



Factors affecting credit quality at joint stock commercial banks in Vietnam

Ai Tran Huu, Phuc Nguyen Anh, Ngoc Nguyen Le Vuong, Bich Dinh Nguyệt
Department of Economics, Van Hien University, HCM City, Vietnam

Abstract

This study aims to: (1) determine the factors affecting credit quality at Vietnam Joint Stock Commercial Bank; (2) analyze the influence of these factors on credit quality at banks. To achieve the above goal, the author used a combination of qualitative and quantitative research methods through SPSS 23.0 software. The research results show that (i) 07 factors affecting credit quality are arranged in descending order of impact, namely: (1) Qualifications of credit officer, (2) Credit policy, (3) Management capacity, (4) Banking technology level, (5) Credit process, (6) Work organizational, and (7) Capital size of the bank; (ii) on that basis, the author proposes some solutions to improve credit quality at Vietnam Joint Stock Commercial Bank.

Key Words: credit quality, Joint Stock Commercial Bank of Vietnam, SPSS 23.0

Introduction

Currently, the world is entering the 4th Industrial Revolution (Industrial Revolution 4.0) - a revolution in which technologies such as virtual reality, the internet of things, big data, artificial intelligence, etc. Can be applied in all fields of economic and social life. In that context, joint stock commercial banks in our country are gradually integrating, affirming their growth in all aspects of activities, especially credit activities to effectively serve the country's economic development.

Actively and actively implementing international integration, over the years, Vietnam's international integration process has reached a new height. The process of international integration has made an important contribution to enhancing Vietnam's position and power in socio-economic development and raising people's incomes; creating pressure and conditions to actively improve economic institutions; efforts to improve national competitiveness, enterprises, and products... However, the integration process also brings many challenges to Vietnam's socio-economic development.

Currently and in the past, the income structure of credit activities of banks always accounts for a large proportion and is the main source of income. Pressure on credit growth at a high speed can lead to deterioration of debt quality, pushing up bad debts and directly harming banks' equity. This is also the riskiest activity, the ratio of bad debt and potential debt to become a bad debt in 2022 is 6.31% ^[1]. Therefore, improving credit quality has been always a vital issue in business activities that any bank must pay special attention to. 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 administrators.

Literature review

Personal credit is a form of credit in the commercial activities of commercial banks. Like other forms of credit, personal credit is also a temporary transfer of some amount of value. In a narrow sense, personal credit is a loan in which two entities, the lender and the borrower, will agree on a certain debt term and interest rate. In a broad sense, personal credit is the movement of capital from those who have excess money to those who lack money.

Credit is a transaction of assets (money or goods) between a lender (bank or financial institution) and a borrower (individuals, businesses (enterprises), other entities), in which the lender transfers the property to the borrower for use within a certain period of time as agreed, the borrower is obliged to unconditionally return both principal and interest to the lender when due for payment.

There are different definitions of service. But in general, the definitions agree that services are products of labor, and do not exist in the form of objects, and the process of production and consumption occurs at the same time, in order to meet the needs of production and consumption.

In a broad sense, products and services are a third economic sector belonging to the national economy. It includes many economic activities outside of the two main sectors that are agriculture and industry.

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), service quality is approximately the gap between customers' expectations and their perceptions when using the service; according to Lehtinen (1982), service quality must be evaluated on two aspects, (1) service delivery process and (2) service results; Nguyen Van Tien, Nguyen Thu Thuy (2014), 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) ensuring the achievement of growth, safety, and profitability in terms of business capital in accordance with the planned objectives and legal regulations from time to time.

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 to add the element "Credit risk management", because, in order to improve the credit quality of commercial banks, it is necessary to identify and analyze risk factors and measure the level of risk in order to limit and Eliminate risks during the credit granting process. The factors affecting credit quality at Vietnam Joint Stock Commercial Banks are summarized in Table 1.

Table 1: Factors affecting credit quality in Vietnamese joint stock commercial banks

No	Impact factor	Encode	Author
1	Qualifications of credit officer	QCO	Nguyen Thi Thu Dong et al. (2012)
2	Credit processes	CPR	Nguyen Thi Thu Dong et al.(2012)
3	Management capacity	MC	Nguyen Thi Thu Dong et al. (2012)
4	Banking technology level	BTL	Dong Trung Chinh et al. (2015)
5	Work for organization	OR	Nguyen Thi Thu Dong et al. (2012)
6	Credit officer	CO	Glen Bullivant (2010)
7	Capital size of the bank	CSB	Edward I. Atlman (2001)

(Source: Author's compilation)

Based on an overview of factors affecting the credit quality at Vietnamese joint stock commercial banks (Table 1), the author builds a research model (Figure 1).

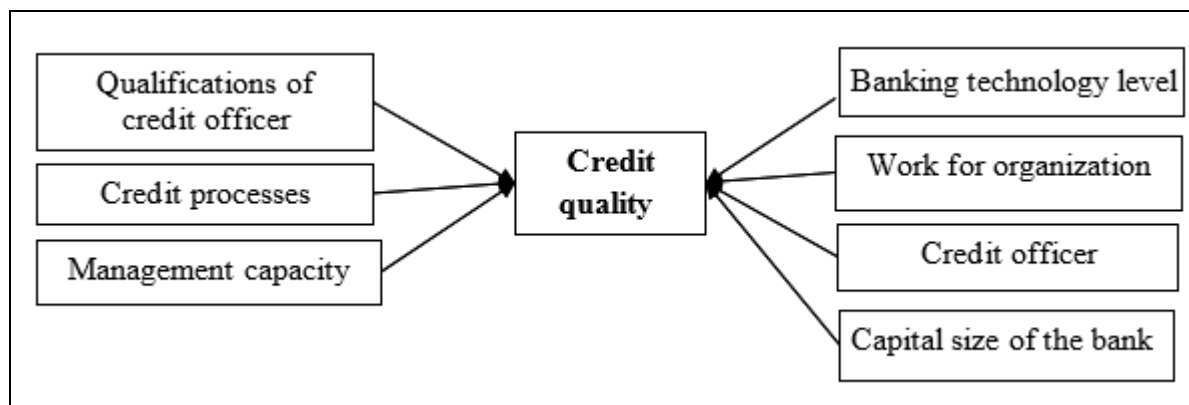


Fig 1: Proposed research model

From the research model, the author develops the following research hypotheses:

- Hypothesis H1, The credit policy is correct, reasonable, flexible, and meeting the diverse needs of customers in terms of capital, the bank will be successful in increasing lending activities, while still ensuring the credit quality and vice versa. In other words, credit policy and credit quality have a positive relationship;
- Hypothesis H2, Clear and detailed credit regulations and processes and compliance by credit officers have a positive impact on credit quality;
- Hypothesis H3, Leadership ability of the moderators greatly affects affect credit quality activities. The process of inspection and internal control is strict and scientific, and internal control inspection activities are carried out regularly, positively affecting credit quality;
- Hypothesis H4, Modern technological equipment, and safe and reliable banking, credit assessment software have a positive impact on credit quality. The bank's information sources are diversified, with high accuracy, positively affecting credit quality;
- Hypothesis H5, the more suitable the organization in terms of quantity, quality, and specialization, the most positive impact on credit quality;
- Hypothesis H6, Credit officers are qualified and professional when handling work according to the right process, the better the lending activity. In other words, the composition of credit officers and lending activities have a positive relationship;

- Hypothesis H7, With the high capital size of the bank, the bank can operate in an ever-expanding scale mobilized capital is stable, reasonable, and suitable for credit plan; The overall regression model equation is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + e$$

In which, Y is the dependent variable: credit quality at Vietnam Joint Stock Commercial Bank;

X is the independent variable, including:

X1: CCP1BTBTredit Policy;

X2: Credit Process;

X3: Management capacity;

X4: Banking technology level;

X5: Work for organization;

X6: Credit Officer;

X7: Capital size of the bank.

E is the Statistical Error.

Research Methods

Applying qualitative research methods, interviewing industry experts, employees, and credit officers of banks. The total number of vouchers distributed was 735 at 20 banks, and the number of votes collected was 662. After screening, the number of votes that met the analysis requirements was 623 votes (table 2). Applying the quantitative method, collected data is processed through statistical methods, simulation, and data processing software SPSS 23.0.

Table 2: Summary of the number of questionnaires by each joint stock commercial bank

No	Name of bank	Number of votes for investigation	Number of votes collected	Number of votes that passed analysis
1	Vietinbank	70	61	59
2	VietcomBank	70	57	54
3	BIDV	65	58	56
4	Sacombank	50	49	47
5	MB	54	54	53
6	VPBank	49	47	44
7	SCB	48	46	43
8	EximBank	42	40	38
9	MaritimeBank	39	37	36
10	TechcomBank	36	34	32
11	SHB	30	28	25
12	ACB	29	27	25
13	HDBank	29	25	22
14	LienVietpostBank	25	22	21
15	TPBank	22	20	18
16	VIB	17	14	12
17	SeaBank	15	13	13
18	ABBank	15	10	9
19	OCB	15	10	8
20	BacABank	15	10	8
	Total	735	662	623

(Source: Author's compilation)

Results and discussion

1. Result

Sample analysis according to the data obtained from a bank staff

Table 3: Statistics on bank staff characteristics participating in the survey

Group	Number (person)	Percent (%)
1. Age		
18 - 24	67	10.75
25 - 30	333	53.45
31 - 40	172	27.61
41 - 60	51	8.19
Total	623	100

2. Gender		
Male	394	63.24
Female	229	36.76
Total	623	100
3. Experience		
Less than 1 year	65	10.43
1 - 5 years	259	41.57
6 - 10 years	238	38.20
Over 10 years	61	9.79
Total	623	100
4. Working position		
Directing at headquarters	56	8.99
Management at the facility	128	20.55
Directly manage customers	439	70.47
Total	623	100
5. Education level		
Under the university	75	12.04
University	286	45.91
Postgraduate	262	42.05
Total	623	100.00

(Source: Author's compilation)

The sample statistical results (Table 3) show that the subjects of bank staff participating in the survey are mainly young (from 25 to 30 years old), active, eager to learn, with high education level, expertise, profession, work experience, thus ensuring reliability when analyzing and measuring the collected research data.

Analysis of the scale factors affecting the quality of life

Cronbach's alpha coefficient is used to evaluate the reliability of the scale, but the type of variable is not suitable. The total variable correlation coefficient is the correlation coefficient of one variable with the average of other variables on the same scale. Variables with a total correlation coefficient of less than 0.3 will be excluded and the scale must have an alpha reliability of 0.60 or higher (Nunnally and Burnstein, 1994). The results of the reliability analysis of the scale through the Cronbach Alpha coefficient for the factors after removing the variables with a correlation coefficient of less than 0.3 shows that the remaining variables all have high Alpha reliability of more than 0.6 and the component variables are correlated with a sum greater than 0.3 (table 4).

Table 4: Results of scale analysis for factors affecting credit quality

Observed variables	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Banking technology level, Alpha = 0.735				
BTL1	10.72	3.2	0.609	0.634
BTL2	10.71	3.48	0.469	0.707
BTL3	10.79	3.11	0.528	0.674
BTL4	10.87	2.89	0.52	0.685
2. Credit processes, Alpha = 0.808				
CPR1	10.89	2.757	0.623	0.761
CPR2	10.86	2.674	0.71	0.718
CPR3	10.75	2.868	0.598	0.772
CPR4	10.91	3.007	0.571	0.784
3. Work organization, Alpha = 0.734				
OW1	9.99	4.556	0.411	0.734
OW2	10.14	3.847	0.448	0.731
OW3	10.05	3.756	0.667	0.594
OW4	10.13	3.865	0.610	0.626
4. Qualifications of credit officer, Alpha = 0.710				
QCO1	11.65	2.888	0.495	0.649
QCO2	11.50	3.365	0.383	0.709
QCO3	11.56	2.306	0.559	0.614
QCO4	11.42	2.816	0.58	0.601
5. Capital size of the bank, Alpha = 0.787				
CSB1	10.99	3.305	0.515	0.775
CSB2	10.82	3.322	0.502	0.783

CSB3	10.86	3.203	0.669	0.699
CSB4	10.91	3.05	0.712	0.675
6. Credit officer, Alpha = 0.930				
CO1	11.25	4.395	0.829	0.912
CO2	11.14	4.661	0.874	0.898
CO3	11.20	4.319	0.821	0.916
CO4	11.12	4.705	0.835	0.910
7. Management capacity, Alpha = 0.913				
MC1	10.72	3.818	.728	.913
MC2	10.80	3.301	.834	.877
MC3	10.75	3.477	.826	.880
MC4	10.78	3.414	.828	.879

Linear regression analysis

Regression to determine specifically the weight of each independent factor affecting the dependent factor, thereby giving the regression equation. The next regression analysis aims to determine the linear relationship between the variables and the dependent variable credit quality variable. The results of the regression analysis (Table 5) show that the adjusted R² coefficient is 0.674, which means that the independent variables in the model explained 67.4% of the variation of the credit quality variable, the rest is caused by other variable factors outside the model, so, the regression model is completely suitable; the statistical significance of all P factors is less than 0.05, ie the statistical significance level is over 95%, thus, all factors affect credit quality at Joint Stock Commercial Banks.

Table 5: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.828 ^a	0.685	0.674	0.28291	0.685	60.901	7	196	0.000	1.130
a. Predictors: (Constant), MC, OW, QCO, CSB, CPR, CP, BTL										
b. Dependent Variable: CQ										

Table 6: Linear regression analysis

Coefficients ^a								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
(Constant)	0.104	0.217		0.477	0.634			
CO	0.308	0.034	0.434	9.003	0.000	0.692	1.446	
BTL	0.069	0.044	0.079	1.587	0.114	0.641	1.560	
CPR	0.132	0.043	0.144	3.050	0.003	0.717	1.394	
OW	0.048	0.032	0.061	1.481	0.140	0.932	1.073	
CSB	0.241	0.040	0.281	6.035	0.000	0.741	1.349	
QCO	0.101	0.036	0.124	2.811	0.005	0.823	1.214	
MC	0.098	0.038	0.121	2.616	0.010	0.748	1.336	
a. Dependent Variable: CQ								

Thus, the above test results show that the assumptions in the linear regression model are not violated, therefore, it is allowed to confirm that the regression model in this study has been tested and accepted. From the above quantitative analysis, the normalized regression model is shown in the following equation:

$$CQ = 0.434 CO + 0.079 BTL + 0.144 CPR + 0.061 OW + 0.281 CSB + 0.124 QCO + 0.121 MC + \varepsilon.$$

2. Discussion

Through the regression model, the impact of factors on credit quality is arranged in descending order specifically as follows:

Credit Officer

Regression analysis results show that the standardized Beta weight of the credit officer factor is considered the most important, affecting credit quality because it has the largest Beta coefficient (with $\beta = 0.434$). This means that other things being equal, the higher the credit officer, the better the lending performance. The ethical qualities and professional qualifications of bank staff are directly proportional to credit quality. When the credit officer factor increases or decreases by 01 units, the credit quality of the bank also increases or decreases by 0.301 units. This result is completely consistent with the current situation, many corruption cases at big banks

such as BIDV, Agribank, and DongAbank cause money loss and bad debt ... mostly due to the ethics of bank staff.

Capital size of the bank

The mobilized capital source is stable, reasonable and in line with the plan credit plan, credit quality also increased ($\beta = 0,281$). A stable economy will be a favorable condition and environment for businesses to operate in production and business and earn high profits, thereby contributing to the success of the bank's business by creating capital scale for the bank. In the opposite case, the instability will of course also affects the bank's activities, affecting the credit quality, and causing losses to the bank.

Elements of Credit Policy

The normalized Beta weight of this factor is the second largest with $\beta = 0.281$, showing that Credit policy has the second strongest impact on the bank's credit quality. The most highly rated, reasonable, and effective the credit policy is, the better the lending activities and vice versa. This means that other things being equal, the bank's credit policy towards customers is increased or decreased by 01 units, and the credit quality of the bank also increased or decreased by 0.144 times. In fact, the bank has a policy of investing in borrowers that have not been carefully studied such as investment in loans to build barges, investment in real estate, and BOT projects... will cause credit risk use.

Table 7: Analysis of test results of factors affecting credit quality

Factors	Analysis results
Qualifications of credit office, $\beta = 0,124$	The mobilized capital is stable, reasonable, and consistent with the credit plan, and the credit quality also increases.
Management capacity, $\beta = 0,121$	The bank's management personnel have good knowledge and experience, strict and scientific internal control and inspection processes, regularly implemented, and positively affect credit quality. In general, according to the evaluation of Joint Stock Commercial Banks in Vietnam, the inspection and supervision stage is very important. If this stage is done better, the negatives arising at the bank will be reduced, limiting the risks in the bank
Banking technology level, $\beta = 0,079$	Modern technological equipment, safe and reliable bank credit assessment software, and diverse and high-accuracy information sources of the bank have a positive impact on credit quality.
Work organization, $\beta = 0,061$	The more appropriate organization in terms of quantity, quality, and specialization, the more positive impact on credit quality.

Analysis of the impact of the remaining factors is presented in the table 7 by the author

Recommendation and conclusion

Based on the above research results, the author makes some recommendations for commercial banks improve credit quality as follows:

Firstly, improve the quality of credit officers

1. The staff under short-term contracts should not be assigned to make credit work; should arrange credit officers in charge of each customer group; rotate credit officers during their working period from 6 months to 1 year. At the same time, cross-checking the quality of credit officers between branches helps leaders assess the strengths and weaknesses of credit officers. It is necessary to develop specific criteria in assessing the professional competence of credit officers such as number of managed clients, outstanding balance, number of loans, and time to complete a credit.
2. Regularly train and deploy new official documents in a timely manner for the bank staff, check professional knowledge in the form of performing professional tasks, checking transaction styles and qualifications of staff professionals compared to other commercial banks or not, are there any defects. In addition, regularly check and monitor the loans of the credit officers to see if they have followed the loan process correctly? Internal control through the inspection of branches, departments transactions on legality, at the same time, spend a lot of time re-evaluating loans, contacting customers to better understand the business situation of customers, as well as better understand the bank's staff. From there, submit to the leadership for timely handling measures, limit the risk of loss of bank loans, and promptly handle the mistakes of employees (such as lending for the wrong purpose of using capital, profiting from loans) customer lending...).

Second, perfecting credit policies and procedures

Stick to the entire credit-loan process that has been set out, not apply or omit a single process. Usually, a credit policy and process must always change, update new information, and introduce new policies to keep up with the

development trend of the local economy and the country's economy. Bank leaders should pay close attention to the actual situation of the area under their management in order to promptly make appropriate policies and recommendations to their superiors, helping to operate the bank's apparatus better.

Third, the collection and processing of information

In addition to the information provided by customers, credit officers and appraisers need to exploit maximum information from many different sources such as information from customers, partners, and credit information centers to Compare and contrast data sources with each other. On that basis, detect inconsistencies in the data provided by customers, thereby indicating the reliability of the information source. When making a loan for any customer, it is mandatory for the credit officer and the appraisal officer to come to the customer's place of residence, to the project or production and business area to collect the information direct information. On that basis, there are visual assessments of the value of the collateral, the purpose of the loan, the loan plan, etc.

Fourth, strengthen internal inspection and control

After disbursing the loan, the bank always has to make sure to know the operational status of the borrower as well as how the loans are being used. This has important implications for the safety and efficiency of the loans. Banks should ask customers to provide information about business results together with the amount of periodic repayment. Large principal debts before maturity, need to remind customers, whether customers can repay on time or not. If the bank is found to be unable to repay the loan, the bank should immediately investigate and take timely measures. In addition to checking customers, it is necessary to regularly and seriously, check and control internal controls based on the main point of view of error prevention. Checking the preparation of credit documents to ensure the legality, checking the loan term, and debt extension...s to make sure that credit activities are internally secured.

References

1. Hoang Trong, Chu Nguyen Mong Ngoc. Analysis of research data with SPSS, Hong Duc Publishing House, 2008.
2. Nguyen Van Tien, Nguyen Thu Thuy. Principles and operations of commercial banking", Statistical Publishing House, 2014.
3. Bui Trung Kien, Research model and test the reliability of the scale in the research model, nguyencuudinhlung.com
4. Dinh Thu Huong, Phan Dang Luu. Completing the model of credit risk management organization at Agribank to improve competitiveness in international integration, Banking Magazine, 2014, 5.
5. Nguyen Thi Loan. Improving the effectiveness of credit risk management at Vietnamese commercial banks, Banking Magazine, 2012.
6. Wang Junbo, Wu Chunchi. Liquidity, credit quality, and the relation between volatility and trading activity: Evidence from the corporate bond market. Journal of Banking & Finance, 2015:50:183-203.
7. Altman. The use of Credit Scoring Models and the Importance of credit culture, NY University.
8. Holstius K, Kaynak E. Retail Banking in Nordic Countries: The Case of Finland. International Journal of Bank Marketing, 1995:13(8):10-20.