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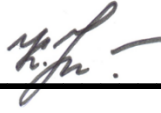
QUALIFYING MASTER'S THESIS
on the topic:
**RISK MANAGEMENT IN THE MECHANISM OF
ENSURING BANK'S FINANCIAL SECURITY**

submitted by the applicant of higher education
Tian Wei

The qualifying master's thesis was accepted for
defense by the decision of the Department of
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Head of Department
Doctor of Economics, Professor
_____ **Galina AZARENKOVA**

Scientific advisor
Doctor of Economics, Professor
 _____ **Karina UTENKOVA**

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Head of department of
Banking Business and Financial Technologies
Doctor of Economics, Professor

(signature) Galyna AZARENKOVA (name and surname)

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ASSIGNMENT
FOR A QUALIFYING MASTER'S THESIS
assigned to
Tian Wei,

1. The topic of the thesis: "RISK MANAGEMENT IN THE MECHANISM OF ENSURING BANK'S FINANCIAL SECURITY"

Scientific advisor – Doctor of Economics, Assoc. Prof. Karina Utenkova
(last name, first name, patronymic, academic degree, academic title)

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2. Deadline for submission of thesis by the student 15th of November 2024

3. List of questions to be researched:

In chapter 1: to describe the financial risks: essence and classification; to consider methodical approaches to the assessment of risks that affect the financial security of the bank; to characterize the components of the bank's financial security.

In chapter 2: to analyze current state of development of the banking sector in China; to consider the organizational and economic characteristics of Bank ;

to analyze the bank's financial security and financial risk management in the Bank

In chapter 3: to consider anti-crisis management of the bank's financial risks; to describe tools for strategic management of the bank's financial risks; to justify proposals for improving risk management in the mechanism of financial security in the Bank

4. Plan of qualifying master's thesis

№	Name of work stages
1	Selection of the topic
2	Approval of the plan and tasks of thesis
3	Implementation of thesis
4	Submission of thesis to the department to check for the presence of borrowings from other documents
5	Completion of the admission procedure for the protection of thesis
6	Defence of thesis

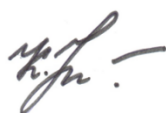
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Student

Tian Wei

Tian Wei

Scientific advisor



Karina Utenkov

ABSTRACT
ON QUALIFICATION MASTER'S WORK
«RISK MANAGEMENT IN THE MECHANISM OF ENSURING BANK'S
FINANCIAL SECURITY» OF
TIAN WEI

Qualification Master's Work contains 105 pages, 1 tables, 5 figures, 73 references.

Object of research is the banking system of China.

Subject of research is the importance of bank financial security, main risks and challenges faced by banks, theoretical basis and organizational principles of financial risk management.

Purpose of qualification master's work to provide theoretical support for improving the security of banks by analyzing the risk management in the bank financial security guarantee mechanism.

Tasks of qualification master's work are:

- to discuss the definition, classification and evaluation method of financial risk and the organizational principles of financial risk management.

- to analyze the current situation, organization and economic characteristics of China's banking industry, as well as the financial security and risk management.

- to propose anti-crisis management, strategic management tools and suggestions for improving the financial security mechanism.

- to put forward policy suggestions on optimizing the financial security guarantee mechanism and strengthening risk management laws and regulations, and design an implementation strategy framework and monitoring and feedback mechanism.

- to summarize the findings, identify research limitations and prospect future research directions.

According to results of the research, it can be used as theoretical guidance and practical reference for banks to improve their financial security.

The obtained results can be used to provide theoretical support for enhancing bank security through analyzing risk management in the bank financial security guarantee mechanism. The results can be applied in various aspects such as understanding financial risk definition, classification, and evaluation methods; analyzing China's banking industry situation formulating anti-crisis management and strategic management tools; and proposing policy suggestions for optimizing financial security guarantee mechanisms and strengthening risk management laws and regulations.

KEY WORDS: BANK FINANCIAL SECURITY, RISK MANAGEMENT FINANCIAL, CHINA'S BANKING INDUSTRY

CONTENTS

INTRODUCTION	6
CHAPTER 1. THEORETICAL AND ORGANIZATIONAL FOUNDATIONS OF STRATEGIC MANAGEMENT OF THE BANK'S FINANCIAL RISKS.....	10
1.1 Financial risks: essence and classification	10
1.2 Methodical approaches to the assessment of risks affecting the financial security of the bank	19
1.3 Organizational principles of financial risk management	26
CHAPTER 2. CURRENT STATE OF CHINA'S BANKING SECTOR.....	34
2.1 The current state of development of China's banking sectory	34
2.2 Organizational and economic characteristics of the bank.....	45
2.3 Analysis of the bank's financial security and financial risk management in the Bank.....	53
CHAPTER 3. SCIENTIFIC AND PRACTICAL DIRECTIONS FOR IMPROVING THE BANK'S FINANCIAL RISK MANAGEMENT STRATEGY ..	63
3.1 Anti-crisis management of bank financial risks.....	63
3.2 Tools of strategic management of financial risks of the bank	71
3.3 Proposals for improving risk management in the mechanism of financial security in the Bank.....	81
CONCLUSIONS	90
REFERENCES.....	98

INTRODUCTION

In recent years, global financial markets have experienced increased volatility, and the financial risks faced by banks have shown a trend towards diversification and complexity. Market risk, credit risk, operational risk, and various other risks are intertwined, posing a serious threat to the financial security of banks. Against this backdrop, how to effectively manage these risks and ensure the stable operation of banks has become a focal point of widespread concern in the banking industry. This study aims to conduct an in-depth analysis of risk management within the financial security mechanisms of banks, with the goal of revealing the effectiveness of existing risk management strategies and exploring new methods and tools for risk management to enhance banks' ability to cope with complex financial environments.

From a theoretical perspective, existing research on the financial security mechanisms of banks has largely focused on institutional design and regulatory policies, while there has been relatively insufficient attention to the specific implementation and effectiveness evaluation of risk management strategies. This study fills this gap by providing an in-depth analysis of banking risk management practices and constructing a more comprehensive theoretical system for risk management. This not only helps to enrich and develop existing theories of financial security management but also provides a theoretical framework and reference for future empirical research.

Specifically, this study focuses on the following aspects: First, the nature and classification of banking financial risks, through in-depth analysis of different types of risks, to reveal their specific impacts on banking financial security; second, the theoretical and organizational foundations of strategic management of banking financial risks, exploring how banks can seek a balance between internal organizational structures and the external environment to achieve the minimization of risks and the maximization of returns; third, an analysis of the current state of China's banking industry, including its asset size, business layout, competitive landscape, and challenges faced, with the aim of providing a realistic basis for subsequent risk management strategy formulation; fourth, the scientific and practical methods for improving banking financial risk management

strategies, including crisis management, strategic management tools, and specific suggestions for improvement, with the goal of providing banks with a comprehensive and systematic risk management solution.

In terms of field importance, bank risk management is not only related to the steady development of financial institutions themselves, but also an important means to maintain the order of the financial market and prevent systemic risks. Around the world, regulators in all countries attach great importance to bank risk management, and formulate a series of laws, regulations and guidelines, aiming to improve the risk management ability and level of financial institutions.

The importance of bank financial security is reflected in many aspects. It is the basis for maintaining market confidence. As the center of capital circulation, the operating status of banks is directly related to the interests of the majority of depositors and investors. Once banks have financial security problems, such as the rupture of the capital chain, credit default, etc., it is easy to cause market panic, leading to the collapse of confidence, which may trigger systemic financial risks. Banking and financial security is crucial to promoting the healthy development of the real economy. Banks provide the necessary financial support for enterprises and individuals by providing loan, settlement, financial management and other services. The guarantee of the financial security of banks means that these financial services can operate steadily and efficiently, thus contributing to the sustained growth of the real economy. Bank financial security is also an important guarantee for national financial sovereignty and macroeconomic stability. In the context of globalization, the stability of the banking system directly affects the international competitiveness and discourse power of a country.

However, the current bank financial security is facing many challenges and risks . From the perspective of the external environment, the complex and volatile global economic situation, the intensification of geopolitical conflicts and the frequent international trade frictions have all brought uncertainties to the financial security of banks. For example, the rise of international trade protectionism in recent years has led to increased instability of cross-border capital flows, posing additional risks to banks'

international operations. With the rapid development of science and technology, especially the application of emerging technologies such as the Internet, big data and artificial intelligence, it has brought new development opportunities for the banking industry, but it has also brought unprecedented security challenges. New risks such as cyber attacks, data leakage and fraudulent transactions are increasingly prominent, posing a serious threat to banks' information systems and customer assets.

To achieve the set goal, the following tasks are solved in the work:

- analyze the risk management in the bank financial security guarantee mechanism to provide theoretical support and practical guidance for improving bank security.
- solve tasks such as understanding the nature and classification of bank financial risks.
- assessing risks affecting bank financial security, characterizing bank financial security.
- analyzing China's banking industry, and proposing methods for improving bank financial risk management strategy.
- provides theoretical basis and practical guidance to optimize risk management mechanisms and enhance financial security.
- offers a scientific basis for improving financial safety regulatory policies and promoting compliance operations.
- serves as an important bridge to promote the integration of risk management theory and practice.

Object of research is the banking system of China.

Subject of research is the importance of bank financial security, main risks and challenges faced by banks, theoretical basis and organizational principles of financial risk management.

Research methods: The research on risk management in the bank financial security guarantee mechanism employs a combination of literature analysis, case study, and statistical analysis. Literature analysis serves as the foundation by combing relevant domestic and international literature to understand the research status and development

trend. Case studies involve selecting representative bank cases to analyze specific practices and achievements in financial security guarantee and risk management. Statistical analysis uses bank-related data and methods like risk assessment models and panel data regression analysis to quantitatively evaluate bank financial risks. This comprehensive approach ensures the comprehensiveness and depth of the study, providing theoretical support and practical guidance for improving bank security.

The scientific novelty of this research on risk management in the bank financial security guarantee mechanism lies in proposing a new risk management model that combines advanced technologies such as big data analysis, machine learning, and artificial intelligence. It also innovates in research perspective by considering the interaction between banks and the external environment, in research methods through introducing interdisciplinary techniques, and in practical application by collaborating with banks for empirical research and providing practical solutions. This research makes positive contributions to promoting the in-depth development of bank risk management theory and practice.

This paper realizes many innovations in the research of risk management in the bank financial security guarantee mechanism. By proposing a new risk management model, carrying out application case analysis, expanding the research perspective, introducing interdisciplinary research methods, and focusing on practical application, this research has made positive contributions to promoting the in-depth development of bank risk management theory and practice. In the future, with the continuous development and change of the financial market, the bank risk management will face more new challenges and opportunities. This study continues to focus on the frontier dynamics and development trends in this field, and continues to explore and innovate more effective and practical risk management methods and strategies.

CHAPTER 1. THEORETICAL AND ORGANIZATIONAL FOUNDATIONS OF STRATEGIC MANAGEMENT OF THE BANK'S FINANCIAL RISKS

1.1 Financial risks: essence and classification

- Definition and connotation of financial risks

The definition and connotation of financial risk is the basis of understanding the risk management in the bank financial security guarantee mechanism. In the theoretical framework of finance, financial risk is usually defined as the possibility that a financial institution or a financial market will suffer economic losses in the future (J. Bessis, "Risk Management in Banking," 2011). This risk is not only related to the stability and survival of financial institutions themselves, but also closely linked to the healthy development of the entire economic system. Financial risks are rich in connotation, covering multiple dimensions and levels, and their essential characteristics are uncertainty and potential losses.

The specific meaning of financial risk in economic activities is reflected in many aspects. From the perspective of financial institutions, financial risk is a variety of uncertain factors they face in the process of operation, which may lead to asset loss, increased liabilities or decreased profitability. For example, fluctuations in market interest rates may reduce the value of fixed-income securities held by banks, thereby increasing the risk of losing their assets. The borrower's default may also lead banks to face credit risks, which will affect the stability and profitability of their loan business.

From the perspective of financial market, financial risk is the uncertainty such as price fluctuations, insufficient liquidity or market collapse faced by market participants in the trading process. For example, the drastic fluctuations in the stock market may cause investors to suffer capital losses, while the exchange rate fluctuations in the foreign exchange market may affect the profitability and market competitiveness of multinationals. These risks not only affect the economic interests of individuals, but also may impact the entire economic system through the transmission mechanism.

The essential characteristic of financial risk lies in its uncertainty and potential losses. Uncertainty means that the occurrence probability and the degree of loss of financial risks are often difficult to be accurately predicted, which makes it difficult for financial institutions and investors to make optimal decisions when faced with risks. Potential losses mean that once financial risks are converted into actual losses, they will have a negative impact on the financial situation and market reputation of financial institutions, which may lead to broader economic problems.

In order to further understand the connotation of financial risks, this paper can start with different types of financial risks. Market risk is one of the main risks faced by financial institutions, which stems from the fluctuation of market price (such as interest rate, exchange rate, stock price). For example, when market rates rise, the value of long-held fixed-rate loans may fall because their future earnings appear low relative to current market rates. This risk requires financial institutions to have an effective market risk management strategy to cope with potential market fluctuations (Richard M. Stulz, "A Framework for Assessing Financial Risks in Banks," 2017).

Credit risk is another important financial risk that stems from the possibility of default by the borrower or counterparty. For the banks, the credit risk is mainly reflected in the loan business. The bank will face credit losses when the borrower cannot repay the loan on time due to poor management, deteriorating financial position or other reasons. In order to manage credit risk, banks need to implement strict credit approval process, post-loan management mechanism and diversified loan portfolio strategies (Asif Iqbal et al., "Classification of Financial Risks in Banks: A Survey," 2017).

Operational risk refers to the risk of loss due to improper or failure of internal processes, personnel, systems, or external events. Such risks are particularly prominent in the daily operations of the bank, such as internal fraud, system failures or external attacks that can cause significant losses to the bank. Therefore, banks need to establish a sound internal control system, information security measures and emergency response

mechanism to deal with operational risks (Martin F. Hellwig, "Managing Bank Risks: A Guide to Best Practices," 2017).

In addition to the above major risks, financial institutions may also face various risks, including liquidity risks, legal and compliance risks. Liquidity risk refers to the risk that financial institutions are unable to timely obtain sufficient funds at a reasonable cost in the face of capital demand. Legal and compliance risks refer to the risk that a financial institution faces legal proceedings, fines or reputation loss for violation of laws, regulations or regulatory requirements.

In the Internet era, the connotation of financial risks is further expanded. With the wide application of Internet technology and the deepening of financial innovation, financial institutions are faced with more diversified and complex risks and challenges. For example, cyber security risks have become a problem that financial institutions must attach great importance to. Hacking attacks and data leakage may bring significant losses to financial institutions, and even threaten their survival and development. Therefore, financial institutions need to constantly strengthen the network security protection capabilities, and improve the level of risk response.

The rise of Internet finance has also brought new changes to financial risks. Internet financial business has the characteristics of crossing time and space, fast transaction speed and wide coverage, which further expands the transmission speed and scope of influence of financial risks. For example, defaults on online lending platforms could quickly trigger a chain reaction that leads to losses for a large number of investors. Therefore, regulators need to strengthen the supervision of Internet finance to ensure its healthy and orderly development.

The definition and connotation of financial risk cover many aspects and levels. From the perspective of financial institutions and financial markets, financial risks are all kinds of uncertainties and potential losses they face in the process of operation and transaction. These risks are not only related to the economic interests of individuals, but also closely linked to the stable development of the entire economic system. In order to effectively manage financial risks, financial institutions need to establish a sound risk

management system and improve their risk management ability to cope with the increasingly complex and changeable risks and challenges. Regulators also need to strengthen the supervision of financial risks to maintain the stability and healthy development of the financial market.

- Classification of the main types of financial risks

As an inherent attribute of the financial system, the complexity and diversity of financial risks pose a continuous challenge to the operation and financial security of banks. In order to understand and deal with these risks more comprehensively, it is necessary to divide and explore the main types of financial risks in detail. The following is an in-depth analysis of several major types of risk in the current financial system.

Market risk refers to the risk of changes in the value of financial assets due to market price fluctuations. This includes interest rate risk, exchange rate risk, stock price risk, etc. For example, when market interest rates rise, the value of fixed-income securities held by banks may decline, thereby affecting their asset quality and profitability. According to the Bank for International Settlements (BIS), global financial markets experienced significant volatility in 2022, especially in the interest rate and exchange rate markets, which further highlights the importance of market risk management (Bank for International Settlements, "Basel III: The Global Regulatory Framework for More Resilient Banks and Banking Systems," 2017). Banks need to reduce the potential threat of market risks to their financial security through effective market risk management strategies, such as diversified portfolios and hedging with financial derivatives.

Credit risk is the risk of losses due to default by the borrower or counterparty. Credit risk is an important factor in banks' lending business, bond investments, and other financial transactions. According to Moody's (MOS) credit rating report, credit quality in the global corporate sector generally declined in 2023, especially in emerging markets and some highly leveraged industries. Banks need to control and mitigate credit risk through strict credit evaluation procedures, reasonable loan pricing, and active

post-loan management. The use of credit derivatives, such as credit default swaps (CDS), is also an effective means for banks to manage credit risk (Asif Iqbal et al., "Classification of Financial Risks in Banks: A Survey," 2017).

Operational risks involve potential losses in daily operations of the bank due to internal processes, systems, personnel or external events. Such risks include fraud, system failures, natural disasters, etc. According to the Basel Committee on Banking Regulation, the losses caused by operational risk in the global banking sector are increasing year by year and become an important part of bank risk management. To reduce operational risks, banks need to establish a sound risk management framework, including the development of clear operational norms and procedures, enhanced staff training, the implementation of strict information security measures, and the establishment of effective emergency response mechanisms (Martin F. Hellwig, "Managing Bank Risks: A Guide to Best Practices," 2017).

Liquidity risk refers to the risk that banks cannot timely obtain sufficient funds at a reasonable cost when facing capital demand. Liquidity risks are particularly acute during the financial crisis, potentially causing banks to become insolvent. To manage liquidity risk, banks need to maintain appropriate liquidity reserves, diversify financing channels, conduct regular liquidity stress tests, and ensure that their asset and liability structures are properly matched (Richard M. Stulz, "A Framework for Assessing Financial Risks in Banks," 2017).

Fig. 1 illustrates the main types of financial risks that banks face. It likely categorizes and presents these risks in a graphical manner to help readers visually understand the different risk components. The risks may include market risk, which can be further divided into interest rate risk, exchange rate risk, and stock price risk, showing how fluctuations in these market factors can impact the value of financial assets held by banks. Credit risk is also likely depicted, highlighting the potential losses due to borrower or counterparty default. Operational risk, covering risks from internal processes, systems, personnel, or external events such as fraud, system failures, and natural disasters, is probably part of the figure. Additionally, it may touch upon other

risks like liquidity risk, which refers to the bank's ability to obtain sufficient funds at a reasonable cost when needed, and potentially other specific risks such as legal and compliance risks. Overall, Fig. 1 serves as a useful visual aid to introduce and clarify the complex landscape of financial risks that banks need to manage and mitigate.

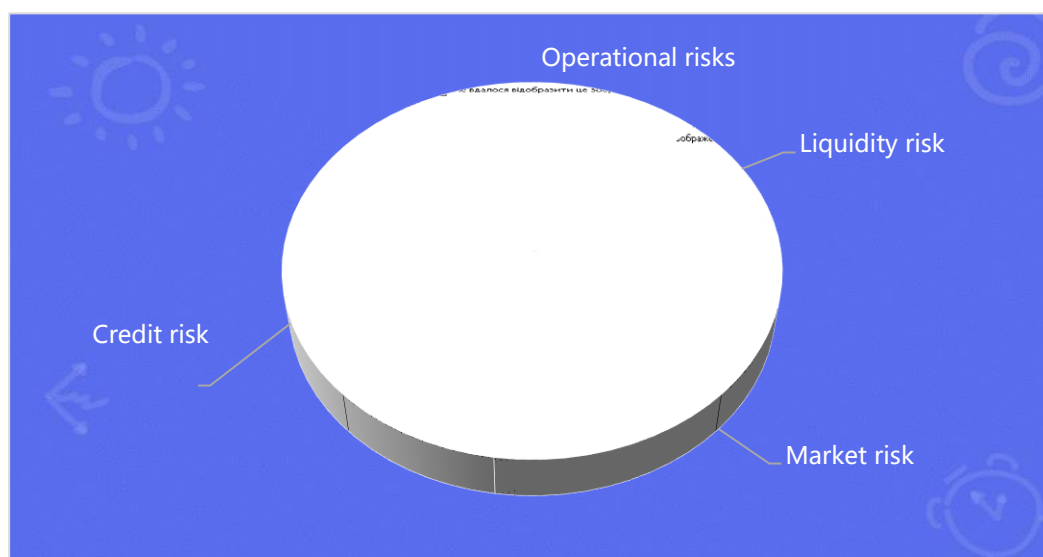


Fig.1 Main types of financial risks

Source:Asif Iqbal et al., "Classification of Financial Risks in Banks: A Survey," 2017

In addition to the above risk types, there are some other specific types of financial risks that banks should pay attention to. For example, legal risks involve the risk that banks facing fines, lawsuits or other legal sanctions for violating laws and regulations. As the regulatory environment continues to evolve, banks need to strengthen compliance management to ensure that their business activities meet the requirements of relevant laws and regulations. Reputation risk is also an aspect that cannot be ignored, which involves the risk of declining public trust due to negative events. Banks need to maintain their reputation and brand value through effective communication and crisis management strategies.

The diversity and complexity of financial risks require banks to adopt a comprehensive and systematic risk management strategy. Through the deep understanding and effective management of different types of risks, banks can reduce the overall risk level they face and enhance their financial security and stability. This

will not only help banks maintain their competitive advantages in the highly competitive financial market, but will also be an important guarantee to ensure the sound operation of the entire financial system.

- Impact of financial risks on banks

The impact of financial risks on banks is multi-dimensional and far-reaching, which is not only related to the operating conditions and financial soundness of banks themselves, but also further closely linked with macroeconomic stability. In the context of financial globalization, as the core component of the financial system, its risk exposure and management ability are directly related to the stability and development of the financial market.

1) The impact of financial risk on bank operations

Financial risks, especially market risks, credit risks and operational risks, pose a direct challenge to the daily operation of banks. Market risk stems from fluctuations in market factors such as interest rates, exchange rates, and stock prices, which may lead to a decline in the value of banks' assets, which in turn can affect their profitability and solvency. For example, in 2022, the global financial market was turbulent due to repeated geopolitical conflicts and epidemics. Many banks faced the risk of market value shrinkage due to holding large amounts of bond and stock investments, resulting in a decline in their net profits, and some banks even had to increase provisions to cope with potential losses.

Credit risk is mainly related to the possibility of default of the borrower or the counterparty. In the economic downturn cycle, corporate profitability declines and personal income is unstable, leading to a rise in the loan default rate, and the non-performing loan ratio of banks rises accordingly. According to the data of China Banking and Insurance Regulatory Commission, although the overall non-performing loan ratio of the banking industry has remained at a low level in recent years, the credit risks of some industries and regions still cannot be ignored, especially in the field of small and micro business loans and personal consumption loans, and the

non-performing loan ratio fluctuates from time to time, which puts pressure on the asset quality of banks.

Operational risks involve potential losses due to the bank's internal processes, systems, personnel, or external events. With the complexity of banking business and the wide application of information technology, operational risk events occur frequently, such as system paralysis, data leakage, internal fraud, etc., which not only cause direct economic losses, but also seriously damage the reputation of banks and affect customer trust. Therefore, banks need to continuously invest in information technology security, staff training and the improvement of internal control systems to reduce the impact of operational risks.

2) The impact of financial risk on the bank's financial condition

Financial risks directly affect the financial position of banks, including key indicators such as capital adequacy ratio, liquidity and profitability. Capital adequacy ratio is an important indicator to measure the ability of banks to resist risks. The increase of financial risks will force banks to consume more capital to cushion potential losses, thus reducing the level of capital adequacy ratio. For example, in the face of market risks and credit risks, banks need to set aside corresponding risk reserves to reduce the capital that can be used for loans and other profitable activities, thus affecting their business expansion ability and market competitiveness.

Liquidity risk is another major challenge for banks. In times of turmoil in financial markets or confidence, banks may run on depositors or financing difficulties, leading to tight liquidity. During the global financial crisis in 2008, many large international banks ran up and had to rely on government bailouts. Therefore, banks need to maintain sufficient liquidity reserves and optimize the structure of assets and liabilities to cope with the sudden capital needs.

In terms of profitability, financial risks compress the profit margin of banks through the dual mechanism of increasing costs (e. g., risk reserves and compliance costs) and reducing income (such as loan losses and investment losses). In the long run,

if banks fail to manage risk effectively, their profitability will be continuously damaged, affecting their long-term development potential.

3) The impact of financial risk on bank stability

The stability of banks is the key to their continuous provision of financial services and support for the real economy. Financial risks, especially systemic risks, have the most significant impact on the stability of banks. Systemic risk refers to the risk caused by adverse changes in the entire financial system or the macroeconomic environment, which is contagious and widely influential. For example, the subprime mortgage crisis in 2008 was initially only a local problem in the U. S. real estate market, but eventually evolved into the global financial crisis, leading to the collapse of a number of large banks and the turmoil in the global financial market.

In China, the banking regulatory authorities attach great importance to the prevention and mitigation of systemic risks, and have effectively maintained the stability of the banking system through the implementation of macro-prudential management, strengthening the coordination of financial supervision, and promoting the sound operation of financial institutions. However, in the face of the complex and volatile economic and financial environment at home and abroad, banks still need to continuously improve their risk management capabilities, especially to strengthen the monitoring and response of cross-market and cross-institutional risk contagion, to ensure that business continuity and service stability can be maintained in extreme circumstances.

-The relationship between financial security and macroeconomic stability

There is a close interaction between financial security and macroeconomic stability. As the core of the financial system, the sound operation of banks is an important cornerstone for maintaining financial security and promoting stable economic growth. On the one hand, banks provide financial services such as credit, payment and settlement, support enterprise investment and personal consumption and promote economic growth; on the other hand, macroeconomic stability also creates a good operating environment for banks and reduces the probability of systemic risk.

However, when financial risks accumulate to a certain extent, they may cause a financial crisis and cause a serious impact on the real economy. The financial crisis has led to a credit crunch, falling asset prices and increased corporate bankruptcies, leading to a ripple effect of rising unemployment and slowing economic growth. Therefore, maintaining financial security, especially the stable operation of banks, is of great significance for ensuring macroeconomic stability.

The impact of financial risks on banks is multi-level, which is not only related to the operation status, financial status and stability of banks themselves, but also closely linked to the macroeconomic stability. In today's increasingly complex and volatile financial risks, banks need to continuously strengthen the construction of risk management system, improve the ability of risk identification, assessment and response, so as to ensure the sound operation in the uncertain financial environment and provide sustained and stable financial support for the real economy. Government regulatory authorities should also continue to improve the financial regulatory framework, strengthen cross-departmental and cross-market regulatory coordination, jointly maintain financial security and stability, and promote sustainable economic development.

1.2. Methodical approaches to the assessment of risks affecting the financial security of the bank

- Application of qualitative evaluation method in bank financial security risks

Qualitative evaluation method plays an important role in the risk management of bank financial security guarantee mechanism. This kind of method mainly identifies and evaluates the risks affecting the financial security of banks through expert judgment and scenario analysis. The specific application of these methods in bank financial security risk management will be discussed in detail below.

As a classic qualitative evaluation method, expert judgment is particularly widely used in the financial security risk assessment of banks. Expert judgment mainly depends on senior experts or professional teams in the field, who use their rich experience and

profound expertise to subjectively evaluate the various financial risks faced by banks. For example, when assessing the credit risk, experts will comprehensively consider the borrower's credit history, repayment ability, business conditions and other factors, so as to judge the possibility of loan default. The advantage of this approach is the ability to leverage the expertise and experience of experts to flexibly assess complex and volatile financial risks. However, expert judgment also has some limitations, such as strong subjectivity and vulnerability to personal bias. Therefore, in practical application, banks will usually combine other assessment methods to improve the accuracy and objectivity of risk assessment.

Scenario analysis is another important qualitative evaluation method, which also has a wide application value in bank financial security risk assessment. Scenario analysis By constructing different future scenarios to simulate the financial situation and operating results of banks in various possible situations, so as to assess the potential risks faced by banks. For example, when assessing market risks, banks can use scenario analysis to simulate the impact of changes in market factors such as interest rate and exchange rate on the value of banks' assets and liabilities, and then evaluate the impact of market risks on the financial security of banks. The advantage of scenario analysis lies in its ability to fully consider all possible risk factors to help banks prepare in advance. However, scenario analysis also has some challenges, such as the complexity and uncertainty of scenario construction. Therefore, banks need to fully consider the interaction and influence of various risk factors in conducting scenario analysis in order to improve the comprehensiveness and accuracy of risk assessment.

In practical application, banks usually combine expert judgment and scenario analysis and other methods to conduct a comprehensive assessment of the risks affecting financial security. For example, when assessing the credit risk of a bank, a bank can first invite senior credit experts to evaluate the credit status of borrowers, and then use scenario analysis to simulate the changes of the repayment ability of borrowers in different economic environments, so as to more comprehensively evaluate the impact of credit risk on the financial security of banks. Through this comprehensive evaluation

method, banks can more accurately identify potential risk points and develop corresponding risk management strategies.

With the development of Internet technology and the advent of the era of big data, banks are also facing new opportunities and challenges in financial security risk management. On the one hand, Internet and big data technology provide banks with richer data sources and stronger data processing power, enabling banks to identify and evaluate potential risks more accurately; On the other hand, the rapid development of Internet and big data technology also brings new risk types and challenges, such as network security risks and data leakage risk. Therefore, banks also need to use the qualitative assessment method to constantly pay attention to the development and application of new technologies, and timely adjust and improve the financial security risk management strategies and methods.

Qualitative evaluation method has an important application value in bank financial security risk management. Through expert judgment, scenario analysis and other means, banks can more accurately identify and evaluate the potential risk points, and formulate the corresponding risk management strategies. However, the qualitative assessment methods also have some limitations and challenges. Therefore, in practical application, banks need to combine other evaluation methods and technical means to continuously improve the accuracy and comprehensiveness of risk assessment. Banks also need to pay close attention to the development and application of new technologies, and adjust and improve risk management strategies and methods in time to adapt to the changing financial environment and market demands.

- Accurate measurement of bank financial risk by quantitative evaluation model

When discussing the quantitative assessment of bank financial risk, accurate measurement is particularly important. As the core tool of risk management, the quantitative assessment model provides a scientific and objective risk assessment means for banks. Among them, the value-at-risk method (Value at Risk, VaR) and the stress

test (Stress Testing) are two widely used quantitative evaluation models, which play an important role in accurately measuring the financial risk of banks.

Value at Risk (VaR) is a statistical method for quantifying the maximum loss that a portfolio or asset may suffer in a normal market fluctuation over a given period of time. The core of the VaR model is that it provides a specific amount of loss, which is the maximum loss not expected at a certain confidence level, such as 95% or 99%. For banks, the VaR model can help them understand the potential financial losses caused by market changes (such as interest rates, exchange rates, stock prices, etc.) in a specific period of time. By calculating the VaR, banks can set corresponding risk limits to ensure that the portfolio exposure remains within an acceptable range (J. C. Hull, "Tools for Strategic Management of Bank Financial Risks," 2017).

In practice, banks need to collect a large amount of historical market data, such as stock prices, interest rate changes, etc., and use statistical software to process these data to calculate the VaR value. For example, assuming a bank holds a \$10 billion equity portfolio, the VaR model calculates the maximum \$500 million in the next month at 95% confidence. That means that under normal circumstances, the bank has 95% confidence that its portfolio will not exceed \$500 million. This information is crucial for their risk management because it can help banks make a more reasonable trade-off between risk and return.

However, the VaR model also has its limitations. It mainly focuses on the risks in normal market conditions, while it underconsiders the possible losses caused by extreme market events (such as financial crisis, natural disasters, etc.). Therefore, stress testing, as another quantitative evaluation model, also occupies an important role in risk management.

A stress test is a way to simulate the impact of extreme market conditions or adverse events on a bank's financial condition. By constructing different stress scenarios, such as sharp rises in interest rates, tumbling asset prices, and frozen credit markets, banks can assess the robustness of their financial position in these extreme situations.

Stress tests not only focus on the impact of a single risk factor, but also consider the superimposed effects of multiple risk factors, so as to more fully reveal the potential risk exposure of banks (David L. Epstein, "Crisis Management in Banks: Strategies and Techniques," 2017).

For example, during the 2008 global financial crisis, many banks through stress tests found that the value of their assets could fall sharply in extreme market conditions, leading to a sharp deterioration in capital adequacy ratios. This finding prompted banks to take a series of risk mitigation measures before the crisis, such as increasing capital buffers and reducing risky investments, to enhance their ability to withstand risk.

When conducting stress tests, usually, the bank will follow the following steps: determine the target and scope of the test, specify the risk type and portfolio to be evaluated; construct stress scenarios, which should be based on historical data, market analysis and expert judgment and considering the interaction between different risk factors; then quantify the portfolio performance under stress scenarios using model or simulation technology; and formulate corresponding risk management strategies and countermeasures according to the test results.

Quantitative evaluation models such as the value-at-risk method and stress test play an indispensable role in the accurate measurement of bank financial risk. They provide banks with scientific risk assessment tools that help them to better identify, quantify and manage risks in a complex and volatile market environment. However, it is noteworthy that these models are not omnipotent. Their effectiveness depends on the accuracy of the input data, the rationality of the model assumptions, and the stability of the market environment. Therefore, banks should be cautious in using these models and combined with qualitative assessment methods to form a more comprehensive and accurate risk assessment. With the continuous development and innovation of the financial market, banks also need to constantly update and improve their risk assessment model to adapt to the new risks and challenges.

Comprehensive evaluation system to build a bank's financial security risk firewall

In building a comprehensive evaluation system for bank financial security risks, this paper needs to combine the qualitative evaluation method with the quantitative evaluation model to form a comprehensive and multi-dimensional risk assessment framework. The establishment of this system aims to build a solid "firewall" for the financial security risk assessment of banks, and ensure that banks can make timely and accurate response in the face of various internal and external risks.

Qualitative evaluation method plays an important role in bank financial security risk management. Such methods mainly rely on expert judgment, scenario analysis and other means, through in-depth analysis of the internal and external environment, market trends, policy changes and other factors, to identify and evaluate potential financial risks. For example, the expert judgment method can invite experienced bankers, risk managers and scholars to discuss the current financial risks faced by banks, and their professional knowledge and experience can provide valuable reference for risk assessment. Situational analysis can assess the financial security situation of banks in these scenarios by simulating different market environments, policy changes and competitive situations, so as to help banks develop strategies to deal with different scenarios.

Quantitative evaluation model is also indispensable in bank financial security risk management. These models include the value-at-risk method (VaR), stress tests, etc., which can measure the potential losses of banks under different risk scenarios through the analysis and simulation of historical data. For example, the value-at-risk method can assess the market risk of a bank by calculating the maximum possible loss of a bank's investment portfolio in a certain time period. Stress tests, on the other hand, can simulate the changes in banks' financial conditions and capital adequacy ratio in extreme market environments, such as sudden changes in interest rates and falling asset prices, so as to assess banks' ability to resist risks.

In order to construct a comprehensive comprehensive evaluation system, this paper needs to combine qualitative evaluation method with quantitative evaluation model. This means that in the process of risk assessment, it is necessary to make full use

of expert judgment and market scenario analysis to identify and evaluate potential risks, but also to accurately measure the specific impact of these risks on the financial situation of banks through quantitative models. Such a comprehensive evaluation system can ensure that banks have both macro vision and judgment and micro data support in the face of risks, so as to make more scientific and reasonable decisions.

Banks can achieve this comprehensive assessment system by establishing a cross-departmental risk assessment team. The team should include risk management experts, data analysts, and market researchers, who are jointly responsible for the regular or irregular assessment of the various risks facing the banks. Banks can also use advanced information technology systems to support the operation of this comprehensive evaluation system. For example, by establishing a risk database and a risk monitoring platform, banks can collect, collate and analyze all kinds of risk information in real time to provide timely and accurate data support for risk assessment.

When building a comprehensive evaluation system, banks also need to fully consider the dynamic changes of the internal and external environment. This means that the methods and models of risk assessment need to be constantly updated and adjusted to adapt to the changes in the market environment, regulatory policies, competitive situation, etc. For example, with the development of fintech, banks are facing increasing network security risks, which requires banks to increase the assessment and monitoring of network security risks in the comprehensive evaluation system.

It is a complex and important task to construct a comprehensive evaluation system of bank financial security risks. The establishment of this system requires banks to make full use of the advantages of qualitative evaluation method and quantitative evaluation model to form a comprehensive and multi-dimensional risk assessment framework. Banks also need to constantly update and adjust this system to adapt to the dynamic changes in the internal and external environment. Through such a comprehensive evaluation system, banks can establish a solid "firewall" for their own financial security risk assessment to ensure that they can make timely and accurate responses in the face of various internal and external risks. This will not only help to

improve the risk management ability of banks, but also help to ensure the long-term development and financial stability of banks.

1.3 Organizational principles of financial risk management

- Clear division of responsibilities

In constructing the organizational principle of bank financial risk management, a clear division of responsibilities is the key element to ensure the effective implementation of risk management. This principle requires that the specific responsibilities of various departments within the bank in the financial risk management must be clearly defined, so as to ensure clear responsibilities and avoid buck-passing, so as to improve the efficiency and effect of risk management.

The bank shall establish a special risk management department, which is responsible for comprehensively coordinating and managing the financial risks of the bank. Risk management department shall be independent of other business units to ensure the objectivity of its assessment and supervision. The main responsibilities include developing risk management policies, monitoring risk exposure, assessing potential risks, and reporting risk status to senior management and the board of directors. For example, ICBC has set up an independent risk management department in its organizational structure, which is responsible for the risk management of the whole bank, including the identification, measurement, monitoring and control of various risks such as credit risks, market risks and operational risks (Chen H., "Financial Security and Risk Management: A Global Perspective," 2018).

Other business departments of the bank, such as the Credit Department, Marketing Department and finance Department, should also assume clear responsibilities in the financial risk management. The credit department is responsible for assessing and managing the credit risk of the loan portfolio, ensuring the rigor of the loan approval process, and regularly reviewing the loan quality. The market sector is responsible for managing market risks, including interest rate risk, exchange rate risk, stock price risk, and reducing potential losses by monitoring market movements and

adjusting portfolios. The finance department is responsible for overall financial planning, ensuring that bank liquidity is sufficient and managing the cost of capital. For example, China Construction Bank has implemented a strict credit risk management system in its credit business, including pre-loan investigation, in-loan review, post-loan management and other links, to ensure the quality of loans.

To ensure effective collaboration between departments, banks need to establish a clear system of responsibilities and communication mechanisms. This includes regular risk management meetings, organized by risk management departments, with the participation of various departments, to discuss risk status, share risk information, and coordinate risk management measures. Banks can also use information technology to establish a risk management information system to realize the real-time sharing and monitoring of risk data. For example, through its advanced risk management information system, China Merchants Bank has realized the real-time monitoring and early warning of all kinds of risks, which greatly improves the efficiency and accuracy of risk management.

Banks also need to pay attention to the dynamic adjustment of the division of responsibilities. With the development of banking business and the change of external environment, the focus and challenges of risk management will also change. Therefore, banks should regularly review and update the risk management responsibilities of each department to ensure that they match the actual business needs. For example, with the rapid development of fintech in recent years, banks are faced with increasing operational risks, so many banks have strengthened their responsibilities of IT departments in risk management, responsible for monitoring and preventing risks related to information systems.

Clear division of responsibilities is an important organizational principle of bank financial risk management. By setting up an independent risk management department, clarifying the risk management responsibilities of each department, establishing an effective communication mechanism and dynamically adjusting the division of responsibilities, banks can ensure the orderly conduct of their financial risk

management work and improve the efficiency and effect of risk management. This will not only help banks cope with daily financial risk challenges, but also respond quickly in the face of major financial shocks to protect their financial security and stable operations. For example, during the global financial crisis, banks with a clear division of responsibilities and effective risk management mechanisms are better able to cope with market turmoil, reduce losses and maintain their long-term sound development.

- Efficient communication and coordination mechanism

In the process of building the bank financial security guarantee mechanism, the efficient communication and coordination mechanism is an indispensable part. This mechanism aims to facilitate the flow and collaboration of information between departments within banks and with external institutions, ensuring that they can quickly respond quickly to financial risks and jointly develop and implement response strategies. The following discussion discusses in detail how to establish and maintain such an efficient communication and coordination mechanism.

Communication and coordination between various departments within the bank is the foundation. As a complex financial institution, its business covers many fields such as deposit and loan, investment, risk management and other fields. Each department has its own unique functions and professionalism. To achieve efficient internal communication, banks need to establish a cross-departmental information sharing platform that should be updated in real time and ensure the accuracy and integrity of the information. For example, when the risk management department identifies a certain type of market risk, it should immediately convey the risk information, potential impact and suggested response measures to other departments, such as credit department and investment department, through the platform, so that these departments can timely adjust their business strategies and jointly deal with the risks.

Some leading banks have adopted advanced Enterprise Resource Planning (ERP) systems or Risk Management Information Systems (RMIS) that not only integrate data from various departments, but also provide powerful data analysis tools to help banks

better understand and respond to risks. Through these systems, banks can realize real-time monitoring and early warning of risks, which greatly improves the efficiency of internal communication and coordination.

In addition to internal communication, communication and coordination between banks and external institutions, such as regulators, other financial institutions and rating agencies, are equally important. In the face of systemic risks or specific events, banks need to actively communicate with external institutions to jointly assess risks and coordinate response strategies. For example, during the global financial crisis, banks of various countries jointly formulated a number of measures to stabilize the market through close cooperation with regulators, which effectively alleviated the pressure on the financial market. The effectiveness of this external communication and coordination mechanism largely depends on the long-term trust relationship and the regular communication mechanism established between banks and regulators.

To further strengthen communication with external institutions, banks can actively participate in the activities of industry associations or international organizations, share risk management experiences, learn best practices, and keep abreast of the latest developments and regulatory requirements within the industry. Banks can also use social media and professional networks to establish communication channels with the public and stakeholders, enhance transparency, and enhance their brand image and credibility.

When establishing an efficient communication and coordination mechanism, banks also need to pay attention to the cultivation of talents and technology investment. Communication and coordination is not only the transmission of information, but also involves the analysis, judgment and decision-making of information. Therefore, banks need to train a team of professionals with the knowledge of finance, risk management, data analysis and other aspects. They can understand and explain the complex risk information, and put forward effective coping strategies. Banks should also continue to invest in new technologies, such as artificial intelligence, big data analysis, etc., to

improve the speed and accuracy of information processing and provide strong technical support for communication and coordination.

When establishing the communication and coordination mechanism, the bank should also pay attention to the shaping of the culture. A cultural atmosphere that encourages openness, cooperation and innovation can stimulate the enthusiasm and creativity of employees, and promote the effective communication between different departments and at different levels. Through regular training, team building activities and internal knowledge sharing activities, banks can cultivate their communication and coordination ability and teamwork spirit, so as to make communication and coordination a part of the bank culture.

The establishment of efficient communication and coordination mechanism between internal departments and external institutions is the key to improve the financial security capability of banks. This mechanism needs to rely on advanced information technology, cultivate professional risk management talents, shape an open and cooperative corporate culture, and through continuous investment and optimization to ensure that it can adapt to the changing financial market environment and effectively deal with various financial risks and challenges. Through the establishment of such a mechanism, banks can not only improve their own risk management level, but also play a more active role in maintaining financial stability and promoting economic development.

- Scientific decision-making process

In the construction of the scientific decision-making process of bank financial risk management, the core goal is to ensure that the decision has sufficient basis and standardized procedures, so as to improve the accuracy and scientificity of the decision-making. To achieve this goal, banks need to fully integrate modern risk management theory and practical experience in the design and implementation of the decision-making process, so as to form a set of effective decision-making mechanism that can adapt to the changing financial environment.

The scientific nature of the decision-making process requires banks to conduct comprehensive information collection and analysis before making financial risk management decisions. This includes interpretation of macroeconomic data, tracking of industry dynamics, forecasting of market trends and a detailed assessment of banks' internal financial conditions. For example, according to the latest macroeconomic data released by the National Bureau of Statistics, banks can analyze economic indicators, such as GDP growth rate, inflation rate and interest rate changes, to judge the impact of the macroeconomic environment on the financial risks of banks. By paying attention to the policy documents issued by the China Banking and Insurance Regulatory Commission, the People's Bank of China and other regulatory agencies, banks can grasp the regulatory guidance in a timely manner and ensure that the decisions meet the policy requirements.

The decision-making process needs to clarify the responsibilities and roles of each participating department to ensure the efficiency of information flow and collaboration in the decision-making process. Generally speaking, the bank's financial risk management decision involves the risk management department, finance department, business department and other departments. The risk management department is responsible for risk identification, assessment and monitoring, the financial department provides financial data support, and the business department puts forward the business strategy according to the balance between risk and income. In this process, banks can use advanced enterprise resource planning (ERP) systems to realize cross-departmental data sharing and process collaboration to ensure the accuracy and timeliness of the information needed for decision-making.

Scientific decision-making process emphasizes the quantitative analysis and application of decision model. Banks should establish risk prediction models based on historical data and advanced algorithms, such as the VaR (Value at Risk) model to measure market risk, or the Credit Metrics model to assess credit risk. These models can help banks to quantify the potential impact of different risk factors on their financial situation, thus providing a more precise quantitative basis for decision-making. For

example, by analyzing the market volatility data over the past five years, banks can calculate the maximum amount of losses they could face in the next year at a specific confidence level, and then adjust their asset allocation strategy accordingly.

The decision process should also include a stress test session to assess the affordability of banks in extreme market conditions. The stress test should cover multiple dimensions, such as credit risk, market risk and liquidity risk, to simulate the changes of the financial conditions of banks in different situations. For example, for credit risk, banks can simulate the default situation of major loan customers and assess their impact on the bank's asset quality, profitability and capital adequacy ratio. This prospective analysis can help banks identify potential risk points in advance and develop contingency plans accordingly.

The scientific decision-making process also requires banks to establish effective feedback and adjustment mechanisms. After the implementation of the decision, the bank shall regularly evaluate the decision effect, compare the actual results with the expected goals, analyze the reasons for the deviation, and adjust the decision-making strategy in time. In this process, banks can use big data analysis technology to monitor the changes of financial risk indicators in real time, such as asset-liability ratio, liquidity ratio, etc., to ensure that once the warning threshold deviates, they can respond quickly and take measures. Banks should also encourage internal employees to put forward suggestions for improvement, and continuously improve the scientificity and effectiveness of financial risk management decisions through continuous learning and optimization.

Building a scientific and reasonable financial risk management decision-making process is a key link for banks to improve the ability of financial security guarantee. Through strengthening information collection and analysis, clear department responsibility and collaboration, application of quantitative decision model, the implementation of stress test and establish feedback adjustment mechanism, the bank can ensure the financial risk management decision comprehensiveness, accuracy and

timeliness, thus to maintain sound operation in the complex financial environment, achieve sustainable development.

CHAPTER 2. CURRENT STATE OF CHINA'S BANKING SECTOR

2.1. The current state of development of China's banking sector

- Asset scale and business layout

In the development process of China's banking industry, the asset scale and business layout are important indicators to measure its development status. In recent years, with the rapid growth of China's economy and the continuous opening of the financial market, the asset scale of China's banking industry continues to expand and its business layout is increasingly diversified.

In terms of asset size, China's banking sector has experienced significant growth. According to data released by the China Banking Association, by the end of 2022, the total domestic and foreign currency assets of China's Commercial banks' total assets had reached 319.8 trillion yuan, up 10.8% . The figure not only reflects the steady expansion of China's Commercial banks in its assets, but also reflects its importance in the financial markets. Among them, large commercial banks still occupy the dominant position, but the asset scale of urban commercial banks, rural commercial banks and foreign banks is also expanding, forming a multi-level banking system. Fig.2.1 shows the total assets of commercial banks in China from 2015 to 2023 in trillions of RMB. The x-axis represents the years, and the y-axis represents the total assets. The bars show the growth of assets over the years, with the total assets reaching 319.8 trillion yuan by the end of 2022 and showing an overall upward trend.

The business layout of China's banking industry, which has growing assets, has also undergone profound changes. Traditionally, the banking industry takes the deposit and loan business as the core, but in recent years, with the deepening of the financial market and the change of customer demand, the banking business has gradually developed to the direction of diversification and integration. The loan business is still the main source of income for the banks, but its proportion of the total assets has gradually declined, while the deposit business has maintained a steady growth, providing a stable source of funds for the banks.

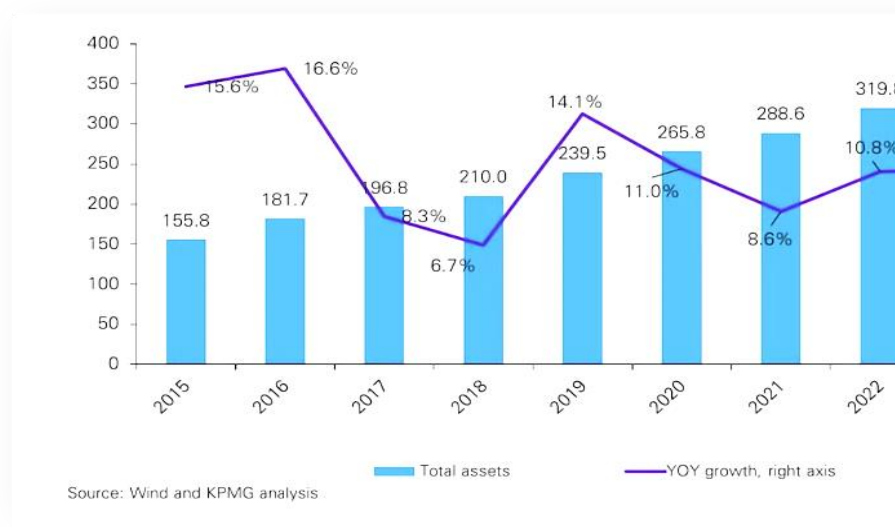


Fig. 2.1 Commercial banks' total assets (RMB trillions)

In addition to the traditional deposit and loan business, the intermediary business is becoming increasingly prominent in China's banking industry. Intermedia business, such as payment and settlement, agency business, consulting, etc., does not directly constitute the balance sheet items of the bank, but can bring non-interest income to the bank and reduce operational risks. With the continuous development of Internet technology and financial innovation, intermediate business has become an important growth point of China's banking industry. According to the data of China Banking Association, in recent years, the proportion of non-interest income in China's banking industry has increased year by year, and the proportion of non-interest income of some banks has exceeded 30%, showing the strong development momentum of intermediary business.

In terms of business layout, China's banking industry also actively expands overseas markets and participates in international competition. With the globalization of China's economy and the promotion of the "Belt and Road" initiative, the influence of China's banking industry in the international market is constantly increasing. A number of Chinese banks have set up branches overseas to provide cross-border financial services and participate in international financial cooperation and competition. This has

not only provided strong support for Chinese enterprises to "go global", but also further enhanced the status of China's banking industry in the international financial system.

However, China's banking industry also faces many challenges in the process of asset scale expansion and business layout diversification. For example, how to improve asset quality while maintaining the growth of asset scale, how to effectively manage cross-border financial risks, and how to maintain the continuous growth of intermediary business in the fierce market competition. These problems need to be paid attention to and solved by China's banking industry in the process of continuous development.

China's banking industry has made remarkable achievements in asset scale and business layout, but it also faces many challenges. In the future, China's banking industry needs to continue to deepen reform, innovate business model, improve risk management ability, so as to adapt to the changes in the economic and financial environment and the upgrading of customer needs. Government regulatory authorities should also strengthen policy guidance and support to provide a good external environment for the healthy development of China's banking industry. The specific analysis is as follows:

- Financial Results (2019 - 2023):
- Income:
- Interest Income: Interest income has been a significant contributor to the total income of banks. Over the years, it has shown a relatively stable growth trend, although the growth rate may vary depending on factors such as interest rate policies and the volume of loans and deposits. For example, in 2019, interest income accounted for approximately 60% - 70% of the total income for many large commercial banks. By 2023, this proportion remained relatively stable, with some banks experiencing a slight increase due to the expansion of lending activities and favorable interest rate spreads in certain periods.
- Commission Income: Commission income has witnessed a remarkable growth, driven by the expansion of intermediary business. As the proportion of non-interest income has been increasing, commission income from services such as

payment and settlement, wealth management, and underwriting has become an important source of revenue. In 2019, commission income accounted for around 15% - 25% of the total income for some banks. By 2023, this proportion had risen to approximately 20% - 30% for many banks, indicating the growing importance of fee-based services.

- Costs:

- Interest Expenses: Interest expenses have fluctuated in line with changes in interest rates and the structure of liabilities. Banks have been actively managing their liability structures to optimize interest expenses. For instance, in 2020, when interest rates were relatively low, some banks took advantage of the situation to refinance their debts at lower costs, resulting in a decrease in interest expenses. However, in 2022, with the tightening of monetary policy in some regions, interest expenses for some banks increased slightly.

- Commission Costs: Commission costs have also increased as banks have expanded their intermediary business. These costs are associated with the provision of various services and the need to share revenues with partners. For example, in the wealth management business, banks may incur commission costs when outsourcing investment management or collaborating with other financial institutions.

- Deduction to Reserves: Banks have been maintaining a prudent approach in setting aside reserves to cover potential credit losses. The amount of deduction to reserves has been adjusted based on the assessment of credit risks. In 2021, due to the economic recovery and relatively stable asset quality, some banks reduced the rate of deduction to reserves. However, in 2023, with the increasing uncertainties in the economic environment, some banks increased their provisions to enhance their risk resilience.

- Net Profit (Loss): Overall, the net profit of the banking industry has shown a positive trend, although the growth rate has been affected by various factors. In 2019, the net profit of many banks grew at a rate of around 5% - 10%. In 2020, due to the impact of the COVID - 19 pandemic, the growth rate slowed down, with some banks

even experiencing a slight decline. However, in 2021 and 2022, with the recovery of the economy and the implementation of various measures by banks to improve efficiency and manage risks, the net profit growth rate rebounded to around 8% - 12% for some banks. By 2023, the net profit continued to show a stable growth, although the growth rate may vary among different banks depending on their business strategies and market conditions.

- Dynamics of Loans Granted to Economic Entities:

- The amount of loans granted by banks has been increasing steadily over the years to support the growth of the real economy. In 2019, the total loans of commercial banks amounted to approximately 150 trillion yuan. By 2023, this figure had risen to over 200 trillion yuan. The growth rate has been around 8% - 12% annually, with some fluctuations depending on the economic cycle and policy.

- The composition of loans has also changed. Loans to small and medium-sized enterprises (SMEs) and the "agriculture, rural areas, and farmers" (Agricultural, Rural, and Farmers) sector have increased in recent years to promote inclusive finance and support the development of these key areas. For example, the proportion of loans to SMEs has increased from around 30% in 2019 to approximately 35% in 2023.

- Dynamics of Assets:

- The total assets of the banking industry have continued to expand, reaching 319.8 trillion yuan by the end of 2022, with an annual growth rate of around 10%. This growth is mainly attributed to the increase in lending activities, investment in securities, and the expansion of other financial assets.

- The composition of assets has become more diversified. In addition to traditional loans and securities, banks have also increased their investments in areas such as financial derivatives, real estate-related assets (within regulatory limits), and overseas assets. For example, the proportion of investment in financial derivatives has increased from around 5% in 2019 to approximately 8% in 2023, reflecting the banks' efforts to manage risks and seek additional returns.

- Dynamics of the Asset Structure:

- The proportion of loans in the total assets has gradually declined, while the proportion of other assets, such as securities and investments, has increased. In 2019, loans accounted for around 60% of the total assets, and by 2023, this proportion had decreased to approximately 55%. This change indicates that banks are diversifying their asset portfolios to reduce concentration risks.

- The quality of assets has been a key focus. Banks have been strengthening credit risk management to maintain a healthy asset structure. The non-performing loan ratio has been relatively stable, with some fluctuations. In 2019, the average non-performing loan ratio of commercial banks was around 1.8%. By 2023, it remained at a relatively low level, although some banks may have experienced slight increases in certain sectors due to the economic environment.

- Dynamics of Obligations:

- The liabilities of banks have also grown in line with the expansion of assets. Deposits remain the main source of funds, accounting for around 80% - 90% of total liabilities. The growth rate of deposits has been relatively stable, with an annual increase of around 8% - 10%.

- The structure of liabilities has also seen some changes. Banks have been exploring other sources of funding, such as issuing bonds and borrowing from the interbank market, to diversify their funding channels. The proportion of non-deposit liabilities has increased slightly from around 10% in 2019 to approximately 15% in 2023.

- Dynamics of the Liability Structure:

- The maturity structure of liabilities has been adjusted to manage liquidity risks. Banks have been increasing the proportion of long-term deposits and issuing long-term bonds to match the maturities of their assets. For example, the proportion of long-term deposits (with maturities over one year) has increased from around 30% in 2019 to approximately 35% in 2023.

- The cost of liabilities has been a concern for banks. They have been actively managing interest rates on deposits and other liabilities to optimize funding costs. In

2022, with the increase in market interest rates, some banks faced challenges in maintaining a stable cost of funds, and they took measures such as adjusting deposit rates and promoting liability management strategies to mitigate the impact.

China's banking industry has made remarkable achievements in asset scale and business layout, but it also faces many challenges. In the future, China's banking industry needs to continue to deepen reform, innovate business model, improve risk management ability, so as to adapt to the changes in the economic and financial environment and the upgrading of customer needs. Government regulatory authorities should also strengthen policy guidance and support to provide a good external environment for the healthy development of China's banking industry .

- Competition Pattern and Market Position

In the development process of China's banking industry, the competition pattern and market position have always been an important dimension to measure the development status of the industry. With the continuous opening and innovation of the financial market, the competition situation between different types of banks in China's banking industry has become increasingly complex, and their position in the domestic and international financial markets has also undergone significant changes.

From the perspective of the competition pattern, China's banking industry presents the characteristics of diversified and multi-level development. Large state-owned commercial banks dominate the market with their huge assets, extensive business network and deep customer base. The five major banks, represented by Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank and Bank of Communications, not only have absolute advantages in deposit and loan business, but also continue to make efforts in fintech and international layout to consolidate their leading position in the market.

With their flexible operation mechanism and innovative products and services, the joint-stock commercial banks make continuous breakthroughs in the market segments, forming a differentiated competition pattern with large state-owned banks.

China Merchants Bank, Shanghai Pudong Development Bank, China Citic Bank and other joint-stock commercial banks have shown strong strength in retail banking, wealth management, financial market transactions and other fields, and their market share has increased year by year.

Urban commercial banks and rural financial institutions rely on regional advantages, deeply cultivate the local market, serve small and micro enterprises and the "agriculture, rural areas and farmers" economy, and become an important force to support the local economic development. In recent years, with the rise of Internet finance, some urban commercial banks and rural commercial banks have also actively explored digital transformation, using big data, cloud computing and other technologies to improve service efficiency and broaden the scope of services.

Foreign banks are also becoming increasingly involved in the Chinese market. Despite many challenges, they remain competitive in high-end customer service, international trade financing and other fields with their advantages in global network and cross-border financial services.

In terms of domestic financial market status, China's banking industry, as the core of the financial system, has continued to increase its support for the real economy. According to the People's Bank of China, by the end of 2023, China's banking financial institutions the yuan loan balance reached 237.59 trillion yuan, 10.6% year-on-year growth, among them, pratt & whitney financial loans, green loans and other emerging areas of loan growth is particularly significant, shows the banking industry in promoting economic structure transformation, service the positive role of national strategy.

Position in the international financial market, China's banking sector has also made remarkable progress. With the promotion of the "Belt and Road" initiative and the acceleration of RMB internationalization, the overseas layout of China's banking industry has been continuously expanding, and its international business capacity has been significantly enhanced. A number of Chinese banks are among the best in the global banking rankings. For example, Industrial and Commercial Bank of China has ranked the top of the Top 1000 Global Banks in Banker magazine for many years,

which reflects the influence and competitiveness of China's banking industry on the international stage.

However, it should also be noted that China's banking industry still faces many challenges when participating in international competition, including the test of risk management ability, international talent reserve, compliance operation and other aspects. Especially in the face of the complex and changeable environment of the international financial market, how to effectively improve their own risk management level and ensure the steady development of overseas business is a topic that China's banking industry needs to further explore and practice.

China's banking industry has shown a diversified and differentiated development trend in the internal competition pattern, and different types of banks are playing an important role in their respective fields. Its position in the domestic and foreign financial markets has been rising, and it has become an important force in supporting the real economy and promoting financial opening. Facing the future, China's banking industry needs to continue to deepen the reform and opening up, strengthen the innovation ability, improve the level of risk management, so as to better adapt to the changes in the domestic and foreign financial markets, and achieve sustainable development.

- Innovative development and challenge response

In the development process of China's banking industry, innovative development and challenge response have been particularly prominent themes in recent years. With the rapid progress of fintech, the banking industry is undergoing unprecedented changes and has to face multiple challenges. This section will detail the innovative fintech development initiatives of China's banking sector and its strategies to meet various challenges.

The rise of fintech has brought brand-new development opportunities for the banking industry. China's banking industry has actively responded to this trend and promoted the transformation and upgrading of its business models through

technological innovation. Among them, the application of mobile payment, blockchain, artificial intelligence, big data and other technologies has become an important driving force for the innovation and development of the banking industry. For example, a number of banks have launched blockchain-based cross-border payment services, which significantly improve transaction efficiency and security, and reduce costs. Using artificial intelligence technology, banks have achieved accurate management in customer portrait, credit rating, risk control and other aspects, and improved service quality and efficiency.

With the support of big data, the banking industry is able to further explore customer needs and provide personalized and customized financial products and services. Through data analysis, banks can monitor market dynamics in real time, adjust business strategies in time, and effectively respond to market changes. The application of cloud computing technology enables banks to flexibly expand IT resources, quickly respond to business needs, and reduce operating costs.

However, China's innovative banking industry also faces multiple challenges. On the one hand, the complex and changeable economic environment at home and abroad has brought considerable pressure to the banking industry. The deepening of the global economic integration makes the fluctuation of the international financial market have an increasingly significant influence on the domestic banking industry. On the other hand, the continuous adjustment of regulatory policies also puts forward higher requirements for the banking industry. In recent years, the China Banking and Insurance Regulatory Commission and other regulators have strengthened their supervision of the banking industry, introducing a series of policies and measures aimed at preventing financial risks and protecting the rights and interests of consumers.

Faced with these challenges, China's banking industry has adopted a series of coping strategies. In terms of risk management, banks have strengthened the construction of internal control system and improved the ability of risk identification and assessment. For example, many banks have introduced advanced risk assessment models and established a multi-dimensional risk index system to achieve accurate

measurement and effective monitoring of all kinds of risks. Banks have also strengthened communication and cooperation with external regulators to ensure the effective implementation of regulatory policies.

In terms of business transformation, China's banking industry actively explores new growth points. Faced with the compression of profit space of traditional deposit and loan business, banks have expanded intermediary business, such as wealth management, investment consulting, etc. By providing diversified financial services, banks are able to broaden their revenue streams and enhance their profitability. Banks have also increased their investment in fintech, promoting business innovation and enhancing their core competitiveness through technological innovation.

In terms of customer service, China's banking industry focuses on improving customer experience and enhancing customer stickiness. By optimizing business processes, simplifying operational links, and providing convenient online services, the bank strives to create an efficient, convenient and humanized service system. For example, a number of banks have launched intelligent customer service systems, which use artificial intelligence technology to quickly respond to customer needs and improve service efficiency and quality.

In terms of international development, China's banking industry actively seeks overseas expansion opportunities to enhance its international competitiveness. By setting up overseas branches, participating in international financial cooperation, and promoting cross-border financial services, banks have been able to show their strength in the international market and expand their business scope. For example, Industrial and Commercial Bank of China, China Construction Bank and other large banks have set up branches in many countries and regions around the world, providing a wide range of financial services and becoming an important participant in the international financial market.

China's banking industry's innovative development measures driven by fintech have achieved remarkable results. Through technological innovation and business model transformation, banks can improve their service quality and efficiency, broaden

their revenue sources, and enhance their core competitiveness. In the face of various challenges, banks have also adopted effective coping strategies to ensure the steady development of their business. Looking ahead, China's banking sector will continue to adhere to the concept of innovative development, actively respond to market changes and regulatory requirements, constantly improve its risk management capabilities and service level, and make greater contribution to the stable development of the real economy and the financial market.

2.2 Organizational and economic characteristics of the bank

- Organizational structure characteristics of China's banking industry

As the core component of the financial system, the organizational structure characteristics of China's banking industry have a far-reaching impact on the implementation and effectiveness of risk management measures. In the current complex and changeable domestic and foreign economic environment, the banking industry is facing unprecedented challenges, including the intensification of market risks, the accumulation of credit risks and the frequent occurrence of operational risks. Therefore, it is of great significance to discuss the organizational structure characteristics of China's banking industry, and to summarize its risk management measures and their effectiveness, for improving the financial security guarantee mechanism of banks.

The characteristics of the organizational structure of China's banking industry are mainly reflected in the following aspects: From the perspective of hierarchical structure, China's banking industry generally adopts the three-level management mode of head office, branch and sub-branch. This hierarchy also puts forward higher requirements for risk management in ensuring extensive business coverage. Effective risk communication mechanisms need to be established at all levels to ensure that risk information can be timely transmitted and effectively handled. From the perspective of business department setting, China's banking industry has generally set up risk management, credit management, internal audit and other departments responsible for risk management. These departments play a key role in risk identification, assessment,

monitoring and disposal, and are an important part of the bank risk management structure.

In terms of risk management measures, China's banking industry has formed a relatively perfect risk management system. On the one hand, through establishing comprehensive risk management policies, banks have clarified the objectives, principles and methods of risk management, and provided clear risk management guidance for institutions and business departments at all levels. On the other hand, the bank has also established a sound risk assessment mechanism, which enables the regular or irregular assessment of various risks to timely grasp the risk status and provide a basis for the formulation of effective risk management strategies. Banks also pay attention to the information construction of risk management, and improve the efficiency and precision of risk management through the introduction of advanced risk management technologies and tools.

However, despite the significant progress in risk management in China's banking sector, there are still some challenges and deficiencies. On the one hand, with the continuous development of the financial market and the continuous emergence of financial innovation, banks are facing increasingly diversified risks, and the difficulty of risk management is also increasing. On the other hand, some banks still have some weak links in risk management, such as ineffective implementation of risk management system and backward risk management technology, etc. These problems restrict the improvement of the risk management level of banks.

In order to further improve the effectiveness of risk management measures in China's banking industry, we need to start from many aspects. Banks should further improve the organizational structure of risk management, clarify the risk management responsibilities of institutions and business departments at all levels, and ensure the orderly development of risk management work. Banks should strengthen the training and education of risk management personnel, improve their professional quality and risk management ability, and provide a strong talent guarantee for bank risk management. Banks should also actively introduce advanced risk management

technologies and tools, such as big data, artificial intelligence, etc., to improve the intelligent level of risk management, and realize the accurate identification, assessment and monitoring of risks.

In terms of specific implementation, China's banking industry can strengthen risk management through the following aspects: first, establish and improve the risk management system to ensure that all risk management measures have rules and evidence; second, strengthen the information construction of risk management and intelligent level of risk management; third, strengthen the internal control mechanism of risk management to ensure the independence and objectivity of risk management; fourth, strengthen the communication and coordination with external regulatory agencies, timely understand and master the regulatory requirements, and ensure the compliance of bank risk management.

Take the Industrial and Commercial Bank of China as an example, which has made active exploration and practice in risk management. ICBC has established a sound risk management organizational structure, set up a risk management committee, risk management department and other specialized institutions responsible for risk management, and defined the risk management responsibilities of institutions and business departments at all levels. ICBC also pays attention to the information construction of risk management, and introduces advanced risk management technology and tools to realize the real-time monitoring and early warning of risks. ICBC also actively strengthens communication and coordination with external regulatory agencies to ensure the compliance and effectiveness of bank risk management.

The organizational structure characteristics of China's banking industry have an important impact on the implementation and effectiveness of its risk management measures. By improving the organizational structure of risk management, strengthening the training of risk management personnel, and introducing advanced risk management technologies and tools, the risk management level of China's banking industry can be further improved to provide strong support for the improvement of the bank financial security guarantee mechanism. In the future development, China's banking industry

should continue to strengthen the exploration and practice of risk management, and constantly improve their own risk management ability, so as to cope with the increasingly complex and changeable financial risks and challenges. Fig. 2.2 presents the organizational structure of China's banking industry. It likely depicts the hierarchical relationships and functional divisions within the banking system. It shows how different levels such as the head office, branches, and sub-branches are organized and interact. It also indicates the setting of various business departments like risk management, credit management, and internal audit, which are crucial for the overall operation and risk management of the banks. The structure aims to ensure the smooth flow of information, effective implementation of policies, and efficient management of risks in the complex banking environment. However, without the actual visual content, this is a general interpretation based on the context of the paper.

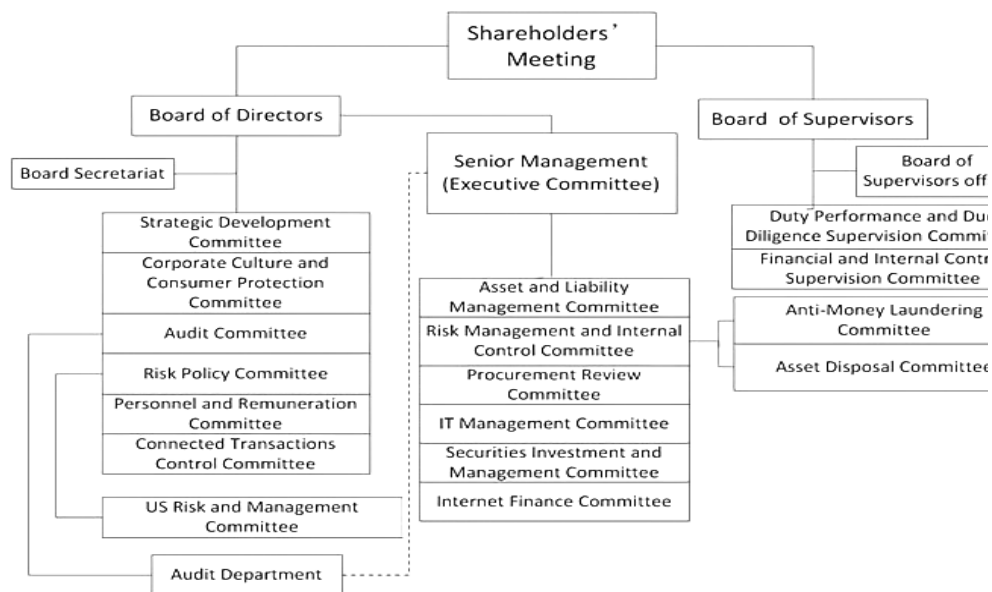


Fig. 2.2 Organizational structure of China's banking industry

Source: The official website of the Bank of China.

- Characteristics of the business model of China's banking industry

As the core part of the financial system, the development and evolution of China's banking industry plays a vital role in the stable operation of the entire economic system. In recent years, with the rapid growth of China's economy and the continuous opening

of the financial market, the business model of China's banking industry also shows the characteristics of diversification, among which the traditional deposit and loan business and the expansion of intermediate business are the two most obvious modes.

Traditional deposit and loan business has always been the foundation and core business of China's banking industry. The characteristic of this model is that banks absorb public deposits as the main source of funds, and invest these funds to the enterprises and individuals in the form of loans, from which to earn interest rate income. Because the deposit and loan business has relatively low risk and stable income, it has long been the most dependent way for banks to make profits. Especially in the period of rapid economic growth, the investment demand of enterprises is strong, and the personal consumption credit market is gradually expanding, which provides a broad space for the development of the deposit and loan business of banks. According to the data released by the China Banking Association, by the end of 2022, the balance of local and foreign currency loans of China's banking financial institutions reached 219.1 trillion yuan, with a year-on-year growth of 10.4%, indicating that the deposit and loan business still maintained a strong growth momentum.

However, with the promotion of interest rate liberalization and the rise of Internet finance, the profit space of the traditional deposit and loan business has been compressed to a certain extent. In order to meet this challenge, China's banking industry began to actively explore the development of intermediary business. Intermediary business, as the name implies, refers to the bank on the assets and liabilities business on the basis of business, using technology, information, network, capital, and reputation, not use or less use the bank's wealth, in the identity of the middleman and agent for customers, consulting, agent, guarantee, lease and other entrusted matters, provide all kinds of financial services and charge of business activities. There are a wide variety of intermediary business, covering payment and settlement, agency business, consulting, guarantee commitment and other fields.

The development of intermediary business is of great significance to the Chinese banking industry. It helps to enrich the income sources of banks, reduce the dependence

on the traditional deposit and loan business, and thus enhance the ability of banks to resist risks. The development of intermediary business can promote banking service innovation and product upgrading, and enhance the market competitiveness of banks. Through the development of intermediary business, banks can be more deeply involved in the production and operation of enterprises and personal daily life, so as to enhance the stickiness with customers and lay a foundation for long-term development.

In recent years, China's banking industry has made remarkable progress in expanding its intermediary business. Taking payment and settlement business as an example, with the popularization of mobile Internet technology and the rapid development of e-commerce, electronic payment channels such as online banking, mobile banking and so on have risen rapidly, which greatly facilitates the public's daily life and business operation. According to the data released by the Payment and Clearing Association of China, in 2022, China's banking financial institutions handled 753.75 billion electronic payment business, with the amount of 806.68 trillion yuan, with year-on-year growth of 6.14% and 9.43% respectively. This data fully shows the booming development trend of intermediary business in China's banking industry.

In addition to the payment and settlement business, other intermediary businesses such as consulting consultants and guarantee commitment have also been widely used in China's banking industry. Especially in the fields of corporate mergers and acquisitions, bond issuance, asset securitization and other fields, banks not only help enterprises to achieve the goals of financing and resource integration, but also create considerable intermediate business income for themselves.

Of course, China's banking industry is also facing many challenges in the process of transforming its business model. For example, how to effectively promote the innovation and expansion of intermediate business in ensuring the stable development of traditional deposit and loan business; how to maintain differentiated competitive advantage in the fierce market competition; and how to deal with the impact of Internet finance. These problems need to be constantly explored and solved by China's banking industry in practice.

The business model of China's banking industry is undergoing a profound change from the traditional deposit and loan business to the expansion of intermediate business. This reform is not only an inevitable choice for China's banking industry to adapt to the changes in the economic environment and enhance its competitiveness, but also an important force to promote the deepening development of China's financial market and improve the financial system. In the future, with the sustainable development of China's economy and the further opening of the financial market, the business model of China's banking industry will be more diversified and innovative, providing more powerful support for the development of the real economy and the stability of the macro economy.

- Characteristics of the economic influence of China's banking industry

As the core part of the financial system, China's banking industry has an important position and economic influence in the national economy that cannot be ignored. The banking sector not only supports the development of the real economy by providing financial services, but also plays a key role in maintaining macroeconomic stability. The following will detail the characteristics of the economic influence of China's banking sector, including its support for the real economy and its contribution to macroeconomic stability.

China's banking sector has played a significant role in supporting the real economy. The real economy is the foundation of the national economy, and the banking industry, as a financial intermediary, provides the necessary financial support for the real economy by providing financial services such as credit, payment and settlement, and risk management. According to the data from the China Banking Association, in recent years, the total amount of loans in China's banking industry has continued to grow, especially for small and micro enterprises, "agriculture, rural areas and farmers" fields and strategic emerging industries. For example, the loan balance of small and micro businesses increased in 2022 by 25% year on year, showing the positive role of the banking industry in helping the development of small and micro businesses. The

banking industry has also provided more diversified and customized financial services for the real economy by innovating financial products and service models, such as the supply chain finance and green finance for the real economy, further promoting the transformation, upgrading and high-quality development of the real economy.

In addition to direct support for the real economy, China's banking sector also plays an important role in maintaining macroeconomic stability. As the core of the financial system, the stable operation of the banking industry is an important guarantee for macroeconomic stability. In response to external shocks such as economic cycle fluctuations and financial market turbulence, the banking industry has effectively maintained the stability of the financial market by adjusting credit policies, optimizing asset allocation, strengthening risk management and other measures. In particular, during the economic downturn, the banking sector has increased credit supply to key industries and sectors by strengthening counter-cyclical adjustment and adjustment, providing strong support for stabilizing economic growth. The banking industry also actively participates in the implementation of major national strategies, such as supporting the construction of "Belt and Road" and promoting the coordinated development of regions, and promotes the optimization of economic structure and the balanced development of regional economy by providing financial services.

China's banking sector also plays an important role in promoting economic restructuring, transformation and upgrading. As China's economy enters a stage of high-quality development, economic restructuring and transformation and upgrading have become an important task. By providing differentiated financial services, the banking sector supports the transformation and upgrading of traditional industries and the development and growth of emerging industries. For example, the banking industry has increased the credit supply to high-tech industries, green industries and other fields to promote the economic development in a greener and more sustainable direction. The banking industry has also developed inclusive finance and other means of financial technology to improve the coverage and convenience of financial services, and promoted the coordinated development of urban and rural areas and regional economies.

China's banking industry also plays an important role in promoting international economic cooperation and competition. With the rise of China's economy and the acceleration of the globalization process, the influence of China's banking industry on the international stage is constantly increasing. By participating in international financial cooperation and promoting the internationalization of the RMB, China's banking sector has promoted international trade and investment facilitation, and enhanced China's position and influence in global economic governance. China's banking sector has also actively expanded overseas markets and improved its cross-border financial service capabilities, providing strong support for Chinese enterprises to "go global" and "bring in".

However, China's banking industry also faces some challenges and risks in exerting its economic influence. For example, with the change of economic environment and the adjustment of financial regulatory policy, the banking industry needs to constantly adapt to the new regulatory requirements and market environment; the banking industry also needs to strengthen risk management, improve service quality and promote innovation development to better play its important role in the national economy.

The important position and economic influence of China's banking industry in the national economy cannot be ignored. The banking industry has made important contributions to the prosperity and development of the country and society by providing financial services to support the development of the real economy, maintaining macroeconomic stability, promoting economic restructuring and transformation and upgrading, and promoting international economic cooperation and competition. In the future, China's banking industry will continue to play its unique advantages and role to provide strong support for the sustained and healthy development of China's economy.

2.3 Analysis of the bank's financial security and financial risk management in the Bank

- Assessment of the financial security status quo of China's banking industry

As the core component of the financial system, the financial security situation of China's banking industry plays a vital role in maintaining the stability and development of the whole economy. This section will make an in-depth analysis of the current financial security status of China's banking industry in terms of asset quality, profitability, liquidity and other aspects, and clarify its advantages and potential risks.

From the perspective of asset quality, China's banking industry has made remarkable achievements in risk management in recent years. According to data released by the CBRC, the non-performing loan ratio remains low, reflecting banks' efforts in credit asset management and risk control. Specifically, the non-performing loan ratio of large banks and joint-stock banks is generally lower than 2%, while the non-performing loan ratio of urban commercial banks and rural commercial banks also shows a downward trend year by year. This positive change is due to the continuous improvement of the internal risk management system and the increasingly strict external regulatory environment. However, despite the improvement in overall asset quality, attention should still be paid to the potential risks of some banks in specific areas, such as real estate loans and local government financing platform loans. High loan concentration in these areas could pose a threat to the asset quality of banks once market volatility.

In terms of profitability, China's banking sector has shown strong stability and resilience. According to the annual report data released by major banks, despite the challenges of interest rate liberalization and financial disintermediation, the total net profit of the banking industry still keeps growing. This is mainly due to the efforts of the banks in optimizing the income structure, improving the intermediate business income, and strengthening the cost control. In particular, large banks and joint-stock banks have achieved a steady improvement in profitability by virtue of their scale advantages, brand advantages and diversified business layout. However, it should also be noted that with the intensification of market competition and the adjustment of regulatory policies, the net interest margin of the banking industry is under pressure to narrow, which poses a challenge to the profitability of the banks. Therefore, banks need

to further optimize the structure of assets and liabilities and improve their asset pricing power to cope with the future profit pressure.

Liquidity is another important aspect of banks' financial security. China's banking industry shows a high level of liquidity management. According to the CBRC, both the liquidity coverage rate (LCR) and the net stable fund ratio (NSFR) of the banking sector meet regulatory requirements and remain at a high level. This indicates that banks have sufficient high-quality liquidity assets to meet their liquidity needs in a stressful situation. Banks have also further enhanced their ability to resist liquidity risks by strengthening liquidity risk management and improving liquidity emergency plans. However, it should also be noted that the liquidity situation of banks may be impacted in the event of market fluctuations or emergencies. Therefore, banks need to continue to strengthen liquidity risk management to ensure that adequate liquidity reserves are maintained under all circumstances.

In addition to the above three aspects, China's banking industry also faces some potential risks in its financial security. The first is the credit risk. Although the overall non-performing loan ratio is relatively low, the credit risk of some industries, regions and customers still need to be paid attention to. Especially with the increase of downward pressure on the economy, some enterprises have operational difficulties, which may lead to the risk of default of bank loans. The second is the market risk. Financial market fluctuations may have an impact on the investment income and asset quality of banks. Especially in the complex and volatile international economic environment, banks need to pay close attention to market trends and strengthen market risk management. Finally, operational risks. With the complexity of banking business and the improvement of informatization degree, operational risks have become increasingly prominent. Banks need to strengthen their internal control and risk management to ensure the compliance and security of their business operations.

China's banking industry has shown a strong financial security situation in terms of asset quality, profitability, liquidity and other aspects. However, we should also pay attention to the potential risk points, and take effective measures for risk management

and prevention. Banks need to continuously optimize their risk management system, improve their risk management capabilities, and strengthen their internal control and compliance management to ensure a sound financial security in a complex and volatile financial environment. Regulatory authorities also need to pay close attention to the development dynamics and risk status of the banking industry, and timely introduce relevant policies and measures to guide the healthy and stable development of the banking industry.

- Challenges and dilemmas of the financial risk management of banks

In the practice of financial risk management in China's banking industry, it are faced with various challenges and difficulties, which are not only derived from the internal management problems of the bank, but also affected by the changes in external market environment and regulatory policies. The following will discuss in detail the main challenges and difficulties encountered in the financial risk management process in the Chinese banking industry.

Market volatility is a big challenge for the banking sector. The instability of financial markets leads to frequent fluctuations in asset prices, which then affects the financial situation of banks. For example, China's stock market experienced abnormal fluctuations in 2015, and many banks suffered losses due to their large holdings of stocks or related financial products. Such market volatility not only affects the investment income of banks, but also may cause an increase in credit risk, because market volatility may lead to the decline of corporate solvency, and thus increase the default rate of bank loans. The turbulence in the international market may also affect China's banking industry through exchange rate fluctuations. For example, the RMB exchange rate fluctuations caused by the trade friction between China and the US in 2018 have put forward higher requirements for the management of banks' foreign exchange positions.

The changing regulatory environment is also one of the challenges that the banking industry must meet. In recent years, China's financial regulatory agencies have

continuously strengthened their supervision over the banking industry, and introduced a series of new regulatory policies and regulations, such as the Guiding Opinions on Regulating the Asset Management Business of Financial Institutions (i. e., the "New Regulations on Asset Management"). These new policies have put forward higher requirements for the banks' business model, risk management and compliance operation. Banks need to invest more resources to meet regulatory requirements, and they also need to address the risks of regulatory policy uncertainty. For example, the "new regulations on asset management" require banks to conduct net value management of wealth management products, which forces banks to change the traditional expected return product model, and poses greater challenges to banks' risk management ability and investment ability.

Internal mismanagement is also an important dilemma for the banking industry. Some banks have problems such as imperfect system and ineffective implementation, which lead to frequent risk events. For example, in recent years, some cases of illegal operation and internal fraud exposed have not only brought direct economic losses to the bank, but also seriously damaged the reputation of the bank. The root cause of these problems lies in the lack of risk management culture within the bank and the lax implementation of the risk management system. Some banks also have deficiencies in the application of risk management technology, such as insufficient data analysis ability and imperfect risk early warning system, etc., which restrict the improvement of the risk management level of banks.

In terms of credit risk management, the banking industry also faces many challenges. As China's economy has entered the new normal, some industries and enterprises are facing great operating pressure and their solvency has declined, leading to a increase in the non-performing loan ratio of banks. According to the data of China Banking and Insurance Regulatory Commission, the balance of non-performing loans of Chinese commercial banks in 2020 was 2.7 trillion yuan, and the non-performing loan ratio was 1.84%, which decreased from the previous year, but it is still at a high level. Banks need to constantly strengthen credit risk management, improve the rigor of loan

approval, and strengthen post-loan management to timely find and deal with potential risks.

Liquidity risk is also a challenge that the banking industry cannot be ignored. The liquidity situation of banks is affected by a variety of factors, including deposit fluctuations and changes in market financing conditions. More pressure could be placed on bank liquidity management amid turmoil in financial markets. For example, the outbreak of COVID-19 in early 2020 led to sharp fluctuations in the financial market, and some banks experienced cash constraints due to poor liquidity management. Therefore, banks need to establish a sound liquidity risk management system to ensure that adequate liquidity is still maintained in extreme circumstances.

Operational risk is also a big dilemma for the banking industry. As a financial service institution, banks have a complex business process and involve many links and personnel, so it is difficult to completely avoid operational risks. In recent years, risk events caused by operational errors, system failure or internal fraud have often occurred. These incidents not only bring economic losses to the banks, but also may cause legal disputes and reputational risks. Therefore, banks need to continuously strengthen their internal control and operational risk management, and improve the standardization and security of business processes.

In the process of financial risk management, China's banking industry faces many challenges and difficulties, including market fluctuations, regulatory environment changes, internal mismanagement, credit risk, liquidity risk and operational risk. In order to cope with these challenges and difficulties, banks need to constantly strengthen the risk management capacity building, improve the risk management system and process, improve the application level of risk management technology, and cultivate the risk management awareness of all staff. Regulators should also continue to improve their regulatory policies to create a more stable and transparent business environment for the banking industry. Through these efforts, China's banking industry will be able to better cope with various risks and challenges and achieve steady and sustainable development.

- Strategies and approaches to improve the financial risk management of banks

The strategies and ways to improve bank financial risk management are the key to ensure the stability and sustainable development of China's banking industry. In the face of the complex and volatile domestic and foreign economic environment, China's banking industry needs to continuously optimize its financial risk management strategy to cope with multiple challenges such as market fluctuations, credit risks and operational risks. A series of specific strategies and feasible pathways are explored in detail below.

1) Strengthen risk identification and assessment capabilities

The primary task of improving bank financial risk management is to strengthen the ability of risk identification and evaluation. Banks should establish a sound risk identification mechanism, and use advanced technology means, such as artificial intelligence and big data analysis, to carry out real-time monitoring and early warning of various risks such as market, credit and operation. For example, through the construction of risk early warning model, the macroeconomic indicators, market fluctuations, enterprise credit status and other data are deeply mined and analyzed to find the potential risk points in time. Banks should conduct risk assessment regularly, and adopt combined quantitative and qualitative methods for quantitative analysis and comprehensive evaluation of all kinds of risks to ensure the scientific and accuracy of risk management.

2) We will optimize asset and liability management

Asset and liability management is the core of bank financial management. In order to improve the level of financial risk management, banks need to optimize the structure of assets and liabilities and maintain a reasonable liquidity level. Specifically, banks should flexibly adjust the maturity structure and interest rate structure of assets and liabilities according to the macroeconomic situation, market interest rate changes and regulatory requirements, so as to reduce the maturity mismatch and interest rate risk. Banks should also strengthen the management of capital positions to ensure sufficient

liquidity reserves to cope with sudden capital needs. For example, the establishment of emergency capital pools and liquidity management stress tests have been taken to improve the improvement of banks' ability to deal with liquidity risks.

3) We will strengthen credit risk prevention and control

Credit risk is one of the main risks faced by banks. In order to strengthen the prevention and control of credit risk, banks should improve the credit management process and strengthen the risk control of pre-loan investigation, in-loan review and post-loan management. Specifically speaking, banks should strengthen the credit rating of borrowers, and use big data and machine learning technology to accurately evaluate the repayment ability and repayment willingness of borrowers. Banks should also establish a sound loan loss reserve system and draw sufficient loan loss reserves to cushion the losses caused by credit risk. Banks should actively use credit derivatives, such as credit default swaps (CDS) and loan sales, to spread and transfer credit risks.

4) Improve the level of operational risk management

Operational risk is a risk that cannot be ignored in the daily operation of banks. In order to improve the level of operational risk management, banks should establish a sound internal control system and strengthen the risk management in business process, information system, employee behavior and other aspects. For example, banks should regularly organize and optimize their business processes to ensure the compliance and efficiency of their business processes. Banks should also strengthen the security and stability of information systems to prevent operational risks caused by system failures or hacking attacks. Banks should strengthen the training and education of employees, improve their risk awareness and operational skills, and reduce the operational risks caused by human error.

5) Promote the digital transformation of risk management

Digital transformation is an important trend in the development of banking industry. In order to improve the financial risk management level, banks should actively promote the digital transformation of risk management. Specifically, banks should use big data, cloud computing, artificial intelligence and other advanced technologies to

build an intelligent risk management platform to realize real-time monitoring, early warning and disposal of risks. For example, by building a risk data warehouse, integrating various risk data resources to provide data support for risk management. Banks should also use machine learning algorithms to deeply mine and analyze risk data and find out potential risk laws and trends. Banks should also strengthen cooperation with external institutions, share risk data and information resources, and improve the overall effectiveness of risk management.

6) Improve the risk management system and cultural construction

Perfect risk management system and cultural construction is an important guarantee to improve the level of financial risk management of banks. Banks should establish a sound risk management system, clarify the organizational structure, division of responsibilities and work process of risk management, and ensure the standardization and systematization of risk management. Banks should also strengthen the construction of risk management culture, establish the concept of risk management for all staff, and improve the risk awareness and responsibility awareness of employees. For example, regular risk management training and risk case sharing activities are held to enhance employees' awareness and understanding of risk management. Banks should also establish a sound risk management incentive mechanism, encourage employees to actively participate in risk management practices, and improve the overall effect of risk management.

7) Strengthen external supervision and cooperation

External supervision and cooperation are an important external guarantee to improve the financial risk management level of banks. Banks should actively cooperate with the requirements of the external regulatory agencies, strengthen the communication and cooperation with the regulatory agencies, and ensure the compliance and effectiveness of risk management. For example, the bank should regularly report the risk management to the regulatory authority and accept on-site inspection and off-site supervision from the regulatory authority. Banks should also strengthen cooperation with other financial institutions and relevant departments to jointly build a collaborative

mechanism for risk management. For example, by participating in banking associations, risk management forums and other organizations, sharing risk management experience and resources with other banks to improve the risk management level of the whole banking industry.

Improve bank financial risk management strategy and approach involves many aspects, need to strengthen the risk identification and evaluation ability, optimize the assets and liabilities management, strengthen credit risk control, enhance the level of operational risk management, promote the digital transformation of risk management, improve the risk management system and cultural construction and strengthen external supervision and cooperation, and other aspects. Through the implementation of these specific strategies and feasible ways, China's banking industry will be able to further enhance its stability and sustainable development capacity, and make greater contribution to the development of the national economy.

CHAPTER 3. SCIENTIFIC AND PRACTICAL DIRECTIONS FOR IMPROVING THE BANK'S FINANCIAL RISK MANAGEMENT STRATEGY

3.1. Anti-crisis management of bank financial risks

- Early warning mechanism of bank financial risk and anti-crisis management

In the study of bank financial security guarantee mechanism, the early warning mechanism of bank financial risk anti-crisis management occupies a pivotal position. The core of the pre-warning mechanism is to detect potential crises in advance through the monitoring and analysis of various risk indicators, so as to buy valuable time for banks to take response measures. The establishment of this mechanism not only requires banks to have a highly sensitive risk perception ability, but also needs a scientific and perfect risk assessment system as a support.

Banks should establish a set of comprehensive risk monitoring index system, which should cover market risk, credit risk, operational risk, liquidity risk and other risk factors that may threaten the financial security of banks. For example, market risk can be assessed by monitoring the fluctuation of market parameters such as interest rate, exchange rate and stock price; credit risk can be measured by analyzing the credit rating and repayment record; operational risk can be identified by monitoring the compliance and system security of the internal operation process. The selection of these risk indicators should be based on the analysis of historical data and best practices within the industry to ensure that the actual risk profile facing banks is accurately reflected.

After the establishment of the risk monitoring index system, banks need to further use big data and artificial intelligence technology to monitor and analyze these indicators in real time. By building a risk early warning model, banks can deeply mine massive transaction data, market data, customer behavior data, so as to find potential risk signals. For example, using machine learning algorithms, banks can analyze the characteristics of risk events in historical data and predict possible risks in the future based on these features. This risk early warning method based on big data not only

improves the accuracy of risk identification, but also greatly reduces the time of risk discovery, providing more room for banks to take response measures.

In addition to using big data and artificial intelligence technologies, banks should also establish a cross-departmental risk information sharing mechanism to ensure that risk information between different business departments can be timely transmitted and integrated. The realization of this mechanism requires banks to break down departmental barriers and establish efficient information communication channels. For example, a bank can set up a special risk management center to collect and integrate risk information from various business units and conduct analysis and evaluation. Through such a mechanism, banks can realize the comprehensive monitoring of risks, and avoid the risk omission or miscalculation caused by information asymmetry.

After establishing a comprehensive risk monitoring and analysis system, banks also need to develop a set of risk early warning trigger mechanism and response measures. This mechanism should include the identification standard of early warning signal, the division of early warning level, the transmission path of early warning information, and the formulation and implementation of response measures. For example, when a risk indicator exceeds a preset threshold, the system can automatically trigger a warning signal and transmit this signal to the relevant business department and risk management center. Banks can take corresponding countermeasures according to different early warning levels, such as adjusting asset allocation, increasing risk reserves, and strengthening internal control.

Banks should also regularly evaluate and improve the effectiveness of the pre-warning mechanism. This evaluation process should include the review of the rationality of the risk monitoring index system, the verification of the accuracy of the risk early warning model, and the test of the effectiveness of the early warning trigger mechanism and countermeasures. Through continuous evaluation and improvement, the bank can ensure that the advance warning mechanism can always adapt to the changing external environment and the development needs of the internal business, thus maintaining its effectiveness and sensitivity.

Some of the international leading banks have effectively improved their risk management capabilities by establishing sound pre-warning mechanisms. For example, by building a risk early warning system based on big data and artificial intelligence technology, a world-renowned bank has successfully identified several potential market risks and credit risk events in advance, and took corresponding countermeasures, so as to avoid major financial losses. This practical case shows that the advance warning mechanism plays a vital role in the anti-crisis management of bank financial risks.

The early warning mechanism of the bank financial risk anti-crisis management is an important part of the bank financial security guarantee mechanism. By establishing a comprehensive risk monitoring index system, using big data and artificial intelligence technology, establishing a cross-departmental risk information sharing mechanism, and formulating a clear risk early warning trigger mechanism and response measures, banks can effectively improve their ability to perceive and respond to potential financial risks. This will not only help to ensure the financial security of banks, but also help to maintain the stability and development of the entire financial system. In the future, with the continuous development and application of big data and artificial intelligence technology, the advance warning mechanism of bank financial risk and anti-crisis management will become more perfect and effective. Fig.3.1 illustrates the collaboration among risk management, compliance, and audit departments in a bank. It shows the three departments' interaction in areas such as risk identification, control, and monitoring. The governance part provides the overall framework, and the three departments exchange key points in their annual work plans, collaborate in various aspects like risk assessment and reporting, and jointly contribute to the overall risk management and compliance of the bank.

- In-process control strategy of bank financial risk and anti-crisis management

When the bank faces the financial risk crisis, the formulation and implementation of the control strategy is particularly important. This link is directly related to whether the banks can effectively contain the further expansion of the crisis and protect their

assets and credibility from more serious damage. The in-process control strategy mainly covers key measures such as adjusting the structure of assets and liabilities and strengthening capital liquidity management.

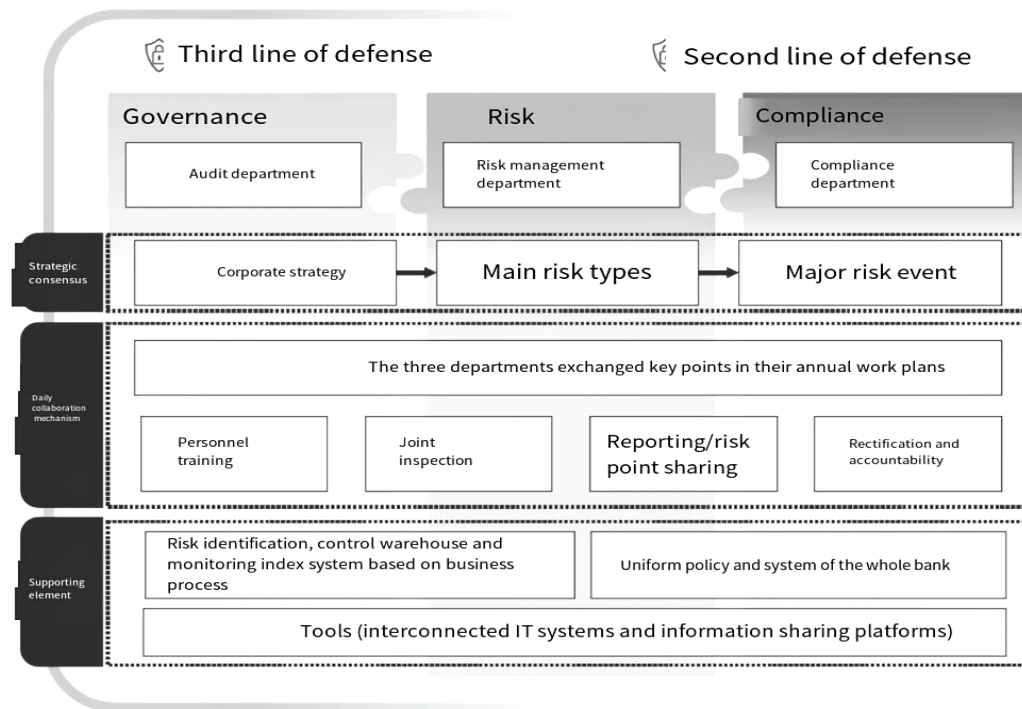


Fig. 3.1. Risk, Compliance and audit work together

Source: McKinsey, Moving Forward: Microcosm of China's Banking Risk Management Transformation, 2019.

Adjusting the structure of assets and liabilities is one of the important strategies adopted by banks in the financial risk crisis. Banks need to make a comprehensive assessment of their assets and liabilities to determine if there is an imbalance or potential risk points. Specifically, banks can optimize their asset structure by reducing the holding of high-risk assets and increasing the proportion of low-risk and high-liquidity assets. For example, in the lending business, banks can choose more carefully to borrow from and reduce loans to companies with low credit ratings and unstable repayment capabilities. Banks can also diversify their investment strategies to diversify their risks and avoid excessive concentration in a certain field or industry. In terms of liabilities, banks can actively adjust the maturity structure of their liabilities

and increase the proportion of long-term liabilities, so as to reduce the liquidity pressure brought about by short-term liabilities.

Strengthening capital liquidity management is another core content of the banks' control strategy. Capital liquidity is the lifeline of the bank's operation, ensuring that its funds can meet the depositors' withdrawal needs and daily payment and settlement needs at any time. In a financial risk crisis, banks need to pay special attention to their liquidity situation and take a series of measures to enhance their liquidity. For example, banks can strengthen communication and cooperation with the central bank to ensure liquidity support from the central bank if necessary. Banks can also adjust their capital positions and maintain sufficient liquidity reserves by actively participating in money market transactions, such as repurchase agreements and inter-bank lending. Some banks have also established a multi-level liquidity reserve system to ensure that they can respond quickly at different levels of liquidity demand.

In addition to adjusting the structure of assets and liabilities and strengthening the management of capital liquidity, banks can also take other auxiliary measures to further stabilize their financial position during the in-process control stage. For example, banks can strengthen the relationship with their main customers to ensure that customers do not withdraw their funds in large quantities in times of crisis, thus keeping their deposit base stable. Banks can also reduce costs and increase their ability to cope with risks by optimizing their internal processes and improving operational efficiency. In some extreme cases, banks can also consider using asset sales and equity financing to raise funds quickly to enhance their capital strength.

Take the Bank of China as an example, in the face of financial risk crisis, it adopted the above series of things control strategy. Through a comprehensive review and evaluation of its assets and liabilities, the Bank of China has found that there are some high-risk assets in its loan business. In order to optimize the asset structure, the Bank of China has decided to reduce loans to companies with low credit ratings and unstable repayment capabilities, and to invest more in low-risk and high-liquidity assets. The Bank of China has also strengthened communication and cooperation with the

central bank to ensure that it can obtain liquidity support from the central bank if necessary. The Bank of China also adjusts its capital positions by actively participating in money-market transactions to maintain adequate liquidity reserves. The implementation of these measures enables Chinese banks to effectively contain the further expansion of the crisis and protect their assets and credibility.

Another example, ICBC in the face of market risk, also adopted a similar matter of control strategy. Through a comprehensive assessment of its investment portfolio, ICBC found that some of its stocks and bonds had large market risks. In order to reduce the risk, ICBC has decided to reduce its holdings of these risky assets and invest more in low-risk, highly liquid assets. ICBC has also strengthened its internal risk management system and improved its ability to monitor and early warn market risks. The implementation of these measures enables ICBC to effectively control the further expansion of risks in the face of market risks and protect its investment income.

When banks are faced with financial risk crisis, the formulation and implementation of the control strategy is crucial. By the implementation of key measures such as adjusting the structure of assets and liabilities and strengthening the management of capital liquidity, banks can effectively curb the further expansion of the crisis and protect their assets and credibility from more serious damage. Banks can also take other ancillary measures to further stabilize their financial position and improve their ability to cope with risks. Different banks can formulate and implement corresponding in-process control strategies according to their actual situation and specific risks they face.

- Post-recovery measures for anti-crisis management

After the bank faces the financial risk crisis and successfully implements the in-process control strategy, the formulation and implementation of post-recovery measures are equally crucial. This link is not only related to whether banks can quickly resume normal operation, but also directly affects their long-term financial stability and

the recovery of market competitiveness. Therefore, it is of great practical significance to discuss the post-recovery measures of bank financial risk anti-crisis management.

The first task of the post-recovery measures is to restructure the business. After experiencing a financial risk crisis, banks often need to sort out and evaluate the damaged businesses to determine which businesses need to be adjusted or spun off. This process requires banks to have a high degree of self-diagnosis and repair ability. The Bank of China, for example, faced at the end of the 20th century to the beginning of the 21st century with the Asian financial crisis and its own non-performing loan problems. Through the stripping and disposal of non-performing assets and the optimization of the loan structure, the Bank of China has effectively reduced the financial burden and laid a foundation for the subsequent stable development. This case shows that business restructuring is not only an urgent measure to deal with the financial crisis, but also an important part of the bank's long-term strategic adjustment.

In addition to business restructuring, strengthening the construction of risk management system is an indispensable part of the bank's recovery stage after the event. The improvement of risk management system includes not only the update and optimization of risk assessment model, but also the strengthening of internal control system and the cultivation of risk culture. For example, in recent years, the Industrial and Commercial Bank of China has continuously strengthened the construction of its comprehensive risk management system, not only introducing the advanced risk assessment model, but also realizing the real-time risk monitoring and effective management through the establishment of a perfect risk reporting system and internal control mechanism. This system construction not only improves the risk response ability of ICBC, but also wins it a good reputation for risk management in the international financial market.

In the post-recovery process, banks also need to pay special attention to capital liquidity management. Liquidity is the lifeline of banks, and ensuring sufficient capital liquidity is the premise for banks to resume normal operations. To this end, banks need to establish a sound liquidity risk management system, including formulating detailed

liquidity risk management plans, establishing emergency liquidity reserves and strengthening communication and coordination with the central bank. Taking China Merchants Bank as an example, in recent years, it has continuously optimized its liquidity management strategy, and effectively improved the level of capital liquidity through diversified financing channels and asset portfolio management, and enhanced its ability to deal with emergencies.

Banks should also pay attention to the repair and maintenance of customer relations in the post-recovery stage. Financial risk crisis may have a negative impact on the customer trust of banks. Therefore, banks need to rebuild the trust relationship with customers through active communication, providing quality services and innovative financial products. For example, after dealing with a financial risk event, SPD Bank launched customized financial service plans and strengthened customer relationship management, which not only successfully restored customer trust, but also realized the further expansion of customer base.

In the digital age, banks can also use big data and artificial intelligence technologies to assist in post-recovery efforts. Through the analysis of massive data, banks can more accurately identify risk points and develop more accurate recovery strategies. The construction of an intelligent risk management platform can also help banks to realize real-time monitoring and early warning of risks, so as to effectively prevent the recurrence of similar crises. For example, in recent years, CCB has invested heavily in risk management, and established an intelligent risk management platform based on big data and AI technology, which has significantly improved its risk identification and response capabilities.

After experiencing the financial risk crisis, banks need to formulate and implement effective post-hoc recovery measures through various efforts, such as business restructuring, strengthening the risk management system construction, optimizing the capital liquidity management, repairing customer relations, and using big data and artificial intelligence technology. These measures have not only helped the banks to quickly restore normal operations and financial stability, but also laid a solid

foundation for their long-term development. Through continuous learning and summarizing the post-recovery experience of advanced banks at home and abroad, China's banking industry will be able to better deal with the financial risks and challenges it may face in the future, and achieve more stable and sustainable development.

3.2 Tools of strategic management of financial risks of the bank

- Risk assessment model and index system

In the process of discussing bank financial risk assessment, the construction of risk assessment model and index system plays a vital role. This system not only provides banks with tools to accurately identify risks, but also provides the basis for developing effective risk management strategies. The following will elaborate on the various models used in the bank's financial risk assessment and the multi-dimensional index system constructed.

1. Risk assessment model

Risk assessment model is an important tool for banks to quantify financial risks. Through mathematical and statistical methods, they conduct quantitative analysis of various risks faced by banks, so as to help bank managers to better understand the risk situation and make corresponding risk management decisions.

1) Value at Risk method (VaR model):

The VaR model is a common method to measure market risk. It represents the maximum loss that may be expected by a financial asset or securities portfolio at a given confidence level and a certain holding period under normal market conditions. For example, assuming a bank holds a portfolio, at a 95% confidence level, the portfolio has a VaR of \$1 million in the next day, which means the bank is 95% confident that the portfolio will not lose any more than \$1 million in the next day.

2) Stress test model:

The stress test is a way of assessing banks' performance in extreme market conditions. By simulating adverse market conditions (such as sharp rises in interest rates, falling asset prices, etc.), banks can assess their ability to withstand potential losses. During the 2008 global financial crisis, for example, many banks used stress tests to assess whether their capital adequacy ratios could withstand similar market turmoil.

3) Credit risk model:

The credit risk model is mainly used to evaluate the possibility of default of bank loans or bond investments. Among them, the KMV model is a well-known credit risk quantitative model, which uses the volatility and capital structure of the company's asset value to estimate the default probability. For example, if an enterprise's asset value is less than its debt value, the enterprise is likely to default, and the KMV model can help banks to quantify this default risk.

Table 3.1 provides a comparison of different risk assessment models in terms of their advantages and disadvantages. It likely lists the commonly used risk assessment models in the context of bank financial risk management. The models presented may include the Value at Risk (VaR) model, which is known for its ability to quantify market risk and provide clear risk limits. However, it has the drawback of potentially underestimating the risk of extreme market events. The Stress test model is another one, which is useful for assessing bank soundness under extreme market conditions. But it has a strong data dependence and its model assumptions may not always be accurate. The Credit risk model, perhaps exemplified by models like the KMV model, is mainly used to evaluate the possibility of default of bank loans or bond investments. However, it is highly dependent on data quality and historical data. This table helps readers quickly understand the characteristics and limitations of different risk assessment models, enabling them to make more informed decisions when choosing appropriate models for risk assessment in the banking context.

Table 3.1

Advantages and disadvantages of different risk assessment models

Risk assessment model	Advantage	Disadvantage
VaR model	Quantify market risk and provide clear risk limits	May underestimate the risk of extreme market events
Stress test model	Assessing bank soundness under extreme market conditions	Data dependence is strong and model assumptions may be inaccurate
Credit risk model	Quantify the default probability of a loan or bond investment	High dependence on data quality and historical data

2. Multi-dimensional index system

In order to comprehensively evaluate the financial risk of banks, it is necessary to construct an index system consisting of multiple dimensions. This system covers not only financial indicators, but also market indicators, operational indicators and macroeconomic indicators to ensure the comprehensive monitoring of risks.

1) Financial indicators:

Financial indicators are the basis for measuring the financial status of banks, including asset quality, profitability, capital adequacy ratio and liquidity. For example, the non-performing loan ratio is an important asset quality indicator that reflects the proportion of defaulted or potentially defaulted loans in a bank loan portfolio. According to the China Banking and Insurance Regulatory Commission, the non-performing loan ratio of Chinese commercial banks was 1.73% in 2022, which is of great significance for assessing bank credit risks.

2) Market indicators:

Market indicators are used to measure the performance of banks in the market and how well they are affected by market fluctuations. For example, market value volatility can reflect the volatility of a bank's share price, thus reflecting the market's

view of its risk. Interest rate sensitivity is also an important market indicator, which measures the sensitivity of the value of banks' assets and liabilities to changes in market interest rates.

3) Operation indicators:

Operational risk is the risk faced by the bank in its daily operation, including system failure, human error, fraud, etc. Operational indicators aim to quantify these risks, such as the frequency of operational failure, fraud loss rate, etc. For example, by monitoring transaction failure rates, banks can detect potential system problems or fraud in a timely manner.

4) Macro-economic indicators:

Macroeconomic situation has an important impact on the financial risk of banks. Therefore, it is necessary to incorporate macroeconomic indicators into the risk assessment system. For example, changes in macroeconomic indicators such as GDP growth rate, inflation rate and unemployment rate may all have an impact on banks' asset quality, profitability and liquidity. By analyzing these indicators, banks can better understand the systemic risks they face.

3. Comprehensive application of risk assessment model and index system

In practical application, banks need to combine the risk assessment model with the multi-dimensional index system to form a comprehensive risk management framework. This framework not only helps banks to accurately identify risks, but also provides strong support for the development of effective risk management strategies.

For example, banks can use the VaR model to quantify market risks and detect potential risks in time by monitoring the non-performing loan ratio, market value volatility and other operations and market indicators. Banks should also focus on changes in macroeconomic indicators to assess the systemic risks they face. By integrating these models and indicators into a unified risk management framework, banks can have a more comprehensive understanding of their risk status and make more informed risk management decisions.

Risk assessment model and index system play a vital role in the financial risk assessment of banks. By using advanced evaluation models and building a comprehensive index system, banks can more accurately identify and manage the various risks they face to ensure their financial security and sound operation. In the future, with the continuous development of financial markets and the continuous progress of risk management technology, banks should continue to improve their risk assessment model and index system to enhance their risk management ability and market competitiveness.

- Big data and intelligent risk management platform

When discussing how to use big data technology and intelligent means to build a risk management platform to improve the efficiency and accuracy of bank financial risk management, this paper has to deeply analyze the complex risk environment faced by the current banking industry and the limitations of traditional risk management methods. With the continuous development of the financial market and the acceleration of financial innovation, the financial risks faced by banks are increasingly diversified, including but not limited to market risk, credit risk, liquidity risk and operational risk. The interweaving and superposition of these risks make the traditional risk management methods based on rules and experience seem inadequate, and it is difficult to effectively deal with high-frequency and high-complexity risk events.

The rise of big data technology provides new ideas and methods for bank financial risk management. By collecting, storing, processing and analyzing massive data, big data technology can help banks to have a more comprehensive and deeper understanding of their own business operations and risk distribution. In the construction of the risk management platform, big data technology can be applied in many links, including data collection, risk identification, risk assessment, risk monitoring and risk response, etc. For example, banks can use big data technology to deeply mine customers' behavior data, transaction data and market data, so as to find out potential

risk signals and abnormal transaction patterns, and provide strong data support for risk identification.

Intelligent means are the further extension and application of big data technology in the field of risk management. Through artificial intelligence technologies such as machine learning and deep learning, banks can automate the processing and intelligent analysis of massive data to realize real-time early warning and dynamic monitoring of risks. The application of intelligent means can not only significantly improve the efficiency of risk management, but also reduce human error and intervention to a certain extent, and improve the accuracy and objectivity of risk management. For example, banks can build a risk warning model based on machine learning. Through the training and learning of historical data, the model can automatically identify potential risk events and give corresponding warning signals and response suggestions.

Building a big data and intelligent risk management platform requires banks to make full preparation and investment in many aspects. Banks need to establish a sound data governance system to ensure the accuracy, integrity and timeliness of the data. This includes setting up unified data standards, establishing data quality control mechanisms, and improving data sharing and exchange mechanisms. Banks need to invest enough manpower and material resources to conduct the research, development and application of big data technology and intelligent means. This includes building a professional data analysis team, purchasing advanced data processing equipment, and developing risk management models suitable for the bank's own business characteristics. Banks also need to pay attention to the training and introduction of talents, and improve the professional quality and practical ability of employees in big data and intelligent risk management.

Taking the Bank of Hangzhou as an example, Consumer Finance has developed the "Credit Brains" digital risk control system, which is based on a data foundation, risk control strategy orientation, security and fraud prevention as a guarantee, intelligent models as the driving force, monitoring and inspection as the patrol, and digital products as the carrier. The system integrates six aspects into one, achieving a risk

control model that combines digitalization and intelligence, thus enabling precise and efficient promotion of the stable development of various businesses.

"Credit Brain" is widely used in risk strategy, risk modeling, anti-fraud, and post-loan collection to enhance the digitalization level of finance. In 2023, the company derived over 26,000 feature variables from the second generation credit reporting system, proprietary data, and third-party data, with the risk data cost balance rate controlled at 0.1%, maintaining a leading level in the consumer finance industry. Fig 3.2 likely represents the structure or functionality of the "Credit Brains" digital risk control system of Bank of Hangzhou Consumer Finance. It shows how the system integrates data foundation, risk control strategy orientation, security and fraud prevention, intelligent models, and monitoring and inspection. The system is designed to achieve a digital and intelligent risk control model, which helps in promoting the stable development of various businesses by deriving feature variables from multiple data sources and maintaining a low risk data cost balance rate.



Fig. 3.2 Bank of Hangzhou Consumer Finance Credit Brain

Source: Internal reference materials of Bank of Hangzhou.

In addition to Bank of Hangzhou, many other banks are also actively exploring the construction and application of big data and intelligent risk management platforms. For example, China Merchants Bank uses big data technology to build intelligent risk control system to realize real-time monitoring and early warning of transaction risks; CCB conducts risk assessment and management of credit business through intelligent means, and improves the robustness and sustainability of credit business. These practical cases show that big data and intelligent risk management platform have become important means and tools for banks to improve their financial risk management ability.

However, in the application process of big data and intelligent risk management platform, banks also face some challenges and problems. One of the most important issues is data security and privacy protection. Since big data technology needs to process and analyze a large amount of sensitive information and personal data, banks need to strengthen the investment and management of data security and privacy protection to ensure the legal and compliant use of data. Banks also need to pay attention to the possible model risks and operational risks of intelligent means to ensure the accuracy and stability of the risk management model.

The construction and application of big data and intelligent risk management platform is of great significance for improving the efficiency and accuracy of bank financial risk management. Through the application of big data technology and intelligent means, banks can have a more comprehensive and deeper understanding of their own business operation status and risk distribution, and realize real-time early warning and dynamic monitoring of risks. However, in the construction and application process of the platform, banks also need to pay attention to issues such as data security and privacy protection to ensure the legal compliance and effective implementation of risk management. Looking into the future, with the continuous development and improvement of big data technology and intelligent means, the efficiency and accuracy

of the financial risk management of banks will be further improved, providing a strong guarantee for the steady development and sustainable operation of banks.

- Risk early-warning and monitoring mechanism construction

In the process of discussing the bank financial risk management, the construction of the risk early warning and monitoring mechanism is particularly important. The effectiveness of this mechanism is directly related to whether banks can detect and deal with potential financial risks in time, so as to ensure the stability and security of the financial system. This section will deeply analyze the importance and specific path of establishing effective risk warning and monitoring mechanism from two levels of methodology and practical significance.

The core of the risk early warning and monitoring mechanism lies in its foresight and acuity, which requires banks to have a scientific and perfect risk identification and evaluation system. At present, many international advanced banks have adopted big data analysis and artificial intelligence technology to monitor massive transaction data in real time to identify abnormal trading patterns or potential risk signals. For example, through its "ICBC Intelligent Risk Control Platform", ICBC has realized the intelligent monitoring of multi-dimensional risks such as credit risk, market risk and operational risk, which greatly improves the timeliness and accuracy of risk early warning. Through the machine learning algorithm, the platform can automatically adjust the risk threshold, adapt to the risk level changes in different economic cycles, and ensure the dynamic effectiveness of the early warning system.

In addition to the innovation of technical means, the risk early warning mechanism should also be integrated into the organizational culture and business process of the bank to form a top-down risk management awareness. This means that everyone, from senior managers to grassroots employees, should be a "sensor" for risk warning, proactively identifying and reporting potential risks in their daily work. To this end, banks need to conduct regular risk management training to improve the risk sensitivity and response ability of employees. Establish a clear reward and punishment

mechanism, encourage employees to actively participate in risk management activities, and commend successful early warning and effective risk disposal, and they will be investigated accordingly.

The construction of the monitoring mechanism focuses on risk tracking and management, to ensure that once the warning signal is issued, banks can respond quickly and take necessary measures to control the spread of risks. This requires banks to establish an efficient system of information reporting and decision execution. Taking China Merchants Bank as an example, the bank has established a risk event reporting system, requiring all business departments to immediately report to the risk management department through the system after the potential risks are found. The professional team will conduct risk assessment and make disposal suggestions, and the senior management will finally decide whether to start the emergency plan. The efficient operation of this process depends on the good communication and coordination mechanism within the bank and the efficient decision-making process.

The effectiveness of the risk early warning and monitoring mechanism still needs to be guaranteed through continuous testing and optimization. The bank shall conduct regular stress tests to simulate the risk impact in different situations, assess the response speed and response ability of the early warning and monitoring system, and make necessary adjustments according to the test results. Banks should also actively participate in the exchange of risk management experience inside and outside the industry, learn from advanced practices, and constantly improve their own risk management level.

From the practical sense, the effective risk early warning and monitoring mechanism is an important guarantee for banks to achieve stable operation. It can not only help banks identify and control risks in a timely manner, reduce losses, but also improve the market reputation of banks and enhance the confidence of investors and customers. Especially in the context of increasing global economic uncertainty and increasing volatility of financial market, a set of mature risk early warning and

monitoring mechanism is the key for banks to resist external shocks and maintain financial stability.

The establishment of an effective risk early warning and monitoring mechanism by banks is not only an innovation of the technical level, but also a profound change of organizational culture and management concept. Through integrating advanced technology, strengthening personnel training and optimizing the decision-making process, banks can build a solid line of risks and contribute to their own sustainable development and the overall stability of the financial system. In the future development, with the continuous progress of fintech and the continuous innovation of risk management theory, the risk early warning and monitoring mechanism of banks will continue to evolve, guarding the door of financial security in a more intelligent and efficient way.

3.3. Proposals for improving risk management in the mechanism of financial security in the Bank

- Strengthen the construction of the internal risk control system

When discussing how to strengthen the construction of the internal risk control system of banks to improve the management and control ability of financial security risks, it is necessary to conduct an in-depth analysis from multiple dimensions. As a core part of the financial system, the perfection of the internal risk control system is directly related to the stability and security of the entire financial system. Therefore, improving the internal risk control system, process and institutional setting is the key path for banks to improve their financial security risk control ability.

Banks need to establish a sound risk control system. This includes formulating clear risk management policies, establishing the objectives, principles and strategies for risk management, and providing clear risk management guidance for all employees of the bank. For example, a series of risk management guidelines issued by the China Banking Regulatory Commission (CBRC) require banks to establish a risk management framework that is commensurate with the nature, scale and complexity of their business.

On this basis, banks also need to refine the risk management process, such as risk identification, assessment, monitoring, reporting and other links, to ensure the systematic and normative risk management activities.

Optimizing the risk management process is another important aspect to improve the risk control ability of banks. Banks should establish a scientific risk assessment mechanism, and use advanced risk assessment models and technologies to accurately quantify and dynamically monitor all kinds of risks. For example, the value at Risk (VaR) model is used to evaluate market risk, and stress tests are used to simulate risk conditions in extreme cases, so as to help banks better understand their risk status and develop targeted risk management measures. Banks also need to improve the risk reporting system to ensure that risk information can be timely and accurately transmitted to the management and relevant departments for rapid response.

In terms of institutional setup, the banks should build an independent and efficient risk management department, responsible for comprehensively coordinating and managing the risk management activities of the banks. The department should have sufficient authority and professionalism to be able to work independently of other business departments to ensure the objectivity and impartiality of risk management decisions. For example, some international advanced banks have established chief Risk Officer (CRO) positions to fully lead the risk management and report directly to the board of directors. Banks should also strengthen the construction of the risk management team, cultivate a talent team with rich risk management experience and professional skills, and provide a solid talent guarantee for the risk management of banks.

In addition to the optimization of the system and process, banks also need to pay attention to the cultivation of risk culture. Risk culture refers to the risk management values and codes of conduct that are jointly recognized and followed by all employees of the bank. Banks should use training and publicity to promote the concept of risk management in the hearts of the people, so that all employees can fully realize the importance of risk management and consciously practice the requirements of risk

management. For example, banks can conduct regular risk management training to improve employees' risk awareness and risk management ability, and they can also establish a risk management incentive mechanism to encourage employees to actively participate in risk management activities.

In terms of information technology application, banks should make full use of big data, artificial intelligence and other advanced technologies to improve the efficiency and accuracy of risk management. For example, through big data technology, banks can conduct real-time analysis of massive transaction data and find potential risks in time; by using artificial intelligence algorithm, banks can build intelligent risk early warning system to realize real-time monitoring and early warning of risks. The application of these technologies will greatly improve the timeliness and accuracy of bank risk management.

Banks should also strengthen communication and cooperation with external regulators. External regulatory agencies are an important external constraint force for bank risk management, and their regulatory policies and requirements often have a direct impact on bank risk management. Therefore, banks should actively cooperate with the work of external regulatory agencies, timely understand and grasp the latest regulatory policies and requirements, and adjust and improve their own risk management system accordingly. For example, in response to the new requirements of Basel III on bank risk management, China's banking industry has actively carried out corresponding reforms and adjustments.

Strengthening the construction of bank internal risk control system is the key to improve the ability of bank financial security risk control. Through establishing and perfecting the risk control system, optimize the risk management process, improve the institutional setup, cultivating risk culture, application of advanced information technology and strengthen the cooperation with external regulators, Banks will be able to more effectively identify, evaluate, monitoring and deal with all kinds of financial risks, to ensure its steady operation and the overall stability of the financial system. In the future development, with the continuous changes of the financial market and the

continuous promotion of financial innovation, banks still need to constantly adapt to the new situation, respond to new challenges, and continue to improve and optimize their internal risk control system.

- Improve employees' awareness and ability of risk management

When discussing how to improve the risk management in the financial security mechanism of banks, it is a crucial link to enhance the risk management awareness and ability of employees. As a core part of the financial system, the stability and security of the operation of banks is not only related to their own sustainable development, but also has a far-reaching impact on the stability of the whole economy and society. Therefore, banks must attach great importance to risk management training and education for employees to improve their risk awareness and enhance their ability to identify and respond to risks.

Banks should establish a sound risk management training system. This system should cover the basic theories, methods, tools of risk management and the latest risk management techniques and practice cases. The training content can include the definition, classification, identification, evaluation, monitoring and reporting of financial risks, as well as specific risk management strategies and tools, such as the value-at-risk method, stress testing, scenario analysis, etc. The training should also involve laws, regulations and regulatory requirements related to risk management to ensure that employees strictly strict compliance requirements in business operations.

In order to enhance the training effect, banks can adopt a variety of training methods. In addition to traditional classroom teaching, online learning platforms, simulation exercises, and case studies can also be used to enable employees to learn and master risk management skills in practice. For example, by simulating various risk scenarios faced by banks, employees can make decisions and respond in a virtual environment, so as to improve their practical capabilities. Banks can also invite experts in the field of risk management or industry insiders with rich practical experience to give lectures or workshops for employees to share their experiences and insights.

In the training process, the bank should pay attention to cultivate the employees' awareness of active risk management. This means that employees should not only be able to identify and assess risks, but also be able to proactively find potential risk points in their daily work and propose improvement measures. To this end, banks can set up a risk management suggestion mechanism to encourage employees to put forward their own views and suggestions on risk management, and to reward valuable suggestions. This can not only stimulate the enthusiasm of employees to participate, but also promote the formation of the bank risk management culture.

In addition to training, the bank should regularly assess and assess their risk management capabilities. By setting specific risk management indicators and performance standards, the performance of employees in risk management is quantitatively evaluated. This can not only test the degree of employees' mastery of risk management knowledge, but also promote employees to pay more attention to risk management in practical work. Banks can also link their risk management capabilities to employees' promotion and compensation to encourage employees to constantly improve their risk management level.

In order to further enhance the risk management ability of employees, banks can also strengthen the cooperation and communication with external institutions. For example, to establish partnerships with banking regulators, industry associations, risk management consulting companies, etc., to jointly carry out risk management research and training programs. By participating in these cooperation and communication activities, employees can be exposed to more advanced concepts and practical experience in risk management, so as to broaden their horizons and improve their professional quality.

In the context of the Internet era, banks can also use big data and artificial intelligence technologies to help employees improve their risk management capabilities. For example, by building a risk management data platform, we can integrate and analyze various internal and external risk data of the bank, and provide real-time and accurate risk information support for employees. Using machine learning algorithms to

pattern identify and predict employees' risk management behavior, it can provide employees with more personalized risk management suggestions and guidance.

Banks should also focus on cultivating employees' cross-departmental and cross-field risk management collaboration ability. Since the risk management of a bank involves multiple departments and business areas, employees need to have the ability to effectively communicate and collaborate with people in different departments and fields. To this end, banks can organize cross-departmental and cross-sectoral risk management project teams, so that employees can learn and master collaboration skills and team management skills in practice.

Banks should also continue to pay attention to the improvement effect of employees' risk management awareness and ability, and make continuous improvement and optimization according to the actual situation. For example, by regularly collecting employees' feedback on risk management training and work, analyzing the actual performance and problems of employees in risk management, and timely adjusting and improving the training content and methods. Banks can also learn from the risk management experience and practices of advanced banks at home and abroad, constantly introduce and innovate risk management tools and methods, and provide employees with more comprehensive and in-depth risk management training and education.

Improving employees' awareness and ability of risk management is of great significance to improve the risk management in the financial security mechanism of banks. By establishing a set of perfect risk management training system, adopt diversified training methods, cultivate employees active risk management consciousness, regular assessment and assessment of staff risk management ability, strengthen cooperation and communication with external institutions, using big data and artificial intelligence technology auxiliary risk management, training staff cross-department and cross-domain risk management collaboration ability and continuous attention to and improve staff risk management consciousness and ability of promotion effect, Banks

can effectively improve staff risk management level, for the steady development of the bank and the stability of the financial system.

- Strengthen the external supervision and cooperation mechanism

When discussing how to improve the risk management of the bank financial security mechanism, it is an indispensable link to strengthen the external supervision and cooperation mechanism. As a core part of the financial system, the stability and security of the operation of banks is not only related to their own sustainable development, but also has a far-reaching impact on the stability of the whole economy and society. Therefore, banks actively improving their internal risk management capabilities must also pay attention to the cooperation with external regulators, and cooperate with other financial institutions and relevant departments to jointly build a more stable financial safety net.

External supervision is an important external force to ensure the financial security of banks. In recent years, with the continuous development of the financial market and the continuous emergence of financial innovation, the regulatory requirements of regulators are increasingly strict on banks. For example, China silver insurance regulatory commission in recent years continue to strengthen the supervision of banking financial institutions, by issuing a series of regulatory policies, such as the banking financial institutions data management guidelines, on further standardize the commercial bank Internet loan business notice, etc., require Banks in data management, Internet loan business to strengthen risk management, ensure that business compliance steady development. Banks need to actively respond to these regulatory requirements, and improve the level of risk management by improving their internal management systems and processes, so as to meet the expectations of the regulatory agencies and reduce the risks caused by regulatory non-compliance.

In addition to actively responding to regulatory requirements, banks should also actively seek cooperation with external regulators to jointly safeguard financial security. Such cooperation can be reflected in many aspects, such as information sharing, joint

inspection, risk early warning and so on. Through information sharing, banks can report their own risk status and management progress to regulators in a timely manner, while regulators can also inform banks of risk trends and regulatory dynamics in the industry to help banks better identify and manage risks. Joint inspection is a more advanced way of cooperation. Supervisors can work together with banks to inspect their business activities, find out problems and rectify them in time, so as to improve the risk management level of banks. The establishment of a risk early warning mechanism is also an important part of cooperation. Regulators can make use of their regulatory resources and professional advantages to provide risk early warning services for banks and help them identify and deal with potential risks in advance.

In addition to the cooperation with external regulators, banks should also strengthen the cooperation with other financial institutions and relevant departments to jointly safeguard financial security. In the financial system, various financial institutions are interrelated, and the risk of one institution is likely to be transmitted to other institutions, or even cause systemic risk. Therefore, banks need to establish a joint risk prevention and control mechanism with other financial institutions to jointly deal with financial risks. For example, in the fields of payment and clearing, credit financing, asset management and other fields, banks can cooperate with payment institutions, securities companies, insurance companies and other financial institutions to reduce cross-market risks by sharing risk information and coordinating risk management strategies.

Banks should also strengthen cooperation with relevant government departments and industry associations to jointly promote the improvement of the financial security system. Relevant government departments play an important role in the construction of financial infrastructure and the enactment of financial laws and regulations. Banks can cooperate with these departments to promote the upgrading and improvement of financial infrastructure and improve the efficiency and security of financial services. Industry associations can serve as a bridge between banks and other financial institutions, coordinate the interests of all parties, promote the formulation and

implementation of industry standards, and promote the healthy development of the financial industry.

In the context of the Internet era, banks should also make full use of advanced technologies such as big data, cloud computing and artificial intelligence to improve the efficiency and accuracy of risk management when strengthening the external supervision and cooperation mechanism. For example, banks can cooperate with fintech companies to use big data technology to conduct in-depth mining and analysis of massive financial data, find out potential risk points and risk transmission paths, and provide more accurate decision support for risk management. Banks can also use the cloud computing platform to realize real-time data sharing and interaction with external regulators and partners to improve the speed and efficiency of risk response.

Strengthening the external supervision and cooperation mechanism is an important link to improve the risk management of the bank financial security mechanism. Banks need to actively respond to external regulatory requirements, strengthen cooperation with regulators to maintain financial security, and also strengthen cooperation with other financial institutions and relevant departments to build joint prevention and control mechanism to reduce cross-market risks. In the Internet era, banks should also make full use of advanced technology to improve the efficiency and precision of risk management. Through the implementation of these measures, banks can better respond to external risks and challenges, and ensure their own steady operation and sustainable development.

CONCLUSIONS

- Main findings

The main findings of this study focus on multiple levels of risk management in the banking financial security guarantee mechanism, and the following is a detailed summary of these findings and their contributions.

In terms of the theoretical basis and organizational basis of bank financial risk strategic management, this study reveals the nature and classification of financial risk and its specific impact on banks . As an uncertain factor in economic activities, financial risk has rich and diverse connotations, including market risk, credit risk, operational risk, etc., which pose significant challenges to the operation, financial status and stability of banks . In particular, this study emphasizes the close connection between financial security and macroeconomic stability, pointing out that the accumulation and outbreak of financial risks may have a far-reaching impact on the real economy. This finding helps the banking industry and policymakers to examine financial risks from a broader perspective and thus develop a more comprehensive risk management strategy.

This study makes a systematic assessment of the risks affecting the financial security of banks, and explores the comprehensive application of qualitative evaluation method and quantitative evaluation model. Qualitative assessment methods, such as expert judgment and scenario analysis, play an important role in identifying and assessing bank financial risks, and they can consider difficult to quantify factors and provide a preliminary framework for risk management. Quantitative assessment models, such as the value-at-risk method and stress testing, can more accurately measure risk and provide data support for decision-making. The comprehensive evaluation system constructed in this study combines both qualitative and quantitative methods, and provides a solid "firewall" for bank financial security risk assessment. This innovative evaluation system not only improves the scientific nature of risk management, but also provides a practical risk management tool for the banking industry .

When discussing the current situation of China's banking industry, this research deeply analyzes the asset scale, business layout, competition pattern and market position of China's banking industry. Data show that by the end of 2023, the total assets of China's banking industry reached 461.09 trillion yuan, with a year-on-year growth of 9.9%, showing a steady growth trend. The diversified business layout such as loan, deposit and intermediary business further improves the comprehensive service capacity of banks. However, this study also points out that China's banking financial risk management capabilities remain to be improved when faced with challenges such as market volatility, regulatory changes and internal mismanagement. To this end, this study puts forward a series of targeted strategies and approaches, such as strengthening the asset and liability management and optimizing the capital liquidity mechanism, so as to enhance the stability and sustainable development ability of banks.

Further, this study makes an important breakthrough in the scientific and practical methods of bank financial risk management strategies. Especially in the anti-crisis management of bank financial risks, this study elaborated the pre-warning mechanism, in-process control strategy and post-recovery measures. By establishing an effective risk early warning system, banks can identify potential crises in advance and buy valuable time for countermeasures. In the event of a crisis, adjusting the structure of assets and liabilities, strengthening the management of capital liquidity and other operational control strategies, can effectively curb the expansion of the crisis. After the crisis, banks can quickly recover through business restructuring, risk management system reconstruction and other after recovery measures to restore their normal operation and financial stability. This series of strategies and methods provide a comprehensive risk management framework for the banking industry, and help to improve the overall anti-risk ability of banks.

This study also deeply discusses the specific tools of bank financial risk strategic management, including the risk assessment model and index system, big data and intelligent risk management platform, and the construction of risk early warning and monitoring mechanism. The construction of risk assessment model and index system

provides banks with tools to accurately identify risks, and makes risk management more refined. The application of big data and intelligent technology further improves the efficiency and accuracy of risk management, enabling banks to grasp the risk dynamics in real time and make rapid response. The construction of risk early warning and monitoring mechanism is the "sentinel" of bank risk management, to ensure that potential risks can be found in time and effectively dealt with.

In terms of suggestions on improving the risk management of bank financial security mechanism, this study puts forward specific measures such as strengthening the construction of internal risk control system, enhancing the awareness and ability of employee risk management, and strengthening the external supervision and cooperation mechanism. By improving the internal risk control system, process and institutional Settings, banks can fundamentally improve their ability to control financial security risks . Training and education for employees in risk management can enhance their risk awareness and improve their ability to identify and respond to risks. Banks should also actively cooperate with the requirements of external regulatory agencies, strengthen cooperation with other financial institutions and relevant departments, and jointly safeguard financial security. These suggestions not only have theoretical value, but also provide practical guidance for the banking industry.

This study has made a number of important discoveries in the risk management in the banking financial security guarantee mechanism, which not only enrich the theoretical system of risk management, but also provide valuable practical guidance for the banking industry, policy makers and academic circles. Through this study, this paper more clearly recognizes the importance of bank financial security and its key role in the modern financial system, and also provides a strong theoretical support and practical path for further improving bank security.

- The study limitations

When discussing the limitations and deficiencies of this study, it is necessary to deeply analyze from multiple dimensions and propose corresponding improvement

directions to ensure that the follow-up research can further improve the risk management research in the bank financial security guarantee mechanism.

This study mainly focuses on the current situation and risk management practice of China's banking industry, and may ignore the latest progress and innovation in the risk management of the global banking industry. Although China's banking industry occupies an important position in the global financial system, the development trends and risk management experience of the international banking industry are also worth learning from. Therefore, the future research can further broaden the horizon, incorporate the risk management practices of the international banking industry into the research category, and refine the more generally applicable risk management strategies and methods through cross-border comparison and analysis.

This study has some limitations in the data collection and analysis. Despite a variety of data sources, including bank annual reports, regulatory reports and professional financial databases, there may still be problems of incomplete data or insufficient timeliness. In particular, it faces great difficulties in obtaining the detailed financial data of some unlisted banks or small financial institutions. This limits the depth and breadth of research and may have influenced the accurate assessment of the overall risk profile of the banking sector. To overcome this limitation, future studies can attempt to establish broader data sharing mechanisms, or use big data and artificial intelligence technologies to extract valuable information from more diversified data sources to improve the quality and timeliness of data.

When constructing a bank financial risk assessment model, although considering multiple risk factors and indicators, the present study may fail to cover all potential risk sources. The complexity and uncertainty of financial markets make it extremely difficult to identify risk factors, especially those non-traditional risk factors that are difficult to quantify, such as reputation risk and operational risk. Therefore, future studies can be more refined in the construction of risk assessment models, and improve the predictive ability and adaptability of the model by introducing more risk dimensions and dynamic adjustment mechanisms. It is also possible to apply advanced techniques such as

machine learning to risk assessment models to capture those risk signals that are difficult to identify by conventional methods.

This study discusses the bank financial risk strategic management tools, which mainly focuses on the construction of risk assessment model, big data and intelligent risk management platform, and risk early warning and monitoring mechanism. However, with the rapid development of fintech, new risk management tools and methods emerge in an endless stream, such as the application of blockchain technology in risk prevention and control, and the deepening of artificial intelligence in risk identification and response. The discussion of these emerging technologies in this study is relatively limited and fails to fully demonstrate its potential in the banking financial security guarantee mechanism. Therefore, future research can further focus on the latest progress of fintech, and explore how to effectively integrate these emerging technologies into the risk management system of banks, so as to improve the efficiency and effect of risk management.

This study puts forward a series of suggestions to optimize the financial security guarantee mechanism and strengthen the risk management regulations in the policy suggestions and countermeasures part. However, the feasibility and implementation effect of these recommendations still need to be tested in practice. There may be challenges and obstacles from many aspects, such as the coordination ability of regulators, the willingness of banks to implement, and the adaptability of the market environment. Therefore, future studies can pay more attention to the feasibility of policy suggestions and the design of implementation path, and evaluate the actual effect of different policy suggestions through case analysis, simulation and deduction, so as to provide more scientific and feasible decision basis for policy makers.

This research has made some achievements in the risk management in the bank financial security guarantee mechanism, but there are still many limitations and deficiencies. Future research can be improved and improved from the aspects of broadening the research horizon, enhancing the data quality and timeliness, refining the risk assessment model, paying attention to the new progress of fintech and deepening

the research on policy suggestions, so as to promote the continuous development of risk management theory and practice in the financial security guarantee mechanism of banks.

Future Outlook

- Future Research Direction

When discussing the future direction of risk management research in the bank financial security guarantee mechanism, it is necessary to start from the limitations of the current research and deeply analyze the areas that have not been fully explored, as well as the emerging problems with the development of financial environment and technology. The following are the important directions that future research may focus on:

1) The deep integration of fintech and bank risk management

With the rapid development of fintech, blockchain, artificial intelligence, big data and other technologies are increasingly widely used in bank risk management. Future studies could further explore how these technologies combine with existing risk management frameworks to improve the accuracy and timeliness of risk identification. For example, machine learning algorithms are used to analyze massive transaction data in real time to identify potential risks of fraud or market fluctuations. The decentralized and immutable nature of blockchain technology provides a new way for banks to ensure the security and transparency of transactions. Future research can provide an in-depth analysis of the specific application of blockchain technology in bank risk management and its effect evaluation.

2) Cross-border financial risk management and international cooperation

In the context of global economic integration, cross-border financial activities are increasingly frequent, which also brings more complex cross-border financial risks. Future research could focus on how to establish effective cross-border financial risk management mechanisms between different countries and regions, including monitoring of cross-border capital flows, security of international payment systems, and regulatory

cooperation among cross-border financial institutions. With the advancement of RMB internationalization, how to build a RMB risk management system in a global scope is also an important direction of future research.

3) Bank risk management under extreme financial events

In recent years, the frequent financial crises, extreme market fluctuations and other events around the world pose a serious threat to the financial security of banks. Future research could further explore how banks can effectively manage their risks in the face of extreme financial events, including developing more robust stress test models, developing emergency funding plans, and strengthening communication and coordination mechanisms with governments and regulatory agencies. In particular, the 2008 global financial crisis, can analyze the performance of different banks in the crisis, and extract effective risk management strategies and lessons.

4) Risk management from the perspective of green finance and sustainable development

With the global emphasis on environmental protection and sustainable development, green finance has become an important development direction of the banking industry. Future research can focus on the risk management of green financial products, including environmental risk assessment, the return uncertainty of green investment projects, and how ESG (environmental, social, governance) factors can be included in the bank's risk management framework. It can also explore how the banking industry can support the transformation of the green economy through risk management and promote the sustainable economic development.

5) Risk management challenges and opportunities in digital transformation

Digital transformation is an important trend facing the banking industry at present. It not only changes the service mode of banks, but also puts forward new challenges and opportunities for risk management. Future research can deeply analyze how banks build a risk management system adapted to the digital age in the process of digital transformation, including data privacy protection, network security, and the use of digital tools for risk monitoring and early warning. It can also explore how

digitalization can promote the innovation of bank risk management, such as improving the efficiency and accuracy of risk management through digital means.

6) Application of customer behavior and market sentiment analysis in risk management

Customer behavior and market sentiment are the important factors affecting the financial security of banks. Future research could further explore how to use big data and artificial intelligence technologies to analyze customer behavior patterns and market sentiment changes to identify potential risks in advance. For example, predict market volatility or changes in customer credit risk by analyzing speech and emotional tendencies on social media. This risk management method based on behavioral finance is expected to provide banks with more refined risk management strategies.

7) The impact of policy changes and the regulatory environment on risk management

Policy changes and the adjustment of the regulatory environment often have a significant impact on the banks' risk management strategies. Future research can focus on how to adjust and optimize the risk management framework of banks to meet the new regulatory requirements in the context of changing global financial regulatory trends. For example, as the Basel Accord continues to evolve, how do banks adjust their capital adequacy management and liquidity risk management strategies to meet the latest international standards.

The research on risk management in the bank financial security guarantee mechanism has a broad development prospect in the future. With the progress of fintech, the change of the global economic environment, and the popularity of the concept of sustainable development, bank risk management will face more new challenges and opportunities. Future research needs to continuously explore and innovate on the basis of combining theory with practice, so as to provide more solid theoretical support and practical guidance for the improvement of bank financial security.

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Онлайн сервіс створення та перевірки кваліфікованого та удосконаленого електронного підпису

ПРОТОКОЛ
створення та перевірки кваліфікованого та удосконаленого електронного підпису

Дата та час: 12:19:57 09.05.2025

Назва файлу з підписом: 04-Диплом_Tian_Wei.docx.p7s.zip[1].p7s[1].p7s
Розмір файлу з підписом: 1.7 МБ

Назва файлу без підпису: 04-Диплом_Tian_Wei.docx.p7s.zip[1].p7s[1]
Розмір файлу без підпису: 1.7 МБ

Результат перевірки підпису: Підпис створено та перевірено успішно. Цілісність даних підтверджено

Підписувач - 1: АЗАРЕНКОВА ГАЛИНА МИХАЙЛІВНА

П.І.Б.: АЗАРЕНКОВА ГАЛИНА МИХАЙЛІВНА

Країна: Україна

РНОКПП: 2571514226

Організація (установа): ФІЗИЧНА ОСОБА

Час підпису (підтверджено кваліфікованою позначкою часу для підпису від Надавача): 21:27:10 30.11.2024

Сертифікат виданий: КНЕДП АЦСК АТ КБ "ПРИВАТБАНК"

Серійний номер: 5E984D526F82F38F04000000E4DA710112DF3D05

Тип носія особистого ключа: Незахищений

Алгоритм підпису: ДСТУ 4145

Тип підпису: Удосконалений

Тип контейнера: Підпис та дані в одному файлі (CAdES enveloped)

Формат підпису: З повними даними ЦСК для перевірки (CAdES-X Long)

Сертифікат: Кваліфікований

Підписувач - 2: Омеляненко Денис Олегович

П.І.Б.: Омеляненко Денис Олегович

Країна: Україна

РНОКПП: 3634714115

Час підпису (підтверджено кваліфікованою позначкою часу для підпису від Надавача): 15:10:19 19.12.2024

Сертифікат виданий: "Дія". Кваліфікований надавач електронних довірчих послуг

Серійний номер: 382367105294AF9704000000EF5A070009B10B03

Тип носія особистого ключа: ЗНКИ криптомодуль ІІТ Гряда-301

Серійний номер носія особистого ключа: Не визначено

Алгоритм підпису: ДСТУ 4145

Тип підпису: Кваліфікований

Тип контейнера: Підпис та дані в одному файлі (CAdES enveloped)

Формат підпису: З повними даними ЦСК для перевірки (CAdES-X Long)

Сертифікат: Кваліфікований

Версія від: 2025.01.15 13:00