

CREDIT RISK MANAGEMENT PRACTICES IN TERMS OF BASEL: EMPIRICAL EVIDENCE IN VIETNAMESE COMMERCIAL BANKS

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Abstract

The research is aim to explore the relationship between credit risk management task implementation and overall credit risk management practices in Vietnamese commercial banks, then propose the management implications for Vietnamese commercial banks. The research used PLS-SEM to analyze the data. The findings indicate that all management of credit risk tasks are related positively to credit risk management practices. This research offers a new understanding of credit risk management practices in terms of Basel in Vietnamese commercial banks.

Keywords: credit risk management, Basel, commercial bank

Conflict of interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

1. Introduction

A commercial bank is one of the credit institutions that play the most important role in the movement of economic capital and promoting economic development (Anvarovich, 2022). Bank main income is from lending activities, this activity is affected by many different factors that lead to credit risk (Ekinci & Poyraz, 2019). Therefore, credit risk management is of great importance to reduce credit risk and preserve capital for banks (Tursoy, 2018). When a bank does not manage credit risk well, it will lead to non-performing loans, reduced profitability, asset value, and equity of the bank (Ekinci & Poyraz, 2019). Besides, when credit risk is high, the non-performing loan value is high, leading to a loss of confidence from the public, and the ability to attract deposits decreases (Odonkor, 2018).

Many banks have collapsed or encountered financial problems due to poor credit risk management and high credit concentration in risky areas, this was also the cause of the 2008 global financial crisis (Odonkor, 2018). Many scholars have shown that credit risk management plays a very important role in credit activities (Anvarovich, 2022); (Ekinci & Poyraz, 2019); (Odonkor, 2018). Effective credit risk management determines the survival of the bank (Ekinci & Poyraz, 2019). Strictly implemented credit risk management will help banks reduce risks (Odonkor, 2018). Good credit risk management can help improve profitability and increase bank stability (Ekinci & Poyraz, 2019); (Anvarovich, 2022). The research of Rizvi et al. (2018) has shown that banks implementing credit risk management under Basel standards have a lower gross non-performing loan.

In recent years, Vietnam's banking industry has made great progress, but the credit risk management process of banks still has some problems (D. T. T. Tran & Phan, 2020). Many

scholars have been carried out to understand the current status of credit risk or the impact of credit risk in Vietnam (T. T. T. Tran et al., 2019); (Do et al., 2020); (Quoc Trung, 2021). Bad credit risk management in Vietnamese commercial banks causes many negative consequences due to many causes, including external and internal causes (Do et al., 2020); (Quoc Trung, 2021); (D. T. T. Tran & Phan, 2020). The worst consequence of credit risk has reduced liquidity of the bank, which reduces its reputation of the bank (T. T. T. Tran et al., 2019). Vietnamese commercial banks are implementing credit risk management under Basel II and preparing a roadmap to implement Basel III, but governance efficiency is still not high, and non-performing loans in recent years are still quite high, especially when the covid 19 pandemic occurs (Thi & Nguyen, 2022). Therefore, more research is needed to understand the credit risk management implementation, and then help Vietnamese commercial banks have effective credit risk management solutions.

2. Literature Review

1.1 Basel Accord on Risk Management

The Basel I was proposed in 1983 and was a big turning point for the banking industry. The main content of Basel I is to set a minimum capital requirement and applies to G-10 countries (Stephanou & Mendoza, 2005). The economic crisis has resulted in the need for better regulation and supervision of the financial system (Lall, 2009). Then, the Basel II agreement has been drafted by the Basel Committee on Banking Supervision (BCBS) and proposed to be applied to the world banking industry. The goal of the Basel II accord is to promote the soundness and stability of the system through better risk management regulations. In this version, capital requirements are higher (Stephanou & Mendoza, 2005). Basel II proposes a set of supervisory standards to improve the risk management of banks. These standards are divided into three pillars. The first pillar sets forth the minimum requirements for credit operations and operational risk. The second pillar guides the monitoring process. The third pillar sets forth requirements for the disclosure of material information about a bank's risk and capitalization to ensure market regulation (Stephanou & Mendoza, 2005). Basel III is the latest updated version of the Basel Agreement. This version is intended to strengthen the capital adequacy requirements for handling losses. Basel III sets the global standard for capital adequacy, and liquidity risk and tests banks' stress levels on stability (Rizvi et al., 2018).

1.2 Principles for the Management of Credit Risk under Basel Accord

There are five elements in credit risk management under Basel guidelines, including establishing an appropriate credit risk environment, operating under a safe credit granting process, and a credit management process, measuring and monitoring appropriately, ensuring the control of all credit risks, strengthening the supervisory role (Witzany, 2017). From these five elements, seventeen credit risk management principles have been proposed as shown in Table 1.

Table 1: Principles for the Management of Credit Risk under Basel Accord

Establish an appropriate credit risk environment	
Principle 1	The Board of Directors is in charge of approving and reviewing the bank's credit risk strategy and key credit risk policies regularly (at least annually). This strategy must reflect the bank's ability to accept risk and the level of profit the bank is expected to achieve when taking on different credit risks.
Principle 2	Senior management is responsible for implementing the credit risk strategy as well as developing policies and procedures to identify, measure, monitor, and control credit risk.
Principle 3	Banks must identify and manage credit risk in all products and activities. Before introducing, implementing, or approving new products or activities, banks must ensure that the risks are appropriate with risk management controls and procedures.
Operating under a fair credit process	
Principle 4	Banks must operate under clearly defined, reasonable credit granting criteria. These criteria should include a clear indication of the bank's target market and a thorough understanding of the borrower or counterparty, as well as the purpose and structure of the credit and the source of repayment.
Principle 5	Banks should establish aggregate credit lines at the individual borrower and counterparty level, and link groups of partners to meaningfully and comparable aggregate risk exposures, both on the bank's books and transactions and on or off the balance sheet.
Principle 6	Banks should have a formal process in place for approving new credits as well as modifying, extending, and refinancing existing ones.
Principle 7	All credit extensions must be made on a line basis. In particular, credits to the companies and individuals involved must be authorized, carefully monitored, and other appropriate steps are taken to control or minimize the risk of lending activities.
Maintain appropriate credit management, measurement, and monitoring process	
Principle 8	Banks need a system to continuously manage their various credit risk portfolios.
Principle 9	Banks must have a system in place to monitor the status of individual personal credit loans, including determining the adequacy and reserve provisions.
Principle 10	Encourage banks to develop and use internal risk rating systems as part of credit risk management. The rating system should be appropriate to the nature, size, and complexity of the banking business.
Principle 11	Banks must have information systems and analytical techniques that enable management to measure the credit risk inherent in all on- and off-balance sheet activities. The management information system should provide sufficient information on the composition of the loan portfolio, including the determination of risk levels.
Principle 12	Banks must have a system in place to monitor the composition and overall quality of their loan portfolio.
Principle 13	When evaluating individual loans and loan portfolios, banks should consider potential changes in future economic conditions and assess credit risk under stressful conditions.
Ensure adequate control of credit risk	
Principle 14	Banks must establish an independent and continuous review system of credit risk management processes, and the results of the review should be reported directly to senior management and senior management.
Principle 15	Banks must ensure that lending functions are properly managed and that credit constraints are at a level that complies with security standards and internal constraints. Banks should establish and implement internal controls and other

	practices to ensure that exceptions to policies, procedures, and limitations are reported to appropriate management promptly for action.
Principle 16	Banks need to have a system in place to take early remedial action and manage problem loans when the value of credit declines.
The role of the supervisor	
Principle 17	As part of an overall risk management approach, regulators must require banks to have effective credit risk identification, measurement, monitoring, and control systems. Supervisors should conduct independent reviews of banks' policies, procedures, and practices related to the day-to-day management of loans and investment portfolios. Regulators should consider setting safety limits to limit bank credit risk to individual borrowers or groups of borrowers

Source: Witzany (2017)

1.3 Bank credit risk management practices

Effective credit risk management not only affects the financial performance of the bank but also helps the economy operate stably and allocate capital efficiently (Ekinici & Poyraz, 2019). Therefore, this is a topic that has received wide attention from the public, especially researchers. Credit risk management is a structured credit management approach to assessing, allocating, screening, and monitoring borrowers (Kidane, 2020). Credit risk management refers to the management of credit to ensure the recovery of loans, and improve customer confidence and loyalty to the bank's services (Odonkor, 2018). This helps banks decrease credit risks, borrowers tend to repay loans on time (Aliu et al., 2019). The management was found to have a positive effect on profitability, so this process should be guided specifically (Alta'ani & Dali, 2020).

Credit risk management practices are defined as activities related to risk reduction strategy, adequate internal control, the establishment of a risk management environment, and bank regulations, policies, and guidelines related to credit extension (Bülbül et al., 2019). The tasks of credit risk management include risk identification, risk assessment, risk monitoring, and risk control (Hopkin, 2018). Effective credit risk management is an important component of comprehensive risk management, leading to the long-term success of the bank (Anvarovich, 2022).

1.4 Risk identification

This is the process of understanding the lending-related risks that banks may face (Hopkin, 2018). Identifying credit risks helps banks identify healthy customers, customers who are likely to default on loans (Chen et al., 2016). The correct identification of risks will help the credit risk management process to be effective, unrecognized risks will lead to uncontrollable losses. Credit risk identification should consider issues including the source of the risk, ethical factors, threats, and the possibility of default. This is a continuous identification process, from the time the application is received until the customer repays the loan (Tchankova, 2002). When the bank identifies credit risks well, the implementation of risk management is assessed well. Previous studies have shown this trend (Hafez, 2015); (Muhammad et al., 2018).

1.5 Risk assessment

The credit risk assessment process is always associated with the bank's operational goals, owners' expectations, and the risk management process (Hopkin, 2018). Credit risk assessment includes considering the influence of macro factors, loan purpose, and repayment source, borrower's reputation, assessment of collateral (Odonkor, 2018). The bank's risk assessment technique will determine the overall risk assessment of the bank (Hopkin, 2018). In the credit assessment process, it is important to consider potential future changes to each loan and bank's credit portfolio and to be exposed to the most stressful conditions. Banks should develop and use an internal credit rating system to assess risk, which should be based on the nature, size, and complexity of the bank's operations (Witzany, 2017). An information system is also an important factor in credit risk assessment, this system needs to provide sufficient information to be able to assess and measure risk (Witzany, 2017). Some previous studies have shown that if credit risk is assessed well, the credit risk management results are also evaluated well (Hafez, 2015); (Muhammad et al., 2018).

1.6 Risk monitoring

Credit risk monitoring is also one of the important steps in a bank's credit risk management process (Witzany, 2017). If the bank does not monitor credit risk effectively, conflicts of interest between the bank and the customer will arise (Epure & Lafuente, 2015). In this stage, banks need to establish an overall and detailed monitoring system on the quality of the loan portfolio (Witzany, 2017). Supervision is carried out by the unit responsible for the bank's credit risk and in coordination with the borrower and credit rating agencies (Spuchl'áková et al., 2015). Supervision is divided into two groups including customer level and bank level. In which, customer credit monitoring will be performed regularly or regularly. Bank credit monitoring is carried out based on portfolio diversification and cumulative loan value (Spuchl'áková et al., 2015). Many scholars have shown that if credit risk monitoring is well, the credit risk management results are also evaluated well (Hafez, 2015); (Muhammad et al., 2018).

1.7 Risk control

Credit risk management is very important, in deciding the existence of the bank in the future (Ekinici & Poyraz, 2019). Therefore, banks need to ensure that their credit extension function is being carried out with a level of risk tolerable. Banks should establish and implement customary internal controls so that actions can be taken promptly. Internal control activities help the bank to operate under policies and procedures to minimize credit risk. The role of supervision is also very important (Witzany, 2017). Besides, banks need to have an action system for early recovery of non-performing loans, problem credit management, and similar situations (Witzany, 2017). Previous studies have shown that when credit risk control is well, the credit risk management results are also evaluated well (Hafez, 2015); (Muhammad et al., 2018).

3. The hypothesis of the study

H1. Risk identification is positively correlated with bank credit risk management practices.

H2. Risk assessment is positively correlated with bank credit risk management practices.

H3. Risk monitoring is positively correlated with bank credit risk management practices.

H4. Risk control is positively correlated with bank credit risk management practices.

The model of credit risk management practices in this study is used to understand the relationship between banks' implementation of credit risk management tasks and the overall credit risk management practices, which will be presented below:

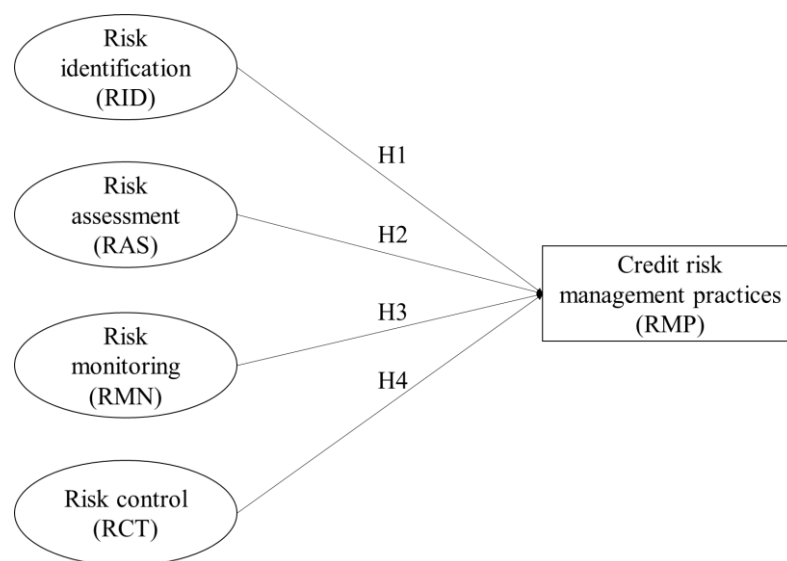


Figure 1: Hypothesized model

4. Methodology

4.1 Data collection and sampling

The study sample was taken from employees working in credit activities at 36 joint-stock commercial banks in Vietnam. The survey is carried out using a Google form. A pretest of the questionnaire was carried out with a small group of people ($n = 10$), the goal of pre-testing is to determine whether something is difficult to solve due to the sentence, anonymity, formula, or technical term, and to improve the structure's validity (Cook, T. D., Campbell, D. T., & Shadish, 2002). We selected students studying from two large commercial banks including Sacombank and Vietcombank to do pretest surveys. 155 questionnaires were then distributed using Google Sheets. A total of 152 valid respondents were collected, corresponding to a response rate of 98%. This is considered a significant response rate, reducing the likelihood of response bias [26]. The sample size in PLS-SEM must be at least 10 times the number of structural pathways in the structural model leading to a given potential construct [27]. The

sample group should be greater than 40 because there are four possible paths. Therefore, the sample size of 152 responses met the minimum size criteria for PLS-SEM in this study.

4.2 Measure of constructs

Survey questions are designed and adjusted based on the research of Muhammad et al. (2018); Hafez (2015); Witzany (2017). Table 2 displays all constructs and measures.

Table 2: Questionnaire items and their derivation sources

Risk Assessment (RAS): [Source: (Witzany, 2017); (Muhammad et al., 2018); (Hafez, 2015)]	
RAS1	Bank assesses the possibility of credit risk.
RAS2	Banks use quantitative methods to assess a bank credit risk
RAS3	Banks use qualitative methods to assess a bank credit risk
RAS4	Bank assesses and analyzes credit risks to help the bank achieve its operational objectives
RAS5	When assessing credit risk, the bank is selective about risks that are both urgent and manageable.
RAS6	Collateral is not required for all loans, some loans are required
RAS7	When assessing risks, the bank considers whether the risks are limited in terms of handling
Risk Identification (RID): [Source: (Witzany, 2017); (Muhammad et al., 2018); (Hafez, 2015)]	
RID1	Bank identifies overall and systematic credit risk, taking into account its operational objectives.
RID2	Prioritizing risk is difficult for banks.
RID3	The bank is responsible for the identification of risks.
RID4	The bank is aware of the strengths and weaknesses of other banks' risk management systems.
RID5	Banks identify investment opportunities through processes.
Risk Monitoring (RMN): [Source: (Witzany, 2017); (Muhammad et al., 2018); (Hafez, 2015)]	
RMN1	The risk monitoring process also requires the presence of an action plan to deal with the identified risks.
RMN2	The degree of internal control of the bank is appropriate to the risks of the bank.
RMN3	The extent of the bank's external control is appropriate to the bank's risks.
RMN4	The bank's reporting process effectively supports credit risk management.
RMN5	Assess the effectiveness of existing risk and risk control methods required for risk monitoring.
Risk control (RCT): [Source: (Witzany, 2017); (Muhammad et al., 2018); (Hafez, 2015)]	
RCT1	Banks analyze the creditworthiness of customers before lending
RCT2	Before granting credit to customers, the bank conducts an analysis of the customer's characteristics, capabilities, collateral, and loan conditions.
RCT3	Borrowers are classified by risk factor
RCT4	Banks require customers to have suitable collateral for the loan

RCT5	Borrowers should have collateral
RCT6	Only some loans should be required as collateral
RCT7	Non-performing loans of the bank should be reduced
Credit Risk Management Practices (RMP): [Source: (Witzany, 2017); (Muhammad et al., 2018); (Hafez, 2015)]	
RMP1	The bank's management regularly evaluates the effectiveness of the bank's credit risk management
RMP2	The bank achieved high efficiency in credit risk management strategies
RMP3	The bank's credit risk management process is documented and communicated to staff
RMP4	Bank policy encourages training programs on credit risk management
RMP5	The bank focuses on recruiting highly qualified staff with knowledge in credit risk management
RMP6	Effective credit risk management is one of the bank's goals
RMP7	Credit concentration is very dangerous
RMP8	The bank's level of performance in credit risk management is excellent

4.3 Data analysis

This study was conducted to find out the factors that affect to risk management practices of Vietnamese banks. This is an exploratory study, so we used PLS-SEM to analyze the data as this method is the best approach for such research (Hair, J. F., Ringle, C. M., & Sarstedt, 2011). Besides, the sample size of this study is small, so PLS-SEM is the most suitable choice (Hair Jr. et al., 2017).

The research model is reflective. The first step is exam outer loading indicators. The threshold for the outer loading indicators is greater than 0.708, which implies that the construct reports for more than half of the variance in the indicator, suggestive of appropriate reliability (Hair Jr. et al., 2017).

The second step is to evaluate internal consistency reliability by using composite reliability. Composite reliability (CR) is greater than 0.70 and less than 0.95 is accepted (Hair, J. F., Ringle, C. M., & Sarstedt, 2011). Cronbach's alpha is another measure of internal consistency reliability that uses the same thresholds as composite reliability but yields lower values. Besides, the research use rho_A as an approximate exact measure of construct reliability that typically lies between Cronbach's alpha and the composite reliability as an alternative (Henseler et al., 2016). As a result, rho_A may be a good compromise if the factor model is correct, recommended 0.70-0.90. The third step will determine the convergent validity of all construct measures. This step is aim to examine the external loading of the item and the extracted mean-variance (AVE). The threshold of AVE is equal to or greater than 0.50 (Hair Jr. et al., 2017). The fourth step is to evaluate discriminant validity, to examine the difference between construct in model and theory, the threshold should be between 0.65 and 0.85.

Finally, goodness-of-fits were used to assess model fit for both the measurement and structural models. These include Chi-square-based model fit measures, and the standardized root means square residual (SRMR) (Henseler et al., 2016).

5. Empirical analysis and results

5.1 Assessing measurement model

Outer loadings, which are the loadings of the reflective manifest variables with their associated latent variables, can be used to assess the reliability of individual items. The outer loading of RMP3 was equal to 0.687, less than the threshold, and RMP3 is removed. All other items are greater than 0.708, implying that the project is reliable (Table 3.). The composite reliability (CR) of all items is greater than 0.88 but less than 0.93, which is sufficient. Cronbach's alpha ranges from 0.83 to 0.92, rho a ranges from 0.84 to 0.92, and AVE is greater than 0, 5, indicating that they meet the criteria.

Table 3: The results from the measurement model estimation

Latent variable	Manifest variable	Outer weight	Outer Loading	CR value	AVE	Cronbach's Alpha	rho_A
Risk Assessment (RAS)	RAS1	0.172	0.727	0.93	0.67	0.92	0.92
	RAS2	0.191	0.783				
	RAS3	0.203	0.891				
	RAS4	0.198	0.821				
	RAS5	0.162	0.862				
	RAS6	0.157	0.791				
	RAS7	0.143	0.829				
Risk Identification (RID)	RID1	0.270	0.791	0.88	0.60	0.83	0.84
	RID2	0.252	0.775				
	RID3	0.276	0.786				
	RID4	0.291	0.753				
	RID5	0.204	0.757				
Risk Monitoring (RMN)	RMN1	0.315	0.859	0.91	0.67	0.88	0.89
	RMN2	0.261	0.806				
	RMN3	0.190	0.758				
	RMN4	0.227	0.833				
	RMN5	0.222	0.838				
Risk control (RCT)	RCT1	0.170	0.783	0.92	0.63	0.90	0.91
	RCT2	0.170	0.783				
	RCT3	0.221	0.809				
	RCT4	0.203	0.862				
	RCT5	0.156	0.741				
	RCT6	0.149	0.708				
	RCT7	0.189	0.846				
Risk Management Practices (RMP)	RMP1	0.163	0.785	0.92	0.64	0.90	0.91
	RMP2	0.202	0.721				
	RMP4	0.189	0.802				
	RMP5	0.177	0.859				
	RMP6	0.194	0.807				
	RMP7	0.185	0.771				
	RMP8	0.145	0.785				

Source. Authors' findings

5.2 Assessing structural models

5.2.1 Discriminant Validity Results

According to Fornell and Larcker's (1981) criteria, there is no violation of discriminant validity. Table 4. Discriminant Validity Results

	RAS	RCT	RID	RMN	RMP
RAS	0.816				
RCT	0.556***	0.792			
RID	0.446***	0.536***	0.773		
RMN	0.428***	0.260**	0.214***	0.819	
RMP	0.616***	0.679***	0.528***	0.384***	0.797

Note: ** shows significant at $p < 0.5$; *** shows significant at $p < 0.01$.

Source. Authors' findings

Model fit statistics showed that the data fit with the model. The chi-square (χ^2) value was 2119.11 (df = 152, $p = 0.000$), the CMIN/df value was 3.46, the SRMR value was 0.084. So, the hypothesized model was reliable, valid, and distinct from one another (Hair, J. F., Ringle, C. M., & Sarstedt, 2011); (Marsh & Hocevar, 1985).

Table 5: Discriminant Validity Results

Hypothesis	Relationship	Proposed effects	SRW	Results
H1	Risk Assessment → Risk Management Practices	Positive	0.257	Supported
H2	Risk Identification → Risk Management Practices	Positive	0.163	Supported
H3	Risk Monitoring → Risk Management Practices	Positive	0.131	Supported
H4	Risk control → Risk Management Practices	Positive	0.415	Supported

Source. Authors' findings

After validating the measurement model, we estimated the relationship between latent variables. Figure 2 shows the path coefficients. The result of the R-squared endogenous latent variable is equal to 0.576

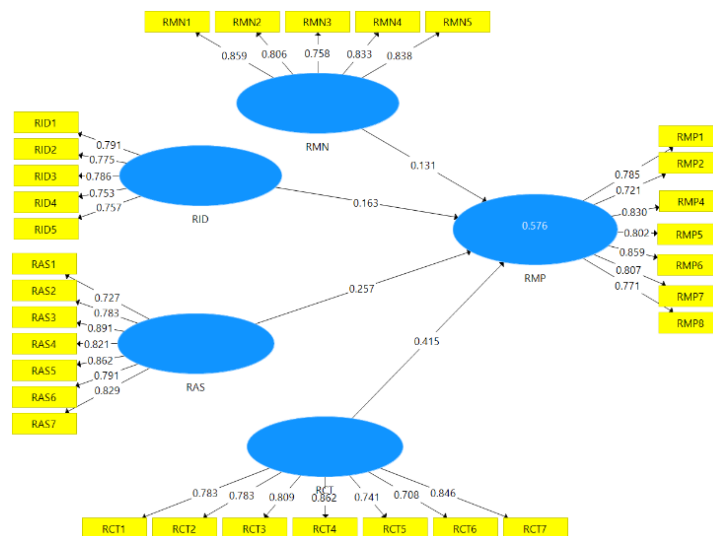


Figure 2: Path Coefficient Diagram Results

Source. Authors' findings

Research results show that risk management practices RMP has a positive effect on risk assessment RAS ($\beta = 0.257$, $p = 0.001$), risk identification RID ($\beta = 0.163$, $p = 0.003$), risk monitoring RMN ($\beta = 0.131$, $p = 0.009$), risk control ($\beta = 0.163$, $p = 0.039$). The findings supported hypotheses H1, H2, H3, and H4. This result shows the factors affecting the risk management practices of Vietnamese commercial banks including risk assessment, risk identification, risk monitoring, and risk control. In which, risk control is the most influential factor.

6. Discussion

The research result shows that risk identification has a positive impact on risk management practices, the results of this study are similar to those of Hafez (2015), Muhammad et al. (2018) (Muhammad et al., 2018). This shows that commercial banks in Vietnam need to pay more attention to this aspect of credit risk management (Hafez, 2015). The basis for successful credit risk management is to identify potential risks. Credit risk is not a new risk in banking activities but requires further analysis, especially for non-traditional credit products. The risk identification process needs to be carried out according to the process. Another issue that needs to be paid attention to is to ensure that the human resources team can well identify risks according to the process (Witzany, 2017).

The research result shows that risk monitoring has a positive impact on risk management practices, the results of this study are similar to those of Hafez (2015); Muhammad et al. (2018). This suggests that banks need to develop and implement a comprehensive loan monitoring process. Monitoring also needs to be grounded and reported to ensure that monitoring is carried out properly and regularly. In addition, to be effective, banks must ensure that they understand

the borrower's financial conditions, monitor compliance with covenant conditions in the loan agreement, timely classify problem credits, and suggest effective solutions (Witzany, 2017).

The research result shows that risk assessment has a positive impact on risk management practices, the results of this study are similar to those of Hafez (2015); Muhammad et al. (2018). This step is also important in the credit risk management process of the bank. However, to do this well is also a challenge for many banks. In the face of competitive pressure and capital sources, it is even more difficult to assess credit risk based on risk. The bank may rely on the customer's financial information for evaluation. This information should be reviewed regularly, especially for institutional and highly leveraged clients (Witzany, 2017).

The research results show that risk control has a positive impact on risk management practices, the results of this study are similar to those of Hafez (2015), Muhammad et al. (2018). Once credit risks have been identified and assessed, these risks need to be controlled. There are different ways to control risk including avoidance, risk prevention, loss minimization, risk transfer, and diversification bank (Witzany, 2017). Customers who have determined that there is high risk are not suitable for the lending policy and should avoid or refuse to lend. Preventing risks by removing the causes of risk, for loans where the risk factor has been identified but can be overcome, the bank can consider lending and implementing monitoring so that there are no risks that cause risks. Transferring risk entails arranging for someone to bear all or part of the loss. It is possible to transfer funds to an insurance company, a risk trader, or the state budget. Minimizing the loan risk's loss is a strategy for reducing the amount of damage caused by the risk if it occurs.

7. Management implications

Implications for State bank

According to Basel II, commercial banks can select one of three credit risk assessment methods and calculate the capital adequacy ratio using each method with the approval of the supervisory authority, subject to the provisions of each bank's current capacity. There is currently no document in Vietnam that guides the implementation of one of these three methods for commercial banks operating on Vietnamese territory. As a result, guiding documents for banks are required.

Implications for Vietnamese commercial banks

The research result is the guideline for strengthening risk management practices in commercial banks in Vietnam as follows:

Commercial banks should improve their internal credit risk management inspection and control systems. Improving the responsibility and role of internal inspection and control is a precautionary measure to avoid potential risks. Control activities can detect, prevent, and correct errors in the course of performing credit operations. Furthermore, it is necessary to concentrate on strengthening control activities to detect and prevent moral risks caused by credit officers.

Vietnamese commercial banks should strengthen their financial capacity. To increase the equity-to-total assets (ETA) ratio, increase the charter capital scale, and ensure the minimum capital adequacy ratio by international standards, regulations of the State Bank, and Basel II standards, Vietnamese commercial banks need to determine an appropriate percentage of net profit to be retained annually, to increase charter capital and form a bank with greater financial capacity. The increase in equity ratio requires a roadmap and method suitable to the specific situation of each bank, avoiding pressure on maintaining profitability for investors.

Commercial banks need to focus on expanding the scale of operations, improving technology, and improving the operational efficiency of the risk management process to help the bank develop stably and sustainably, taking advantage of its scale to improve the efficiency of resource use. To expand their scale, commercial banks need to clearly define their main business directions and activities to focus their existing resources to serve this priority goal.

The banks need to handle financial backlogs as soon as possible, including bad debt settlement and divestment at credit institutions due to cross-ownership. To meet the requirements, Vietnamese commercial banks need to accurately assess the status of non-performing loans and determine the correct nature to handle them by proactively collecting debts. It is necessary to classify non-performing loans in detail according to the criteria of loans due to objective and subjective impacts, classified by level of risk, and classify loans based on areas to have appropriate handling measures. Develop a plan, have a detailed roadmap for implementation to ensure proper divestment, contribute to creating a healthy environment for banking activities, limit risks due to domination through cross-ownership, and help the bank safer.

Credit risk management should be improved by banks. The risk management process must be implemented individually for each risk as well as for the entire risk portfolio. Commercial banks must implement credit risk management for each credit as well as the entire credit portfolio. A system for monitoring the quality of the entire credit portfolio should be in place appropriate to the nature, size, and complexity. Besides, to strengthen credit risk management, banks need to perfect the banking supervision system to improve the quality of financial analysis and develop an early warning system for potential problems in the bank's operations, including analyzing financial statements and identifying sensitive "spots"; Create and standardize banking supervision methods based on theory and practice; Improve risk provisioning techniques; Create an approach to internal risk management quality assessment. Creating systems and policies to manage international capital flows and foreign debt.

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