



Factors influencing the quality of credit to VietinBank Tay Tien Giang, Vietnam

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Abstract

The study aims to determine the factors affecting credit quality at Tay Tien Giang bank and analyze the degree of influence of those factors on credit quality at the bank. Usage data were collected from face-to-face interviews with 391 the survey subjects who were staff directing credit activities at Head Office, credit managers at some bank branches, and credit officers of joint-stock commercial banks. Research results show that 08 factors affecting credit quality are arranged in descending order of impact, namely: Credit officer, Credit policy, Management capacity, banking technology. Credit process, Risk management, Organizational work, Mobilized capital. From there, some solutions are proposed to improve the credit quality at Tay Tien Giang bank.

Keywords: credit quality; western bank branch in Tien Giang, Vietnam

Introduction

Currently, income from credit activities still accounts for the largest proportion of the bank's revenue. Although the COVID-19 epidemic is still complicated and prolonged, many banks are still confident in striving for profit growth thanks to effective revenue diversification. The soaring profits of banks in the first quarter of 2021 were explained by more optimistic credit growth and non-credit income compared to the same period last year. In addition, banks also maintain good profit margins.

Currently, the world is entering the 4th Industrial Revolution, a revolution where technologies such as virtual reality, the Internet of things, big data, artificial intelligence, can apply to all aspects of economic and social life. In that context, our country's joint-stock commercial banks are gradually integrating, affirming the growth in all aspects of activities, especially credit activities, effectively serving the growth of the economy.

In 2021, Vietcombank plans to increase its total assets by 5%; credit balance increased by 10.5% and adjusted according to the direction of the State Bank: mobilize capital in accordance with capital use demand, expected to be 7%; Consolidated bank's pre-tax profit increased by 11%, of which individual bank's profit was VND 25,000 billion. With the current foundation, Vietcombank's business results will be very positive. Regarding the distribution of life insurance, last year VCB ranked 13th in the market for life insurance distribution, in the first quarter of 2022, it rose to 8th place with a total revenue recorded this year of more than VND 2,800 billion".

In 2021, Techcombank sets a profit before the tax target of VND 19,800 billion, up 25.3% compared to the result of 2020. The credit balance is expected to reach nearly VND 356.2 trillion, up at least 12 compared to last year and within the level allowed by the State Bank (SBV). In the first quarter of 2021, Kienlongbank's consolidated pre-tax profit reached VND 702.62 billion. "Growth thanks to the

bank's cooperation with customers to handle all collateral assets, complete the recovery of principal and interest receivables of loans secured by shares of Sacombank under the basic plan restructuring Kienlongbank in association with bad debt settlement approved by the State Bank". From the above practice, the identification of the influencing factors as well as the assessment of the influence of the factors of the credit quality in the current integration period in order to offer solutions to improve the credit quality of the joint-stock commercial banks in Vietnam is an urgent problem for bank managers.

Literature Review

Bank credit is a transaction of assets (money or goods) between a bank and a customer in which the lender transfers the property to the borrower for use within a specified period of time, based on an agreement. Refund principle.

In the service sector, service quality is defined in different ways depending on the research object and research environment, such as: according to Parasuraman *et al.* (1985, 1988) ^[13], service quality is approximately the gap between customers' expectations and their perceptions when using the service; according to Laivi Laidroo (2017) ^[10], service quality must be evaluated on two aspects, (1) service delivery process and (2) service results; Nguyen Van Tien, Nguyen Thu Thuy (2014) ^[12], introduced the concept, bank credit quality is the aggregate economic indicators, reflecting the level of meeting customers' reasonable loan requirements, in line with credit policy use, ensure safety and bring economic efficiency to the bank, and at the same time contribute to promoting socio-economic development.

This study approaches from the perspective that the credit quality of banks should be concerned with two basic objectives: (1) affirming the leading role in the credit system for the economy, (2) ensures the achievement of growth, safety, and profitability of business capital in accordance with the planned objectives and legal regulations in each

period.

Overview of factors affecting credit quality in previous studies shows that there are many factors affecting the credit quality of banks, however, within the scope of this study, the author focuses on factors belonging to banks inside the bank, from the perspective of bank managers to evaluate. In addition, the author proposes the element of "strictly controlling credit for potentially risky fields such as real estate, securities", etc., strengthening risk management of consumer credit, credit applied to customers, groups of customers with large outstanding loans, ensuring appropriate growth, striving to achieve a bad debt ratio of less than 2.

In fact, after adverse shocks, for economies in which the banking sector is well-capitalized, bank lending declines less. Prove that bank capital has the ability to absorb shocks of the economy. At the same time, the moral hazard problem is alleviated when banks are highly capitalized (Façal Belaid, 2014) [6]. Ahmed (2015) [2], when studying the banking system crisis in developed and developing countries in the period 1980-1994, found that: banking crisis disrupted credit flows for households and businesses, reducing investment and consumption and driving businesses into bankruptcy. Because the activities of the bank have a significant influence on the economy, regulations on banking activities must be strict and must be included in the regulation of banking supervision (Al-Haj, 2004) [1].

Hypotheses and Research Models

Research Hypothesis

- **Credit policy:** to implement the credit strategy The Board of Management sets forth policies that are the basis for the formation of the credit process with detailed professional instructions and specific steps in the credit granting process use. Credit policy also stipulates loan limits for customers, debt classification, provisioning. The policy must outline for the credit officer the operational direction and a clear frame of reference to serve as a basis for considering loan needs.

Hypothesis H1, the higher the credit policy, the better the lending activity and vice versa. In other words, credit policy and credit quality have a positive relationship;

- **Management capacity:** Credit organization and administration are always the most important tool for bank leaders to conduct governance in accordance with the credit strategy and policy as planned determined. The general principle to build an effective organizational structure is to separate the strategic planning function of the Board of Directors, the function of organizing and operating the Board of Directors, and the function of monitoring and controlling of the Board of Director's control.

Hypothesis H2, the bank's management personnel with good

knowledge and experience positively affects credit quality. Strict and scientific internal control and inspection process, internal control inspection activities are carried out regularly, positively impacting credit quality.

- **Banking technology:** The financial - banking sector is an industry with a high level of information technology application. The modern information technology system will meet the requirements of accuracy, the transaction volume of customers, search for customer information, help the bank make decisions and process loans, etc. With the equipment Modern machinery, technical means, and information technology will facilitate the simplification of procedures, shorten transaction time, collect information faster and more accurately, and save costs. Hypothesis H3, modern technological equipment, safe and reliable banking, credit assessment software has a positive impact on credit quality. The bank's information sources are diversified, with high accuracy, positively affecting credit quality;

Credit Risk management: Credit risk management is the process by which banks plan, organize, implement, and supervise all credit-granting activities in order to maximize profit bank with an acceptable level of risk. Credit risk is the possibility that a customer will not meet his or her repayment obligations under agreed terms. Credit risk has many causes, but in general, the main reason is the implementation of the credit management process of commercial banks. Hypothesis H4, clear and detailed credit regulations and processes and compliance by credit officers have a positive impact on credit quality.

- **Credit officer Human resources** are central to all business activities of commercial banks, especially credit activities. The banking system is increasingly modern, credit operations are increasingly complex, requiring qualified personnel, capacity, thinking ability, sensitivity and professional ethics, and these are the decisive factors to the success of the banking system. Efficiency improvement of credit quality

Hypothesis H5, the higher the credit officer is rated, the better the lending activity. In other words, the composition of credit officers and lending activities are positively related;

Mobilized capital: This is the largest source of capital in the bank. It is the monetary value that the bank mobilizes economic organizations and individuals in society through the process of performing deposit operations and other operations and is used as capital for business. The nature of mobilized capital is assets belonging to different owners, the bank only has the right to use it without ownership and has the responsibility to repay both principal and interest on time when due (if it is a term deposit) or when the customer needs to withdraw capital (if it is a demand deposit). Mobilized capital plays an important role in the Bank's business activities. Hypothesis H6, mobilized capital is stable, reasonable, and suitable for credit plan;

Research Models

Table 1: Summary of the scales of researchers used

Credit policy	A.Burak Guner (2007) [5], Façal Belaid (2014) [6], Laivi Laidroo, Kadri Mannasoo (2017) [10]
Management capacity	Façal Belaid (2014) [6],
Banking technology	Nguyễn Văn Tuấn (2015); Kadri Mannasoo (2017) [10]
Risk management	Nguyễn Văn Tuấn (2015); Kadri Mannasoo (2017) [10]
Organizational work	Nguyễn Văn Thanh (2015); Kadri Mannasoo (2017) [10]
Credit officer	Nguyễn Văn Thanh (2015); Kadri Mannasoo (2017) [10]
Mobilized capital.	Nguyễn Văn Thanh (2015); Kadri Mannasoo (2017) [10]

(Source: Compiled by the author)

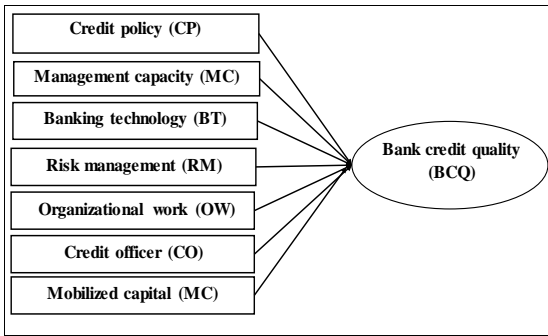


Fig 1: Research Model

Research Methodology

This study was conducted through two main phases: (1)

Qualitative research to identify, adjust and supplement the scales affecting the credit quality of banks, (2) Formal research to collect, analyze survey data, test scales, hypotheses, and research models.

Through previous studies, the author explores the factors affecting the credit quality of banks. Qualitative research was conducted with 10 leaders at 10 active banks, to find the concordance of observed variables and find new observed variables.

The author conducts a survey to test the concordance of the variables with the number of votes issued is 50 votes. Survey participants are managers, credit officers of joint-stock commercial banks in Vietnam. Survey forms are sent, directly or via email to staff working in branches of Vietnamese commercial banks.

Table 2: Statistics of characteristics of credit officers participating in the survey

Group	Number	Valid %
1. Ages		
< 30 ages	42	10.74
>30- <40 ages	179	45.78
> 41- <50 ages	124	31.71
> 50 ages	46	11.76
Total	391	100
2. Sexual		
Male	289	73.91
Femal	102	Total
Total	391	100
3. Years of experience		
< 5 years	40	10.23
> 5 - <10 years	176	45.01
> 11 - < 20years	129	32.99
> 20 years	46	11.76
Total	391	100
4. Working position		
Directing at Headquarters	68	17.39
On-site management	108	27.62
Directly manage customers	215	54.99
Total	391	100
5. Education level		
University	217	55.50
Postgraduate	174	44.50
Total	391	100

Data Analysis Method

The author distributed 400 questionnaires to the survey subjects who were staff directing credit activities at Head Office, credit managers at some bank branches and credit officers of joint stock commercial banks. The number of valid receipts was 391. Valid receipts were coded and entered into SPSS software to perform analysis steps.

Scale: The scales used in this topic are synthesized from the measurement scales that many foreign authors have used in many countries for the banking industry. However, these scales have also been adjusted through qualitative research (group discussion) in Ho Chi Minh City. HCM aims to find the most suitable scales for the banking industry in Vietnam.

Table 3: Cronbach's Alpha test results before EFA analysis

No	Scales	Number of observed variables	Cronbach's Alpha	Cronbach's Alpha if Item Deleted
1	Credit policy	5	0,882	0,553
2	Management capacity	5	0,894	0,646
3	Banking technology	5	0,845	0,556
4	Risk management	4	0,817	0,533
5	Organizational work	5	0,845	0,512
6	Credit officer	5	0,832	0,542
7	Mobilized capital	4	0,883	0,526
8	Bank credit quality	4	0,683	0,406

(Source: Author's compilation)

- **Evaluation of the scale:** First, the scales will be preliminarily evaluated through two methods: Cronbach's Alpha reliability coefficient and exploratory factor analysis (EFA). Next, the scales were tested by confirmatory factor analysis (CFA).
- **Theoretical model testing:** Along with confirmatory factor analysis (CFA), model testing is done through AMOS 23 linear structure analysis software.

In the multiple regression model, we have the additional hypothesis that the independent variables are not completely correlated with each other. Thus, when estimating the multiple regression model, this assumption must be tested by testing the phenomenon of multicollinearity. We use the VIF index, called the Variance Inflation Factor. Usually, if the VIF of a certain variable is > 2 , then this variable has almost no explanatory value for the variable Y in the model (Hair & et al., 2006) [7]. If the VIF of any variable < 2 , it is assumed that multicollinearity does not occur. Actually, if $VIF > 2$, we must be cautious in interpreting regression weights (Nguyen Dinh Tho, 2011, p 497).

Result

The analysis results of Cronbach's Alpha reliability coefficient of the scale are $0.835 > 0.7$. At the same time, all 6 observed variables have total correlation > 0.3 . Thus, the

scale factor of information security and transactions meets reliability.

Synthesized EFA shows 33 observed variables in 7 factors affecting bank credit quality. Through EFA analysis, 7 factors are retained with 33 observed variables. Results of EFA 7 factors affecting bank credit quality. With the KMO coefficient = 0.833, EFA is in agreement with the data, and the Bartlett Chi-square test is 7,149,151, the significance level $p = 0.000$. Thus, the observed variables are correlated with each other on the overall scale. The extracted variance 73.380 shows that the factors derive from 73.380% of the explanatory variance of the data, the eigenvalues in the system are equal to 1.181.

Confirmatory Factor Analysis (CFA)

The linear structural analysis shows that the chi-squared statistic of the model is 328.505 with 184 degrees of freedom and a value of $P = 0000$. The relative degrees of freedom of chi-square in Cmin/def is 1.785 (< 3). Other indicators give the following results: TLI = 0.941 (> 0.9), GFI = 0.908 (> 0.9), CFI = 0.953 (> 0.9) and RMSEA = 0.052 (< 0.08). Therefore, this model is suitable for the collected data. This also allows us to draw individual statements about the direction of the observed variables. For the convergence of values, the normalized weights of the scales are > 0.5 with a statistical significance of $P < 0.05$, so the scale achieves a convergent value.

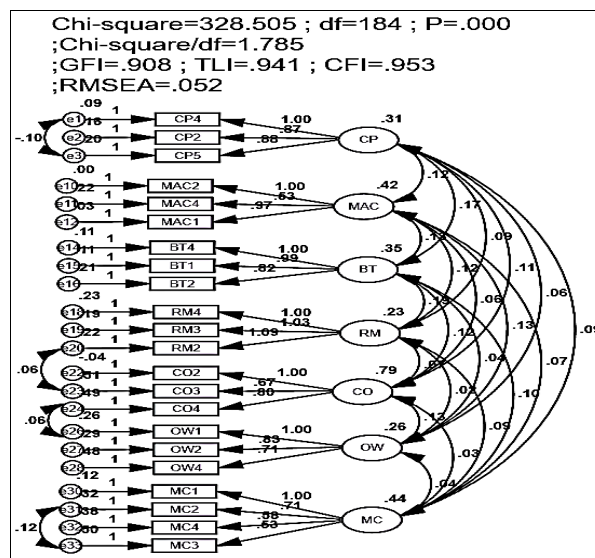


Fig 2: Model structure after final calibration in CFA

Structural Equation Modeling Results

This table shows the results of the fittest for both the structure-immediate behavior of taxpayers and tax fraud. The structural model here results in two data sets. The appropriate model index, Chi-square (X2), was used in this

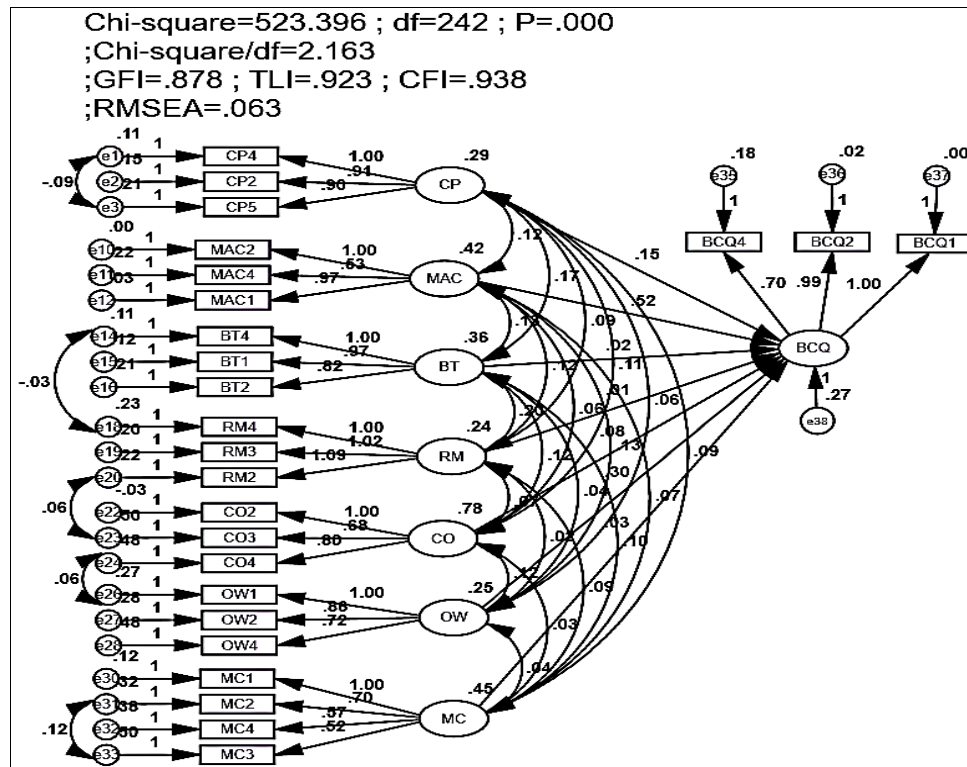
study to examine the relationship between the variables in the model (Hair et al., 2006) [7]. The AMOS output presented in tab 3 shows that the models are well equipped with data, therefore, the proposed model is appropriate in explaining the relationship between variables.

Table 4: SEM analysis results of the model

Model	X2	Df	p	Goodness of fit measures - X2/df						
				(CMIN/DF)	RMSEA	NFI	RFI	IFI	TLI	CFI
Sample	523.396	242	0.0	2.163	.063	.891	.946	.9	.923	.938
Criteria	$P < .05$	≥ 0	-	2 to 3	$< .08$	$> .80$	$> .90$	$> .90$	$> .90$	$> .90$

(Source: Author's compilation)

Note: X2 = Chi-squared test, Df = Degrees of freedom, RMSEA = Root mean square error of approximation, NFI = Normative index of conformity, RFI = Relative index of fit, IFI = Incremental Fit Index, TLI = Tucker-Lewis Index, CFI = Comparative Fit Index.



(Source: authors' own calculations in SPSS Amos 23.0)

Fig 3: The model structure after final calibration in SEM

Thus, this model achieves compatibility with already collected data. Factors include: (1) Credit policy, (ES = 0.147; P = 0.045); (2) Management capacity, (ES = 0.520; P = 0.000), (3) Banking technology, (ES = 0.017; P = 0.040), (4) Organizational work, (ES = 0.303; P = 0.012), (5) Credit

officer, (ES = 0.077; P = 0.022), (6) Mobilized capital, (ES = 0.027; P = 0.033), (7) Risk management, (ES = 0.025; P = 0.019), all with P < 0.05 and values normalized estimate to use instant coffee

Table 5: Results of estimating the causal relationship between the factors of bank credit quality

	Relationship		Estimate	S.E.	C.R.	P	Label
BCQ	<---	CP	.147	.078	1.843	.045	Yes
BCQ	<---	MAC	.520	.065	7.925	***	Yes
BCQ	<---	BT	.017	.093	.305	.040	Yes
BCQ	<---	RM	.025	.069	1.888	.019	Yes
BCQ	<---	CO	.077	.077	2.290	.022	Yes
BCQ	<---	OW	.303	.057	1.742	.012	Yes
BCQ	<---	MC	.027	.047	.717	.033	Yes

The bootstrap method is usually used to test the model estimates, with the pattern repeatedly being N =1000. The estimation results for 1000 samples averaged together with the deviations are presented in Tab. 4. CR has a very small

absolute value, thus, it can be stated that the deviation is very low, while also being not statistically significant at the 95% confidence level. Thus, we can conclude that the model estimates can be trusted.

Table 6: Results estimated by means of bootstrap, N = 1000

Parameter	SE	SE-SE	Mean	Bias	SE-Bias	CR
BCQ <--- CP	0.12	0.003	0.154	0.007	0.004	0.57
BCQ <--- MAC	0.092	0.002	0.512	-0.008	0.003	-0.38
BCQ <--- BT	0.107	0.002	0.036	0.018	0.003	0.17
BCQ <--- RM	0.118	0.003	-0.008	-0.013	0.004	-0.31
BCQ <--- CO	0.045	0.001	0.074	-0.003	0.001	-0.33
BCQ <--- OW	0.195	0.004	0.333	0.029	0.006	0.21
BCQ <--- MC	0.059	0.001	0.026	-0.001	0.002	-2.00

(Source: authors' own calculations)

Conclusion

Discussion of the Obtained Results
Organizational work

According to the survey results at commercial banks, the

organizational factor has the most positive influence on the credit quality of banks with standardized beta coefficient ($\beta = 0.657$), the level of statistical significance of 95% (Sig = 0.000).

Banks have fully issued internal documents guiding credit activities. Accordingly, credit granting activities is carried out according to a strictly built credit management, with connection, inheritance and content of mutual control between steps. Banks have separated the work between business executives, loan, appraisal special asset appraisal and approval level, meeting the four eyes principle in internal control. The shift from a distributed credit appraisal and approval mechanism at branches to a centralized credit appraisal and approval mechanism at the Head Office also plays an important role in minimizing errors in credit decision making use. This is one of the outstanding advantages in credit management in banks. Most of the officers and employees make loans, according to the issued credit management. The control procedure is set to take effect.

Commercial banks have strongly adjusted the organizational model of Divisions/Centers and branches in the direction of the modern banking model. The reality at banks shows that banks are managing risk, according to two models: a centralized credit risk management model and a distributed credit risk management model, specifically: 80% of the surveyed banks are currently applying a centralized credit risk management model. With this model, there is an independent separation between 3 functions: business, risk management and operations. The separation between the three functions, aims to minimize credit risks that may arise, and at the same time maximize the capabilities of each credit officer position.

Credit Officer

According to the survey results at commercial banks, risk management factor standardized beta coefficient ($\beta = 0.556$), statistically significant over 95% (Sig = 0.002) has the second strongest impact on bank credit quality.

The survey of credit officers at commercial banks showed that the human resource policies of the banks were elaborated, standardized the title system and personnel arrangement, developed a set of standards, assessed the performance of employees, implementation of an effective management system, the innovation of the salary and bonus system. In addition, employees are also entitled to salary and bonus according to job position, level of completion of assigned tasks, level of contribution to business results of the unit. In addition to developing an appropriate salary and bonus policy, banks also focus on training and perfecting knowledge and skills for employees in various forms such as E-learning, concentration, live-meeting /video conference.

Risk management

According to the survey results at commercial banks, risk management factor standardized beta coefficient ($\beta = 0.410$), statistically significant over 95% (Sig = 0.009), has the third strongest impact on the credit quality of the bank.

Most of them do credit risk assessment when assessing customers. In addition, in order for credit officers to be able to comprehensively identify credit risks and limit credit risks that may arise from the outset, the identification of credit officers should be carried out. It is also important to obtain from the internal documents on credit risk management and the credit risk management department/Unit. Changes that have a great impact on credit activities are also warned in a timely manner according to

decentralization. The fact that a series of Vietnamese commercial banks soon completed Basel 2 capital management standards made the risk management system as many banks improved and perfected. In which, banks such as VIB, Sacombank, VP Bank, Vietcombank are now very strict in the stages of appraisal and screening of borrowers.

Management capacity

According to the survey results at commercial banks, the factor of mobilized capital standardized beta coefficient ($\beta = 0.377$), statistically significant over 95% (Sig = 0.000) has the 4th strongest impact on the credit quality of banks.

Through the survey of credit staff of commercial banks, it was found that all banks have internal control processes. Depending on the needs, size and characteristics of each bank, the choice to apply a credit risk management model is different, however, each bank combines credit risk management with a credit risk management model. The three lines of control are as follows:

- The first line of control is the business, sales, banking professionals, branches, operating units in the Head Office...

The second line of control is the risk management, compliance, operational and legal risk management blocks.

- The third line of control is the internal audit department.

With this 3-line control model, all members of the system must participate in the risk management process. Therefore, this model ensures that all risks in each banking task are identified, controlled and minimized.

Mobilized capital

According to the survey results at commercial banks, the factor of capital mobilized with standardized beta coefficient ($\beta = 0.377$), statistically significant over 95% (Sig = 0.003) has the 5th strongest impact on the credit quality of banks.

In the context of financial markets and international currencies, there are many complicated developments due to the impact of the US-China trade war and other issues domestic economy and finance. The operation of a number of state-owned corporations and corporations still faces financial difficulties, the success of the restructuring process of Vietnam's commercial banking system and the handling of bad debts, including the divestment of capital outside the industry State-owned enterprises and banks depend greatly on the recovery of the economy, market conditions

Banking technology

According to the survey results at commercial banks, the factor of Banking technology with a standardized Beta coefficient ($\beta = 0.136$), a statistical significance of over 95% (Sig = 0.000) has the sixth strongest impact on the credit quality of banks.

All surveyed Vietnamese commercial banks have applied complete technology to build a data warehouse to help support forecasting and analysis for business decision-making, contributing to improving competitiveness and efficiency. Credit quality. As a result, the internal information exchange within the bank is convenient, the necessary information system on credit activities is promptly updated and proactively sent to the credit officers according to the decentralized access. One of the

communication methods on credit activities is the annual reports of banks which have done quite well. Important indicators related to credit activities such as outstanding loans, the structure of outstanding loans, bad debts, interest income are clearly shown by most banks in their annual reports. The bank's annual reports before being released to the public are audited by major auditing companies such as PWC, KPMG, EY & young, Deloitte, demonstrating the reliability of the data.

Limitations of the topic

The study has certain limitations, the number of respondents is only within one city, so it will be more convincing if it is surveyed in many localities and find out many factors affecting the credit quality of banks.

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