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ANALYSIS ON THE VARIABLES OF RISK MANAGEMENT SYSTEM OF COMMERCIAL BANKS

Establishing a sound risk management mechanism is crucial for commercial banks to do a good job in risk management. Comprehensive risk management is the main concept of contemporary risk management. This article describes the current situation and problems faced by the Chinese banking system, and also substantiates the choice of a set of indicators for measuring banking risks.

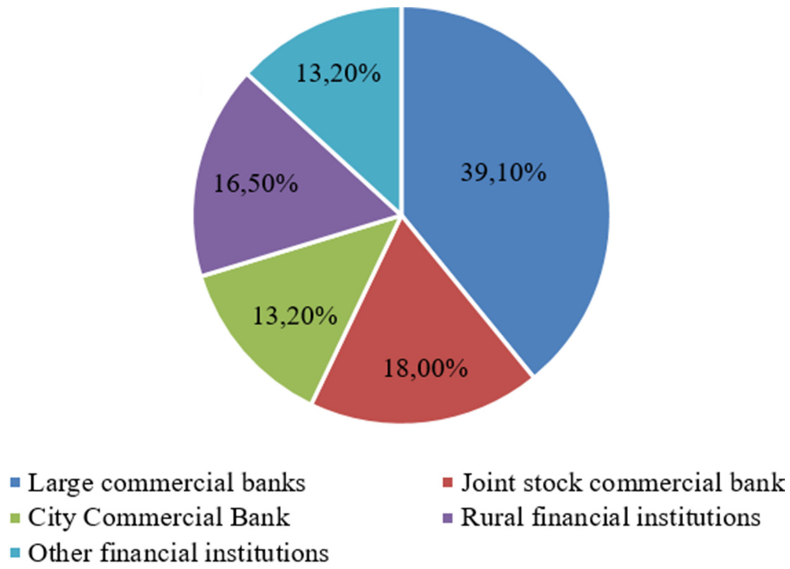
Keywords: *commercial bank, enterprise management, risk management, shareholding structure, system construction, countermeasures*

Analysis of the current situation of Chinese commercial banks management. The financial system is the core of the development of the modern national economy, and commercial banks are an important subject of the financial system, taking on the lifeline and media role of social and economic activities. Due to the fragility of the financial system and the linkage transmission effect of systemic risks, the stable operation and healthy development of commercial banks are related to the smooth operation and sustainable development of the global economy as a whole. The establishment of the commercial banking system in China and Belarus began at the beginning of the reform and opening up, and the establishment and development of the enterprise management system of commercial banks accompanied the growth of the entire commercial banking system [1]. After that, the Agricultural Bank of China, Bank of China, China Construction Bank and Industrial and Commercial Bank of China were gradually restored and established, forming a pattern of coexistence of four major national professional banks. In order to promote the market-oriented operation of the four major state-owned specialized banks, China has separated policy financial business from the four major state-owned specialized banks by establishing specialized policy banks. Policy banks were established successively, and the former four major specialized banks were gradually transformed into wholly state-owned commercial banks operating independently and taking their own profits and losses. The Law of the People's Republic of China on Commercial Banks establishes for the first time the sole state-owned status of the four major banks from a legal perspective, and clarifies the operating principles of commercial banks such as efficiency, safety, and liquidity. This «spin off» has not completely eliminated the role of the «policy banks» of the four major banks, and even bank loans have become a supplement to the financial allocations of various regions to a certain extent [2].

Due to the serious «soft budget constraint» problem of state-owned enterprises, the long-term support for inefficient state-owned enterprises not only accumulated a large number of non-performing assets in the commercial banking system at this time, but also under the circumstance of distorted incentives, state-owned enterprises have low operating efficiency. The competition of state-owned enterprises has been at a disadvantage for a long time. When local financial support is insufficient, bank loans become the main source of funds for state-owned enterprises to «relieve difficulties». The state-owned banking system has accumulated a large number of non-performing loans. The Asian financial turmoil has made the Chinese government realize that the large number of non-performing loans accumulated in the banking system is a time bomb with high risks. In the era of management, since then, banks can make independent decisions on loan scale and loan objects according to their own asset-liability structure, customer risk characteristics and their own risk appetite.

After the realization of the joint-stock system reform, more than a dozen commercial banks that have existed in the form of joint-stock systems since their inception quickly emerged in China, and they are also the main components of «joint-stock banks» in current practice. The People's Bank of China establishes urban commercial banks and rural commercial banks on the basis of urban credit cooperatives and rural financial institutions. In addition, there are thousands of rural cooperative banks, rural credit cooperatives and village banks as supplements, which together form the pattern of China's commercial banking industry.

It was also before and after the Asian financial turmoil that commercial banks in China followed the reform of the economic system and actively responded to the long-term accumulation of risks and began to implement corporate management. As shown in Picture, the China Banking and Insurance Regulatory Commission divides Chinese commercial banks into large state-owned commercial banks, joint-stock commercial banks, and city commercial banks and rural commercial banks according to the limitations of different commercial banks' operating areas and business content. The main small and medium-sized commercial banks, different types of commercial banks have different emphasis in the above three types of business due to the differences in business regions, regulatory policies, and administrative licenses. Various types of commercial banks have different characteristics, so the status quo of enterprise management quality is also very different.



Asset share of banking financial institutions in December 2021

Commercial Bank Risk Management Process. The risk management process of commercial banks can be divided into four main steps: risk identification, risk measurement, risk monitoring and risk control according to the criteria of pre-event, in-event and post-event classification [3].

Among them, the risk management department undertakes the main responsibilities of risk identification, risk measurement and risk monitoring, while the risk management committees at all levels undertake the ultimate responsibility for risk control and management decision-making.

The risk borne by commercial banks can be described by a simple functional formula, that is, the risk borne by commercial banks is a function of the probability of occurrence of contingent events in commercial banks and their consequences:

$$R = f(P, c),$$

R – Risk (risk faced by the bank); P – Probability (probability of accidental events); C – Consequence (consequences of accidental events).

To construct countermeasures, it is recommended that commercial banks focus on cultivating a risk management culture, create a good external environment for risk management, formulate specific and clear risk management strategies, optimize and upgrade the risk management organizational structure, strengthen the training of risk management professionals, and use information technology to establish a sharing mechanism and Risk early warning mechanism.

The risk-taking of commercial banks. The 38 banks that publicly disclosed their annual reports from 2011 to 2021 were taken as the research object. Due to the different starting years disclosed in the annual reports of each bank, the data of each year are not completely consistent, which constitutes unbalanced panel data. After excluding some samples with incomplete data, a total of 145 observations are obtained. The sample data comes from the WIND database and the official websites of various banks. Descriptive statistical analysis was performed on the collected data using STATA 22.0 software. In addition, in order to eliminate the influence of extreme values or outliers on empirical research, the variables with larger values are taken logarithm in the analysis.

A variety of indicators are used to measure bank risk. The main proxy variables include the ratio of non-performing loans, the ratio of loan loss provisions to total loans, the expected probability of default, the ratio of risk-weighted assets to total assets, and Z-value. These indicators mainly measure the risk of banks from different angles. Specifically, the ratio of non-performing loan ratio and loan loss provision to total loans reflects the overall credit asset quality and credit risk of commercial banks, and the ratio of risk-weighted assets to total assets reflects The bank's risk level, expected default probability and Z value are mainly used to measure the bank's bankruptcy risk from the overall level by constructing the risk level of the asset portfolio at different time points.

Judging from the actual situation of commercial banks in China, the main asset projects of commercial banks are currently concentrated in loans, and the main risks of commercial banks are also concentrated in credit business. The non-performing loan ratio can comprehensively reflect the level of risk management of commercial banks. Because the loosening and tightening of credit approval conditions and the enforcement of credit approval conditions will directly lead to the increase or decrease of bank credit risk, which constitutes the main risk of commercial bank operation. The non-performing loan ratio is used to measure bank risk. The higher the non-performing loan ratio, the higher the bank's risk level. In the robustness test, the proxy variable of commercial bank risk is the internal control quality of commercial bank. In the selection of internal control proxy variables, most scholars currently refer to the methods listed in the «Guidelines for the Implementation of Internal Control Evaluation Measures of Commercial Banks», which are also the standards for the implementation of internal control of commercial banks by the China Banking and Insurance Regulatory Commission.

Control variables. In the research, in order to further reduce the impact of the omitted variable bias on the model results, four control variables were selected: the combination of two positions (whether the chairman or vice chairman and the president are the same person), business structure (the total loan amount accounted for ratio of total assets), bank size (log of total bank assets), profitability (return on equity). The reason for choosing the above variables as control variables is that in the case where the chairman and the president of the bank are one person, the president is the highest leader of operations, and because of his identity as the chairman of the board, he can play an important role in the company's business decision-making, profit distribution, appointment or management. The dismissal of certain executives of the company and the formulation of the company's basic management system have a greater say, which leads to an increased possibility of taking greater risks in business operations in pursuit of personal interests. As for the business structure, different business structures more reflect a management style of management, which naturally makes risks and profitability different, but has nothing to do with the company's management status.

As for the size of banks, since larger banks have stronger risk digestion capabilities and are subject to stricter industry supervision, the size of banks has a significant impact on their risk levels. For profitability, commercial banks' business model determines that they can obtain returns by taking risks, so it is necessary to control the return on equity. Based on the above analysis and description, as shown in Table, the explained variables, explanatory variables and control variables of the empirical research are briefly sorted out.

Variables explanation

Variable nature	Variable name	Variable code	Variable meaning
Explained variable	NPL ratio	Badloan	(Substandard loans + doubtful loans + loss loans) / total loans
	Internal Control Quality Score	C-score	Scoring results according to the «Guidelines for the Implementation of the Measures for the Evaluation of Internal Control of Commercial Banks»
Equity characteristics	The nature of major shareholders	State	If the largest shareholder is the country, take 1, otherwise take 0
	Ownership concentration	Tophold	Shareholding ratio of the largest shareholder
	Equity balance	Balance	Shareholding ratio of the second to ninth shareholders / shareholding ratio of the largest shareholder
Board Features	Board size	Bsize	Board of Directors
	Proportion of independent directors	Indep	Number of Independent Directors/Number of Board of Directors
Salary characteristics	Salary of the top three executives with the highest pay	Salary	The natural logarithm of the total compensation of the top three executives
Control Variable	Two jobs in one	Duality	1 if the chairman and president are the same person, 0 otherwise
	The ratio of total loans to total assets	Loan	Total Loans / Total Assets
	Asset size	Size	Asset log of total assets at the end of the period
	ROE	ROE	Net profit after tax/net assets at the end of the period

The main explanatory variables of the research focus on the measurement of various aspects of the management quality of commercial banks. In terms of variable selection of corporate management, it is proposed that the variables to measure the management level of bank companies mainly select nine variables from four aspects: equity characteristics (nature of major shareholders, equity concentration, degree of equity checks and balances), board characteristics (board size, The proportion of independent directors), the characteristics of the board of supervisors (the size of the board of supervisors, the proportion of employee supervisors), and the characteristics of remuneration (the average salary of the top three executives with the highest salary, and the sensitivity of salary performance).

The main reason for choosing these research angles and proxy variables is that these variables can comprehensively reflect the most important aspects of corporate management of commercial banks, and are closely related to bank risks.

Conclusion. For commercial banks, capital is an important tool to maintain the continuous operation of commercial banks and resist unexpected risks. The capital adequacy level of commercial banks is of great significance, which is related to the stable operation and sustainable development of commercial banks. Commercial banks need to rely on good corporate management to enhance their internal core competitiveness and enhance their ability to resist external risks. Important enterprise management variables that affect the overall risk of commercial banks, thus helping to guide commercial banks to clarify what efforts they can make from the perspective of enterprise management in order to control risks, and then establish a more reasonable and scientific enterprise management plan to avoid risks. From the perspective of improving the risk management of commercial banks by regulators, the research is of great importance and have important practical significance.

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