

CREDIT RISK MANAGEMENT AND EFFECTIVENESS OF CREDIT ACTIVITIES: EVIDENCE FROM VIETNAM

Dat Pham Tien

University of Finance – Marketing, Ho Chi Minh City, Vietnam

Kim Quoc Trung Nguyen

University of Finance – Marketing, Ho Chi Minh City, Vietnam

ABSTRACT

The research aims to assess the effects of credit risk management on the effectiveness of credit activities at Vietnamese state-owned commercial banks. Based on the literature review and empirical studies, the aspects of credit risk management practices include four factors proposed in the research model, such as: credit terms, client appraisal, credit risk control, and collection policies. The author implements the descriptive statistical method and linear regression model on SPSS with data from a survey of credit officers from state-owned commercial banks in Vietnam. The findings show that credit term, client appraisal, and credit risk control positively influence loan performance at a 95% confidence interval. The paper also highlights the role of internal control as the mechanism for reducing credit risk and improving the effectiveness of credit activities.

Keywords: credit risk management; credit activities; internal control; state-owned bank; Vietnam

DOI: <http://dx.doi.org/10.15549/jeecar.v10i5.989>

INTRODUCTION

Kolapo et al. (2012) confirm that loans play a vital role in a contributing bank's performance since the profit comes from the loan's interest rate. However, lending activities always have the potential chance to generate credit risks, which result in financial losses and reduce the market value of bank capital, and, in the worst-case scenario, is a banking system's failure. According to Arunkumar and Kotreshwar (2005), credit risk accounted for 70% of bank risk, while the remaining 30% included market and operational risks. Hence, its consequences for banks and the economy are enormous. "Credit risk is one of the significant risks to banks by their activities." Credit risk refers to the possibility of a borrower defaulting when a counterpart fails to pay on time. Therefore, most banking systems in

domestic and foreign countries must accelerate the credit risk management (CRM) process to control and mitigate it. By implementing effective credit risk management, commercial banks can ensure profitability and efficient capital allocation in their activities (Psillaki et al., 2010).

Credit activity in commercial banks currently occurs in the form of many types of risks that researchers and bank leaders need to find a solution to prevent. Credit risk is the significant risk faced by banks and other financial institutions. The risk includes non-performing loans, problem loans, or loan loss provisions (Jiménez & Saurina, 2006). To limit credit risk, banks must pay attention to risk management. Casu et al. (2006) explain that CRM is a management tool that enables a bank to

maximize a bank's risk-adjusted rate of return by maintaining credit risk at an acceptable level.

Responding to the financial crisis, the Basel Committee issued a new framework for risk management and supervision guidelines to strengthen Basel I, which is called Basel II based on Basel I. However, Basel II refers to the credit risk of assets held by financial institutions to determine the regulatory capital ratio. Basel II is a treaty designed to define capital standards to limit the business risks (including credit risks) of banks and strengthen the financial system for banks. Basel focuses on the rules and regulations on credit risk management and strictly sets up a minimum capital adequacy ratio requirement. In contrast, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) establishes more essential principles to cover risks in all industries, including the banking sector. COSO-internal control has become a popular and applicable tool to prevent risk and fraud and ensure the efficiency and effectiveness of the organization. In Vietnam, the State Bank of Vietnam (SBV) issued Circular 13/2018/TT-NHNN on the internal control systems of commercial banks and foreign banks' branches, aiming to create a complete and synchronous legal framework in the supervision of senior management, internal control, risk management, and internal assessment of capital adequacy in the business operations of commercial banks, including lending activities. The circular is especially valuable for banks in controlling and supervising credit risk. Because of the COVID-19 epidemic, the economy has been negatively impacted, causing customers' bank loans to become non-performing loans; hence, an increase in default risk may occur in the banking system. In that context, the government has had supportive policies through programs and preferential credit packages (capital and interest rates) to support customers. However, if commercial banks do not fully and timely identify and take control measures, credit risk will increase in the following years. One thing that needs to be done is credit risk management, which focuses on supervising and controlling the granting of credit under strict mechanisms such as internal control. Moreover, SBV also issued Circular 11/2021/TT-NHNN, which prescribes the classification of assets, amounts, and methods of setting up risk provisions and using provisions to control and manage risks arising

from the operations of credit institutions and foreign bank branches.

Therefore, the paper estimates the effect of factors in credit risk management on loan performance at state-owned commercial banks in Vietnam. To achieve this goal, the study aims to answer the question: "To what extent do factors in CRM affect loan performance in Vietnamese state-owned commercial banks?".

This study will present a theoretical framework and principles for credit risk management to see the role and need to implement internal control. In addition, using the quantitative method, the study examines the effects of CRM's factors on loan performance at state-owned commercial banks in Vietnam.

LITERATURE REVIEW

Credit risk is the most significant risk faced by banks and other financial institutions. Credit risk management controls the potential consequences of credit risk, so banks must pay attention to CRM to limit credit risk. The procedure follows a standard risk management framework, including identifying, evaluating, and managing risks. CRM obliges banks to establish a transparent process for approving and extending new credits. These processes are also monitored carefully, and necessary steps are taken to control or mitigate the risks related to lending (Basel, 1999). A granting credit process and control system are needed to review a loan's documents and ensure that the loan portfolio follows all the bank's rules and regulations. It is essential to set up the right conditions for credit risk, such as a process for giving out credit, consistency in credit management, ways to measure, monitor, and control credit risk, and policies and strategies that focus on the size, distribution, and management of the credit portfolio. It means a loan has the source, appraisal, supervision, and data collection fundamentals for effectively managing credit risk (Basel, 1999).

Basel provides the basic framework for measuring credit risk with a minimum capital requirement of 8%. To meet their goals and standards, Basel I, immediately after its inception in 1988, was disseminated in member countries and distributed in almost every country where international banks were active in meeting their goals and standards. Basel II has overcome Basel I's restrictions and was promulgated on June 26,

2004, with three new pillars such as the requirements of minimum capital (Pillar 1); supervision review (Pillar 2), and market discipline (Pillar 3). Of the 25 principles of banking supervision in Basel II, only the most important principles relating to credit operations at commercial banks are focused. These principles are capital adequacy; credit risk; problem assets, provisions, reserves, significant exposure limits; exposures to related parties. With its new rules of concept, higher minimum standards, and macroeconomic monitoring, Basel III is a historical change in banking regulations. Basel III is also a large set of reforms put together by the Basel Committee on Banking Supervision to improve regulation and oversight of risks in the banking sector. Basel III has four new points compared to Basel I and Basel II. These involve improving capital quality, requiring banks to add more capital to their activities, introducing a macro security monitoring system for banks to apply, and regulating liquidity standards.

Therefore, the Basel Committee issued the principles of CRM to encourage global banking supervisors to promote appropriate actions to manage credit risk. According to this document, the practice of CRM has addressed four respects: (i) Principles for creating a suitable credit environment; (ii) Principles for implementing a reliable credit-granting process; (iii) Principles for maintaining a suitable credit administration, measurement, and monitoring process; (iv) Principles for ensuring the control of bad debt adequately. Thus, based on these Basel Principles, the study mentions some key ideas:

- Separating the divisions and responsibilities among participants; Where the credit department divides by section of marketing/loan counseling; Credit analysts and credit appraisal and approval sections have a clear responsibility among participants.
- The responsibilities and roles of the board of directors, senior directors in credit granting and the mechanism for managing credit risk and improving the capacity and qualifications of credit risk managers.
- Developing an effective and updated information management system for customer loans to maintain an appropriate credit monitoring and measurement process

that meets the credit risk assessment and management requirements.

- Having systematic collection, measurement, monitoring of credits, and control of bad credits.

Currently, in Vietnam, CRM is also step by step approaching international practice, which is the basis of the regulations of the Committee and adapted to the specific circumstances in Vietnam. Accordingly, the Basel Capital Accord was established in 1988. The Basel Committee has promulgated three capital treaties, including Basel I, Basel II, and Basel III. The latter treaties are increasingly perfecting previous ones to overcome earlier versions' limitations and adapt to global financial market changes. The current issues with the Vietnamese banking system are focused on bad debts and required capital. In 2013, the number of bad debts increased sharply. In 2015, the average non-performing loan ratio of the whole system was 2.9%, while in 2016, this rate dropped to 2.8%. The entire system has 10/118 credit organizations with negative capital. Also, in that year, the capital adequacy ratio of four state-owned banks, if applied under Basel II, would fall below 8%. In the current period, credit activities are widened following the direction in the reduction policy of the interest rate of the State Bank to support loans in production and business activities. However, rapid credit growth will likely pose a risk to banks if credit is allocated to industries with inefficient business operations. Therefore, the management of equity, ensuring the minimum capital adequacy ratio required by Basel and CRM, is required for the Vietnamese banking sector.

CRM is an important element of an approach to risk management in the banking industry (Arora & Kumar, 2014). An essential requirement for effective CRM is the ability to monitor customer credit. To minimize committed obligations affecting capital and liquidity, banks must have a deeper understanding of customer information, creditworthiness, and financial history and the ability to implement customers' projects (Nkusu, 2011).

Nikolaidou and Vogiazas (2014) define CRM as a combination of tasks and activities to control and direct the organization's risks by incorporating tactics and critical risk management processes related to the organization's goals. It should be noted that risk

management activities are not intended to eliminate risk. However, the primary mission is to control the causes and changes that may lead to risk (Frank et al., 2014). In addition, Ross et al. (2008) argue that risk management practices ensure financial institutions have a solid and rational-legal framework for decisions based on a company's achieved goals. García et al. (2013) also noted that managing credit risk effectively when the human factor is involved in decision-making on risk control is adequate.

Previous studies have emphasized that high credit risk control (CRC) is associated with low default rates. As a result, credit risk can be mitigated using contract-based assessments, credit assurance, credit tightening, and credit expansion (Ross et al., 2008). According to Moti et al. (2012), effective credit management helps banks reduce the amount of non-performing loans and avoid having to make excessive provisions for bad debts. Therefore, besides collecting information and assessing the ability to repay debts and collateral, banks need to have a strict internal control system for credit-granting activities to limit and prevent credit risk.

The volatility of credit risk implies a change in the loan portfolio status of the bank (Cooper et al., 2003), and hence the banks' performance will be different. The risk is directly related to solvency and results in the loss of business and even financial institution failure (Richard et al., 2008; Chijoriga, 2011). According to Miller and Noulas (1997), banks that provide more loans could be more significant in insolvency and even make the economy unstable (Richard et al., 2008). Because the loan portfolio is shown on the balance sheet as a remarkable proportion of total assets, CRM is considered one way to bring safety and efficiency to the banking system through various monitoring and control activities. Although many banks worldwide have attempted to manage credit risk, the risk has considerably affected the economies of developing and developed economies. Poor credit risk management will threaten the banking industry. Therefore, it is necessary to properly distribute funds based on established and reviewed policies and procedures by the board of directors and senior directors (Schreiner, 2003). A well-structured loan policy will benefit the bank. As a result, the lending process and procedures will help organizations

comply with the risk management framework and the requirements of the Basel Monitoring Committee (Joana, 2000). In addition, assessing and reviewing debt is part of the CRM requirement as it helps managers check whether credit officers comply with lending policies and principles and the regulations of the State Bank and its banks or not.

Loan assessment is imperative in determining interest rates (Boldizzoni, 2008). Client appraisal is one of the steps in the loan process and is always reviewed and evaluated by banks. The aspects that need to be focused on include the borrower's purpose, ability to pay back the money, cash flows generated from projects, and collateral. A debt collection policy systematically recovers overdue debts from customers within the bank's legal authority scope. Debt collection regulations and policies will vary from bank to bank. However, grievances and dispute resolution must comply with existing laws and the rights and obligations of third parties involved in debt recovery. This is not only related to the organization's recovery procedures and the legally enforceable procedures. If financial institutions cannot comply with effective debt collection processes and procedures, this will lead to default (Boldizzoni, 2008).

Previous studies have shown that banks need solid and effective credit risk management policies to ensure that they can recover from customers (Frank et al., 2014). Granting loans is the major source of income for the banks. Credit income still accounts for between 50% and 70% of bank income. For that reason, it can be said that why do banks need to have strict policies to manage credit risk? Monetary institutions' lack of monetary policy risk management has contributed to the global financial downturn (Fraser & Simkins, 2010; Bezzina & Grima, 2012). Credit risk management requirements are urgent in such emergencies, especially in monetary-related areas (Horne, 2007). In addition, this risk management and credit risk control policy is a priority for banks to limit credit risk to acceptable levels.

With CRM, four credit risk management activities are undoubtedly crucial to the loan performance (LP) in the banking sector, namely, credit terms (CT), client appraisal (CA), credit risk control (CRC), and collection policy (CP). Credit terms include requirements and terms for banks to lend to customers (Moti et al., 2012).

According to Ross et al. (2008), credit terms may include the specific timing of the loan, the interest rate, the method of repayment, and other conditions offered by the bank. Some previous studies have noted that the timing of credit exposure is affected by the risk that may occur in the credit, mortgage, market, and customer size (Ross et al., 2008).

CRM that affect loan performance at state-owned commercial banks in Vietnam, including credit terms, client appraisal, credit risk control, and collection policy. In addition, the paper uses a survey method to collect data for modeling and evaluating the hypothesis. The author encodes the scales and applies SPSS software to assess the scales' reliability, the exploratory factor analysis (EFA), and builds multiple linear regression models. Besides, some tests are performed to ensure the reliability of the research results.

METHODOLOGY

Research method

This article inherits and applies CRM and COSO framework to propose the factors belonging to **Proposed model**

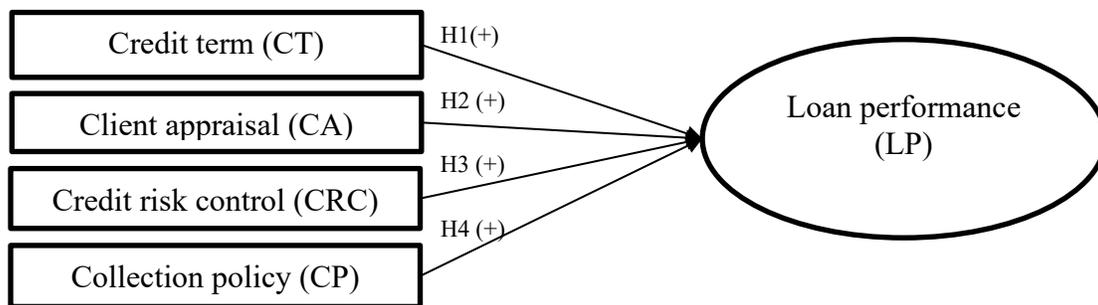


Figure 1: Proposed model.

Hypothesis

- H1: Credit term positively affects loan performance at state-owned commercial banks in Vietnam.
- H2: Client appraisal positively affects loan performance at state-owned commercial banks in Vietnam.
- H3: Credit risk control positively affects loan performance at state-owned commercial banks in Vietnam.
- H4: Collection policy positively affects loan performance at state-owned commercial banks in Vietnam.

Data collection

This study examines the effects of CRM on the credit performance of state-owned commercial banks in Vietnam. The selected banks are Bank for Agriculture and Rural Development (Agribank), Global Petroleum Bank (GP bank), Ocean Commercial One Member Limited Liability Bank (Ocean Bank), and Vietnam Construction Bank (CB). The sample was selected as 300

random credit officers from the banks. The time to survey started from April 15th, 2020, and the valid Questionnaire received back on October 15th, 2020, are 118.

RESEARCH RESULTS

Results in Tables 1, 2, and 3 show that the total number of respondents is 118, divided into Age categories (Table 1), Gender (Table 2), and Education (Table 3).

The respondents are divided into different groups of age. Most of them are between 36 and 45 years of age. At this age, their working experience and knowledge are greater than those under 35 years old. From 36 to 45, the credit officers are dynamic, receptive, and have a high working sense.

Table 1: Age categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	26-30	10	8.5	8.5	8.5
	31-35	20	16.9	16.9	25.4
	36-40	41	34.7	34.7	60.2
	40-45	30	25.4	25.4	85.6
	>45	17	14.4	14.4	100.0
	Total	118	100.0	100.0	

After graduation, students have almost no experience, and it is difficult for them to enter the banking industry. Students enrolled in the positions of credit specialists almost do not know the contents of their job applications because of a lack of skills and knowledge. The level of proficiency varies from person to person. Some people will take some years to gain high positions in the credit department, but some people only need a short time to reach a higher place. In fact, it is up to the ability, the spirit of learning, the initiative and effort in work, and the ability to take risks. Due to the specific nature of the work, it is required that the person work harmoniously between marketing (seeking customers) and extending loans to a wide range of customers with reasonable risk control.

Of the 118 respondents, 61% are male, while 39% are female (Table 2). This is in line with the

realities of banking. Banks tend to hire more male credit officers than women for the following reasons. First, the job related to credit activities requires a lot of heavy work, such as looking for customers, frequently meeting with customers, and contacting other related parties. For this position, credit officers are required to be well-equipped with good health, agility, and strength at work. Second, the credit application process should have sufficient documentation and procedures for the process, and the contents of the evaluation should be clear and complete. Document and post-loan management should be good, with correct paper and enough as prescribed. They must be careful, honest, and ethical about their professional ethics to avoid causing credit risks. This position will also be subject to quota lending pressure. As a result, the woman is afraid of this job.

Table 2: Gender categories

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	72	61.0	61.0	61.0
	Female	46	39.0	39.0	100.0
	Total	118	100.0	100.0	

According to the survey, the level of education is concentrated in the group of bachelor's and master's degrees. It indicates that the bank's employees have particular knowledge and expertise in credit operations and CRM (Table 3). Most graduates are interested in working in the bank, and the position is recruited as a credit specialist. At this level, their level of achievement is Bachelor's level, with the knowledge and skills acquired from most books and lecturers. Therefore, they study more to improve their level. A credit officer will achieve a master's degree after three or five years. However, the master's training process takes at least two years, per the Ministry of Education and Training

regulations. At the doctoral level, most of the personnel resources at this level lie with the board of directors, senior directors, and independent members. The senior leaders have high academic titles on the banks' annual reports. They will have experience, knowledge, good governance, risk awareness, risk analysis, and risk management solutions. The number of personnel accounts for only a fraction of the total number of personnel in the bank.

Table 3: Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under bachelor	15	12.7	12.7	12.7
	Bachelor	59	50.0	50.0	62.7
	Master	40	33.9	33.9	96.6
	PhD	4	3.4	3.4	100.0
	Total	118	100.0	100.0	

Table 4 presents the descriptive statistics of the factors affecting loan performance. The mean value of the credit terms is 3.5560, which means that the average level of responses from participants in the survey agrees that "Credit terms impact on Loan Performance" is 3.5560. However, the standard deviation of CT is 0.7612, which means a 76.12% variation in the series of credit terms. Like the average respondents who participated in the survey, the "Client Appraisal, Credit Risk Control, and Collection Policy Impact on Loan Performance" factors are 3.4259, 3.6130, and 3.5366. Meanwhile, the responses' average level of participants in this survey agrees that the

"Credit risk control impact on loan performance" is the highest (3.6130). This result shows that credit risk control factors play the most significant role in the performance of credit activity. It also highlights the importance of control activities in the approval stage of credit funds. This is because once the loan is approved, it is crucial to monitor whether the loan is used according to the project objective and to ensure profits are generated to repay the loan to the banks; ensure the enterprise's cash flow proceeds as planned. Hence, controlling and monitoring loans would enable banks to reduce bad loans, which reduces credit risk.

Table 4: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CT	118	1.00	5.00	3.5560	0.7612
CA	118	2.00	5.00	3.4259	0.6553
CRC	118	1.00	5.00	3.6130	0.7019
CP	118	1.00	5.00	3.5366	0.8039
Valid N (listwise)	118				

Note: CT is credit term; CA is client appraisal; CRC is credit risk control; CP is collection policy.

Table 5 shows the correlation between the variables. Accordingly, all variables are positively correlated. Loan Performance (LP) has a low correlation with credit term and client appraisal, while credit risk control and collection policy correlate quite highly with LP. However, all correlation coefficients are less than 0.8. It means multicollinearity is absent in the model (Quoc

Trung, 2022). Moreover, since all VIF coefficients of variables are smaller than 10 (Table 5), it is concluded that the multi-collinear phenomenon does not exist (Hair et al., 1995; Montgomery et al., 2001).

Table 5: Correlations and VIF

		LP	CT	CA	CRC	CP	VIF
Pearson Correlation	LP	1.000					
	CT	.361	1.000				1.803
	CA	.313	.564	1.000			1.669
	CRC	.686	.612	.566	1.000		2.760
	CP	.549	.492	.475	.732	1.000	2.183

The following section will present Cronbach's Alpha reliability testing of all scales. The study

obtained four high-reliability scales corresponding to 17 variables observed. From

testing the scales through Cronbach's alpha, the rankings in Table 6 achieved reliability based on the principle of evaluating the total Cronbach's alpha coefficient; The correlation coefficient of the total variable and the coefficient "Cronbach's

Alpha if Item Deleted" satisfy the requirements (Nguyen, 2011). Therefore, the scales are all reliable.

Table 6: Cronbach's Alpha

No.	Number of variables	Number of factors	Cronbach's Alpha
1	Credit terms	4	0.684
2	Client appraisal	4	0.703
3	Credit risk control	5	0.756
4	Collection policy	4	0.810

Then, the author will evaluate the statistical validity evidence with Exploratory Factor Analysis (EFA). The results are presented as follows.

Table 7: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.810
Bartlett's Test of Sphericity	Approx. Chi-Square	546.720
	df	136
	Sig.	0.000

The results of Bartlett's test are presented in Table 7 as the Sig. = 0.000, it means we have enough evidence to reject the hypothesis. Hence, the conclusion is drawn that the variables are not correlated in the population and the KMO index (Kaiser-Meyer-Olkin) = 0.810 > 0.5, so we can use the analytical method factor for data analysis.

Total Variance Explained is implemented to measure the discrepancy between a model and actual data. With four groups of factors drawn, it is possible to explain 87.62% of the data variability, exceeding the acceptable threshold to form a new factor (50%). Grouping variables by factor is done by looking at the sample matrix. In each row of each variable, if the factor loading of the attributes is the largest in any factor and

additionally satisfies the condition > 0.4, it will belong to that factor. Otherwise, they will be removed. Moreover, the Rotated Component Matrix results show that the original research model will be adjusted to a 4-factor model. Hence, the research model is shown as follows.

$$LP_i = \beta_0 + \beta_1 CT_i + \beta_1 CA_i + \beta_1 CRC_i + \beta_1 CP_i$$

Where:

LP is the loan performance of bank *i*.

CT is the credit term of bank *i*.

CA is client appraisal of bank *i*.

CRC is credit risk control of bank *i*.

CP is the collection policy of bank *i*.

Table 8: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.698a	.528	.511	.55930	2.125

a. Predictors: (Constant), CP, CA, CT, CRC

b. Dependent Variable: LP

Table 8 shows that R² is about 53%, meaning the model has an explanatory level of 53%. The

independent variables CT (credit term), CA (client appraisal), and CRC (credit risk control)

are statistically significant factors at a 95% confidence interval (Table 9).

Table 9: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.275	.323		3.951	0.000
	CT	.071	.097	0.068	0.730	0.007
	CA	.116	.104	0.100	1.122	0.004
	CRC	.766	.127	0.695	6.047	0.000
	CP	.117	.099	0.122	1.193	0.236

LP is bank i's loan performance; CT is bank i's credit term; CA is bank i's credit appraisal; CRC is credit risk control of bank i; CP is the collection policy of bank i.

DISCUSSION

As a result of the regression, three statistically significant factors were observed to affect loan performance at state-owned commercial banks in Vietnam because their p-value is less than 5%. Besides, all coefficients were positive and consistent with the proposed hypothesis. Since the p-value is greater than 5% for the remaining factor, it is not statistically significant in the model. Thus, the findings point out that credit term (CT), client appraisal (CA), and credit risk control (CRC) are closely related to loan performance. That means bad debts or non-performing loans are low when the bank has strict credit terms, credit appraisal, and suitable credit risk control activities and solutions to cope with credit risk. Hence, loan performance will be more effective. This finding is consistent with Ross et al. (2008).

As mentioned above, banks must comply with COSO regulations because it is also an important tool in managing and controlling risks. Basel was created to manage risks in the banking sector, while COSO focused on the internal controls that covered most of the industry. Caselli et al. (2016) show how internal controls affect credit risk. Internal control is considered an effective and useful mechanism for managing risk. As a result, the banks aim to achieve their objectives, such as maximizing the rate of return by maintaining credit risk within acceptable parameters. Besides, banks need to enforce self-management rules and regulations proposed by executives.

Those management tools include control environment, risk assessment, control activities, information and communication, and monitoring activities. According to Letza et al. (2008), managers will only act to maximize

shareholder value if it does not conflict with their interests. In their management activities, managers will look for funding sources, borrowing, and how to use accounting policies when making financial statements to become more beneficial to the bank.

Moreover, the managers have to make "beautiful" financial statements to attract the parties' investment and ensure their interests. Hence, banks need to effectively enforce internal control in managing credit activities to prevent the losses and risks that occur in the banks. Again, credit risk has occurred in various forms and affected banks at different levels. However, the way that the banks can use to overcome and mitigate it is to enforce the internal control system closely and follow the international practice of the Basel Accord.

CONCLUSION AND RECOMMENDATION

After reviewing the theoretical framework of loan-granting activities, the study investigates the relationship between CRM and loan performance, including the lending process and procedures. The steps of that activity contain four variables: credit terms, client appraisal, credit risk control, and collection policy. The results show that credit term, credit appraisal, and credit risk control are related in the same direction and are statistically significant to loan performance at a 95% confidence interval. The remaining three variables are statistically insignificant in this study.

The research is also helpful in looking at how CRM is used in joint-stock commercial banks, especially in state-owned banks in Vietnam. The study suggests that other, broader studies be

done by adding more aspects of CRM, increasing the sample size, and adding more types of bank ownership to the survey to see how different factors affect how well the loan works.

Aside from credit risk management, banks should pay more attention to other aspects, such as credit granting policies and conditions (credit terms), client appraisal, and collection policy. These are equally important stages in the credit granting process that will influence the quality of bank loans. Therefore, banks should focus more on the remaining steps as follows.

First, regarding applying credit granting policies and conditions, banks must establish the lending policies for each type of customer, interest rate policy, and interest rate term. Comply with regulations and circulars guided by the State Bank and the bank's specific regulations on credit-granting activities to provide directions and guidelines for banking officers when they provide loans to their customers. The general rules cover all issues relating to credit extensions, such as size, interest rate, maturity, coverage, collateral, and related issues.

Second, regarding credit appraisal: it is necessary to analyze the legal capacity, debt status, management level, reputation, status, and prospects of customer development and credit history. Particular attention should be paid to analyzing customers' financial situation and business results, such as analysis of capital sources and use of capital, analysis of revenue and cost structure, analysis of asset structure, evaluation of business performance, and cash flow generated from customers' projects.

Finally, the bank must establish a transparent, detailed debt recovery process to implement the collection policy. To thoroughly apply forms of debt collection to raise the efficiency of debt recovery, such as sending letters, calling reminders, direct debt collection, or credit institutions to carry out legal procedures for debt recovery or using debt collection services of companies. For example, credit officers need to strengthen monitoring of customers' receivables; coordination among relevant departments to monitor the value, term, and interest rate regulated or adjusted on credit contracts of customers and banks. The banks can also set up a debt collection and debt management department.

REFERENCES

- Ali, S. A. (2015). The effect of credit risk management on financial performance of the Jordanian commercial banks. *Investment Management and Financial Innovations*, 12(1), 338-345.
<https://www.businessperspectives.org/index.php/journals/investment-management-and-financial-innovations/issue-1-cont-10>
- Arora, A., & Kumar, M. (2014). Credit risk management index score for Indian banking sector: an in-depth analysis. *IUP Journal of Bank Management*, 13, 19-28.
<https://ideas.repec.org/a/icf/icfjbm/v13y2014i1p19-28.html>
- Arunkumar, R., & Kotreshwar, G. . (2005). *Risk Management in Commercial Banks (A Case Study of Public and Private Sector Banks)*. SSRN eLibrary.
<http://dx.doi.org/10.2139/ssrn.877812>
- Basel. (1999). Principles for the management of credit risk. US: Basel Committee on Banking Supervision.
- Bezzina, F., & Grima, S. (2012). Exploring factors affecting the proper use of derivatives: an empirical study with active users and controllers of derivatives. *Managerial Finance*, 38, 414-434.
doi.org/10.1108/03074351211207554
- Boldizzoni, F. (2008). *Means and ends: the idea of capital in the West, 1500-1970*. New York: Palgrave Macmillan.
- Casu, B., Giradone, C., & Molyneux, P. (2006). *Introduction to banking*. Pearson United Kingdom.
- Chijoriga, M. (2011). Application of multiple discriminant analysis (MDA) as a credit scoring and risk assessment model. *International Journal of Emerging Markets*, 6(2), 132-147.
<https://doi.org/10.1108/17468801111119498>
- Cooper, M., Jackson, W., & Patterson, G. (2003). Evidence of predictability in the cross section of bank stock returns. *Journal of Banking and Finance*, 27(5), 817-850.
[https://doi.org/10.1016/S0378-4266\(01\)00263-1](https://doi.org/10.1016/S0378-4266(01)00263-1)
- Fan, L., & Yijun, Z. (2014). The Impact of Credit Risk Management on Profitability of Commercial Banks: A Study of Europe.
<https://www.diva->

- portal.org/smash/record.jsf?pid=diva2%3A743402&dswid=4800
- Frank, B., G., S., & Josephine, M. (2014). Risk management practices adopted by financial firms in Malta. *Managerial Finance*, 40, 587-612. doi.org/10.1108/MF-08-2013-0209
- Fraser, J., & Simkins, B. (2010). *Enterprise Risk Management: today's Leading Research and Best Practices for Tomorrow's Executive*. Hoboken, New York, NY: John Wiley & Sons.
- García, F., Giménez, F., & Guijarro, F. (2013). Credit risk management: a multicriteria approach to assess creditworthiness. *Mathematical and Computer Modelling*, 57, 2009-2015. <https://doi.org/10.1016/j.mcm.2012.03.005>
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1995). *Multivariate Data Analysis* (3 ed.). New York: Macmillan.
- Ho, D. (2002). *Banking management*. Ho Chi Minh City: Statistical Publishing House.
- Horne, J., & Wachowicz, J. (2007). *Fundamentals of Financial Management*. New Jersey: Prentice Hall.
- Jiménez, G., & Saurina, J. (2006). Credit cycles, credit risk, and prudential regulation. *International Journal of Central Banking*, 2(2), 65-98. <https://mpra.ub.uni-muenchen.de/718/>
- Joana, L. (2000). *Microfinance Handbook: sustainable Banking with the Poor*. Washington D.C: Washington Press.
- Kashyap, A., Rajan, R., & Stein, J. (1999). Banks as Liquidity Providers: An Explanation for the Co-existence of Lending and Deposit-Taking. NBER Working Paper Series. <https://doi.org/10.1111/1540-6261.00415>
- Kolapo, T. F., Ayeni, R. K., & Oke, M. O. (2012). Credit risk and commercial banks' performance in Nigeria: A panel model approach. *Australian Journal of Business and Management Research*, 2(2), 31-38. https://www.ajbmr.com/articlepdf/aus_20_70i2n2a4.pdf
- Letza, S., Kirkbride, J., Sun, X., & Smallman, C. (2008). Corporate governance theorising: Limits, critics and alternatives. *International Journal of Law and Management*, 50(1), 17-32. doi.org/10.1108/03090550810852086
- Miller, S., & Noulas, A. (1997). Portfolio mix and large bank profitability in the USA. *Applied Economics*, 29(4), 505-512. doi.org/10.1080/000368497326994
- Montgomery, D., Peck, E., & Vining, G. (2001). *Introduction to Linear Regression Analysis* (3 ed., Vols. ISBN-13: 978-0471315650). New York, USA: Jon Wiley and Sons.
- Moti, H., Masinde, J., Mugenda, N., & Sindani, M. (2012). Effectiveness of credit management system on loan performance: empirical evidence from micro finance sector in Kenya. *International Journal of Business, Humanities and Technology*, 2, 99-108. <http://repository.tharaka.ac.ke/xmlui/xmlui/handle/1/2342>
- Nguyen, D. T. (2011). *Research methodology in business* (2 ed.). Ho Chi Minh: Finance Publisher.
- Nikolaidou, E., & Vogiazas, S. (2014). Credit risk determinants for the Bulgaria banking system. *International Advance Economics Research*, 20, 87-102. doi.org/10.1007/s11294-013-9444-x
- Nkusu, M. (2011). Non-performing Loans and Macro financial Vulnerabilities in Advanced Economies. IM Working Paper 16. <https://www.imf.org/external/pubs/ft/wp/2011/wp11161.pdf>
- Psillaki, M., Tsolas, I., & Margaritis, D. (2010). Evaluation of Credit Risk Based on Firm Performance. *European Journal of Operational Research*, 201(3), 873-888. <https://doi.org/10.1016/j.ejor.2009.03.032>
- Quoc Trung, N. K. (2022). Board of directors characteristics affect commercial banks' performance – evidence in Vietnam. *Cogent Business & Management*, 9(1), 1-34. doi:10.1080/23311975.2022.2060164
- Raad, M. L. (2015). Credit Risk Management (CRM) Practices in Commercial Banks of Bangladesh: "A Study on Basic Bank Ltd.". *International Journal of Economics, Finance and Management Sciences*, 3(2), 78-90. doi: 10.11648/j.ijefm.20150302.12
- Ravi, P. S. (2012). The impact of credit risk management on financial performance of commercial banks in Nepal. *International Journal of Arts and Commerce*, 1(5), 9-15. <https://ijac.org.uk/vol-1-no-5-october-2012/>
- Richard, E., Chijoriga, M., Kaijage, E., Peterson, C., & Bohman, H. (2008). Credit risk management system of a commercial bank

in Tanzania. *International Journal of Emerging Markets*, 3(3), 323-332.
doi.org/10.1108/17468800810883729

- Ross, S., Westerfield, R., & Jordan, B. (2008). *Essentials of Corporate Finance*. Hill International edition. USA: McGraw-Hill Companies Inc.
- Schreiner, M. (2003). *A Cost-Effectiveness Analysis of the Grameen Bank of Bangladesh*. St. Louis.
<https://doi.org/10.1111/1467-7679.00215>
- Shanmugan, B., Bourke, P. (1990). *The Management of Financial Institutions: Selected Readings*. Wesley Publishing Company.
- Sufian, F., Parman S. (2009). Specialization and other determinants of non-commercial bank financial institutions' profitability: empirical evidence from Malaysia. *Studies in Economics and Finance*, 26(2), 113-128.
doi.org/10.1108/10867370910963046
- Yuga, R. B. (2016). Effect of Non-performing Loan on the Profitability of Commercial Banks in Nepal. *The International Journal Of Business & Management*, 4(6), 435-442.
10.5958/2456-7302.2020.00011.7

ABOUT THE AUTHORS

Kim Quoc Trung Nguyen, email:
nkq.trung@ufm.edu.vn (Corresponding Author)

Dat Pham Tien, Assoc. Prof. Ph.D. is a Rector of University of Finance – Marketing, Vietnam. He is interested in researching finance, banking, and real estate. He has written articles in various conferences and international journals indexed by Scopus.

Kim Quoc Trung Nguyen, Ph.D., is currently a lecturer at the Faculty of Accounting - Auditing, the University of Finance – Marketing, Vietnam. He is interested in researching the banking sector and finance and accounting. His fields of research and teaching are banking, finance, and governance.