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Abstract. The long-term loose monetary policy has provided conditions for the financial crisis. Whether China's monetary policy will also affect the bank's risk-taking and further affect financial stability, this is a question worthy of discussion. Based on the current situation of commercial banks' risk-taking in China, this paper discusses the impact of monetary policy on the risk exposure of China's commercial banks from the four aspects of valuation, income and cash flow effect, revenue search effect, insurance effect, and mindset effect. Then put forward some suggestions of how to prevent and control risks.

Introduction

For a long time, the traditional monetary policy transmission channel theory believes that the central bank stabilizes prices and promotes growth through monetary channels and credit channels. When formulating policies, it does not consider the risk preference of commercial banks, and only takes them as the monetary policy conduction medium. In 2007, the outbreak of the subprime mortgage crisis in the United States rapidly swept the globe. This crisis had a significant impact on the real economy such as real estate. Many scholars, such as Taylor, attribute the crisis to the monetary policy risk taking behavior of commercial banks and other financial institutions.

This resulted in a new monetary policy transmission mechanism---bank risk-taking channel. Borio and Zhu firstly put forward the concept [1], namely the stance of monetary policy changes in financial intermediation risk perception or risk tolerance, then affects its portfolio risk level, asset pricing and financing price and non-price clause. China's financial industry is dominated by banks. They play a role that can't be neglected in China's financial stability. Based on this, it is of great significance to study the impact of monetary policy on bank risk-taking behavior in order to improve China's monetary policy control and maintain financial stability. In this regard, the issue of interest in this paper is how monetary policy affects banks' risk taking.

The Current Situation of Risk Taking in China's Commercial Banks

This paper uses the two indicators of risk assets ratio and non-performing loan ratio of 16 listed banks in China to measure the change in risk-taking in the last 10 years. As can be seen from Figure 1, from 2007 to 2012, the proportion of bank risk assets did not fluctuate substantially, but overall it showed a slow upward trend. In 2012, the proportion of risk assets increased significantly. Due to the impact of the European debt crisis and the increasing downward pressure on the economy, China began to implement moderately loose policies to support the economic development, resulting in a substantial increase in risk assets. From the perspective of non-performing loan ratio, from 2007 to 2011, the non-performing loan ratio was at a relatively high level, but it declined rapidly year by year. Since 2003, China began to implement joint-stock reform on commercial banks and divested non-performing assets. The reform process progressed smoothly. Therefore, it showed a downward trend. After 2011, the moderately loose policy led to an increase in the money supply, and the increase in the scale of bank loans led to a slow rise in the rate of non-performing loans.
An Analysis of the Impact of Monetary Policy on the Risk Taking of China’s Banks

This section will explain the causes of the status quo of the China's commercial banks' risk taking and the process of forming the risk from the following four aspects.

Valuation, Income and Cash Flow Effect

The adjustment of monetary policy affects the value, income, and cash flow [2]. It can be seen from Figure 2 that since 2007, the growth rate of money supply in China has been at a relatively high level, the liquidity is abundant, and monetary policy has generally exhibited a relatively loose state. From the bank's point of view, the loose monetary policy has increased the bank's net asset value and improved the bank's income and cash flow. The expansion of bank balance sheets has enhanced the willingness to lend and increased the probability of lending to bad credit borrowers. With the expansion of bank loan scale, the amount of high-risk loans also increased, which made the banks take more risks.

Banks generally control credit risk through loan supervision and mortgage contracts. By the end of 2016, the total mortgage loans of 16 listed banks in China amounted to 2.93 trillion RMB, and the total amount of credit loans was 1.8 trillion RMB. The amount of mortgage loans was much higher than that of credit loans. Loose monetary policy stimulated the rise in asset prices. From the corporate perspective, the value of collateral increased, and the financial status of the company improved. Commercial banks reduced their estimates of default rates, default losses, and market risks. Mortgage loans have become an important factor affecting the risk identification and measurement.

In summary, valuation, income, and cash flow effects played a role. It is the reason for the increase in the proportion of risk assets and non-performing loans after 2012.

Revenue Search Effect

China's commercial banks have obvious characteristics of homogeneity in terms of profit sources. The deposit and loan interest difference is the main source of profit for China's commercial banks. Low interest rate leads to a reduction in the risk-free yield of banks. With other factors unchanged, it leads to a decline in the overall portfolio yield. Driven by the revenue search effect, banks are encouraged to adjust their asset portfolios and increase the proportion of risky asset investment, thereby enhancing the banks' risk exposure [3]. Since 2007, the market as a whole has been in a relatively loose monetary environment. The deposit and loan interest margins of banks have gradually narrowed. As of the end of 2016, the net interest margin of banking financial institutions was 2.09%, a year-on-year decrease of 0.38 percentage points. Moreover, with the market-oriented reforms, the competitive situation of China's banking industry has emerged, and the profitability space has been further squeezed. Therefore, under the influence of various reasons, the effect of commercial bank revenue search becomes more apparent.
From the perspective of changes in the number of banking institutions and the proportion of total assets of all types of banks, we analyzed the competition in the banking industry. Figure 3 shows the ratio of assets of various types of financial institutions to the total assets of banking financial institutions. It reflects the competitive situation from the side. As can be seen from the figure, the proportion of assets of China's large commercial banks is declining year by year, from 53.2% at the end of the fourth quarter of 2007 to 36.77% at the end of the fourth quarter of 2017. The proportion of assets of other types of banks and financial institutions increased slowly year by year. The share of commercial banks in joint-stock banks rose from 13.8% to 17.81, the proportion of urban commercial banks' assets increased from 6.4% to 12.57%, and the proportion of assets in other types of financial institutions increased from 26.6% to 32.84%. The market share of all kinds of financial institutions has changed greatly, which indicates that the market competition has increased. The monetary policy of expansion has acted on the risk-taking behavior and degree of China's commercial banks through interest search effect, and this effect has finally been strengthened.

![Figure 3. The Proportion of Assets in China's Banking Financial Institutions.](image1)

![Figure 4. Non-performing Loan Ratio of Large Commercial Banks.](image2)

**Insurance Effect**

The central bank implements monetary policies based on the external economic environment and internal requirements, making China's monetary policy transparent. It makes commercial banks can anticipate central bank policies. At the same time, as a final bank lender of commercial banks, in order to maintain the stability of the financial system, commercial banks predict that the central bank will implement a corresponding rescue policy in the event of adverse factors or economic crisis, and the probability of bankruptcy is greatly reduced. As a result, banks will invest more risky assets before implementing loose monetary policy. This is equivalent to the central bank's insurance effect on bank risk.

From Table 1, it can be seen that China’s large commercial banks have high shares of national share, in particular, Agricultural Bank of China reaches 82%, and the proportion of Bank of China, Industrial and Commercial Bank of China, and China Construction Bank’s national shares is 64.02%, 68.71% and 57.11% respectively. Correspondingly, in Figure 4 the non-performing loan ratio of the Agricultural Bank of China is significantly higher than that of the other three large commercial banks. The non-performing loan ratios of the other three large commercial banks are roughly the same. It is precisely because of the insurance effect that the risk awareness of commercial banks is not so strong. The higher the proportion of national shares has, the stronger the incentive for risk-taking is.
Mindset Effect

The mindset effect was put forward by Altunbas et al. [4]. It means that investors’ current investment and consumption behavior are affected by historical behavior. When the market is in a prosperous state, investors’ perception of risk declines, and they prefer higher risks. The loan provision ratio is used to measure ex ante risk. Comparing the economic growth with the risk of commercial banks, we can see from Figure 5 that before 2012, the economy was in a process of rapid growth, and the 16 listed banks loan provision rate was low. It meant that commercial banks had a higher willingness to take risks. Therefore, a good economic performance enables banks to have a better outlook for the future economy. They believed that the market would continue to prosper and they were more willing to take risks, thereby increasing the risk exposure position.

<table>
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<th>Table 1. National Share Ratio of Large Commercial Banks in China [%].</th>
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<td><strong>Bank</strong></td>
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<tr>
<td>Central Huijin Investment Ltd.</td>
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<td>Ministry of Finance of the People’s Republic of China</td>
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<td>National Council for Social Security</td>
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Figure 5. Comparison between Economic Growth and Commercial Bank Risk Trend (Loan Provision Rate).

Recommendations for Risk Prevention and Control

In the process of monetary policy adjustment, monetary authorities must take into account financial stability factors. Combined with the above analysis of how monetary policy affects bank behavior, specific measures can be taken from the following three aspects:

Firstly, the identification and measurement of risk is the basis of management. It should strengthen the bank's risk identification capabilities and enrich risk measurement methods. It also should take different quantitative forms for different risks. A comprehensive database be established based on the level of economic development in various regions and the creditworthiness of borrowers in order to establish a sound long-term risk warning mechanism.

Secondly, the review of loans by commercial banks in China mostly focuses on credit inspections and risk assessments before lending, and it lacks follow-up supervision. In the future, we should
establish better business processes and increase post-examination efforts to minimize risks. Finally, we should further strengthen liquidity supervision and capital supervision. It's also important to expand financing channels, strengthen our ability to resist risks and profitability.

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Reference