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Improving Access to Bank Loans for Small and Medium-sized Enterprises in Mekong River Delta, Vietnam

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ABSTRACT: *Despite Small and Medium-sized Enterprises play an important role in economic growth of Vietnam, there remain still many difficulties for them to access credit. This study contributes to takle these problems with investigating the factors that affect the ability to borrow money of SMEs in Mekong Delta, Vietnam. Data collected from a survey on 480 SMEs in the area are analyzed using Binary Logistic regression model. The results suggest that groups of factors affecting loan financing to those SMEs include Characteristics of business owners, Enterprise characteristics, and Business environment characteristics. The significance of the study provides evidence to the policy makers and practistioners to improve the accessibility to loans of the SMEs in Vietnam.*

KEYWORDS: access to credit, small and medium enterprises, binary logistic regression, Mekong Delta Vietnam.

INTRODUCTION

Small and medium-sized enterprises (SMEs) are an essential part of the Enterprise sector in developing countries and play an important role in driving growth, creating jobs, and contributing to the government budgets (Marchesnay *et al*., 1998; Chen, 2006). In the new period of international integration, SMEs are characterized by shortage in capital, limited in technology, and weak management making it difficult to compete with large enterprises, domestic production groups and multinational corporations in the markets. That leads to the fact that without support of the Government and world organizations such as the World Bank and IMF, the risk of bankruptcy is near.

By the end of 2020, Vietnam has about 800,000 operating enterprises, of which 98% are small and medium-sized enterprises, attracting more than 5.6 million workers, contributing about 45% of the gross domestic product (GDP) and 31% to the total annual budget revenue. The Mekong River Delta is always considered an area with significant economic development compared to the whole country. With 55,089 businesses, the total registered capital is over 768 trillion VND. Among enterprises in the Mekong Delta region, medium-sized enterprises accounted for 28.3%, small and micro enterprises accounted for 68.4%.

Due to the large geographical distance, the study selects a sample of 5 provinces - cities in the Mekong River Delta: Can Tho City, Long An, An Giang, Dong Thap, and Ca Mau Provinces, these are also localities with a larger number of active SMEs than other provinces in the region (Ministry of Planning and Investment, 2021). Over the past time, the State has issued many mechanisms and policies to support SMEs to develop production and business, especially in accessing credit. The Law on Supporting SMEs in 2017 (National Assembly, 2017) creates a legal framework to support the operation of SMEs. In which, SMEs participating in industrial clusters and value chains will be supported to access credit. However, in fact, many businesses, especially SMEs, still face many difficulties in accessing loans (Nam Son, 2021). Understanding access to loans is a challenging issue for researchers and policymakers in Vietnam. This study focuses on: (i) Determining the factors affecting the accessibility of commercial bank loans of SMEs; (ii) Quantitative model for the above relationship; (iii) And policy implications to improve access to loans.

LITERATURE REVIEW

Concepts

Small and medium-sized enterprises: Small and medium enterprises are enterprises with small scale in terms of capital, labor or revenue. According to Word Bank (2001), criteria of the World Bank, SMEs (Small and Medium Enterprises, SMEs) are enterprises with less than 200 employees, capital and turnover of 15 million USD or less. In Vietnam, Decree No. 39/2018/ND-CP (Nguyen Xuan Phuc, 2018), SMEs are defined according to the criteria of labor, capital and revenue according to different production and business sectors.

Table 1. Criteria for SMEs in Vietnam

Criteria for SMEs	Business areas	
	Agriculture, Forestry, Fisheries and Industry, Construction	Trade and Services
Labor (person)	< 200	< 100
Capital (billion VND)	< 100	< 100
Revenue (billion VND)	< 200	< 300

Source: Decree No. 39/2018/ND-CP (Nguyen Xuan Phuc, 2018)

Loans: Loans are capital that a business raises by borrowing money. It is a loan made to a company that is usually repaid at some future date. Borrowed capital is different from equity or equity because the person applying for a loan does not become the owner of the business, merely the creditor and provider of the loan, and usually receives a fixed percentage of the loan, contractual annual fixed on their loan (Nguyen Van Ngoc, 2016).

Foundation theory

The theory of Equilibrium Credit Rationing: According to Hodgeman (1960), Equilibrium Credit Rating represents a credit allocation based on default risk. Credit allocation as a situation in which all or some loan applicants are not given the full loan amount they applied at prevailing interest rates. In this model, the lender evaluates the borrower's potential on the basis of the loan's expected loss rate, which limits the amount the lender will provide the borrower regardless of interest rates. Because of credit market information asymmetry, it is not possible to distinguish between safe borrowers and risky borrowers.

Theory of Information Asymmetry: The concept of asymmetric information was first introduced by Akerlof (1970). Imperfect Information occurs when one party to a transaction has more information than the other. This imbalance can cause one party to the transaction or the party making the decisions to lose. Information asymmetry is common in any market, and at the time of making a loan decision, borrowers know more than lenders about their creditworthiness. This theory assumes that banks cannot perfectly distinguish between high-risk and low-risk borrowers. Therefore, the lender offers a limit on the amount of the loan to the borrower.

Pecking Order Theory: Myers & Majluf (1984) completed Donaldson's Pecking theory (1961) with the assumption that firms follow a financial hierarchy and that financing is internal or external and that preference is given to internal funds than external funds. The Pecking Order Theory states that firms only seek external funding when internal resources are exhausted. External resources must be absolutely necessary, more secure, and free of control restrictions on the business. As a result, Business Owners prefer to borrow with little or no collateral or credit. This explains why SME owners often prefer internal sources of funds over other sources of finance.

The underlying theories above are relevant to this study in explaining the reasons why SMEs want to access and have difficulty accessing loans from commercial banks.

Empirical studies related to factors affecting access to loans

Research on SMEs in Kenya reveals three groups of factors affecting access to loans: enterprise characteristics (size of business and age of business owners); Financial characteristics (lack of appropriate bookkeeping system, lack of collateral and measures of financial performance of enterprises, geographical location of enterprises; Business characteristics: Education level, previous management experience and the ability of the business owner to link and cooperate (Kung'u, 2011; Mole & Namusonge, 2016). Research on SMEs in Sri Lanka shows that the factors affecting access to loans include: Type of business ownership, age of the business, geographical location of the business, production and business industry, audited financial statements, ratio of fixed assets to capital, sales growth and the gender of the owner (Gamage, 2013).

Studies on SMEs in many countries such as Ghana, Kenya, Mozambique, Bangladesh, Turkey, Uganda, Ethiopia, Cameroon, Pakistan, and India showed that factors affecting access to loans include profitability of enterprises, relationships of enterprises with banks, the industry in which the business operates, the age of the business, the sales volume, the gender and the education level of the owner, the information asymmetry between the creditor and the borrower, and business risk (Alhassan & Sakara, 2014; Mole & Namusonge, 2016; Osano &

Languitone, 2016; Osebo, 2017; Chowdhury & Alam, 2017; Erdogan, 2018; Buyinza *et al.*, 2018; Mutinda *et al.*, 2019; Meressa, 2020; Makani, 2020; Ahmad *et al*., 2022; Rajamani *et al*., 2022). Research results by Ajam and Tijani (2009) in Nigeria show that participation in networks or associations has a positive impact on access to loans. Studies on access to loans of SMEs in Vietnam also show that important factors affect access to loans, including collateral, financial statements, financial-business plan, size of enterprise, qualification of business owner, social capital; characteristics of business; credit level of enterprises; administrative procedures and processes from credit institutions and SMEs (Nguyen, Thi Nhung *et al*., 2015; Phung The Dong & Nguyen Thi Hong Nham, 2019; Pham Cong Do *et al*. 2019).

From the 2010s to now, a synthesis of empirical studies shows that there are three groups of factors affecting access to commercial bank loans, including (i) Business owner characteristics: qualification, Gender of business owner (ii) Enterprise characteristics: age of the business; Return on sales; Sale growth (iii) Business environment: Social capital; Information asymmetry; Collateral; Business risk.

Research model

Theoretical reviews and empirical studies are needed for further research to extend the theory, provide more empirical evidence and policy implications related to the factors influencing access to loans. Previous studies highlight insights into the impact of factors influencing access to loans and measure relationships using different and independent quantitative models such as statistical tests, linear regression, Logit model or exploratory factor analysis, but do not provide an adequate basis for a comprehensive analytical framework on factors for access to loans. Therefore, the aim of this study was to extend the findings from previous studies and integrate analysis of the relationships in the Binary Logistic Regression model. This study selected the research model for Mekong Delta in Vietnam as follows:

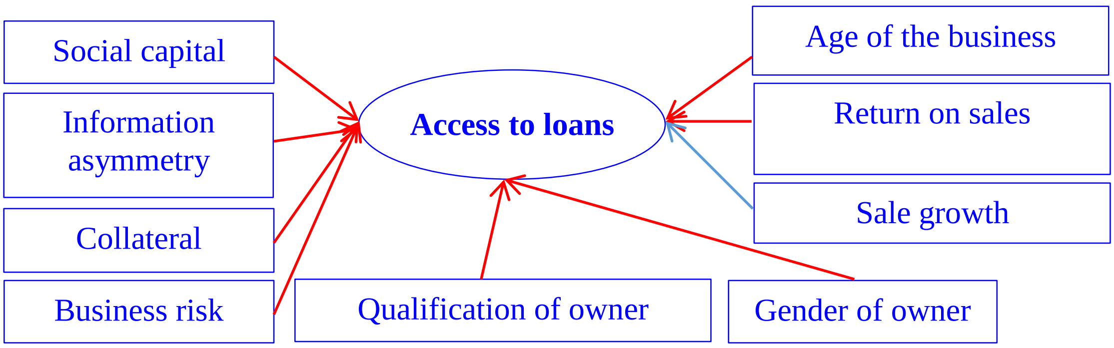


Figure 1: Research model

Hypotheses: Based on empirical studies, the study proposes the following hypothesis:
H1: The qualification of owner positively affects the ability to borrow capital from banks.
H2: The gender of the business owner positively affects the ability to borrow capital from banks.
H3: The age of the business has a positive effect on the ability to borrow capital from banks.

H4: Return on sale has a positive impact on the ability to borrow capital from banks.
H5: The sale growth has a positive impact on the ability to borrow capital from banks.
H6: The social capital has a positive effect on the ability to borrow capital from banks.
H7: The Information asymmetry has a negative impact on the ability to borrow capital from banks.
H8: Collateral has a positive impact on the ability to borrow capital from banks.
H9: Business risk has a negative impact on the ability to borrow capital from banks.

Table 1. Definitions of variables and expectations

No.	Variables	CODE	Units	Expectation
I	Dependent variables			
	Access to loans	Y	Yes =1; No = 0	
II	Independent variables			
Business owner characteristics	The qualification of owner	X1	Elementary = 1; Intermediate = 2; College = 3; Bachelor and post graduate = 4	+
	The gender of the business owner	X2	Male = 1; Female = 0	+
Enterprise characteristics	The age of the business	X3	Years	+
	Return on sale	X4	%	+
	Sale growth	X5	%	+
Business environment	The social capital (good relationship with Bank Associations, Social Associations, Credit Institutions	X6	Yes =1; No = 1	+
	Information asymmetry	X7	* Likert scale with 5 degree	-
	Collateral (Total assets that the business can mortgage)	X8	Million VND	+
	Business risk	X9	* Likert scale with 5 degree	-

Note: *Likert scale in Appendix

Research design

Quantitative model

Form of the research model: Y = f(X1, X2,…,X9)

General form of the linear regression model:

$$Y = B_0 + \sum_{i=1}^{n} B_i X_i + u$$

X*i*: Independent variables; Y: Dependent variable; *u*: Residuals.

According to Howitt & Cramer (2011), when the dependent variable is a dummy variable (Dummy variable, Y = 1; Y = 0), the appropriate model is the Binary Logistic regression model. In this study, the dependent variable is a dummy variable, the Binary Logistic regression model is applied in this study.

Thus, the appropriate model is the Binary Logistic regression:

$$Ln\left[\frac{P(Y=1)}{P(Y=0)}\right] = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + .. + B_9 X_9 \qquad (1)$$

Of which:

$P(Y=1) = P_0$: The probability of SMEs access to loans.

$P(Y = 0) = 1 - P_0$: The probability of SMEs did not access to loans.

X*i*: Independent variables (*i*: from 1 to 11); Ln: Log of base *e* (*e* = 2,714).

Odds coefficient (O_0):

$$O_0 = \frac{P_0}{1 - P_0} = \frac{P(\text{Access to loans})}{P(\text{No access to loans})} \qquad (O_0\text{: Odds Coefficient})$$

Substitute O_0 into the equation (1):

$$LnO_0 = B_0 + B_1 X_1 + .. + B_9 X_9 \qquad (2)$$

The Odds log is a linear function with the independent variables X*i* (Cox, 1958).

Equation (2) has the form of a Logit function, estimating the regression coefficients by the Maximum Likelihood method.

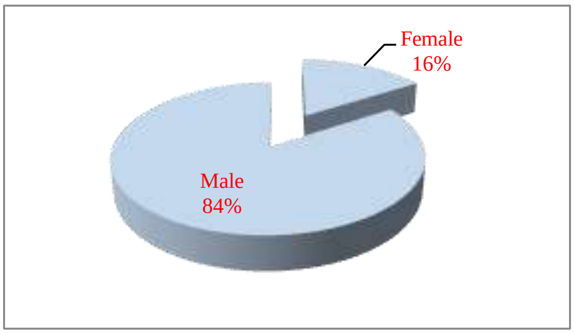
Data collection and processing

We conducted a survey of 500 observations in the Mekong River Delta. All respondents were identified as business owners or Board of Directors, with convenient stratified sampling method, conducted from March to July 2021. After data processing, 480 observations were made ensure suitability and use for data analysis. All data processing was carried out based on SPSS version 21.0 software. Data were collected through direct interviews with detailed questionnaires to test the research model and hypotheses.

RESULTS

Describe the characteristics of the survey object

Gender and marital status: In 480 surveyed enterprises, the majority of business owners are male (84%). The marital status of the business owner is married to a male (78%).



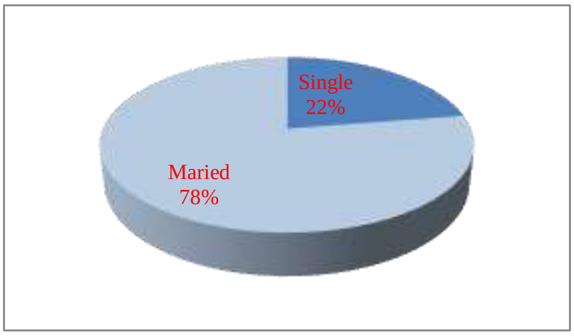


Figure 2: Business owner gender (%)

Figure 3: Business owner marital status (%)

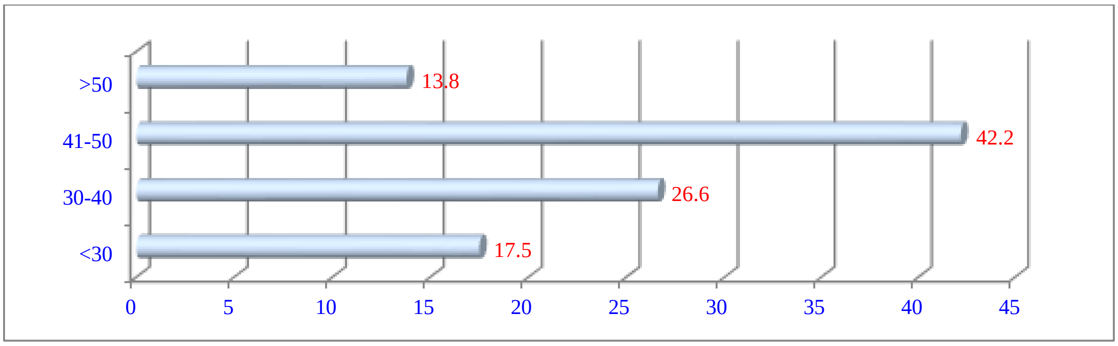


Figure 4: Age of Business Owner (Years, %) (Years, %)

Business owners are mainly 41-50 years old (42%).

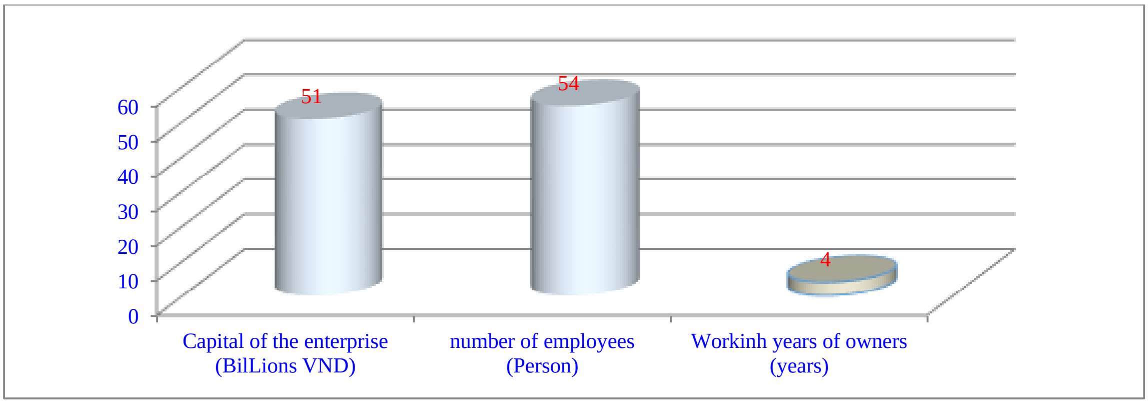


Figure 5: Mean of variables

Figure 5 shows the capital scale is 51 billion dong; scale of labor, 54 people and number of years of business operation, 4 years.

Regression results

Bảng 2. Variables in the equation

	B	S.E.	Wald	Sig.	Exp(B)	95% C.I.for EXP(B)	
						Lower	Upper
X1	3.345	0.942	12.616	0.000	28.363	4.478	179.639
X2	1.760	0.863	4.161	0.041	5.812	1.071	31.53
X3	1.250	0.348	12.912	0.000	3.490	1.765	6.902
X4	0.187	0.043	19.306	0.000	1.206	1.109	1.311
X5	0.659	0.191	11.932	0.001	1.932	1.330	2.808
X6	9.977	2.324	18.436	0.000	21523.922	226.493	2045444
X7	-1.273	0.342	13.855	0.000	0.280	0.14	0.547
X8	0.002	0.001	10.521	0.001	1.002	1.001	1.003
X9	-2.409	0.711	11.479	0.001	0.090	0.022	0.362
Constant	-31.333	7.421	17.827	1.000	0.000	0.000	
R^2 Nagelkerke	0.924						
Omnibus Tests	0.000						

Wald's test shows that all variables have Sig. ≤ 0.05. The sign of the regression coefficients is consistent with the hypothesis. R^2 Nagelkerke = 0.9024 so 92.4% of the change in the dependent variable is explained by the independent variables of the model. Omnibus testing with Sig. ≤ 0.05, overall, the independent variables are linearly correlated with the dependent variable. Thus, the independent variables that have a statistically significant impact on the Y variable "Access to loans" include: X1, X2, X3, X4, X5, X6, X7, X8, and X9.

Table 3. Level of impact of factors affecting access on loans

	B	eB	Pi (%)	Initial probability P_0 = 10% Probability Change (Absolute Value)	Position
X1	3.345	28.363	75.91	65.91	2
X2	1.76	5.812	39.24	29.24	3
X3	1.25	3.49	27.94	17.94	4
X4	0.187	1.206	11.82	1.82	8
X5	0.659	1.932	17.67	7.67	6
X6	9.977	21523.92	99.96	89.96	1
X7	-1.273	0.28	3.02	6.27	7
X8	0.002	1.002	10.02	0.02	9
X9	-2.409	0.09	0.99	7.85	5

Note: How to calculate Pi in Appendix.

In Table 3, the impact magnitudes of the factors arranged in descending order include X6 (The social capital); X1 (The qualification of owner); X2 (The gender of the business owner); X3 (The age of the business); X9 (Business risk); X5 (Sale growth); X7 (Information asymmetry); X4 (Return on sale); and X8 (Collateral).

Table 4. Hypothetical results

Hypothesis	Impact			Estimate	S.E.	Sig.	Decision
H1	Y	<---	X1	3.345	0.942	0.000	Fit
H2	Y	<---	X2	1.760	0.863	0.041	Fit
H3	Y	<---	X3	1.250	0.348	0.000	Fit
H4	Y	<---	X4	0.187	0.043	0.000	Fit
H5	Y	<---	X5	0.659	0.191	0.001	Fit
H6	Y	<---	X6	9.977	2.324	0.000	Fit
H7	Y	<---	X7	-1.273	0.342	0.000	Fit
H8	Y	<---	X8	0.002	0.001	0.001	Fit
H9	Y	<---	X9	-2.409	0.711	0.001	Fit

The results presented in Table 4 show that: All hypotheses are accepted at a confidence level of over 95%.

Predicted scenario for a change of accessing to loans

The model's regression equation:

$$LogOdds = -31.333+3.345X1+1.76X2+1.25X3+0.187X4+0.659X5+9.977X6-1.273X7+0.002X8-2.409X9 \quad (3)$$

Table 5. Statistical value of variables and scenarios

	Minimum	Maximum	**SCE1**	**SCE2**
X1	1	4	1	4
X2	0	1	0	1
X3	5	10	5	10
X4	2	70	2	70
X5	5	61	5	61
X6	0	1	0	1
X7	1	5	5	1
X8	150	9000	150	9000
X9	1	5	5	1

Scenario 1 (SCE1): X*i* are independent variables with the lowest values according to the theoretical model expectations.

Scenario 2 (SCE2): X*i* are independent variables with the highest values according to theoretical model expectations.

Table 6. Forecast with scenario of impacting factors

No.	Variables	Regression coefficient (B)	Values of variables SCE1	SCE2
1	X1	1.859	1	4
2	X2	1.534	0	1
3	X3	1.05	5	10
4	X4	0.026	2	70
5	X5	0.369	5	61
6	X6	5.059	0	1
7	X7	-1.054	5	1
9	X8	0.001	150	9000
10	X9	-1.619	5	1
	Constant	-31.333		
	LogOdds		-19.236	95.844
	$e^{LogOdds}$		-499.802	4.21E+41
	$1+e^{LogOdds}$		19220.19	4.21E+41
	*E(Y/Xi): Probability that Y = 1 occurs is when the independent variable X has a specific value Xi (%).		0	100

See Appendix: *How to calculate E(Y/Xi)

Substitute the **SCE1** values into equation (3), resulting in LogOdds. If the SME has the following conditions, this SME has a probability of "Access to loans" of 0%.
X1 = 1 (The qualification of owner); X2 = 0 (The gender of the business owner); X3 = 5 (The age of the business); X4 = 2 (Return on sale); X5 = 5 (Sale growth); X6 = 0 (The social capital); X7 = 5 (Information asymmetry); X8 = 150 (Collateral); X9 = 5 (Business risk).
Substitute the **SCE2** values into equation (3), resulting in LogOdds. If the SME has the following conditions, this SME has a probability of "Access to loans" of 100%.
X1 = 4 (The qualification of owner); X2 = 1 (The gender of the business owner); X3 = 10 (The age of the business); X4 = 70 (Return on sale); X5 = 61 (Sale growth); X6 = 1 (The social capital); X7 = 1 (Information asymmetry); X8 = 9000 (Collateral); X9 = 1 (Business risk).

DISCUSSION AND POLICY IMPLICATION

Firstly, the study has identified 3 groups with 9 factors affecting access to bank loans: (i) Characteristics of business owners; (ii) Enterprise characteristics; (iii) Business environment. The group of factors "Characteristics of business owners" includes: The qualification of owner, the gender of the business owner. This result is similar to the results of Erdogan's study on SMEs in Turkey and Uganda by Erdogan (2018); Buyinza *et al* (2018).

Group of factors "Enterprise characteristics" includes: The age of the business, Return on sale, Sale growth. This result is similar to the research results on SMEs in Sri Lanka by Gamage (2013). Group of factors "Business environment" includes: Social capital; Information asymmetry; Collateral; Business risk. This result is similarza to the research results on SME in Keyna by Mutinda *et al* (2019); in Ethiopia by Meressa (2020).

Second, the study has determined the level of impact of each factor from strongest to lowest including "The social capital"; "The qualification of owner"; "The gender of the business owner"; "The age of the business"; "Business risk"; "Information asymmetry"; "Sale growth"; "Return on sale"; and "Collateral".

This result implies that, in order to improve access to bank loans, SMEs need to pay attention to: (i) "Characteristics of business owners": Business owners and managers should pay attention to participating in short-term training programs organized by international organizations and the Government on leadership skills, business strategic planning, approach skills and information technology application in management; (ii) "Business characteristics": Paying attention to enhancing the value of enterprises' brand names, diversifying business products and services associated with industries and products that are encouraged by government programs to expand businesses. (iii) "Business environment": Enterprises should pay attention to join associations and social organizations in order to improve the image of enterprises and increase their credit score in relation to the commercial banking system. To overcome the difficulty of lack of collateral and information asymmetry, banks can lend along the supply chain based on the reputation and risk level of a central agent in the chain.

CONCLUSIONS

The present study aims to expand the theoretical framework and provide empirical evidence to the access to loans of the SMEs in Mekong Delta of Vietnam. The findings highlight the strong role of factors influencing access to loans through Binary Logistic regression analysis model.
The factors found to impact "access to loans" of the SMEs include The social capital, The qualification of owner, The gender of the business owner, The age of the business, Business risk, Sale growth, Information asymmetry, Return on sale, and Collateral that are placed in descending order.

The results provide insighful suggestions to the policy makers in order to improve the conditions to support SMEs to access official loans to develop. That is unarguable that study has several contributions both in academic and practicing aspects it remains certain limitations. The survey was conducted only in HCMC that limits the generalizability of the study. Moreover, this study only considers 9 factors affecting access to loans, there are other factors that influence that this study has not mentioned. Future research should examine different provinces and regions in Vietnam and make comparisons to improve the generalizability of the findings.

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APPENDIX

Calculate P*i*:

$$P_i = \frac{P_0 \times e^{B_i}}{1 - P_0 (1 - e^{B_i})}$$

e^{Bi}: Impact coefficient of X*i*

Assuming the initial probability of a household decides to participate cooperative is (P_0), the probability that this household will be P*i* due to the effect of the variable X*i*. According to Agresti (2007), P*i* is defined as follows:

Predicted scenario for a change of poor households:

According to Agresti (2007), the predictive form of the model:

$$P_i = \frac{P_0 \times e^{B_i}}{1 - P_0 (1 - e^{B_i})}$$

$$E(Y / Xi) = \frac{e^{LnOdds}}{1 + e^{LnOdds}}$$

E (Y/X*i*): The probability that Y = 1 occurs when the independent variable X has a specific value X*i*.

$$LnOdds = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + .. + B_9 X_9$$

$$E(Y / Xi) = \frac{e^{B0 + B1X1 + B2X2 + B3X3 + .. + B9X9}}{1 + e^{B0 + B1X1 + B2X2 + B3X3 + .. + B9X}}$$

Scale (X9): Business Risk

RIST1	There is competition from large enterprises and SMEs
RIST2	Most business expansion activities of SMEs are considered risky
RIST3	New technology favorably affects SMEs less favorably than large enterprises.
RIST4	Funding for business expansion is in most cases inadequate
RIST5	Price volatility negatively affects profitability in most cases

Scale (X7): Financial Information Asymmetry

ASY1	There are hidden fees on loans

ASY2	There are complicated application procedures and restrictive rules for specific credit purposes that discourage borrowing
ASY3	It is really difficult to comply with the credit conditions related to the provision of financial information of the business
ASY4	It is difficult to assess the cost of credit due to unreliable financial information
ASY5	It is not easy to distinguish between a risk and a safe project

Source: Mutinda *et al.* (2019)