

Determinants of Credit Risk Management and Their Relationship with the Performance of Commercial Banks in Guangdong China

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ABSTRACT

The purpose of this study is to explore the relationship of the determinants of credit risk management and performance of banks. Also, the main focus is determining the mediating role of credit risk management to the said relationship. In this research, the level of risk associated with credit risk management, in terms of environmental risk, credit appraisal measurement, and market risk analysis was measured. The performance of banks was assessed in this study. At the same time, the credit risk management of banks was also part of the assessment done in this research. The researcher used quantitative methods to achieve the purpose, research questions, objectives, and hypotheses of the paper. Descriptive research was used in order to conduct the objectives of this research. The respondents of the study are managers of banks in the Southern Region of China with a total of 97 samples that represented the whole population. The data was collected, tabulated, analyzed and interpreted by the researcher. Statistical treatments were used in order to analyze the data collected in the conduct of the survey. The results indicate a positive correlation between environmental risk and credit risk management. The study also found that credit appraisal measurement and market risk analysis have a significant relationship with credit risk management, and market risk analysis has a significant impact on credit risk management thus rejecting the null hypothesis of the study. The research results also indicate that credit risk management does not have a mediating role between the relationship of environmental risk, credit appraisal measurement, market risk analysis to bank performance thus accepting the null hypothesis of the study. A credit risk mitigation strategy was proposed based on the results and findings of the study.

KEYWORDS

Credit risk management; Bank performance; Environmental risk; Credit appraisal measurement; Market risk analysis

1. INTRODUCTION

Banks nowadays continue to rise and have been an important part of the economy. They are proven to not only provide consumers essential services but also help create capital and liquidity in the market. Banks is a business that usually relies on customers and businesses who are interested in savings, but most importantly in loans. In today's time, banks aim to extend credit so that they can boost earnings. They typically earn and make money from a variety of fees by earning interest income from loans. These loans may differ in form such as residential mortgages, auto loans, and even credit cards. However, just like any loan, there is a corresponding risk in this type of service. The higher their existing loans or credits, the higher the risk that a banks can face. As this is one of their major sources of income, managing risk is a major part of their day-to-day operation. It is one of the responsibilities of banks to ensure that the money of their customers is secured while carrying out all

banking operations related to deposit, withdrawals, and even investment. This then, can determine how banks perform. As loan services are one of the main offers of the banks, risk associated with this must be handled properly as this can affect how banks can perform. One of the major risk bank experiences is the credit risk which occurs when borrowers or counterparties fail to meet contractual obligations. As this is a risk that is present in banks, proper credit risk management is a must. According to Vaidya (2024), credit risk management refers to measuring and mitigating the risks associated with the lent amount and being aware of the bank's reserves to be used at any given time.

Considering that loan services are one of the major offerings and sources of income for banks, it is important to assess their credit risk management implementation and how it can relate to their performance. In different regions of China such as the Southern Region, banks suffer losses due to the country's crisis (Lee, 2023). As a crisis exists, risk can also increase. Since banks rely on credit and loans as one of their major sources of income and main service, understanding how they manage credit risk is important. This study aims to assess the determinants of credit risk management and its relationship with the performance of banks in the Southern Region in China.

At present, the economic situation in China is still severe, and some industries and enterprises are facing certain operating pressures, which may bring non-performing asset risks to commercial banks. On the other hand, due to the impact of the epidemic, war, and the overall environment, overcapacity may lead to new non-performing loans, which directly affects its operational stability and profitability. In today's time, the economic situation in China is still severe, and some industries and enterprises are facing certain operating pressures, which may bring non-performing asset risks to commercial banks. The impact of the epidemic, war, and the overall environment, overcapacity may lead to new non-performing loans, which directly affects its operational stability and profitability. As the year of 2024 entered, China has recorded that new bank loans jumped more than expected to an alltime high. Hua & Yao (2024) stated that banks extended 4.92 trillion yuan loans in January. Despite the increase this year, it was not enough to recover from the decline in terms of new loans brought by the weak economic outlook left by consumers and companies. The shaky recovery in terms of credits and loans serves as a call for commercial banks to still strengthen credit risk management. Due to the fact that one of the main sources of income for Chinese banks is the interest rate difference between deposits and loans, the operational performance of commercial banks is closely related to their level of risk control. One of the regions affected by multiple banking issues in China is the Southern Region and its cities. As Chinese banks faced multiple issues and problems over the past few years, recovery has been a challenge for different banks. One of which is the pandemic and the fall of trust of the market to banks due to reports of banks illegally attracting money from savers. According to He (2022), the ongoing slowdowns in the economy have further exposed financial institutions to new credit risks. Specifically, under the influence of economic conditions, credit risk rises and it increases non-performing loans within banks. This just shows how banks should give focus on credit risk management. The presence of these threats just shows the importance of understanding how commercial bank initiatives in terms of credit risk management have affected the institution. Specifically, this study aims to assess the determinants of credit risk management and its relationship with the performance of commercial banks in the Southern Region in China.

2. OBJECTIVES

The general objective of this study is to examine the determinants of credit risk management in banks in the Southern Region of China and their relationship with the bank performance.

3. MATERIALS AND METHODS

3.1. Research Design

This study used a descriptive research method because it is the most applicable to examine the determinants of credit risk management in banks in the Southern Region of China and their relationship with bank performance. This method allowed the researcher to conduct surveys, collect data, analyze, and validate research results. The researcher used a quantitative method for the conduct of the study. According to Bhandari (2020), quantitative research is the process of collecting and analyzing numerical data. Since the researcher will use collecting of numerical data through survey, quantitative research methods will be utilized in this study. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to a wider population.

3.2. Respondents of the Study

The respondents of the study are 97 banks in the Southern Region of China. Simple random sampling design was used to determine the population of the target respondents. A number is allocated to each respondent in the sample and the sample is selected randomly to ensure fairness and unbiased selection of the participants of the study.

3.3. Data Gathering Instrument

The researcher used a self-constructed questionnaire as the instrument to acquire the needed data and information for the study. The researcher also browsed relevant books, online references, journals, articles, and related studies in formulating the research questionnaire.

After gathering relevant data to construct the questionnaire, the instrument was divided into three parts. The first part focused on the description of the bank performance. On the other hand, the second part of the questionnaire consists of questions that aim to describe the credit risk management implementation of banks. The last and third part assesses the level of risk associated with credit risk management in terms of its variables namely environmental risk, credit appraisal measurement, and market risk analysis.

The constructed questionnaire was validated by the panel of experts and through the conduct of dry-run. The researcher used a rating and a scale in order for the respondents to assess the different variables of the study. The use of this scale helps the researcher to use precise and detailed answers from the respondents. The scale that was used in this survey provided a balance between enough points to capture the distinguished responses for this study.

In order to gather the data needed for this study, the researcher first identified and gathered the list of banks from the Southern Region of China. After identifying these commercial banks, the researcher randomly selected the commercial banks that will participate in the study. The researcher determined and randomly selected 99 samples of commercial banks that served as the respondents of the study. These 99 commercial banks were randomly picked through the use of a wheel of names. In order to have permission, the researcher kindly requested from the commercial banks to participate in the study. The commercial banks were represented by the managers. During data gathering, the researcher assisted the respondents answering the survey questionnaire when needed and asked. After data gathering and retrieving the needed information, the researcher then analyzed and interpreted the gathered data.

4. RESULTS AND DISCUSSION

4.1. Performance of Banks

Table 1. Description of Bank Performance

Items	Mean	SD	Interpretation
1. The bank's executive management regularly reviews the organization's performance in managing business risks.	6.38	0.666	Good
2. Banks need to continuously review and provide feedback on risk management strategies and performance	6.41	0.671	Good
3. The bank's risk management procedures and processes have been documented and employees have been guided to manage risks.	6.42	0.641	Good
4. The profitability of a bank includes: return on equity, earnings per share, risk adjusted return on capital, revenue to net profit margin, cost to cost ratio, asset gross profit margin, and profit margin.	6.4	0.638	Good
5. The business environment includes both external and internal environments, which are very favorable for business performance in favorable circumstances.	6.46	0.691	Good
6. Bank performance measurement projects are usually evaluated and can provide decision-making basis for managers.	6.42	0.625	Good
7. The performance evaluation of banks mainly includes: Business environment, ownership and management rights, management level, business value and profitability.	6.33	0.67	Good
8. The performance of the bank also includes financial indicators.	6.37	0.709	Good
9. I think the larger the asset size of a bank, the better its operating performance will be.	6.13	0.833	Good
10. I believe that the growth rate of bank deposits plays a decisive role in bank performance.	6.27	0.794	Good
11. I think the stronger the bank's ability to absorb deposits, the better its performance will be relatively.	6.29	0.786	Good
12. The return on assets, net profit, and cost-benefit ratio of a bank are used to measure the profitability, cost control ability, and operational efficiency of banks.	6.4	0.714	Good
Overall Mean	6.35	0.563	Good

Table 1 presented the assessment of the banks towards their performance with an overall mean of 6.35 and a standard deviation of 0.563. and a verbal interpretation of good. Findings revealed that the business environment includes both external and internal environments which are very favorable for business performance in favorable circumstances showing the highest mean of 6.46 and a verbal interpretation of good. This shows that the internal and external environment of banks can determine the performance of banks. Based on the findings, a good bank's risk management procedures and processes are being documented while employees are being guided to manage risks with the second highest mean of 6.42. This shows that banks have a standard procedure being followed to handle or manage risks. At the same time, performance is improved due to the implementation of the said procedure.

In addition to this, it is well noted that every employee of the banks is informed and trained to follow the said procedure and process. This is followed by the statement that banks need to continuously review and provide feedback on risk management strategies and performance with a mean of 6.41 and a verbal interpretation of good. This just shows that banks properly monitor their performance and evaluate it regularly. Moreover, feedback is provided to know if risk management strategies are working effectively and if adjustments are needed to make improvements and necessary adjustments. This feedback helps to make sure that the implementation of credit risk strategies helps in bettering the performance of the banks. Aside from procedures, banks make sure to properly evaluate the risk management strategies and performance so that if it's not working, changes can be made and improvements can be implemented. On the other hand, the statement that the larger the asset size of a bank, the better its operating performance will be got the lowest mean of 6.13 and a verbal interpretation of good.

This is followed by the statement that the stronger the bank’s ability to absorb deposits, the better its performance will be relative with a mean of 6.29 and a verbal interpretation of good. The result shows that banks do not look at asset size and deposits as the basis of good performance. Moreover, banks think that the stronger the bank’s ability to absorb deposits, the better its performance relatively with one of the lowest mean of 6.29 and a verbal interpretation of good. This finding shows that although deposits are one of the services that bank offers, it is not the main source of good performance. There are other services that the bank offers. At the same time, there is not much risk associated with deposits compared to the risk associated with credits and loans. Also, banks are most likely to generate income from credit services due to the interest they earn from it compared to deposits.

Based on the findings, banks are implementing proper risk management strategies which include proper procedures and processes. These are well disseminated to each employee since they are the ones who usually perform the said process. At the same time, proper evaluation and assessment are being done during the implementation of strategies so that things can be adjusted based on the areas that need improvement. However, results also revealed that banks determine a good performance based on loans rather than deposits. Although asset size is also important, it is not the main basis or determinant of a good performance. They usually rely on earnings and number of customers in terms of good performance. Their service offering and increase in the number of clients is a basis of a good performance. At the same time, it is usually based on how they retain existing customers. Also, they banks don’t mainly rely on one service offered such as deposits as the basis for good performance. There are other services offered such as loans and investments that can serve as a basis of good performance. It is also based on the number of clients from each service that is being offered.

4.2. Description of Credit Risk Management Implementation

Table 2. Description of Credit Risk Management Implementation

Items	Mean	SD	Interpretation
1. Banks should effectively transform their credit risk strategies	6.57	0.689	Very Good
2. Banks need an effective risk management framework (infrastructure, processes, and policies) to manage credit risk	6.57	0.609	Very Good
3. Banks have a credit risk rating framework that covers all types of credit activities.	6.5	0.692	Very Good
4. Banks monitor the quality of their credit portfolios daily and take remedial measures in case of any deterioration.	6.54	0.706	Very Good
5. Banks should be able to timely obtain and organize information on borrowers and credit portfolios, and provide useful risk analysis tools.	6.55	0.628	Very Good
6. The risk management process of banks should clearly define the responsibilities and workflow of employees.	6.55	0.66	Very Good
7. Banks should be able to regularly assess credit risk, including the borrower’s credit value, default probability, and potential losses. This typically involves the use of statistical models and credit rating systems.	6.58	0.608	Very Good
8. Banks should establish a credit risk rating framework that covers all types of credit activities and monitor the quality of credit portfolios.	6.46	0.72	Good
9. The credit risk rating framework and monitoring system of banks help them identify potential risks and ensure the quality and health of their credit portfolios.	6.54	0.645	Very Good
10. The credit risk strategy formulated by banks is an important step in ensuring that banks take appropriate measures to address credit risks.	6.54	0.595	Very Good
11. The bank’s credit risk strategy should clearly define the bank’s risk tolerance, risk preference, and risk management objectives.	6.57	0.609	Very Good
12. banks communicate and implement credit risk strategies within the bank through policies and procedures.	6.43	0.674	Good
Overall Mean	6.53	0.544	Very Good

Table 2 shows the assessment of credit risk management implementation of banks with an overall

mean of 6.53 and a standard deviation of 0.544 with a verbal interpretation of very good. Findings reveal that banks regularly assess credit risk which includes the borrower's credit value, default profitability, and potential losses with the use of statistical models and credit rating systems with the highest mean of 6.58 and a standard deviation of 0.608 with a verbal interpretation of very good. This shows that banks make sure that they regularly update the credit performance and profile of clients. This is followed by the statement that banks effectively transform their credit risk strategies, have an effective risk management framework, and the credit risk strategy clearly defines the bank's risk tolerance, risk preference, and risk management objectives all with a mean of 6.57 and a verbal interpretation of very good. Also, banks effectively transform their credit risk strategies showing a mean of 6.57 and a verbal interpretation of good. Based on this finding, banks usually adjust their strategies to effectively implement credit risk management.

On the other hand, the statement that banks communicate and implement credit risk strategies within the bank policies and procedures has the lowest mean of 6.43 and a verbal interpretation of good. This shows that although employees are aware of the credit risk strategies, banks should exert more effort when it comes to employee implementation. This is followed by the statement wherein banks should establish a credit risk framework that covers all types of credit activities and monitor the quality of credit portfolio with a mean of 6.46 and a verbal interpretation of good. Banks do not include their credit risk strategies as part of their policies but instead, this is a separate aspect of procedure within the banks. Credit risk strategies help banks to properly handle risks within the organization. At the same time, this is a separate management and is a part of precaution for banks in terms of credit approval and assessments.

Findings revealed that banks have standard procedures for monitoring their client's current credit portfolios or profiles. At the same time, they have the information they need about their customers which helps them to regularly monitor clients. In addition to this, banks use statistical methods to assess the accurate payment scheme and acceptability of clients for loans and other credit activities. The credit risk strategies of banks are also aligned with the capacity of the bank in terms of possible risks. Meanwhile, findings also revealed that although there is communication regarding risk strategies to the employees, banks must ensure that the employees are also well trained and educated on its implementation and what to do based on the information on credit risk strategies. The employees must be aware of different risk strategy implementations to lower the possibility of risks.

4.3. Level of Risk Associated with Credit Risk Management in Terms of Environmental Risk

Table 3 shows the results of the assessment of credit risk management in terms of credit risk management with an overall mean of 6.45, a standard deviation of 0.556 and a verbal interpretation of high. The statement changes in national policies will have an impact on bank credit has the highest mean of 6.60 with a verbal interpretation of very high. This is followed by the statement that national laws affect bank credit business with a mean of 6.57 and a verbal interpretation of very high. This shows that the law imposed by the government affects bank credit and even the business itself of banks. Also, banks have a very high environmental risk when it comes to changes in the economic environment that will also have an impact on bank credit. Finding reveals that changes in the nation's economy can affect bank credit. This may include different economic situations. Meanwhile, the statement that the borrower's concept is weak has the lowest mean of 6.09 and a verbal interpretation of high followed by the statement that banks believe that natural disasters such as earthquake and fires will have a significant impact on bank credit with a mean of 6.34 and a verbal interpretation of high. Although natural disasters happen, it does not necessarily affect banks operation and credit risk that much. Moreover, there is a high risk in terms of environment risk towards the impact of the borrower's business management status, leading to or exacerbating bank loans risks showing one of the lowest mean of 6.40 and a verbal interpretation of high. Findings revealed that the law and national policies affect the bank credit. Their compliance to the rules and regulation could lead to adjustments

and changes in bank credit. The way they operate could be based as well in the policies and law. At the same time, natural disasters do not have a very high effect on banks. There are also clients who are much not aware of credit risks. In addition, it is important that commercial banks can inform borrowers regarding the concept of credit risk for a more effective transaction and communication.

Table 3. Level of Risk Associated with Credit Risk Management in Terms of Environmental Risk

Items	Mean	SD	Interpretation
1. I believe that natural disasters such as earthquakes and fires will have a significant impact on bank credit.	6.34	0.745	High
2. Changes in national policies will also have an impact on bank credit.	6.6	0.622	Very High
3. National laws also affect bank credit business	6.57	0.642	Very High
4. Changes in macroeconomic policies will also have an impact on bank credit.	6.5	0.736	Very High
5. Changes in the economic environment will also have an impact on bank credit.	6.56	0.627	Very High
6. The impact of social credit status on bank credit.	6.51	0.692	Very High
7. Changes in the political environment have an impact on bank credit.	6.45	0.748	High
8. Changes in national policies and regulations can affect the efficiency of certain enterprises and indirectly affect banks.	6.49	0.707	High
9. The borrower's credit concept is weak.	6.09	0.909	High
10. The impact of the borrower's business management status, leading to or exacerbating bank loan risks.	6.4	0.729	High
11. The impact of market supply and demand. Market weakness first causes operational risks for enterprises, and then leads to bank loan risks through enterprises.	6.47	0.692	High
Overall Mean	6.45	0.556	High

4.4. Level of Risk Associated with Credit Risk Management in terms of Credit Appraisal Measurement

Table 4. Level of Risk Associated with Credit Risk Management in terms of Credit Appraisal Measurement

Items	Mean	SD	Interpretation
1. I think the borrower's personality is very important during the credit review period in the bank's credit department.	6.23	0.859	High
2. I think the bank's credit department should evaluate the borrower's collateral.	6.46	0.661	High
3. I believe that the bank's credit department is very concerned about the borrower's repayment ability during the credit review period.	6.48	0.677	High
4. Credit affects the borrower's own funds.	6.36	0.707	High
5. Credit records are a key focus of review for the bank's credit department.	6.45	0.69	High
6. The bank's credit department needs to conduct in-depth investigations into the borrower's income situation	6.43	0.718	High
7. The bank's credit department regularly reviews the borrower's debt situation.	6.52	0.677	Very High
8. In case of misappropriation of loan funds, it is necessary to request early settlement of the loan.	6.4	0.685	High
9. The bank's credit department always checks the borrower's interest rate and repayment period during credit review.	6.35	0.788	High
10. The bank's credit department regularly reviews the borrower's collateral.	6.32	0.781	High
Overall Mean	6.4	0.594	High

Table 4 presents the findings of the assessment of credit appraisal measurement with an overall mean of 6.4, a standard deviation of 0.594 and a verbal interpretation of high. The statement that the bank's

credit department regularly reviews the borrower's debt situation has the highest mean of 6.52 and a verbal interpretation of very high. This is to ensure that borrower performance in paying will not be affected by other debts. This is followed by the statement that the bank's credit department is very concerned about the borrower's repayment ability during the credit review period with a mean of 6.48 and a verbal interpretation of high. Checking the potential clients' ability to pay is necessary to ensure that there will be no late payments and minimize risks as well. Meanwhile, the statement that banks think the borrower's personality is very important during the credit review period in the bank's credit department has the lowest mean of 6.23 and a verbal interpretation of high. The finding shows that banks experience high risk in terms of the borrower's personality, however this risk is not commonly experienced by banks since they were able to counter check the client's background. This is followed by the statement that bank's credit departments regularly review the borrower's collateral with a mean of 6.32 and a verbal interpretation of high. Also, the bank's credit department always checks the borrower's interest rate and repayment period during credit review with a mean of 6.35 and a verbal interpretation of high. Part of the initiative of banks to ensure quality transactions and minimize credit appraisal risk is to review the debt situation of their potential and existing clients. They must consider checking the collaterals and assets of clients in order to assure that they can regularly pay debts. In addition to this, part of background checking of commercial banks to potential clients is to know the ability of banks to pay debt on time and have a review period for existing clients. Although personality is important from the borrower, commercial banks are most likely to consider the ability to pay rather than personality.

4.5. Level of Risk Associated with Credit Risk Management in terms of Market Risk Analysis

Table 5. Level of Risk Associated with Credit Risk Management in Terms of Market Risk Analysis

Items	Mean	SD	Interpretation
1. The market risk strategy that banks need to develop.	6.46	0.629	High
2. Banks have an effective risk management framework (infrastructure, processes, and policies) in place to manage market risk	6.43	0.626	High
3. The overall market risk exposure of the bank remains at a prudent level consistent with available capital	6.3	0.721	High
4. Banks adopt multiple risk measurement methods to capture market risks in various business activities.	6.41	0.686	High
5. Banks can reduce interest rate risk through diversified operations.	6.47	0.677	High
6. In order to achieve market globalization and business internationalization, exchange rate risk is a common risk in the market.	6.41	0.64	High
7. Stock and commodity prices can also pose risks to bank credit.	6.36	0.722	High
8. The management of market risk in banks mainly relies on the use of fund management strategies and interest rate management tools to control risks within an appropriate range and avoid the worst-case scenario.	6.43	0.626	High
9. Interest rate risk can be quantified through gap analysis and duration analysis.	6.44	0.627	High
10. Exchange rate risk mainly comes from currency mismatches in off balance sheet and off balance sheet transactions of banks. That is to say, during a certain period of time, when banks have inconsistent long and short positions in a certain currency, the resulting differences form foreign exchange exposure.	6.41	0.701	High
Overall Mean	6.41	0.568	High

Table 5 presents the findings of the assessment of the market risk analysis with a composite mean of 6.41 and a verbal interpretation of high. Based on the findings, banks can reduce interest rate risk through diversified operations showing the highest mean of 6.47 and a verbal interpretation of high. This shows that banks have initiatives to minimize interest rate risk by coming up with different options. Meanwhile, results show that the market risk strategy that banks need to develop shows a

mean of 6.46 and a verbal interpretation of high. Banks must develop more market risk strategies for further improvements and management. On the other hand, interest rate risk can be quantified through gap analysis and duration analysis shows a mean of 6.44 and a verbal interpretation of high. On the other hand, the overall market risk exposure of the bank remains at a prudent level consistent with available capital has the lowest mean of 6.30 and a verbal interpretation of high. This finding shows that although there is a market risk exposure, this is not as complicated as the other risks due to the availability of capital. Also, stock and commodity prices can also pose risk to bank credit showing a mean of 6.36 and a verbal interpretation of high. Moreover, in order to achieve market globalization and business internationalization, exchange rate risk is a common risk in the market that shows a mean of 6.41. This is due to the fact that the risk banks experience is affected by changes in exchange rates between currencies. Banks are then exposed to this type of risk due the day to day transition of exchange rates.

The exposure of banks to market risk may be high specifically due to the nature of the business. At the same time, the risks that banks usually face come from interest rates risks as this is the type of risk that can't be solved through diversification. These risks usually happen since commercial banks do not have a very low effective risk management framework that can serve as a guide or basis for them to minimize or avoid market risks. Despite this, commercial banks have very low exchange rate risks. This is because they don't usually encounter currency mismatches in their balance sheet transactions. At the same time, they are not usually affected by foreign exchange exposure.

4.6. Mediating Role of Credit Risk Management to the Relationship between its Determinants and Bank Performance

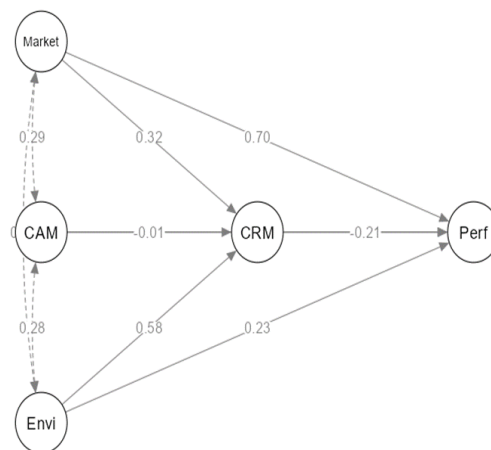


Figure 1. Statistical Paradigm of the Mediating Role of Credit Risk Management to the Relationship Between its Determinants and Bank Performance

Table 6 and figure 1 shows the findings of the mediating role of credit risk management to the relationship between its determinants and performance of banks. Findings revealed that market risk has a total significant relationship with bank performance showing a p-value of <.001. The said findings shows that the condition of the market can serve as a basis on how the bank will perform. Several factors such as currency value, stock market, and more can determine a good or bad performance for banks. Meanwhile, environmental risk and credit appraisal measurement does not have a significant relationship on bank performance showing a p-value of 0.204 and 0.088. Although both determinants are important, its relationship with the bank performance may vary and change depending on seasons. Meanwhile, in terms of component, there is a significant relationship between environmental risk and credit risk management with a p-value of <.001 thus rejecting the null hypothesis of the study. This shows that the risk associated with the environment can contribute to how credit risk is being managed within the bank. In addition to this, credit risk management has a significant relationship with bank performance showing a p-value of 0.022 while market risk analysis

has a significant relationship with credit risk management with a p-value of $<.001$. Since banks are usually open to risks, the way they manage can affect the bank's performance. At the same time, market risks could very much affect a bank thus it can relate to how credit risk is being managed.

Table 6. Mediating Role of Credit Risk Management to the Relationship between its Determinants and Bank Performance

Effect	Estimate	SE	β	z	p	Decision to Ho	Interpretation
Indirect							
Envi \rightarrow CRM \rightarrow perf	-0.1247	0.0578	-0.12316	-2.157	0.031	Reject	Significant
CAM \rightarrow CRM \rightarrow perf	0.00255	0.0232	0.00269	0.11	0.912	Failed to Reject	Not Significant
Market \rightarrow CRM \rightarrow perf	-0.06887	0.0365	-0.06943	-1.887	0.059	Failed to Reject	Not Significant
Component							
Envi \rightarrow CRM	0.58438	0.0908	0.59753	6.438	$<.001$	Reject	Significant
CRM \rightarrow perf	-0.21339	0.0932	-0.20611	-2.289	0.022	Reject	Significant
CAM \rightarrow CRM	-0.01195	0.1084	-0.01305	-0.11	0.912	Failed to Reject	Not Significant
Market \rightarrow CRM	0.32272	0.0969	0.33688	3.332	$<.001$	Reject	Significant
Direct							
Envi \rightarrow perf	0.2345	0.0999	0.23159	2.347	0.019	Reject	Significant
CAM \rightarrow perf	0.17345	0.1	0.18298	1.734	0.083	Failed to Reject	Not Significant
Market \rightarrow perf	0.70202	0.0943	0.70781	7.444	$<.001$	Reject	Significant
Total							
Envi \rightarrow perf	0.10979	0.0864	0.10843	1.271	0.204	Failed to Reject	Not Significant
CAM \rightarrow perf	0.176	0.1032	0.18567	1.706	0.088	Failed to Reject	Not Significant
Market \rightarrow perf	0.63315	0.0922	0.63838	6.866	$<.001$	Reject	Significant

On the other hand, credit appraisal measurement does not have a significant relationship with credit risk management with a p-value of 0.912 thus accepting the null hypothesis of the study. Credit appraisal management is another factor that has its own strategy in terms of management. On the other hand, environmental risk and market risk both have a significant relationship with bank performance with a p-value of 0.019 and $<.001$ thus rejecting the null hypothesis. Findings show that the entrant of risk coming from the environment and the market can determine how the bank will perform. Meanwhile, there is no significant relationship between credit appraisal measurement and bank performance with a p-value of 0.083 thus accepting the hypothesis. Since credit appraisal measurement is a process of identifying the capacity of borrowers it does not necessarily lead to bank performance. Although this is considered as an important procedure in banks.

Lastly, credit risk management has an indirect mediating role to the relationship between environmental risk and performance of banks showing a p-value of 0.031. This shows that the way banks manage environmental risk can affect how they will perform. Furthermore, credit risk management does not mediate the relationship of credit appraisal measurement and market risk analysis to the performance of banks showing a p-value of 0.912 and 0.059 respectively. Specifically, the said findings revealed that the risk associated with credit appraisal measurement and market risk analysis leads can determine how a bank will perform without the role of credit risk management. Findings revealed that market risk is one of the variables that contributes the most to the performance of banks. The different conditions in the market can greatly determine how a bank will perform. Meanwhile, credit risk management mediates the relationship between environmental risk and bank performance. The way banks handle different environmental risks through credit risk management can influence how they will perform. Credit appraisal measurement on the other hand is a process or procedure for banks rather than considering it as a risk.

Findings revealed that market risk is one of the variables that contributes the most to the performance of commercial banks. The different conditions in the market can greatly determine how a bank will

perform. Meanwhile, credit risk management mediates the relationship of environmental risk and commercial bank performance. The way banks handle different environmental risk through credit risk management can influence how they will perform. Credit appraisal measurement on the other hand is a process or procedure for commercial banks rather than considering it as a risks.

According to Sweta (2024), market risk is a measure of all the factors affecting the performance of financial markets. From an investor’s perspective, it refers to the possibility of an investor experiencing losses due to the factors that affect an overall performance of the financial markets in which such investor has made investments. In addition to this, Mantri (2022) stated that credit appraisal is the evaluation process conducted by financial institutions such as banks or lenders to assess the creditworthiness and risk associated with extending credit to a borrower. In addition to this, it involves analyzing various aspects of the borrower’s financial health including their income, assets, liabilities, credit history, and repayment capacity. On the other hand, the study of

Ndyagyenda (2020) revealed that strong credit appraisal puts the milestones for an effective management of credit risk and gives the firms a competitive advantage in the marketplace. It was concluded in this study that credit appraisal defines a bank’s survival and profitability. Based on the findings, it was recommended that management of the banks should continuously assess their risk management practices.

4.7. Proposed Credit Risk Mitigation Strategies

Table 7. Proposed Credit Risk Mitigation Strategies

Determinants	Credit Risk Mitigation Strategy
Environmental Risk	<ul style="list-style-type: none"> • <i>Initial Risk Assessment.</i> This involves identifying actual and potential risks coming from environmental risks. In this strategy, the following will be monitored: <ul style="list-style-type: none"> ○ Technical Risks - including failure to deliver and follow-on difficulties where completion is contingent in achieving milestones in early projects. ○ Financial risks - this includes overruns, reduction in budgets, and professional indemnity risks ○ Social/political risks - this
	For the initial risk assessment, information is required to assess the level of risk and to provide a basis for risk reduction and management.
Credit Appraisal Measurement	<ul style="list-style-type: none"> • <i>Streamlined Customer Onboarding Process.</i> The onboarding process is a key touchpoint for customers within the organization, where first impressions are often formed. The whole process should be seamless and hassle-free for better customer experiences. • <i>Periodic credit review.</i> Constant monitoring of customer’s financial health is crucial to stay on top of high-risk customer accounts. This can be done with periodic credit risk reviews. Implementation includes updating of credit data and scores in specific time intervals of better credit risk accuracy.
Market Risk Analysis	<ul style="list-style-type: none"> • <i>Stress Testing and Scenario Analysis.</i> This involves subjecting a portfolio to various extreme market scenarios to assess its resilience and potential losses. Banks can identify vulnerabilities and refine risk management strategies by simulating adverse events.

Findings of the study revealed that banks in the Southern Region of China are in need of credit risk mitigation strategies. Although the level of risk associated with credit risk management In terms of environmental risk, credit risk appraisal measurement, and market risk analysis are low, it is still leading to a poor performance for banks. In addition to this, both credit risk appraisal measurement and market risk analysis have a relationship with the performance of banks. Meaning that these are important factors that can determine how banks will perform. Since the findings show the importance of credit risk management from banks, the implementation is found to have a mediating role in terms of handling different risks. However, it was found that all determinants of credit risk management have high risks which can affect banks. Based on the said findings, the researcher proposed credit risk mitigation strategies in order for banks to minimize the exposure of banks in credit risk. According to Fisher (2023), credit risk mitigation strategy is a process by which a company reduces its exposure to credit risks. This can help banks to navigate the landscape of credit risk and mitigate vulnerabilities. Table 7 shows the proposed credit risk mitigation strategy per determinants.

Table 8. Risk Monitoring Tool

Risk #	Topic	Risk	Control Environment	Risk Assessment	Control Activities	Monitoring	Risk Judgement	Impact	Risk Level

Part of the proposed strategy is the risk monitoring tool. Table 8 shows the proposed risk monitoring tool. This includes the risk, topic it includes things such as its nature (i.e., disasters, floods, fire, etc.) which can affect the operations of banks. The area of risk is to be provided under the topic table. Risk specifies the definition of the actual risk. Control environment involves the set of standards, structures, and processes that are needed to control the risk. Meanwhile, risk assessment provides the general idea of how the risk will impact the operations of banks. On the other hand, control activities involve details of the policies, procedures, techniques, mechanisms in place for management’s reduction of risk. Monitoring tracks the identified risks and execution of risk management while risk judgment is the further classification or clarification of risks in terms of priority (high, medium, low drop list). Impact is the potential impact of risk to the banks while risk level further defines the risk.

5. CONCLUSIONS

Based on the findings of the study, the following conclusions were drawn:

- (1) Banks in the Southern Region in China have a good performance.
- (2) Banks in selected Southern Region in China have a very good credit risk management implementation.
- (3) The level of risks associated with credit risk management in terms of environmental risks, credit appraisal measurement, and market risk analysis are all very high.
- (4) Credit risk management effectiveness mediates the relationship of its determinants and performance of banks.
- (5) Credit risk mitigation strategy was proposed in order to minimize the impact of risks of banks.

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