulations that totally support SMEs, for example Decree 56/2009/ND-CP by which they define SMEs and offer financial incentives for these firms. More specifically, Decision 03/2011/QD-TTg lists seven targeted sectors, namely Agriculture, forestry and fisheries; Processing industry, manufacturing (especially for exporting); Production of natural gas; Provide water and waste management activities; Construction; Motorcycles and other motor vehicles; and Transport and storage.

Although this sector annually contributes more than 45% to GDP, the percentage of SME lending to total loans was 12.34%, 15.81% and 35.61% in 2006, 2010 and 2011, respectively. This sector also has difficulties in accessing medium and long-term loans. Consequently, short-term loans present the majority of SME borrowings (Charts 1 and 2).

Among the blockages to SME lending, lacking collateral is viewed by many as the main impediment. Therefore, guarantee schemes which are provided by Credit Guarantee Funds in the provinces or Vietnam Development Bank partially help to loosen collateral requirements. Yet achievement of guarantee scheme has not been in line with original expectations. For example, total value of Notice of acceptance and Letter of guarantee was VND 287.50 billion, equivalent to 0.03% of SMEs lending in 2011. In brief, SMEs appear to be bounded by funding constraints. In reality, SMEs cover their unmet financial needs with informal types of financing (Charts 3 and 4).

In the context of Vietnam, we predict that factors from the legal environment, namely effectiveness of regulations or incentives of SME lending have positive links with SMEs opportunities of obtaining loans. In addition, according to Kalak et al. [1] that refers to a link between SME size and failure probabilities, we believe that smaller firms will face more constraints in loan access. Besides, with such levels of competitiveness, an increase in SME lending will occur because SMEs have more opportunities to develop multi-relationships with banks while banks relax conditions of credit extension to attract new clients. We also anticipate that asset-based lending will be commonly used due to the absence of either effective channels of credit information or insurance for loans. However, the difficulty arises from opacity will be improved via the application of a relationship-lending approach. Furthermore, relationship lending implies that older firms will have a greater advantage in borrowing from banks in comparison to younger firms. Using original Vietnamese primary data collected in 2012 on access to finance, we find that new and small firms, in terms of capital, tend to face more constraints. For banks, their form of ownership may be the key barrier to SME lending. We assume that joint-stock banks that are more flexible may play a more important role in SME loan availability although state-owned banks are often used by the Government to launch their incentives for these firms. Under the effect of high competitiveness, small and

young firms will have easier access to bank loans because banks will loosen requirements for credit approval to attract borrowers. In addition, we highlight that the sector that SMEs operate in will affect their success of borrowing due to the impact of Government initiatives for several sectors.

We also focuses on the legal framework to analyse the nexus between legal perception and legal application because the legal framework has significant implications for institutional structure and consequently for lending technology.

METHODOLOGY

We use different estimation procedures to explore and assess the relationships between predictors and successful access to bank loans, such as linear probability models, logit and discriminant function analysis (t-test).

Variables and Data

Because cross-national data for a holistic picture of SME lending could not be collected, we explore this issue via a survey that was carried out in Vietnam for the period between August and October 2012. This survey consists of two questionnaires of in-depth questions for quantitative analysis and open questions in order to explore and identify new factors affecting SME's success in obtaining bank loans.

Categories for choosing both enterprises and banks for the survey analysis

Enterprises taking part in this study are those registered under the Law of Enterprises in Vietnam in industry, construction, commercial and services. They are classified into SMEs according to Decree 56/2009/ND-CP. This Decree stipulated that SMEs are enterprises with a number of employees from 1-300 persons or total assets less than 100 billion VND (equivalent to USD$4,761,905). In fact, there are SMEs with less than 300 persons but total assets as big as large firms. In addition, there are SMEs with total assets less than 100 billion VND but their number of employees is several times bigger than 300 persons. As a result, we employ winsorized data at the level of 10% to eliminate outliers. These SMEs are located in the Red River Delta where the density of SMEs is the highest nationwide, includes Hanoi, Vinh Phuc, Bac Ninh, Quang Ninh, Hai Duong, Hai Phong, Hung Yen, Thai Binh, Ha Nam, Nam Dinh and Ninh Binh. This study excludes foreign-owned SMEs or joint-ventures because their governance, characteristics or business environments are different from domestic enterprises. We interview those who have already applied to banks for loans. These enterprises may have been successful or not in obtaining bank loans. We exclude those enterprises that never apply for bank loans. Because of a lack of knowledge about bank loans, the firm owners may have a bias against borrowing in any form, and therefore their business depends on internal funding; or the owners may have difficulties in understanding

banking services, therefore their business depends on informal type of funding; and or the owners do not perceive need to grow or accept to share firm control to external financiers. For enterprises who already have applied for bank loans, we divide them into three groups: always rejected; always approved; and mixed, both rejected and approved. Consequently, 183 completed questionnaires from over 400 sent out were received.

In terms of banks, this paper refers to those that are registered and subjected to the Law of Credit Unions in Vietnam. They are commercial banks with both forms of ownership, state-owned and joint-stock companies. Also, foreign-owned banks and joint venture banks are excluded. Of 100 copies of the questionnaire sent to banks, we received 35 completed questionnaires that met our quality criteria inspection. According to Bankscope, at the end of 2012, a total of 50 banks operate in Vietnam. In detail, they include 5 commercial state-owned banks that are the biggest in terms of total assets, 34 joint-stock banks, 4 joint venture banks, 5 foreign banks and 2 policy state-owned banks (that is, Vietnam Bank for Social Polices and Vietnam Development Bank who acts as a guarantor for SMEs). We are only interested in commercial state-owned banks and joint-stock banks. Overall, we received data from 35 branches belonging to 20 banks of our target group.

How to establish models and choose suitable variables

In order to classify interviewed enterprises, we ask a question at the beginning of the questionnaire: "Into which group does your enterprise fall when applying for loans?" The answers are: Always rejected/ Some loans are approved and some are rejected/ Always successful. When we process data, this answer is presented by a binary variable state-01, under a label "access to bank loans", always rejected was coded by 0, and otherwise is 1. This variable is employed as the dependent variable for analysing the sample of enterprises. For banks, we employ role of collateral in the credit making decision and ratio of collateralized loans to total loans as dependent variables.

In order to compare between groups of banks or enterprises using a t-test, we divide them into different groups. First, banks are divided by ownership (state-owned banks and joint-stock banks) or by size based on their equity (Group 1 includes banks with equity greater than VND billion 20,000 (equivalent to USD$952,380,952). Group 1 and group of state-owned banks are the same group; Group 2 includes banks with equity from between 8,000 and 20,000 VND billion (that is USD381 million to 952 million); Group 3 includes banks with charter capital less than VND billion 8,000. Afterwards, enterprises are also classified by age (old enterprises with more than seven years in operations and otherwise as young firms) or by total assets (classified as an SME if total assets and employee size satisfies Decree 56/2009/ND-CP; and large if employee size satisfies but total assets are out of range in the above Decree).

RESULTS

Main results (Table 1- 4).

Table 1: Descriptive statistics of variables collected in SME surveys

Variable	Description	Mean	SD
lending banks	number of lending banks that finance a SME	1.61	1.15
state-owned bank	1 if lending bank is a state-owned bank, 0 if otherwise	0.62	0.48
joint-stock bank	1 if lending bank is a joint-stock bank, 0 if otherwise	0.59	0.49
with VDB guarantee	borrowing under guarantee by Vietnam Development Bank	0.17	0.38
distance limit	limit of distance that SME borrowers consider an obstacle (unit: km)	42.53	43.92
audited requirement	1 if audited financial statements is a requirement, 0 if otherwise.	0.61	0.49
years with the main bank	number of years with main bank	1.99	0.85
loyal customer * audited requirement	interaction variable for a firms who has at least 3 years in relationship with lending bank and is asked for audited financial statement.	0.22	0.42
	(0= do not use, 1= rarely, 2= yearly, 3= every half of a year, 4= monthly, 5= weekly)		
non-credit services	average frequency of using non-credit services	3.64	1.48

current account	frequency of using a current account		4.32	1.07
service frequency	average frequency of using banking services		3.6	1.12
total assets	total assets in SMEs in the latest financial year (bil. VND/mil.USD)	139.13/6.63		258.37
fixed assets	fixed assets in SMEs in the latest financial year (bil. VND/mil.USD)	68.21/3.25		149.36
equity	equity in SMEs in the latest financial year (bil. VND/mil.USD)	34.45/1.64		58.53
collateral as firm assets	ratio of firm assets to pledged assets (%)		0.75	0.31
ratio of collateral	ratio of collateralized loans		4.15	1
	(0=0%, 1=1-29%, 2=30-49%, 3=50-59%, 4=60-84%, 5= over 85%)	(or 74%)		
ratio of collateral >=50%	1 if ratio of collateralized loans is at least 50% of total loans, 0 otherwise		0.93	0.26
ratio of collateral >=85%	1 if ratio of collateralized loans is at least 85% of total loans, 0 otherwise		0.46	0.5
collateral as real estate	ratio of real estate to pledged assets		0.61	0.32
collateral as real estate >=70%	1 if real estate accounts for at least 70% of collateral, 0 if otherwise		0.42	0.5
employee	number of employees in SME		87.29	99.72

		Mean	Std. Dev
construction	1 if SMEs belong to construction sector, 0 if otherwise	0.3	0.46
services	1 if SMEs belong to service sector, 0 if otherwise	0.28	0.45

Table 2: Descriptive statistics of variables collected in Bank surveys

Variables that affect bank credit making decisions	Mean	Std. Dev
(5= the most important, 1= the least important)		
rank of obstacle arising from collateral	3.33	1.38
ranking of role of project in credit approval	3.86	1.55
ranking of role of managerial ability	3.15	1.14
(0=0%, 1=1-29%, 2=30-49%, 3=50-59%, 4=60-84%, 5= above 85%)		
role of projects in credit approval	4.2	1.13
information from total assets evaluation	3.53	1.1
informational difficulties caused by uncertainty of asset register	2.66	1.37
informational difficulties caused by state bank	2.83	1.31
information from credit scoring	3.1	1.2
collateral is in the form of real estate (%)	0.51	0.28
(6= strongly agree, 1= strongly disagree)		
often collect information from publication	3.57	1.35
often collect information from managers	4.04	1.20
obstacle caused by being a new firm	3.63	1.43
obstacle caused by lacking fixed assets to pledge	3.43	1.35
SME lending is reduced by competition	4.36	1.58
(0= don't know; 1= very difficult and time-consuming; 2= difficult and time-consuming; 3= acceptable; 4=easy and quick; 5=very easy and quick)		
Evaluation requirements for court action	2.03	0.71
(-1= worse, 0= no change, 1= somewhat improved , 2= quite improved , 3= significantly improved , 4= extremely improved)		
Evaluation the new collateral law	1.74	1.15
lender is a branch **(1 if lender is a branch, 0 if otherwise)**	0.87	0.34

Table 3: Chance of obtaining bank loans of SMEs

Independent vars.	2SLS							Logit	
	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5	Spec 6	Spec 7	Spec 8	Spec 9
1. lending banks	0.13** (0.05)	0.37** (0.15)	0.22** (0.05)	0.19** (0.04)	0.20** (0.04)	0.30** (0.14)		4.26** (1.39)	
2.state-owned bank			0.16** (0.08)	0.22** (0.07)		0.19** (0.09)		2.11* (1.21)	2.17** (0.91)
3.joint-stock banks					-0.17** (0.06)				
4.with VDB guarantee		-0.04 (0.17)			0.27** (0.09)	-0.05 (0.15)			
5.distance limit	0.003** (0.001)	0.005** (0.002)		0.003*** (0.001)		0.003** (0.002)	0.002* (0.001)		
6.audited requirement	-0.19* (0.10)						-0.29** (0.13)		
7.years with the main bank							0.13** (0.06)		
8.loyal customer *audited requirement			-0.33** (0.11)						
9.distance limit (log)			0.10** (0.04)						1.58** (0.62)

10.non-credit services (log)									1.87**
									(0.95)
11.current account (log)							0.31*		
							(0.16)		
12.current account					0.08*				
					(0.05)				
13.service frequency				-0.08***	-0.14**		-0.20**		
				(0.03)	(0.05)		(0.07)		
14.total assets (log)					0.05				1.07**
					(0.03)				(0.36)
15.collateral as firm assets		-0.26*							
		(0.16)							
16.ratio of collateral		0.19**				0.30***		1.15*	
		(0.08)				(0.09)		(0.63)	
17.collateral as real estate >=70%	-0.20**	-0.37**				-0.30**			
	(0.09)	(0.14)				(0.11)			
18.ratio of collateral						-0.61**			
						(0.31)			
19.fixed assets (log)	0.06*		0.08*						
	(0.03)		(0.03)						
20.collateral as real			-						

estate (log)			0.42**						
			(0.14)						
21.ratio of collateral >=84%			0.27**						
			(0.09)						
22.collateral as real estate								-5.58**	
								(2.29)	
23.equity				0.001*					
				(0.001)					
24.employee (log)				0.05					
				(0.04)					
25.employee							0.003**		
							(0.001)		
26.construction						-0.24*			
						(0.13)			
27.services	-0.20*								
	(0.11)								
_cons	0.48***	-0.50	-0.45**	0.28	0.54**	-0.44	0.65**	-5.92*	-8.87**
	(0.13)	(0.51)	(0.16)	(0.18)	(0.19)	(0.51)	(0.28)	(3.04)	(2.70)
N	35	28	28	61	71	33	67	72	82
Rsquare/Pseudo Rsquare	0.58	0.47	0.76	0.64	0.60	0.54	0.21	0.64	0.54
chi-square/ Pearson chi-square	23.39	19.75	101.29	80.90	73.82	30.10	111.44	29.01	34.18
p-value	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Sagan test	0.40	1.10	0.32	2.40	0.26	0.67	0.85	n/a	n/a
p-value	0.95	0.30	0.85	0.12	0.61	0.41	0.36	n/a	n/a

Standard errors in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01. Source: Data obtained from a survey analysis in 2012

Dependent variable- state-01 is binary (1 is accepted, otherwise 0). *The question in our questionnaire is: "Into which group does your enterprise fall when applying for loans?" Answers: Always rejected/ Some loans are approved and some are rejected/ Always successful. Always rejected was coded by 0, otherwise is 1.*

Table 4: Role of Collateral Requirements in relationships with other factors

Independent variables	Y= Role of collateral			Y= Ratio of pledged loans				
	Spec 1	Spec 2	Spec 3	Spec 4	Spec 5	Spec 6	Spec 7	Spec 8
1.rank of obstacle arising from collateral						0.10**	0.10***	0.10***
						(0.03)	(0.03)	(0.02)
2.role of projects in credit approval		0.18*	0.18**			0.20***	0.18***	0.13***
		(0.10)	(0.08)			(0.05)	(0.04)	(0.04)
3.ranking of role of project in credit approval		-0.17*	-0.23***					
		(0.08)	(0.06)					
4.ranking of role of managerial ability	-0.46**	-0.74**	-0.76**					
	(0.11)	(0.09)	(0.09)					
5.often collect information from publication		-0.18**						
		(0.08)						
6.often collect information from managers				-0.16*	-0.16**		-0.18***	-0.16**
				(0.08)	(0.04)		(0.04)	(0.03)
7.obstacles by distance limit				0.22**	0.29***		0.28***	0.29***
				(0.11)	(0.07)		(0.05)	(0.04)
8.obstales by being a new		0.28*	0.29*	0.14	0.34	0.27*	0.21*	0.16*

firm		**	**	**		*		
		(0.06)	(0.05)	(0.05)	(0.22)	(0.13)	(0.11)	(0.09)
9.obstales by lacking fixed assets to pledge		0.32**	0.17					
		(0.12)	(0.12)					
10.information from asset evaluation	0.35**			0.30***				
	(0.13)			(0.08)				
11.information from credit scoring						-0.06**		
						(0.05)		
12.collateral in the form of real estate			0.64**					
			(0.27)					
13.evaluation requirements for court action					0.21*			
					(0.12)			
14.informational difficulties by uncertainty of asset register				-0.11**				-0.09**
				(0.04)				(0.03)
15.informational difficulties by state bank						0.11**	0.11**	0.14***
						(0.03)	(0.03)	(0.03)
16.evaluation the new collateral law						0.17***	0.15**	0.11*
						(0.05)	(0.05)	(0.04)
17.SME lending is reduced by competition					-0.13*	-0.20***	-0.18***	-0.15***
					(0.07)	(0.04)	(0.03)	(0.03)
18.lender is a branch				0.96***	0.57	0.89***	0.96***	1.01***
				(0.1	(0.3	(0.19	(0.18)	(0.15

				9)	8)	)		)
_cons	1.65 *** (0.45)	2.06* * (0.72)	1.66* * (0.58)	3.29 *** (0.44)	4.57 *** (0.53)	3.60* ** (0.43)	3.35*** (0.36)	3.81* ** (0.34)
N	29	29	28	29	28	28	28	28
R-square	0.58	0.73	0.77	0.71	0.60	0.88	0.91	0.91
Sagan test	1.48	2.72	3.70	1.97	0.07	0.53	0.75	0.32
p- value	0.22	0.10	0.054	0.16	0.80	0.47	0.69	0.57

Standard errors in parentheses, * $p<0.1$, ** $p<0.05$, *** $p<0.01$.Source: Data obtained from a survey analysis in 2012

Table 1 and 2 for Description of variables, The main results are in Table 3 and Table 4.

Factors from the demand side: Consistent with our priors, and defined as either total assets or number of employees, firm size positively affects the success of obtaining loans. Rows 14, 24 and 25 in Table 3 exhibit weak positive signs in growth of successful loan access when firm size increases by one billion VND or one person.

• **Relationships with banks:** In our study, row 1 of Table 3 provides strong evidence for a positive link between the number of bank relationships maintained by SMEs and credit availability. Specifically, OLS Specifications (1)-(6) illustrate a growth from 13-37%; and Specification (8) imply that SME borrowers are likely to enjoy about 80.8% of success (failure rate is 19.2%) for one extra relationship with banks. This finding is in line with [2]. A high number of lending relationships reflects a high level of competitiveness in the Vietnamese banking sector. In Germany and the UK, the average number of lending relationships is 1.36 and 1.01, respectively [3] while in Vietnam, these figures are 1.61 (most financial institutions tend to locate and widen their branch networks in just two main economic centers, namely Hanoi and Hochiminh city). Banks also widen their market penetration by searching for good customers in distant places. Row 5 and 9 show evidence of a slight positive relationship between the distance from lender to borrower and the probability of success in achieving bank loans.

• **Financial statements and requirements for audited financial statements:** In Table 3, rows 14, 19 and 23 provide slight positive coefficients between log total-assets, log fixed-assets and equity with successful access to bank loans. Row 6 shows a negative relationship between requirement for audited financial statements and credit availability with coefficients about 20-30%. When SME customers are asked for audited financial statements, banks are applying a transaction based lending technique which are believed to create credit barriers to SMEs. Row 10-13 investigates impacts of banking service usages. While row 13 exhibits a negative and significant relation between frequency of using bank services in the main banks with loan access, rows 10-12 show light positive links between frequency of using non-credit services or current account and loan access. In general, these results imply the role of transaction based

lending in credit approval. In order to differentiate loyal customers from new customers, row 7 provides evidence for the relationship between the numbers of years with the main banks with credit approval. For each extra year of relationship length, firms' success will increase 13%. This finding is opposite to Cenni [2]. In brief, a better relationship, in both, longer relationships or more frequently using non-credit services, helps overcome borrowing barriers. However, some customers, who are asked for audited financial statement despite of their long relationship with the main bank (3 years or more), face failure probability of 0.33 (see row 8). These customers may not only fail in taking advantage of relationship lending but also do not succeed in developing understanding and trust to banks.

• **Collateral:** According to results in row 16 of Table 3, banks' approval is significantly affected by the provision of collateral. Firms tend to have more borrowing advantages when they provide more collateral. This finding is consistent with Comeig [4]. Specifically, our results on dummy variables show that firms, which have collateralized loans accounted for at least 50% of total loans, still face failure probability of 61% (see row 18) however when the ratio is at least 84%, success will increases 27% (see row 21). Moreover, the VDB plays a role of being a catalyst in SME lending with additional successful access of 27% in row 4 through providing a guarantee. Despite of role of pledged assets in credit approval, several forms of collateral have negative impact on loan access. Firstly, we consider collateral by its form. In rows 20 and 22 of Table 3 reports significant negative relationships between real estate and loan rejection. Furthermore, when real estate accounts for at least 70% of pledged assets, successful loan access will reduce 20-40% (see row 17). To put this result into context, where real estate once accounted for 70% of collateral in Vietnam, now increasingly real estate is losing favour with banks. However, the result on banks' view (see row 12 of Table 4), which provides a strong positive link between collateral in the form of real estate and the role of collateral in bank credit making decisions, reflects that real estate is widely used as pledge assets. Secondly, we incorporate responses about firm assets used as collateral into regressions. Our result provides a strong negative impact on SME lending (see row 15 of Table 3).

• **Sector:** Rows 26 and 27 of Table 3 provide evidence of links between sectors and loan access. SMEs operating in the services or construction sector are likely not to be favoured by banks with elasticity of -0.20 and -0.24, respectively. These results match the recent public policy which has instructed banks to focus on seven core sectors of the economy which exclude the services and construction sector and finding in [5].

• **Comparison between enterprises by size**: In Table 5, regarding size, smaller SMEs tend to depend on their family or friends for any financing shortage unlike larger firms (Table 5).

Factors from the Supply side: Row 2 of Table 3 provides evidence for a significant relationship between state-owned banks and credit availability for SMEs. For the OLS

models, SME borrowers can improve their probability of gaining bank loans by an extra about 20% when they develop one additional relationship with a state-owned bank. For the logit models, when SMEs maintain relationships with banks, state-owned institutions offer a 68% probability of success while joint-stock institutions offer 32% in specification (8) and (9). The results imply that state-owned banks act as a driver in SME lending in Vietnam through arms-length lending technologies (for example, asset-based lending, credit scoring and transaction based lending). Besides, joint-stock banks enter row 3 with a negative sign. Because all state-owned banks are also large banks (and vice versa), this finding is in line with [6] which provide evidence that small bank, without specific conditions such as pre-existing relationships, have no advantages in SME lending.

Table 5: Financial sources, ratio of obtained loans to SME needs

(1= the most important, 6= the least important)	**Large SMEs**	**SMEs**	**t-test** Mean different = Mean (leaf column) – Mean (right column) Ho: Mean different = 0
Importance of financial sources supported by informal lenders	3.81	3.14	Ha: Mean different ≠0 (p= 0.0074) Ha: Mean different >0 (p= 0.0037)
Source: Data obtained from a survey analysis in 2012. Large SMEs are firms with less than 300 persons but total assets as big as large firms (>= 100 billion VND or USD$4,761,905).			

We can explain the results as follow. Firstly, state-owned banks have advantages in mobilizing cheaper capital that are from state-owned corporations, who are a key driver of the economy, due to their historical relationships. Secondly, with bigger size and market share, longer time in operation, better reputation and managerial ability, state-owned banks are trusted by the Government or international groups in their projects targeting SMEs. In South East Asia, state ownership of commercial banks is identified as an useful tool of national economic development policies. Therefore, compared to joint-stock banks, state-owned banks are able to make more profit when they offer SME loans under identical conditions (maturity or customer risks and the business environment). Consequently, the chance of obtaining loans for SMEs is higher when they seek external funding from state-owned banks. Finally, larger banks possess wider branch networks and offer more variety of service tailored to SMEs, therefore, these firms are more likely access loans and develop long-term relationships with large banks.

Banks' perception of the legal environment and structure of collateral: First, Table 6 presents an overall perception of the legal environment identified by banks in our survey analysis. In general, banks share a trust in the legal system, with a mean of 5.7;

their responses are "strongly agree" for "effectiveness of contracts". However, they seem to be less confident on other aspects. For property rights, their certainty significantly reduces at 4.43 and this downturn continues for handling borrowers' personal assets, movable assets and fixed assets. Although banks evaluation for asset handling is still at an acceptable level (around 3.5), their caution implies a poor quality legal framework. Banks also hold views of a less effective legal environment in which steps (and time) for initiating a court action are complicated and constrained (Table 6).

Table 6: Legal perception and requirement for credit approval

Variable description (6= totally agree, 1= totally disagree)	Obs.	Mean	Std.Dev	Min	Max
1. Effectiveness of contracts	30	5.7	0.65	1	3
2. Effectiveness of property rights	30	4.43	1.41	1	6
3. The borrowers have to use all legal sources to recover loans and no exemption for their personal properties	30	3.93	1.86	1	6
4. Contracts help your bank easily and quickly handle movable collateral	30	3.77	1.52	1	6
5. Contracts help your bank easily and quickly handle immovable collateral	30	3.57	1.63	1	6
6. Evaluating steps for initiating a court action (1=very difficult, 5= very easy)	30	2.03	0.72	1	3
7. Evaluating time for courts (1=very slow, 5= very fast)	30	1.57	0.63	1	3
8. Evaluating improvement of new collateral laws (0= no change, 4= totally changed)	31	1.74	1.15	0	4
9. Ratio of collateralized loans in total loans (0=0%, 1=1-29%, 2=30-49%, 3=50-59%, 4=60-84%, 5= above 85%)	32	4.56 or 73%	0.62	3	5
10. Requirement for audited financial statements (0= no, 1= yes)	31	0.26	0.44	0	1
Source: Data obtained from a survey analysis in 2012.					

On the other hand, banks are aware of the effectiveness of the new collateral law (that is Decree 11/2012/ND-CP stipulates that collateral handling will be conducted as contracts of pledge assets without documents of acceptance from borrowers) but the desired improvements have yet to materialise (response level is 1.74 - a moderate change). In row 9 and 10 of Table 6, banks tend to lend by the asset-based lending technique because of a high ratio of collateralized loans (73%) while the mean for loans with a request for audited financial statements are only 26%. This is consistent with our prediction that asset-based lending is popular. Nevertheless, the fact that legal uncertainties go hand in hand with a high ratio of collateralized loans with any bank size, disagrees with previous research. Larger banks with a better perception of collateral laws tend to be more willing to accept pledge assets [7].

Table 7 provides differences in legal perception among bank groups. Larger banks are believed to have a better appreciation of the legal environment [7], t-test results highlight larger banks (group 1 and group 2) as being less certain on the effectiveness

of contracts for handling assets. Group 1 (the group of state-owned banks) perceive more legal risks than their joint-stock peers. However, there is no evidence from t-test for a difference in the ratio of pledge loans between groups of various sizes and forms of ownership (Table 7).

Table 7: Legal perception, ratio of collateralized loans by bank size, bank ownership

Variables	Group 1 Mean	Group 2 Mean	Group 3 Mean	t-test Mean different = Mean (leaf column) – Mean (right column) Ho: Mean different = 0
Contracts help your bank easily and quickly handle movable collateral **(6= totally agree,1= totally disagree)**	3.22		4.33	Ha: Mean different ≠0 (p = 0.0759) Ha: Mean different >0 (p =0.0379)
Contracts help your bank easily and quickly handle immovable collateral **(6= totally agree, 1= totally disagree)**	2.89		4.42	Ha: Mean different ≠0 (p = 0.0272) Ha: Mean different >0 (p =0.0136)
		2.86	4.42	Ha: Mean different ≠0 (p = 0.0372) Ha: Mean different >0 (p =0.0186)
Ratio of third party's assets in total collateral		0.37	0.22	Ha: Mean different≠0 (p = 0.0831) Ha: Mean different >0 (p = 0.0415)
Ratio of collateral as assets formed from loans in total loans		0.29	0.16	Ha: Mean different >0 (p = 0.0507)
	0.30		0.16	Ha: Mean different≠0 (p = 0.0901) Ha: Mean different >0 (p = 0.0451)
Evaluating VDB support **(0= very ineffective, 4= very satisfied)**		2.33	1.25	Ha: Mean different≠0 (p = 0.0446) Ha: Mean different >0 (p = 0.0223)

Source: Data obtained from a survey analysis in 2012.
Groups of Banks: *Group 1* consists of banks with equity greater than VND billion 20,000. All banks in Group 1 are State owned banks. *Group 2* comprise banks with equity between 8,000 and 20,000 VND billion; *Group 3* includes banks with charter capital less than VND billion 8,000.

Surprisingly, larger banks, namely group 1 and group 2, with more perception of uncertainties, are more willing to accept diversified forms of collateral than group 3, such as third party assets and assets formed by loans. Larger banks of group 2 tend to form a better opinion of VDB's support than smaller banks of group 3.

Bank collection of information and lending technique: In general, Table 8 with t-test results indicates that smaller banks seem to have more constraints in collecting information compared to other groups. Besides, banks in group 2 firmly agree that

unreliable information from SMEs is very common (Table 8).

Table 8: Difficulties in collecting information - by bank size

Difficulties in collecting information (0=0%, 1=1-29%, 2=30-49%, 3=50-59%, 4=60-84%, 5= above 85%)	Group 1 Mean	Group 2 Mean	Group 3 Mean	t-test Mean different = Mean (leaf column) – Mean (right column) Ho: Mean different = 0
Unavailable information of SMEs due to their limited managerial capability	2.50	3.71		Ha: Mean different <0 (p = 0.0132) Ha: Mean different ≠0 (p =0.0265)
SMEs produce unreliable information on purpose		4.37	3.58	Ha: Mean different ≠0 (p = 0.0893) Ha: Mean different >0 (p = 0.0447)
Information from CIC or SBV is too simple and insufficient		2.14	3.25	Ha: Mean different <0 (p = 0.0414) Ha: Mean different ≠0 (p = 0.0828)
Source: Data obtained from a survey analysis in 2012				

Banks in credit making decisions: Table 9 demonstrates banks' perception of the advantages and obstacles arising from borrowers or the business environment affecting their credit approvals. In terms of ownership, while joint-stock banks place importance on borrowers' long term strategies and the geographic distance between branches and customers in their credit making decisions, state-owned banks pay more attention to obstacles affecting good projects. State-owned banks do not think that competitiveness leads to a decline in SME lending whereas the joint-stock banks believe that competitiveness is neutral in its impact on the financing of these firms. In additional, according to Table 9, bank size affects bank credit decision making. Our finding provides evidence that bigger banks place less importance on geographical distance between themselves and their clients (Table 9).

Table 9: Factors that affect credit making decisions

	Group 1 Mean	Group 2 Mean	Group 3 Mean	JS banks Mean	State-owned banks Mean	t-test Mean different = Mean (leaf column) – Mean (right column) Ho: Mean different = 0
Advantages of having a long term strategy **(0=0%, 1=1-29%, 2=30-49%, 3=50-59%, 4=60-84%, 5= above 85%)**				3.62	2.75	Ha: Mean different ≠0 (p = 0.0750) Ha: Mean different >0 (p = 0.0375)
Obstacles related to mapping out a good				2.29	3.33	Ha: Mean different <0 (p = 0.0252)

project/ business plan **(0=0%, 1=1-29%, 2=30-49%, 3=50-59%, 4=60-84%, 5= above 85%)**						Ha: Mean different ≠0 (p = 0.0503)
Ranking distance as an obstacle **(6= the most important, 1= the least important)**				1.90	1.22	Ha: Mean different <0 (p = 0.0471) Ha: Mean different ≠0 (p = 0.0941)
		1.37	2.25			Ha: Mean different >0 (p = 0.0505)
	1.22		2.25			Ha: Mean different ≠0 (p = 0.0193) Ha: Mean different >0 (p = 0.0097)
Decisions during an economic downturn **(3=increase interest rate, 2= require more collateral, 1= both, 0= none)**	1.13	2.50				Ha: Mean different <0 (p = 0.0090) Ha: Mean different ≠0 (p = 0.0180)
		2.50	1.20			Ha: Mean different ≠0 (p = 0.0522) Ha: Mean different >0 (p = 0.0261)
Evaluate the current competitive environment for SME lending **(0= very low, 4= very strong)**		3.00	2.33			Ha: Mean different ≠0 (p = 0.0987) Ha: Mean different >0 (p = 0.0494)
Competitiveness between banks reduces SME lending (6= totally agree, 1= totally disagree)				3.00	2.89	Ha: Mean different <0 (p = 0.0427) Ha: Mean different ≠0 (p = 0.0854)
Source: Data obtained from a survey analysis in 2012						

Bank collateral acceptance: In Table 4, we use two independent variables, namely the role of collateral in making credit decisions and the ratio of collateralized loans to total loans. Regressors are banks' view on factors from: firm-specific (being new firms), bank-specific (being a branch, lending technologies) or business environment (effectiveness of collateral law, how easy to take steps for initiating court proceedings, and competition). For row 1, 3 and 4, score "1" represents for "the most important". From the result in row 1, banks ask for higher ratio of pledge loans have less obstacle arising from collateral. While row 9 of Table 6 indicates that asset-based lending is the most popular form of lending, row 2 of Table 4 shows a strong positive link between role of the project with collateral acceptance. The result is confirmed again through negative links between the ranking of the role of project in credit approval with collateral acceptance in row 3. Besides, managerial ability is also placed very importance by banks in row 4.

As aforementioned, methods of collecting information reflect banks' adopted lending

technologies. On the one hand, we find that relationship lending and transaction-based lending can reduce collateral requirements. Specifically, collecting information from publication or managers negatively enters regressions with ratio of collateral in row 5 or 6; and credit scoring has a negative sign in its relationship with ratio of collateral in row 11. On the other hand, information from total asset evaluation increases collateral acceptance (see row 10). Interestingly, banks strongly believe that collateral in the form of real estate is associated with the importance of collateral in credit approval (see row 12). This finding disagrees with SMEs' views in row 17, 20 and 22 of Table 3.

Banks face obstacles, which arise from geographical distance between them and borrowers, lending to a new firm or SMEs' lacking fixed assets to pledge, tend to increase collateral requirements (see row 7-9). In contrast, uncertainties in information of the collateral register reduces collateralized loan ratio (see row 14) whereas difficulties in access to information from the State Bank of Vietnam are associated with higher ratio (see row 15). Banks report a noticeable improvement in the new collateral law. As a result, the positive relationship between the law and ratio of collateralized loans in row 16 of Table 4 implies that banks gain more certainty in collateral acceptance despite their response reflecting less confidence in the legal framework in row 2 of Table 6. Similarly, stronger protection, which is provided to lenders through ease of initiating court rulings, is associated with higher collateral ratio in row 13. In row 17, banks, that hold a view that competition diminishes SME lending, tend to require less pledged assets. Finally, row 18 confirms the conclusion that branches require more collateral than their head office in SME credit extension.

Robustness tests

We use a Sagan test to eliminate problems of omitted variables. All models are normally distributed according to tests for normal distributions suggested by Jarque [8]. In order to carry out robustness checks on our results, the whole sample was divided into two groups, first old firms defined as those in operation for more than 7 years and secondly young firms (less than 7 years in operation). All models in Table 3 are reapplied for two new groups. Similar to the whole sample, we found significant signs for the links between outcome and factors in the group of old firms, such as factors of relationship lending (lending banks, service banks (log), distance limit (log); or factors of asset based lending (realestate (log), fixed assets (log), total assets (log), ratio of collateral ≥85%, collateral as real estate ≥ 70%); or scale of enterprise (total assets (log); employee) or factors of lending banks (state-owned bank). Remarkably, factor ratio of collateral ≥ 85% has a stronger impact on the old firms compared to the whole sample. For each increasing percentage of ratio of pledge loans, old firms have extra 34% probability of success while added successful probability for the whole sample is 25%. Likewise, we obtain some similar significant signs for the group of young firms. In detail, factors of transaction based lending (service frequency); or factors of relationship lending (lending banks, distance limit (log), distance limit); or factors of scale of enterprise (total assets (log)) or factors of lending banks (state-owned bank).

The main results show significant links between state-01 with other factors. As a robustness test, we run binary models in which state-always is the dependent variable. Significant multivariable models were not achieved while two univariable models show similar signs to our previous findings.

In order to correct for variance error in the estimating coefficients, we employ clustered standard error estimates [9]. For both samples of enterprises and banks, we use years in operation as proxies for cluster variables. For the sample of enterprises, in general, variables maintain significance in all of our models, except Specification 3. For the sample of banks, many variables lose significance in some models or all models[1].

CONCLUDING REMARKS

Results from our analysis show that larger firms have more advantages in borrowing from banks while smaller SMEs depend more on informal types of funding [10]. Moreover, new and young firms face more constraints than do older more established firms. Factors that affect SME borrowing can be classified into four groups: relationship lending (number of relations with lending banks or years in the relationship), transaction based lending (requirement for audited financial statements, average number of used services), asset-based lending (total assets, fixed assets, equity, real estate, commercial paper and inventory) and other factors (characteristics of SMEs or the sector that SMEs operate in, distance between banks and clients, guarantees from the VDB and credit policy). Of these, we find that collateral plays a dominant role in credit making decisions and the second most important factor is the number of relationships SMEs have with banks. "Soft information" plays an important role in credit making decisions because the available information on borrowers in Vietnam is poor. While banks mainly use asset-based lending, developing relationships with banks helps SMEs improve credit supply. Alternative lending technologies that are based on pricing risk or credit scorings are not widely used. Therefore, firms who are seeking external finance should improve their skills in preparing projects as well as their financial statements.

In terms of the supply side, state-owned banks play a leading role in SME lending with significant support from the VDB. However, there is a difference between borrowing in branches and headquarters. Branches tend to provide loans with higher requirements for collateral. Considering different forms of collateral, commercial paper is favoured by banks while inventory is not priorized. Real estate has a bidirectional impact on banks' credit approvals. Finally, competition does not help reduce collateral requirement. However, competition fosters multi-relationships which allow firms to have better chances of obtaining loans and therefore, in this sense competition enhances credit availability for SMEs. Improvement in the legal framework helps strengthen confidence

---

[1] For the sample of enterprises, variables lose significance are "the number of service banks", "the lending bank is a state bank", "real estate that account for ≥70% of pledge assets", and "interaction variable between a firm operating in the service sector and ratio of pledge loans ≥ 60%". For the sample of banks, variables lose significance in all models are: "lending bank as a branch" and "collateral as real estate totally". In addition, variables named "rank obstacle from projects" and "obstacle of being a new firm" lose significance in more than 3 models (Results are available upon request from the authors).

in banks and therefore, they are likely to loosen collateral requirements.

REFERENCES

1.   Kalak I, Hudson R (2016) The effect of size on the failure probabilities of SMEs: An empirical study on the US market using discrete hazard model. International Review of Financial Analysis 43: 135-145.

2.   Cenni S, Monferrà S, Salotti V, Sangiorgi M, Torluccio G (2015) Credit rationing and relationship lending. Does firm size matter? Journal of Banking & Finance 53: 249-265.

3.   Mercieca S, Schaeck K, Wolfe S (2009) Bank Market Structure, Competition, and SME Financing Relationships in European Regions. Journal of Financial Services Research 36: 137-155.

4.   Comeig I, Blanco MF, Ramírez F (2015) Information acquisition in SME's relationship lending and the cost of loans. Journal of Business Research 68: 1650-1652.

5.   Onyiriuba L (2016) Sectoral and Industry Credit Risk and Control in Emerging Economies. Emerging Market Bank Lending and Credit Risk Control pp: 165-185.

6.   Zhang X, Song Z, Zhong Z (2016) Does "small bank advantage" really exist? Evidence from China. International Review of Economics & Finance 42: 368-384.

7.   International Financial Corporation (2007) Increase Access to Credit through Collateral reform. Secured transaction reform.

8.   Jarque C, Bera A (1987) A Test for Normality of Observations and Regression Residuals. International Statistical Review 55: 163-172.

9.   Petersen M (2009) Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. The Review of Financial Studies.

10.   Lu Y, Guo H, Kao E, Fung H (2015) Shadow banking and firm financing in China. International Review of Economics & Finance 36: 40-53.