THE INFLUENCING FACTORS OF CREDIT RISK MANAGEMENT OF SMALL AND MICRO ENTERPRISES OF JIAO TONG BANK IN GUANGXI NANNING

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This Independent Study has been Approved as a Partial Fulfillment of the Requirements for the Degree of Master of Business Administration

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ABSTRACT

This study aimed to provide valuable risk management strategies for commercial banks by deeply analyzing the influencing factors of credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning and to assist commercial banks in enhancing their credit risk management of small and micro-enterprises. The study explored the impact of four factors: credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk.

This study employed a quantitative research method. A total of 400 questionnaires were distributed, with 366 valid responses, yielding an effective response rate of 91.5%. The study finds that credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk positively influence the credit risk management of Jiao Tong Bank in Guangxi Nanning. Based on the findings, the following recommendations are proposed: (1) Enhance the accuracy of credit risk identification. (2) Improve the credit risk assessment system. (3) Strengthen the intensity of credit risk supervision. (4) Perfect the internal control mechanisms for credit risk.

Keywords: credit risk management, credit risk identification, credit risk assessment, credit risk supervision, internal control for credit risk

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Xiang Lin Hui

DECLARATION

I, Xiang Lin Hui, hereby certify that the work embodied in this independent study entitled "The Influencing Factors of Credit Risk Management of Small and Micro Enterprises of Jiao Tong Bank in Guangxi Nanning" is result of original research and has not been submitted for a higher degree to any other university or institution.

Xiang Lin Hui
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Chapter 1 Introduction

1.1 Background of the Study

In recent decades, the financial industry has significantly contributed to China's rapid economic development, with commercial banks playing a pivotal role. Under China's macro-policy regulation, commercial banks have served as credit intermediaries, accelerating the flow of funds in the market through absorption and allocation, thereby alleviating the financial constraints faced by enterprises. Commercial banks have played a crucial role in promoting economic growth and enhancing corporate profits. With the continuous expansion of China's economy, the credit scale of commercial banks has also been increasing. According to statistics from the National Bureau of Statistics, China's GDP in 2020 was 101,356.70 billion yuan, representing a 107.72% increase compared to 2011. The balance of credit funds in China's financial institutions in 2020 amounted to 257,470.10 billion yuan, a growth of 181.90% since 2011. However, the rapid growth in credit scale has also accelerated the formation of non-performing assets in commercial banks. Statistics from the China Banking and Insurance Regulatory Commission reveal that the non-performing loan balance of China's commercial banks reached 3.5 trillion yuan in 2020, an increase of 281.6 billion yuan compared to the beginning of the year, with a non-performing loan ratio of 1.92%. This indicates that commercial banks in China face severe credit risks (Jiang et al., 2022).

The emergence of credit risks in commercial banks is closely related to their operating environment. On the one hand, as the government has lowered the barriers to entry into the financial market, an increasing number of joint-stock banks, city commercial banks, and online banks have entered the market, intensifying competition among commercial banks. To maintain revenue, expand operating profits, and capture market share, banks often lower lending thresholds, accept unsecured loans, and issue more loans, leveraging the interest rate spread between deposits and loans to earn higher profits. This lenient credit policy inadvertently increases the bank's credit risks. On the other hand, with the expansion of commercial banks' credit, involving numerous loan transactions with substantial amounts, commercial banks can no longer scrutinize borrower information as carefully as in the past. Coupled with internal control processes for credit operations and outdated pre-loan review technologies, banks find it challenging to accurately identify potentially problematic loan transactions, ultimately leading to non-performing loans and increasing the bank's credit risks (Jiang et al., 2022). Since the beginning of 2020, the ongoing COVID-19 pandemic has hindered steady economic growth. Many Chinese enterprises have been unable to produce and supply on time due to pandemic control measures, resulting in disruptions to product sales. Under such circumstances, the cash flow and recovery of enterprises have been severely impacted, making it difficult for them to repay bank loans on time or even at all. This situation has exacerbated the rise in the scale of non-performing loans in banks, significantly increasing their credit risks. Therefore, in the new situation, accurately identifying and controlling credit risks in commercial banks to maintain their healthy development has become an important issue facing commercial banks today.

With the continuous increase in the credit scale of small and micro-enterprises at Jiao Tong Bank, the balance of non-performing loans has also been rising, highlighting credit risk management issues that have significantly impacted the bank's operating profits (Acheampong & Elshandidy, 2021). Therefore, this study takes the credit risk management of small and micro-enterprises at Jiao Tong Bank as the research object, analyzes the factors influencing the current credit risk management, identifies problems in credit risk management, and proposes practical and targeted countermeasures to improve the bank's ability to avoid credit risks associated with small and micro-enterprises.

1.2 Questions of the Study

This study took the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning as the research subject. A questionnaire survey and a quantitative analysis were used to analyze the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning. This study raised the following research questions:

(1) Does credit risk identification have an impact on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning?

(2) Does credit risk assessment have an impact on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning?

(3) Does credit risk supervision have an impact on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning?

(4) Does internal control for credit risk have an impact on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning?

1.3 Objectives of the Study

The study reviewed the scholarly research on credit risk management in commercial banks, applied the comprehensive risk management theory and the internal control theory related to credit risk, and identified the influencing factors of credit risk management: credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk. The main purpose covered the following four aspects:

(1) To explore the effect of credit risk identification on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.

(2) To explore the effect of credit risk assessment on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.

(3) To explore the effect of credit risk supervision on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.

(4) To explore the effect of internal control for credit risk on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.

1.4 Scope of the Study

This study explored the effect of credit risk supervision, credit risk assessment, credit risk supervision, and internal control for credit risk on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning. A questionnaire survey was conducted to collect date. The questionnaire was primarily filled out by employees responsible for the small and micro enterprises of Jiao Tong Bank in Guangxi Nanning. The respondents had over two years of industry experience and possessed a certain level of expertise in small and micro enterprise credit business. They exhibited a high level of acceptance and understanding of the questionnaire content, enabling them to respond more objectively. The distribution and collection of the questionnaire were mainly facilitated through the online platform WenJuanXing, with links being sent to the respondents via WeChat, QQ, Weibo, and other forms.

1.5 Significance of the Study

(1) Theoretical Significance

This study contributes to broadening the theoretical research on credit risk management in commercial banks. Currently, scholars have conducted extensive research on risks associated with commercial banks, but most of these studies primarily focus on credit risk, liquidity risk, and other related areas. Systematic research specifically targeting credit risk remains scarce. In the context of intense competition among commercial banks and a more complex risk landscape, non-performing assets of commercial banks have surged, and the situation regarding credit risk management was severe. Therefore, how to establish a systematic credit risk prevention and control system is an important issue at present. Based on this, this study systematically examined the credit risk of small and micro enterprises at Jiao Tong Bank, explored influencing factors, and proposes targeted countermeasures based on the comprehensive risk management theory. This study has certain theoretical significance in broadening the theoretical research related to credit risk.

(2) Practical Significance

This study aides Jiao Tong Bank in optimizing its credit risk management system for small and micro enterprises. Scholars' research on credit risk was almost exclusively conducted from a national perspective, discussing the credit risk of commercial banks nationwide. Few scholars conducted systematic research on credit risk based on the actual situation of a specific commercial bank. Jiao Tong Bank plays a vital role in China's financial contributions and service scope. Small and micro enterprises credit business have its own local uniqueness and characteristics. Therefore, this study takes the credit risk management of small and micro enterprises of Jiao Tong Bank as the research subject and proposes constructive suggestions with certain practical significance.

1.6 Definition of Key Terms

Credit risk refers to the potential financial and credit crisis, and even the possibility of bankruptcy, faced by commercial banks and other financial institutions due to factors such as information asymmetry and poor internal risk management. Credit risk is a major risk inherent in the existence of banks.

Credit risk identification involves commercial banks measuring and analyzing relevant financial indicators that may lead to credit risk, and estimating the credit risk status. It serves as a pre-emptive measure.

Credit risk assessment refers to the comprehensive and systematic evaluation of a borrower's credit status, repayment ability, and collateral situation in the loan business, in order to accurately assess the risk level of the loan and accordingly decide whether to approve the loan, as well as specific conditions such as loan interest rates and terms.

Credit risk supervision encompasses a series of activities conducted by commercial banks and regulatory bodies to identify, measure, monitor, control, and report risks in credit operations.

Internal control for credit risk refers to a series of policies, measures, and procedures established by banks to effectively reduce credit risks in their operations.

Chapter 2 Literature Review

2.1 Introduction

Regarding credit risk in commercial banks, scholars have conducted extensive research from various aspects and perspectives of credit risk, accumulating rich and substantial research findings. Through induction and organization, one can gain insights into the definition and classification of credit risk, its assessment and measurement, management and control, as well as response strategies and recommendations. With the support of comprehensive risk management theory, this study selects four influencing factors for analysis: credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk.

Credit risk in commercial banks is one of the key research areas in the financial field, as it directly relates to the stable operation of banks and the stability of the financial system. Credit risk identification is the first step in credit risk management, where banks need to establish effective risk identification mechanisms to promptly detect potential risks. Based on risk identification, credit risk assessment involves quantifying and analyzing those risks, providing a basis for risk management. The credit risk supervision department is responsible for overseeing and guiding the bank's credit operations to ensure compliance and reduce systemic risks. Banks need to establish a comprehensive internal control system to ensure the compliance, security, and profitability of their credit operations.

2.2 Literature Review

2.2.1 Credit Risk

(1) Concept and Classification of Credit Risk

Regarding the concept of credit risk, scholars have provided various definitions based on the perspectives of loan business and information transmission. From the perspective of loan business, Beerbaum & Ahmad (2015) defined credit risk as the risk of loss to a bank due to the borrower's failure to repay the loan on time. Brei et al. (2020) stated that credit risk refers to the possibility of a bank suffering credit losses because adverse economic, financial, or other conditions prevent the borrower from complying with the loan contract's repayment terms within the specified period. Both definitions focus on the borrower's inability to repay the principal and interest on time, viewing credit risk from the perspective of the transaction party. Other scholars attribute loan risk to internal factors within the bank. Bielecki & Rutkowski (2013) defined credit risk as the risk of loss incurred by commercial banks engaging in credit business due to deficiencies in internal environmental management or uncertain factors. Each loan disbursement in a commercial bank is closely related to the submission of loan information, subjective review by back-office staff, and post-loan tracking management. Credit risk can arise from internal audit oversights, non-standardized processes, and formalistic post-loan management.

From the perspective of information transmission, the credit process in commercial banks consists of pre-loan investigation, credit approval, loan disbursement, and post-loan monitoring. Each stage involves a series of information exchanges between the borrower and the bank. Information asymmetry in the interaction between the borrower and the bank is the primary cause of credit risk. Wang Burke et al. (2019) defined credit risk as the risk arising from the bank receiving certain adverse information during credit business activities. Given this, this study primarily defines credit risk from the perspective of loan business. The credit risk referred to in this study is the risk of loss to a commercial bank's credit assets due to factors such as imperfect internal systems, external borrower defaults, or changes in the market environment.

(2) Credit Risk Measurement

In research on credit risk measurement, scholars have primarily focused on machine learning algorithms, credit risk modeling, and other related areas. Brezigar-Masten et al. (2021) developed a novel approach to credit risk modeling by selecting the number of days past due as a basic indicator. This model can predict the default rate of borrowers, and through precise identification of defaulting borrowers, combined with credit rating classification and credit cycle ratings. Acheampong & Elshandidy (2021) utilized machine learning algorithms to extract information such as credit balances, ratings, and non-performing loan ratios from the annual reports of commercial banks. By constructing models based on this extracted information, they estimated the credit risk of banks, thus proposing a new solution for credit risk measurement in European commercial banks. Shi et al. (2020) used the LGD (Loss Given Default) of high-rated loans as a credit risk assessment indicator and made valuable explorations in estimating credit risk for commercial banks through a novel credit risk measurement method. Brownlees et al. (2021) established a credit risk measurement model for commercial banks, with factors influencing credit risk including default intensity, interbank dependence, and entity heterogeneity.

(3) Factors Influencing Credit Risk

In research on factors influencing credit risk, scholars have explored the causes of credit risk from various perspectives, including unemployment rates, executive characteristics, bank competition, and regulatory environments. Kinateder et al. (2021) examined the impact of gender diversity on the board of directors on bank credit risk, starting from executive characteristics. They found that increased gender diversity on the board significantly raises credit risk and bankruptcy risk for commercial banks.

Bai (2021) studied the impact of unemployment rates on bank credit risk using US data, and based on an equilibrium unemployment model, found that rising unemployment rates significantly increase bank credit risk. Djebali & Zaghdoudi (2020) used data from 75 banks in the Middle East and North Africa from 1999 to 2017 to explore the impact of credit risk on bank stability. They found that under strict institutional controls, credit risk hinders the stability of commercial banks. Brei et al. (2020) used data from 33 African countries from 2000 to 2015 as a sample and empirically found that bank competition affects credit risk. Additionally, macroeconomic factors such as economic growth, financial development, and government debt not only influence credit risk but are also significantly affected by the regulatory environment. In countries with shorter regulator tenures and well-established credit registration systems, credit risk is lower (Beerbaum & Ahmad, 2015).

Economic policy uncertainty can cause the control mechanisms for managing risk assets and credit risk to fail. Štěpánková (2022) empirically showed that high-intensity regulatory pressure reduces banks' credit risk-taking capacity but enhances their portfolio risk-taking capacity. In the context of loose monetary policy, economic policy uncertainty can reduce banks' risk-taking capacity. The higher the level of internal control in commercial banks, the lower the credit risk. Lavrushin & Sokolinskaya (2020) explored the impact of economic factors on credit risk and found that in the context of economic slowdown, tightening monetary policy, and deflation, residents' incomes decline, bank credit supply decreases, and corporate finances weaken. These conditions accelerate the increase in non-performing loan ratios and significantly elevate credit risk.

2.2.2 Comprehensive Risk Management Theory

(1) Comprehensive Risk Management Theory

With the expansion of business operations and the development of functions in commercial banks, their operational positioning is no longer limited to payment intermediaries and credit intermediaries; they also bear the crucial responsibility of risk intermediaries. Through the analysis, utilization, and investment of risks, commercial banks have developed a unique style in the field of risk management. Risk management not only involves the collection of risk information, risk assessment, and risk reporting in the bank's backend but also gradually extends to the frontend business areas, forming a collaboration between backend support and frontend assistance. Additionally, significant changes have occurred in bank organizational structures due to risk management, with an increasing number of banks adding risk management departments within internal management and establishing risk management committees under their boards of directors, constructing a bottom-up organizational structure across all lines (Krechowicz & Piotrowski, 2021).

The concept of comprehensive risk management was first proposed in "Enterprise Risk Management - Integrated Framework", which points out that comprehensive risk management should be an integral part of corporate strategy, fully implemented by the board of directors, senior management, and employees. Its purpose is to identify all factors that may affect the enterprise's operations in advance and employ various strategies to control them. According to Drabik (2018), for commercial banks, the theory of comprehensive risk management serves as a crucial guide. Banks need risk management departments and credit personnel to collaborate in identifying and measuring potential credit risks such as operational risks and credit risks. By establishing a systematic and rigorous monitoring mechanism, banks closely monitor the risk distribution characteristics in credit activities and adopt effective control measures based on the risk type, frequency, and distribution to achieve the goal of comprehensive management (Drabik, 2018; Lavrushin & Sokolinskaya, 2020).

The comprehensive risk management provides commercial banks with a guiding ideology for unified and comprehensive management of credit risks, emphasizing the selection of uniform standards for identifying and measuring related risks. In terms of market risks, indicators such as interest rate sensitivity and repayment risk can be used. For credit risks, indicators like expected default rates, credit ratings, and credit value at risk can be employed (Hofmann, 2020). For operational risks, metrics such as net business interest, business performance, and business execution evaluations can be adopted. According to the theory of Comprehensive Risk Management, the risk management process in commercial banks can be divided into four parts: risk identification, risk assessment, risk monitoring, and risk control. Risk identification refers to potential events that may adversely affect credit matters, which need to be identified in advance for early warning. Risk assessment involves a combination of qualitative and quantitative methods to comprehensively evaluate credit risks based on fixed and variable risks, with the impact of potential events on credit business objectives. Risk monitoring entails dynamic surveillance of risk factors and internal operational mechanisms to grasp the dynamic trends of risks. Risk control involves the application of specific control means such as risk information integration, authorization, control, and segregation of duties to ensure that management's risk control decisions can be effectively implemented, thereby guaranteeing the achievement of control objectives (Hofmann, 2020; Lavrushin & Sokolinskaya, 2020).

(2) Credit Risk Identification

In credit risk identification research, some scholars primarily focus on the means of credit risk identification. Ma et al. (2019) argued that the quality of bank credit personnel plays a decisive role in credit risk identification, and improving their quality is conducive to avoiding credit risks. Therefore, banks should adopt measures such as further study or training to enhance the quality of credit personnel. Engelmann

(2024) pointed out that factors determining the effectiveness of credit risk identification mainly include information asymmetry between banks and borrowers, the borrowers' economic conditions, and the bank's credit management system. Commercial banks can only consolidate their positions in credit identification by establishing a comprehensive and accurate credit risk identification mechanism to reduce information asymmetry between banks and borrowers, thereby creating a stronger foundation for bank risk identification. Michalis-Panayiotis Papafilis et al. (2020) believed that historical credit data can provide important guidance for credit risk identification. Therefore, commercial banks need to establish a detailed and robust data management system to lay the foundation for credit risk identification.

On the other hand, some scholars have conducted systematic research on the indicators of credit risk identification. Lavrushin & Sokolinskaya (2020) constructed identification indicators for credit risks and finds that the closer the credit relationship between banks and enterprises, the lower the systemic risk. Therefore, commercial banks can use this indicator to identify credit risks in advance. From a credit perspective, Farooq et al. (2022) believed that if credit activities are viewed as a credit arrangement with a credit risk trigger system, the bank's overall credit risk can be identified through these activities. Strengthening credit risk identification not only provides early warnings to banks but also allows them to understand the causes of risks, laying the foundation for comprehensive risk management.

(3) Credit Risk Assessment

Credit risk assessment models are financial risk management tools developed in the 1950s (Lustro, 2019). With the rapid development of the credit industry, credit risk assessment models have become one of the most important risk control methods. Currently, credit risk assessment models are widely used by various financial institutions. They can be used to grant credit to borrowers with good credit and distinguish between borrowers with good and poor credit, thereby reducing losses caused by non-performing loans, saving costs, and improving institutions' decision-making capabilities (Li & Li, 2019). Credit risk assessment involves studying the types and causes of credit risks before they occur, conducting qualitative analysis and quantitative calculations on factors that may cause credit risks, estimating borrowers' default probabilities, calculating corresponding default losses, and providing a theoretical basis for lending decisions. Credit risk assessment is the most critical step in the entire credit risk management process and provides a reference for selecting appropriate risk handling methods. Incorrect credit risk assessments can lead to improper selection of credit risk management methods, resulting in the failure of credit risk management and ultimately causing losses to banks and other financial institutions (Iyer & Purkayastha, 2017). Therefore, it is crucial to choose scientific credit assessment methods and effectively conduct credit risk assessments throughout the credit risk management process.

Statistical analysis methods were widely used in the field of credit risk assessment, mainly including discriminant analysis and regression analysis. Zhou et al. (2017) used overall accuracy and misclassification rates as discriminant indicators for personal credit assessment and found that discriminant analysis performs well in this field. Wan et al. (2016) first applied a regression model to personal credit assessment and compared it with discriminant analysis, finding that regression produced better results. Shaheen & Iqbal (2018) analyzed the factors influencing personal credit assessment from aspects such as personal information, family information, and occupational information and achieves good assessment results. Everett (2015) found that in Internet credit transactions when there is a real relationship between borrowers and lenders and personnel at Internet lending institutions, the likelihood of default is lower. Hofmann (2020) optimized the neural network model and propose an artificial neural network credit assessment model based on a multilayer perceptron (MLP).

(4) Credit Risk Supervision

Credit risk supervision in banking is a crucial aspect of ensuring the stable operation of credit businesses and preventing financial risks. In the current volatile economic environment, enterprises are increasingly facing credit risks, with the management of customer credit risks being particularly vital. Effective identification and control of corporate customers' credit risks not only safeguard the bank's capital security but also enhance its market competitiveness and financial stability. Therefore, the primary objective of bank credit risk supervision is to detect credit risks before situations deteriorate, allowing for early corrective measures to be taken. This prevents controllable losses resulting from inappropriate loan structures and documentation and minimizes uncontrollable losses arising from adverse changes in the operating environment.

Regulatory bodies such as the China Banking and Insurance Regulatory Commission regularly issue relevant policies clarifying the supervisory requirements and risk prevention measures for credit businesses. By analyzing factors such as customers' financial status, historical credit records, business stability, and industry position, credit rating models can be established for each customer, benefiting credit risk supervision. Real-time monitoring and analysis of customers' credit conditions enable early warnings of potential credit risks.

Altman & Sabato (2007), through field research on rural community banks in Ghana, found that farmers are reluctant to borrow from banks due to their low literacy levels and inability to understand mortgage terms, highlighting the importance of customer education and understanding in credit risk supervision. Bank computerization had a significant impact on the credit risks of rural commercial banks, emphasizing the crucial role of information systems in credit risk supervision (Altman & Sabato, 2007; Drabik, 2018). Demirgüç-Kunt et al. (2012) provided quantitative analysis methods for credit risk supervision and proposed strategies such as improving credit internal control systems, enhancing credit risk management technology, refining commercial bank credit risk management culture, and establishing credit risk early warning systems. Wan et al. (2016), through empirical research on the assessment and management of SME credit risks, proposed a credit risk measurement system suitable for small and micro enterprises.

In recent years, with the continuous improvement of regulatory policies and the intensification of supervision, bank credit risk supervision has achieved remarkable results. The quality of credit assets has been enhanced, and the non-performing loan ratio has been effectively controlled. However, faced with a complex and volatile economic environment and financial risk challenges, bank credit risk supervision still needs continuous enhancement and innovation (Shaheen & Iqbal, 2018). Scholars have conducted extensive and in-depth research on bank credit risk supervision, focusing on theoretical discussions and the application of quantitative analysis methods. With the rapid development of financial technology and the continuous improvement of regulatory policies, bank credit risk supervision will face more new challenges and opportunities (Altman & Sabato, 2007; Wan et al., 2016). Therefore, strengthening interdisciplinary research and promoting technological and regulatory innovation will be key research directions in the future. Efforts to improve regulatory policies, strengthen risk assessment and quantification, address regulatory challenges, and enhance the effectiveness and outlook of supervision can further enhance the level and effectiveness of bank credit risk supervision.

(5) Internal Control for Credit Risk

Scholars, grounded in the reality of credit risk control, have proposed a comprehensive range of control measures, encompassing big data technology, information technology, asset securitization, credit reporting activities, and non-performing asset disposal. In the realm of credit risk control research, Nyebar et al. (2023) suggested control strategies from the perspectives of commercial bank operations and management, as well as gold holdings. Marinelli et al. (2020) examined the issue of credit risk control in Italian commercial banks, proposing methods based on the bank's business scope, branch distribution, market transactions, and diversified income sources. Rathi et al. (2021) found that central banks holding more gold can effectively reduce default rates, thereby controlling credit risk. Hence, they recommended that in times of economic uncertainty, central banks can mitigate credit risk by holding substantial gold reserves. Nyebar et al. (2023) argued that commercial banks should adopt differentiated credit principles and policies, focusing on upgrading and optimizing the credit structure to maintain credit scales within a reasonable range, which aids in forming a stable credit risk control model.

From a big data technology perspective, Djebali & Zaghdoudi (2020) proposed strategies for bank credit risk control, including establishing data-sharing platforms, broadening data collection indicators, increasing research and development investments, and strengthening big data risk control systems. In the context of economic slowdown, asset securitization can reduce bank credit risk, with more pronounced effects observed in smaller and non-listed banks. Credit reporting activities facilitate the expansion of bank credit scales and mitigate credit risk. Meanwhile, information technology can decrease credit risk by enhancing credit performance (Marinelli et al., 2020). Therefore, commercial banks can leverage credit reporting activities and information technology as two key strategies to control credit risk. Asset securitization promoted the expansion of bank credit scales and strengthens banks' control over credit risk (Li & Li, 2019; Nyebar et al., 2023). This is because while asset securitization expands credit scales, it does not diminish the intensity of credit review and supervision. Simultaneously, it reduces ineffective credit in non-performing assets, improving credit allocation efficiency from a supply perspective and effectively controlling credit risk.

2.3 Profile of Jiao Tong Bank

In 1908, Jiao Tong Bank was established, marking it as one of the earliest banks founded in China. At that time, it also served the function of printing and issuing currency in modern Chinese society. In June 2005, Jiao Tong Bank was listed on the Hong Kong stock market, and the following May, it successfully debuted on the Shanghai Stock Exchange. In the past, Jiao Tong Bank's development focus has primarily been on comprehensive financial services, with its business scope encompassing commercial banking, funds, insurance, financial leasing, trusts, debt-for-equity swaps, and asset management. As of 2019, Jiao Tong Bank was ranked among the Fortune Global 500 for 11 consecutive years, with its revenue ranking improving by 18 places compared to the previous year, reaching 150th. Jiao Tong Bank holds a significant amount, ranking 11th among thousands of international banks. In 2015, Jiao Tong Bank proposed three aspects regarding how to deepen structural reforms: firstly, optimizing internal management systems of commercial banks; secondly, strengthening reforms of internal control systems within banks; and thirdly, actively promoting innovation and upgrades in bank operating models. In 2019, Jiao Tong Bank prioritized enhancing financial asset management, facilitating the technological transformation of offline bank branches, promoting the transition to intelligent banking, and improving various risk authorization and credit systems.

Jiao Tong Bank in Guangxi Nanning is the Guangxi Zhuang Autonomous Region Branch of Jiao Tong Bank, serving as the branch of Jiao Tong Bank in Guangxi. Jiao Tong Bank in Guangxi Nanning adheres to the excellent traditions and advanced philosophies of Jiao Tong Bank, providing a full range of financial services to a broad client base. Its business scope covers various banking services, including deposits, loans, settlements, and foreign exchange transactions. In recent years, Jiao Tong Bank in Guangxi Nanning has achieved remarkable success in its business development and made positive contributions to local economic development. At the same time, Jiao

Tong Bank in Guangxi Nanning has also received numerous honors and recognitions, reflecting its professionalism and influence in the field of financial services.

2.4 Conceptual Framework

This study examines the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning. It identifies the factors that influence credit risk management. Finally, an integrated analysis framework for credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning is proposed. The model is shown in Figure 2.1.

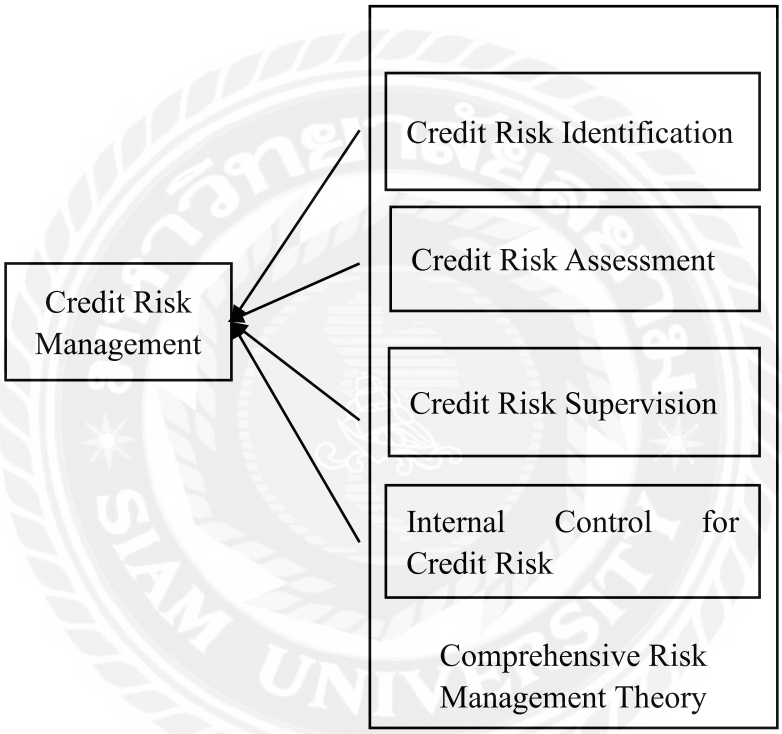

Figure 2.2 Conceptual Framework

Chapter 3 Research Methodology

3.1 Research Design

This study adopted a questionnaire survey to investigate the influencing factors of credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning. The framework of the questionnaire was primarily established based on the comprehensive risk management theory, which divides bank credit risk management into four processes: risk identification, risk assessment, risk control, and supervision. This study designed four independent variables: credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk, with credit risk management as the dependent variable. Quantitative methods were used for analysis.

3.2 Population and Sample

The research subjects of this study were employees of Jiao Tong Bank in Guangxi Nanning who have at least two years of industry experience and were involved in credit operations. This group included employees with diverse characteristics of age, gender, job position, and years of service. The sample consisted of a randomly selected portion of employees from the population, used to represent the population for research and analysis. The selection of the sample needed to follow certain principles and methods to ensure its representativeness and reliability. In this study, the sample was selected through the Wenjuanxing online platform, with links randomly sent to the research subjects via WeChat, QQ, Weibo, and other forms to avoid subjective biases influencing the research results. To ensure the stability and reliability of the research results, a sample size of 300 was selected.

3.3 Hypothesis

This study empirically analyzes the processes of credit risk identification, assessment, supervision, and internal control for credit risk of Jiao Tong Bank in Guangxi Nanning. It offers both theoretical support and practical guidance for optimizing credit risk management in these enterprises. Therefore, the following hypotheses are proposed in this study:

H1: Credit risk identification has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.

H2: Credit risk assessment has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.

H3: Credit risk supervision has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.

H4: Internal control for credit risk has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.

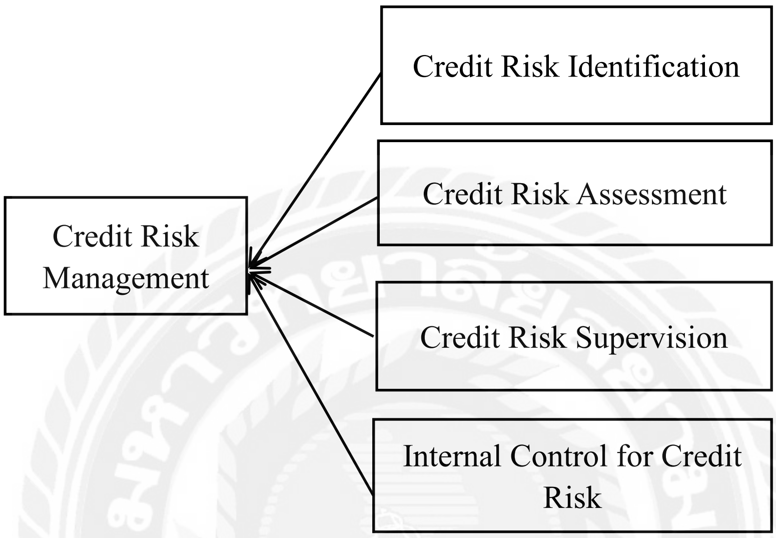

Figure 3.1 Hypotheses

3.4 Research Instrument

The framework of the questionnaire design was primarily based on the comprehensive risk management theory, which divides bank credit risk management into four processes: risk identification, risk assessment, risk control, and supervision.

Drawing on relevant research on credit risk influencing factors by Kinateder et al. (2021), Djebali & Zaghdoudi (2020), Brie et al. (2020), and combining the credit risk situation at Jiao Tong Bank in Guangxi Nanning, this study ultimately obtained 24 items across four dimensions.

In the dimension of risk identification, the questionnaire investigates the accuracy, comprehensiveness, effectiveness of measures, implementation strength, and impact on business development of credit risk identification. In the dimension of risk assessment, the questionnaire examines the comprehensiveness, accuracy, timeliness, effectiveness, and implementation strength of credit risk assessment. For credit risk supervision, the questionnaire investigates the completeness of the credit risk supervision system, implementation strength, timeliness, effectiveness, and improvement in credit risk management capabilities. Regarding internal control for credit risk, the questionnaire looks into the completeness of internal control systems, effectiveness of implementation, identification effectiveness, strictness of approval processes, and smoothness of communication mechanisms. In terms of credit risk management, five aspects are designed: the effectiveness of credit risk management strategies, comprehensiveness of management, level of support, transparency of management, and advancement of management systems.

The questionnaire consists of 29 items, which can be divided into two major parts based on the item types:

The first part contains 4 questions, mainly targeting the basic personal information of the respondents, including gender, age, job position, and years of work experience.

The second part includes 25 items, specifically designed for the influencing factors of credit risk management of Jiao Tong Bank. Corresponding items are set from the four dimensions of risk identification, risk assessment, risk supervision, and internal control for credit risk, with 5 items under each dimension. The items are shown in Table 3.1.

Table 3.1 Measurement Items

Influencing Factor	Measurement Item	NO.
Credit Risk Identification	The accuracy of identifying credit risks for small and micro enterprises is excellent.	1
	When identifying credit risks for small and micro enterprises, all key factors (such as the borrower's credit status, asset-liability situation, macroeconomic environment, etc.) are taken into consideration.	2
	The measures taken for identifying credit risks for small and micro enterprises are effective.	3
	The enforcement of policies for identifying credit risks for small and micro enterprises is robust.	4
	The identification of credit risks for small and micro enterprises has had a positive impact on business development.	5
Credit Risk Assessment	In assessing credit risks for small and micro enterprises, all relevant factors are comprehensively considered.	6
	The accuracy of assessing credit risks for small and micro enterprises is very high.	7
	The timeliness of assessing credit risks for small and micro enterprises is prompt.	8
	The management strategies for assessing credit risks for small and micro enterprises are very effective.	9
	The measures for assessing credit risks for small and	10

	micro enterprises are implemented exceptionally well.	
Credit Risk Supervision	The regulatory system established for credit risks of small and micro enterprises is well-developed.	11
	The enforcement of regulations for credit risks of small and micro enterprises is strong.	12
	The supervision of credit risks for small and micro enterprises is timely.	13
	The supervision of credit risks for small and micro enterprises is effective.	14
	Strengthening credit risk supervision has enhanced the overall level of credit risk management.	15
Internal Control for Credit Risk	The internal control system for credit risks of small and micro enterprises is well-established.	16
	The internal control system for credit risks of small and micro enterprises is well-established.	17
	The internal control system for credit risks of small and micro enterprises is well-established.	18
	The internal control in the credit approval process for small and micro enterprises is strict.	19
	Within the internal control of credit risks, the information and communication mechanisms are smooth.	20
Credit Risk Management	The management strategies formulated for credit risks of small and micro enterprises are effective.	21
	Credit risk management for small and micro enterprises covers all key aspects.	22
	Credit risk management for small and micro enterprises covers all key aspects.	23
	Credit risk management for small and micro enterprises effectively supports business development.	24
	The credit risk management system is advanced and adapts to current business needs.	25

3.5 Reliability and Validity Analysis of the Scale

After obtaining questionnaire data, it is necessary to conduct reliability and validity tests of the questionnaire. The reliability test aims to ascertain the stability and reliability of the questionnaire data, while the validity test seeks to clarify the effectiveness of the questionnaire data. During the reliability test, the Corrected Item-Total Correlation (CICT) is generally observed first, and items with a CICT value of less than 0.4 should be removed. Subsequently, the Cronbach's α coefficient is observed to assess the reliability and consistency of the questionnaire.

The formula for Cronbach's α coefficient is as follows:

$$Cronbach's\ \alpha = \frac{Y}{Y-1}\left(1-\frac{\sum S_i^2}{S_x^2}\right)$$

In the above formula, Y refers to the number of all the questionnaire item sets, S_i^2 refers to the score variance of item I and S_x^2 represents the score variance of all the items. Cronbach's α coefficient is calculated according to the above formula, and the reliability evaluation criteria corresponding to Cronbach's α value can be shown in Table 3.2.

Table 3.2 Reliability Evaluation Criteria

Cronbach's α	Reliability Evaluation
Cronbach's α ＞ 0.8	High
0.7 ＜ Cronbach's α ≤ 0.8	Higher
0.6 ＜ Cronbach's α ≤ 0.7	Acceptability
Cronbach's α ≤ 0.6	Not Good

During the validity test phase, the objective is to assess whether the questionnaire items are effectively designed and capable of meeting the goals of the survey. This study employed the Kaiser-Meyer-Olkin (KMO) value, Bartlett's Test of Sphericity, and factor loadings after rotation to determine the validity of the questionnaire. Firstly, the suitability of the items for factor analysis is examined by observing the KMO value, with the criteria for assessing the appropriateness of factor analysis corresponding to the KMO value presented in Table 3.3. Subsequently, factor analysis was conducted, and the factor loadings after rotation must be greater than 0.5 for the validity to be deemed acceptable. In the validity test, this study utilized factor analysis in SPSS 26.0, with orthogonal rotation of the factors, to obtain the factor loadings after rotation for validity assessment.

Table 3.3 Factor Analysis Criteria

KMO	Factor Analysis Fitness Evaluation
KMO ＞ 0.7	Suit
0.6 ＜ KMO ≤ 0.7	Be More Suitable
0.5 ＜ KMO ≤ 0.6	Acceptability
KMO ≤ 0.5	Not Good

The Corrected Item-Total Correlation (CICT) values for the four factors were 0.593, 0.577, 0.598, and 0.622, respectively, which meet the criterion of being greater than 0.4 and thus do not require deletion. The Cronbach's α coefficients were 0.764, 0.780, 0.775, and 0.679, indicating high reliability. Therefore, the reliability test for the factors influencing risk management was passed. In the validity test, the

Kaiser-Meyer-Olkin (KMO) values for the risk management influencing factor questionnaire were 0.694, 0.679, 0.665, and 0.674, respectively, with significant P-values, indicating suitability for factor analysis. Further validation was then conducted based on the factor loadings after rotation. The factor loadings for the four influencing factors were 0.817, 0.748, 0.805, and 0.874, all exceeding 0.5. Therefore, the validity test for the factors influencing risk management was passed. The factor loading values after rotation for each influencing factor were all greater than 0.5, suggesting acceptable validity across all dimensions. The test results are presented in Table 3.4.

Table 3.4 Reliability and Validity Analysis of Questionnaire

Questionnaire Item	Factor Load	Correction Item Total Correlation	Cronbach's α	KMO	Factor Loadings After Rotation
Credit Risk Identification	0.871	0.593	0.764	0.694	0.817
Credit Risk Assessment	0.748	0.577	0.780	0.679	0.745
Credit Risk Supervision	0.805	0.598	0.775	0.665	0.784
Internal Control For Credit Risk	0.874	0.622	0.679	0.674	0.767

The items in the four dimensions of risk identification, assessment, supervision, and control all have certain reliability and validity, and the questionnaire is reliable and effective, which meets the requirements of further analysis.

3.6 Data Collection

In this study, employees of Jiao Tong Bank in Guangxi Nanning with at least two years of working experience were selected as the research subjects, and the data were collected from August 2024 to October 2024. The distribution and collection of questionnaires were mainly based on the online platform Questionnaire Star, and the links were sent to the research subjects in the forms of WeChat, QQ, Weibo, etc. A total of 400 questionnaires were distributed. During the questionnaire recovery process, the research team conducted rigorous checks to eliminate invalid questionnaires, including those that were incomplete or had significantly inconsistent answers. A total of 366 questionnaires were collected, with an effective rate of 91.5%. A descriptive statistical analysis was conducted on the valid samples that were recovered. Through this process, the research team successfully obtained a large amount of valuable data for analyzing the factors affecting the credit risk management.

3.7 Data Analysis

3.7.1 Descriptive Statistics

The software used for descriptive statistics included Excel and SPSS 26.0, which conducted statistical analyses on the demographic characteristics of the sample, including mean, standard deviation, percentage, normal distribution, kurtosis, and skewness. Descriptive statistics provided fundamental support for further data analysis.

3.7.2 Factor Analysis

Exploratory factor analysis was conducted on the survey data using SPSS 26.0 to extract common factors and determine the common dimensions influencing the improvement of credit risk management. The reliability and validity of the constructed model were established, providing a theoretical basis for refining the system of factors influencing the improvement of credit risk management.

3.7.3 Multiple Regression

In this study, multiple regression analysis was employed as a comprehensive and in-depth exploration method, significantly enhancing the dimensionality and accuracy of the research. By adopting multiple regression analysis, this study overcame the limitations of model analysis, not only enriching the content and hierarchy of the research but also improving its accuracy and practicality. This provides strong support and guidance for identifying factors influencing the credit risk management in companies.

Chapter 4 Findings and Discussion

4.1 Findings

4.1.1 Demographic Characteristics of Participants

Based on the analysis of basic information statistics, among the respondents, there are slightly more males than females, with the highest proportion being individuals aged 21-30, accounting for 61.2%, followed by those aged 31-40, accounting for 30.1%. In terms of job positions, 56.6% of the respondents are managers of small and micro enterprise credit business, while branch department heads and risk management department staff account for 15.6% and 17.5% respectively. Regarding work experience, 26.8% of the respondents have worked for 6-7 years, representing the largest proportion, and a total of 73.5% have worked above 5 years, indicating that all respondents possess considerable credit work experience and can make relatively authentic professional judgments regarding credit risk management for small and micro enterprises at Jiao Tong Bank. This is shown in Table 4.1.

Table 4.1 Descriptive Statistical Analysis of Participants

Item	Options	Frequency	Percent%
Gender	Male	196	53.6
	Female	170	46.4
Age	21-30 Years Old	224	61.2
	31-40 Years Old	110	30.1
	41-50 Years Old	22	6.0
	Above 51 Years Old	10	2.7
Position	Small and Micro Enterprise Credit Business Account Manager	207	56.6
	Branch Department Heads	57	15.6
	Risk Management Department Staff	64	17.5
	Branch Manager	15	4.1
	Others	23	6.3
Years of Experience	2-3 Years	56	15.3
	4-5 Years	41	11.2
	6-7 Years	98	26.8
	8-9 Years	79	21.6
	Above10 Years	92	25.1

4.1.2 Correlation Analysis

In the study on the factors influencing the of credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, the research focused on five key variables: credit risk identification, credit risk assessment, credit risk supervision, internal control for credit risk, and credit risk management. Through data analysis, we obtained the correlation coefficients of these variables.

The correlation coefficient indicates the strength and direction of the linear relationship between variables. In this study all correlation coefficients are positive and greater than 0.6, suggesting a strong positive correlation among all variables.

The correlation coefficients between credit risk identification and credit risk assessment, credit risk supervision, internal control for credit risk, and credit risk management are 0.675, 0.645, 0.656, and 0.671 respectively, indicating a strong positive correlation between credit risk identification and these four aspects.

The correlation coefficients between credit risk assessment and credit risk supervision, internal control for credit risk, and credit risk management are 0.757, 0.732, and 0.766 respectively, indicating a strong positive correlation between credit risk assessment and these three aspects.

The correlation coefficients between credit risk supervision and internal control for credit risk and credit risk management are 0.776 and 0.756 respectively, indicating a strong positive correlation between credit risk supervision and these two aspects.

The correlation coefficient between internal control for credit risk and credit risk management is 0.764, indicating a strong positive correlation between them.

Table 4.2 Correlation Between Variables (Pearson Correlation Matrix)

	Credit Risk Identification	Credit Risk Assessment	Credit Risk Supervision	Internal Control For Credit Risk	Credit Risk Management
Credit Risk Identification	1				
Credit Risk Assessment	.675**	1			
Credit Risk Supervision	.645**	.757**	1		
Internal Control For Credit Risk	.656**	.732**	.776**	1	
Credit Risk	.671**	.766**	.756**	.764*	1

Management				*	

In summary, there is a strong positive correlation between the various aspects of credit risk management for small and micro enterprises of Jiao Tong Bank in Nanning, Guangxi. This means that improvements in one aspect may drive improvements in others, and vice versa. Therefore, when implementing credit risk management, it is necessary to comprehensively consider all aspects and formulate a comprehensive risk management strategy.

4.1.3 Multiple Regression Analysis

In the study of credit risk management for small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, we conducted a regression analysis and obtained the following results. The model includes a constant term (C) and four independent variables: credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk. These independent variables are all used to explain and predict the level of credit risk management. For each independent variable, we obtained the following statistics:

The unstandardized coefficient for credit risk identification is 0.753, meaning that with other variables held constant, an increase of one unit in credit risk identification will, on average, lead to an increase of 0.753 units in the credit risk management level. All independent variables have significance levels below 0.001, indicating their substantial impacts on the dependent variable. The VIF values of all independent variables are less than 2, suggesting that the issue of multicollinearity is not severe. An R Square of 0.753 means that the model explains 75.3% of the variability in the dependent variable. An Adjusted R Square of 0.765, slightly higher than R Square, suggests that the number of independent variables in the model is reasonable.

The results of the regression analysis reveal that several key factors affect the effectiveness of credit risk management for small and micro enterprises of Jiao Tong Bank in Guangxi Nanning. These factors include credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk. The independent variables have significant positive impacts on the dependent variable, and the model explains a substantial portion of the variability in the dependent variable. Additionally, there is no severe multicollinearity among the independent variables in the model.

Table 4.3 Multiple Regression Analysis

Item	Unstd. B	Std. Beta	t	Sig.	VIF	F
C	0.764		7.163	0.000		46.72 ***
Credit Risk Identification	0.753	0.712	8.275	0.000	1.114	
Credit Risk Assessment	0.675	0.685	6.641	0.000	1.123	
Credit Risk Supervision	0.671	0.648	6.649	0.000	1.021	

Internal Control For Credit Risk	0.627	0.616	6.747	0.000	1.253	
R Square	0.753					
Adjusted R Square	0.765					

NOTE：*P<0.05, **P<0.01, ***P<0.001

Therefore, according to the results of the data analysis, credit risk identification has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, which supports Hypothesis 1. Credit risk assessment has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, which supports Hypothesis 2. Credit risk supervision has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, which supports Hypothesis 3. Internal control for credit risk has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, which supports Hypothesis 4.

4.2 Discussion

4.2.1 Credit Risk Identification Has a Significant Effect on the Credit Risk Management of Small and Micro Enterprises of Jiao Tong Bank in Guangxi Nanning

In the study of credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, the credit risk identification is identified as a factor with a significant impact on enhancing credit risk management. This conclusion is based on the results of a regression analysis, in which credit risk identification, as one of the independent variables, demonstrated a significant positive effect on the dependent variable, namely the level of credit risk management.

Credit risk identification is a crucial step in the credit risk management process, involving the identification, analysis, and assessment of potential risks. In the context of credit risk management for small and micro enterprises at Jiao Tong Bank in Guangxi Nanning, effective credit risk identification enables the bank to promptly and accurately identify potential risk points, thereby adopting corresponding risk management measures to mitigate risks.

Credit risk identification involves a comprehensive assessment of borrowers' credit histories, repayment abilities, and operating conditions to determine their credit risk levels. If borrowers provide collateral, the bank needs to assess its value to determine whether losses can be compensated through the disposal of collateral in the event of borrower default. Industry and market risk assessments analyze the overall risk situation of the borrower's industry and the impact of market changes on the borrower's repayment ability. Policy and legal risk assessments focus on the potential impacts of changes in relevant policies, laws, and regulations on credit operations, as well as whether these changes may increase credit risks. In the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, enhancing credit risk identification capabilities is of great significance for improving the overall level of risk management. By continuously optimizing the methods and processes of credit risk identification, the bank can more accurately assess and manage credit risks, thereby reducing the non-performing loan ratio, improving asset quality, and providing more stable financial services to small and micro enterprises.

4.2.2 Credit Risk Assessment Has a Significant Effect on the Credit Risk Management of Small and Micro Enterprises of Jiao Tong Bank in Guangxi Nanning

In the study of credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, the credit risk assessment is found to have a significant impact on improving credit risk management. Credit risk assessment is a comprehensive, systematic, and objective analysis and evaluation conducted by commercial banks in their credit operations, focusing on borrowers' credit status, repayment ability, collateral measures, and other factors, to determine the risk level of credit operations and provide a basis for credit decision-making. In the context of credit risk management for small and micro enterprises at Jiao Tong Bank in Guangxi Nanning, credit risk assessment is an indispensable component, directly related to the security of credit funds and the bank's operating efficiency.

Through credit risk assessment, banks can gain a more accurate understanding of borrowers' credit status and repayment ability, thereby avoiding blind lending and excessive credit granting, and improving the scientificity and accuracy of credit decision-making. Credit risk assessment enables banks to promptly identify potential risk points and adopt corresponding risk management measures for prevention and control, thereby reducing the probability of credit risk occurrence and the degree of losses. Additionally, credit risk assessment allows banks to have a clearer understanding of the credit risk profiles of different industries and customers, optimizing the credit structure by directing credit resources towards areas and customers with lower risks and higher returns. A well-established credit risk assessment system can enhance the bank's risk management capabilities, strengthen its reputation and competitiveness, and attract more high-quality customers and businesses.

Credit risk assessment is a crucial part of managing credit risk. It plays a significant role in enhancing credit risk management practices, minimizing credit risks, refining credit structures, and boosting the competitiveness of banks. Jiao Tong

Bank in Guangxi Nanning should continue to deepen its credit risk assessment efforts to provide more stable and efficient financial services to small and micro enterprises.

4.2.3 Credit Risk Supervision Has a Significant Effect on the Credit Risk Management of Small and Micro Enterprises of Jiao Tong Bank in Guangxi Nanning

In the study of credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, the credit risk supervision is found to have a significant impact on enhancing credit risk management. Credit risk supervision refers to the comprehensive and all-around monitoring and management of credit operations by banks, ensuring the security and compliance of credit funds. It covers various stages of credit operations, including pre-loan investigation, mid-loan review, and post-loan management, and is a crucial component of banks' credit risk management. In the context of credit risk management for small and micro enterprises at Jiao Tong Bank in Guangxi Nanning, credit risk supervision is directly related to the quality of credit operations and the bank's operating efficiency.

Through credit risk supervision, banks can strengthen the review and oversight of credit operations, ensuring their compliance and security. This helps reduce non-performing loan rates and improve the quality of credit operations. Credit risk supervision enables banks to promptly identify potential risk points and adopt corresponding risk management measures for prevention and control. This helps reduce the probability of credit risk occurrence and the degree of losses, safeguarding the safety of bank assets. A well-established credit risk supervision system can enhance the bank's reputation and image, strengthening customers' trust and loyalty towards the bank. This helps attract more high-quality customers and businesses, promoting the steady development of the bank. Through credit risk supervision, banks can gain a clearer understanding of the credit risk profiles of different industries and customers, optimizing the credit structure by directing credit resources towards areas and customers with lower risks and higher returns.

The independent variable "credit risk supervision" has a significant impact on enhancing credit risk management for small and micro enterprises at Jiao Tong Bank in Guangxi Nanning. In the future, the bank should continue to strengthen the construction of its credit risk supervision system, improve risk management policies and procedures, and enhance the professional competence and business capabilities of risk management personnel.

4.2.4 Internal Control for Credit Risk Has a Significant Effect on the Credit Risk Management of Small and Micro Enterprises of Jiao Tong Bank in Guangxi Nanning

In the study of credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, the internal control for credit risk is found to have a significant impact on enhancing credit risk management. Internal control for credit risk refers to the process by which banks ensure the robust operation of credit operations by establishing a series of rules, regulations, operational procedures, and monitoring mechanisms to identify, assess, control, and supervise the risks associated with credit operations. It is a crucial component of banks' credit risk management and is directly related to the security of credit funds and the bank's operating efficiency.

Through standardized operational procedures and rigorous monitoring mechanisms, internal control for credit risk ensures that risks associated with credit operations are promptly identified and controlled, thereby improving the efficiency of risk management. A well-established internal control system for credit risk can quickly identify potential risk points and implement effective risk management measures for prevention and mitigation. This approach reduces the likelihood of credit risk occurrence and minimizes potential losses. The enhancement of internal control for credit risk contributes to improving the bank's competitiveness. By strengthening internal control for credit risk, banks can conduct credit operations more stably, avoid business risks resulting from poor risk management, and promote the steady development of their businesses.

The internal control for credit risk significantly enhances credit risk management for small and micro enterprises of Jiao Tong Bank in Guangxi Nanning. The bank should continue to strengthen the construction and improvement of its internal control for the credit risk system, continuously enhancing its risk management capabilities.

Table 4.4 Hypothesis Test Results

NO.	Hypothesis	Result
H1	Credit risk identification has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.	Supported
H2	Credit risk assessment has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.	Supported
H3	Credit risk supervision has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.	Supported
H4	Internal control for credit risk has a significant effect on the credit risk management of small and micro enterprises of Jiao Tong Bank in Guangxi Nanning.	Supported

Chapter 5 Conclusion and Recommendation

5.1 Conclusion

In the study of credit risk management for small and micro enterprises of Jiao Tong Bank in Guangxi Nanning, credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk were identified as independent variables, with credit risk management serving as the dependent variable. Through analysis, it was found that the independent variables (credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk) have a significant effect on the dependent variable (credit risk management).

Effective credit risk identification enables banks to promptly detect potential risk points, providing a foundation for subsequent risk assessment and supervision. Inaccurate or untimely risk identification may lead to vulnerabilities in credit risk management. By accurately assessing credit risks, banks can understand the magnitude and nature of the risks and formulate corresponding risk management strategies accordingly. The accuracy and objectivity of risk assessments are crucial to the effectiveness of credit risk management. A comprehensive credit risk supervision mechanism ensures that credit operations run on a standardized and secure track. Lack of or inadequate supervision may lead to uncontrolled credit risks, causing losses to the bank. Internal control for credit risk is a vital component of credit risk management, encompassing credit approval, post-loan management, risk management, and other aspects. The robustness of internal control directly affects the effectiveness of credit risk management.

Consequently, the effectiveness of credit risk management relies on the integrated components of credit risk identification, credit risk assessment, credit risk supervision, and internal control for credit risk. Only by establishing sound mechanisms for risk identification, assessment, supervision, and internal control can credit risks be effectively managed, ensuring the steady development of credit operations.

5.2 Recommendation

(1) Enhance the Accuracy of Credit Risk Identification

Enterprises should adopt precision marketing strategies. By conducting in-depth research and analysis of the target market, enterprises can segment the market into different consumer groups. Based on the needs, preferences, and behavioral characteristics of different consumer groups, they can precisely position their brands and products. Leveraging big data and artificial intelligence technologies, enterprises can analyze customers' consumption behaviors and preferences to provide personalized product recommendations and services. By sending customized information and promotional activities through social media, emails, SMS, and other channels, enterprises can enhance customers' engagement and loyalty. Integrating online and offline resources to achieve Omni channel marketing can improve marketing effectiveness. Utilizing various marketing channels such as social media, search engine marketing, and content marketing can expand brand awareness and influence. By collecting and analyzing customers' consumption data using data analysis tools, enterprises can understand customers' needs and trends. These data can be used to optimize products and services, improve customer satisfaction and loyalty, and adjust marketing strategies to ensure that marketing activities remain aligned with target customers' needs.

Enterprises should improve brand services, enhance service quality, strictly enforce service standards, and precisely plan and execute business processes and service standards related to customers. Continuously upgrading service capabilities through ongoing training programs can improve employees' service awareness and skill levels. Responding quickly to customer needs by establishing an efficient customer service system, including online customer service, telephone consultation, email complaints, and other methods, can provide convenient services to customers. By quickly responding and resolving customers' needs and issues, enterprises can improve customer satisfaction and loyalty.

Providing customized services tailored to different customers' needs can offer personalized product and service solutions. Through in-depth communication and exchanges with customers, enterprises can understand customers' specific needs and expectations to provide more attentive and personalized services. Shaping the brand image through credit risk management analysis can clarify the brand's impression and positioning in consumers' minds. Through advertising, public relations, social media, and other channels, enterprises can disseminate and promote the brand, shaping a brand image and reputation that meets market demands.

(2) Improve the Credit Risk Assessment System

Firstly, enhance the functions of the risk management department. To ensure the integrity and continuity of credit risk assessment, banks need to continuously elevate the importance of the risk management department across all departments. They should invest in ongoing training and recruitment of risk assessment experts to navigate the rapidly changing global financial landscape. Secondly, strengthen audit and inspection. Internal audit serves as a secondary control for credit risks. Banks need to refine their audit mechanisms and improve audit tools to ensure audits play a positive role in credit operations. This involves implementing an audit and inspection assessment system that fully reflects the supervisory function of the audit department.

Thirdly, improve assessment techniques. Given the scarcity of credit risk assessment professionals and low internal rating standards at Chinese banks, banks should collaborate with international professional rating agencies, focus on industry analysis, enhance internal rating databases, and adopt world-class assessment techniques. This aligns with the current trend of international banks transitioning from qualitative to quantitative methods in identifying risk sources. Lastly, build and improve information systems. Enhance the authenticity of accounting information and develop a comprehensive information system that covers business activities, information reporting, and decision support. Banks should train or recruit data analysis experts to analyze assessment data and improve credit decisions.

(3) Strengthen the Intensity of Credit Risk Supervision

Develop a comprehensive online credit business supervision system. With the deepening of internet finance, some credit businesses of Jiao Tong Bank have gradually shifted from offline branches to mobile apps. Consequently, the supervision of online credit businesses has become a significant challenge for Jiao Tong Bank. In response, the bank needs to establish a comprehensive online credit business supervision system. It is essential to establish specific regulations for supervising online credit businesses. Jiao Tong Bank needs to devise a specialized set of supervision regulations tailored to the characteristics of online credit businesses for small and micro-enterprises. Establish a systematic online credit review and post-loan monitoring mechanism. Jiao Tong Bank can increase credit scales, broaden profit channels, and use big data systems to grant certain credit lines to eligible customers. Simultaneously, a professional online credit supervision team should be established to handle credit reviews and post-loan tasks for online credit customers.

Standardize post-loan management for credit businesses. Further, standardize the post-loan management of Jiao Tong Bank's credit businesses, unify the post-loan management behaviors and working methods of client managers across branches, and avoid subjective management by client managers. A unified post-loan management guide should be formulated to provide detailed post-loan management guidance to client managers and strengthen credit risk supervision. Firstly, clarify the content of post-loan management. Client managers need to remind borrowers of their responsibility to repay principal and interest on time, determine the flow of funds from borrowers, verify the authenticity of loan purposes, and closely track borrowers' financial changes, operating conditions, and legal disputes. Implement a reporting system for post-loan management. Client managers of each branch should submit written reports monthly to the risk and credit management department of the branch on the post-loan management status of their responsible credit businesses, including quantitative reports on the number of credit businesses, credit amounts, and non-performing balances, as well as qualitative reports on the security level and risk status of credit businesses. Thirdly, strengthen accountability for post-loan management. To prevent inactivity in post-loan management and inadequate post-loan tracking by client managers, the branch can hold client managers accountable afterward based on the principle of "who makes the mistake, who is responsible" after a credit business risk occurs.

(4) Perfect the Internal Control Mechanisms for Credit Risk

Improve the customer credit rating system. For personal business loans and small enterprise loans, Jiao Tong Bank can leverage the analytic hierarchy process (AHP) to assess credit risk scores, combining the characteristics of small enterprise loans and personal business loans. Customers are rated and classified based on their assessment scores. By integrating customers' loan information and personal details, precise user credit ratings can be achieved, further strengthening internal control over credit risks.

Establish an internal audit system. Based on internal control theory, internal control permeates the processes of pre-loan review, loan execution, and post-loan management in commercial banks. Through mutually restraining internal control mechanisms, commercial banks can effectively implement credit business execution standards and achieve credit management goals. The design and arrangement of an internal audit system can integrate the idea of internal control into bank credit management. Therefore, Jiao Tong Bank needs to establish a dedicated internal audit system at the branch level. The design of the internal audit system can be guided by the internal audit framework of Jiao Tong Bank's headquarters, adjusted according to the characteristics of the branch's credit business, and clarify the responsible individuals, processes, audit scope, audit result reporting, and post-audit rectification supervision of internal audits, fully leveraging the supervisory effectiveness of internal audits.

Build a credit risk accountability mechanism. To avoid mutual blame between client managers and risk management personnel after a credit risk outbreak, Jiao Tong Bank can clarify corresponding responsible individuals at each stage of the credit business, implement their responsibilities, and establish a credit risk accountability mechanism. Based on the four stages of pre-loan investigation, loan approval, loan issuance, and post-loan monitoring, clarify the responsibilities of each responsible individual. Each responsible individual bears a certain percentage of losses according to the degree of credit risk, avoiding inadequate pre-loan reviews, irregular verification of collateral, lax credit approval, and loose post-loan management.

5.3 Further Study

Due to the limitations of my professional expertise and research conditions, this study still has certain deficiencies. This study focuses on the credit risk management of small and micro enterprises of Jiao Tong Bank. Since there may be significant differences in the current credit risk situations among different commercial banks, the applicability of the research findings of this study to other banks in the industry remains to be further verified.

Credit risk management is an issue that commercial banks should attach great importance to. Due to the complex and diverse factors influencing credit risk, the credit risks faced by commercial banks will change accordingly in different periods and contexts. Therefore, the improvement measures for commercial banks' credit risk management must also keep pace with the times. This study presents some insights on the credit risk management of small and micro enterprises of Jiao Tong Bank. However, research on commercial banks' credit risk management still awaits further exploration by more scholars. For instance, more systematic and comprehensive studies can be conducted using data and cases from rural commercial banks, state-owned commercial banks, and joint-stock commercial banks, to provide more complete and effective recommendations for commercial banks' credit risk management.

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Appendix

Dear Sir/Madam,

Thank you for your participation in this questionnaire survey. The survey will be conducted anonymously, and your relevant information will be kept confidential. Thank you again for your cooperation.

Part Ⅰ:

1. Gender? A Male B Female

2. Age? A21-30 B31-40 C 41-50 D Above 50

3. Your position?
A Small and micro enterprise credit business account manager
B Branch department heads
C Risk management department staff
D Branch manager
E Others

4. Years of experience?
A 2-3 B 4-5 C 6-7 D 8-9 E Above 10

Part Ⅱ: Please judge to what extent you agree with the following statement; choose the most appropriate option, and mark the corresponding number " √ . " The questionnaire used a Likert scale, ranging from 1 to 5 in which one indicates strongly disagree (or strongly disagree), two indicates relatively disagree (or relatively disagree), three indicates neutral, four indicates relatively agree (or relatively agree), and five indicates strongly agree (or strongly agree)

Measuring item	1	2	3	4	5
Credit Risk Identification					
The accuracy of identifying credit risks for small and micro enterprises is excellent.					
When identifying credit risks for small and micro enterprises, all key factors (such as the borrower's credit status, asset-liability situation, macroeconomic environment, etc.) are taken into consideration.					
The measures taken for identifying credit risks for small and micro enterprises are effective.					

The enforcement of policies for identifying credit risks for small and micro enterprises is robust.					
The identification of credit risks for small and micro enterprises has had a positive impact on business development.					
Credit Risk Assessment					
In assessing credit risks for small and micro enterprises, all relevant factors are comprehensively considered.					
The accuracy of assessing credit risks for small and micro enterprises is very high.					
The timeliness of assessing credit risks for small and micro enterprises is prompt.					
The management strategies for assessing credit risks for small and micro enterprises are very effective.					
The measures for assessing credit risks for small and micro enterprises are implemented exceptionally well.					
Credit Risk Supervision					
The regulatory system established for credit risks of small and micro enterprises is well-developed.					
The enforcement of regulations for credit risks of small and micro enterprises is strong.					
The supervision of credit risks for small and micro enterprises is timely.					
The supervision of credit risks for small and micro enterprises is effective.					
Strengthening credit risk supervision has enhanced the overall level of credit risk management.					
Internal Control for Credit Risk					
The internal control system for credit risks of small and micro enterprises is well-established.					
The internal control system for credit risks of small and micro enterprises is well-established.					
The internal control system for credit risks of small and micro enterprises is well-established.					
The internal control in the credit approval process for small and micro enterprises is strict.					
Within the internal control of credit risks, the information and communication mechanisms are smooth.					
Credit Risk Management					
The management strategies formulated for credit risks of small and micro enterprises are effective.					

Credit risk management for small and micro enterprises covers all key aspects.					
Credit risk management for small and micro enterprises covers all key aspects.					
Credit risk management for small and micro enterprises effectively supports business development.					
The credit risk management system is advanced and adapts to current business needs.					
The management strategies formulated for credit risks of small and micro enterprises are effective.					

บันทึกข้อความ

ส่วนงาน บัณฑิตวิทยาลัย สาขาบริหารธุรกิจ **โทร.ภายใน 5336**

ที่ มส 0210.01 / 0248 **วันที่** 9 กันยายน 2568

เรื่อง ขออนุมัติสำเร็จการศึกษาประจำปีการศึกษา 2567

เรียน ท่านอธิการบดี

<u>เรื่องเดิม</u> นักศึกษาหลักสูตรบริหารธุรกิจมหาบัณฑิต MISS. XIANG LINHUI รหัสนักศึกษา 6617195711 ได้ศึกษารายวิชาครบถ้วนสมบูรณ์ และได้ปฏิบัติตามเกณฑ์สำเร็จการศึกษาตามที่มหาวิทยาลัยสยามกำหนดเรียบร้อยแล้ว ทั้งนี้พร้อมยื่นเรื่องขออนุมัติสำเร็จการศึกษา โดยมีรายละเอียด ดังต่อไปนี้

1. ผ่านการตรวจสอบความซ้ำซ้อนด้วยโปรแกรม Grammarly เมื่อวันที่ 12 มิถุนายน 2568
2. ผ่านการสอบประมวลความรู้ข้อเขียน เมื่อวันที่ 26 กรกฎาคม 2568
3. ผ่านการสอบปากเปล่าขั้นสุดท้ายวิชาการค้นคว้าอิสระ เมื่อวันที่ 18 กรกฎาคม 2568
4. ผ่านเกณฑ์มาตรฐานความรู้ภาษาอังกฤษ Oxford Placement Test score 96 CEFR C1 เมื่อวันที่ 5 พฤศจิกายน 2567
5. ผ่านการประชุมวิชาการระดับนานาชาติ at the 1st Thailand –Sino International Conference and 17th National and International Academic Conference on "Innovation and Management for Sustainability" Subject : The Influencing Factors of Credit Risk Management of Small and Micro Enterprises of Jiao Tong Bank in Guangxi Nanning on 14-16 November at Siam University, 2024, Bangkok Thailand

<u>เรื่องพิจารณา</u> เพื่อพิจารณาเข้าประชุมสภามหาวิทยาลัย และอนุมัตินักศึกษาสำเร็จการศึกษา ประจำปีการศึกษา 2567 ดังรายละเอียดเอกสารประกอบการสำเร็จการศึกษาตามที่แนบมา

จึงเรียนมาเพื่อพิจารณาอนุมัติ และให้ดำเนินการต่อไป

(รศ.ดร.จอมพงศ์ มงคลวนิช)
คณบดีบัณฑิตวิทยาลัย สาขาบริหารธุรกิจ

ตรวจสอบผลงาน รายงาน 18 เรื่องเรียบร้อยแล้ว

17 ก.ย. 68

สำนักงานอธิการบดี
เอกสารฉบับนี้สามารถอัปโหลดเข้าฐานข้อมูลได้
ลงชื่อ............
วันที่ ๑๗ / ๙ / ๖๘