

Liquidity Risk Analysis of Small and Medium-sized Commercial Banks

Xing Xia

School of Economics, Shanghai University, Shanghai, China

207992215@qq.com

Keywords: Commercial banks; Liquidity risk; Cause analysis

Abstract. The liquidity risk of commercial banks is increasingly valued by the financial community worldwide. This paper uses financial indicators to analyze the current situation of China's small and medium-sized commercial banks' liquidity risk. And this paper finds that the loan-to-deposit ratio, non-performing loan ratio and liquidity ratio of small and medium-sized commercial banks are on the rise. Compared with large commercial banks, the liquidity risk of small and medium commercial banks is more severe. The main causes of liquidity risk of small and medium-sized commercial banks are weaker capital strength, lower asset quality, single asset-liability structure, and limited state guarantees for China's small and medium-sized commercial banks. The liquidity risk of small and medium-sized commercial banks can be reduced by improving the matching of assets and liabilities, optimizing the structure of assets and liabilities, improving the credit quality and adhering to financial innovation.

Introduction

The main risks of commercial banks are liquidity risk, operational risk, interest rate risk and credit risk. Among them, liquidity risk is increasingly valued by the financial community worldwide. Liquidity risk is closely related to the other three major risks. To some extent the other three major risks will eventually turn into liquidity risks. With the outbreak of the 2008 financial crisis and the promulgation of Basel III in 2010, countries around the world have paid more and more attention to the liquidity risk of commercial banks. In China, Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, China Construction Bank and Bank of Communications, these banks are defined as large commercial banks. In addition, other national commercial banks, regional joint-stock commercial banks and city commercial banks are defined as small and medium-sized commercial banks.

Khan, Muhammad Saifuddin et al. (2017) [1] showed that scale of bank and capital buffers usually limited banks from taking more risk when they had lower funding liquidity risk. The results of Ghenimi, Ameni et al. (2017) [2] showed that credit risk and liquidity risk affected the stability of banks, respectively, and the interaction between them led to bank instability. Chen, Yi-Kai et al. (2018) [3] investigated the determinants by using the unbalanced panel data sets of commercial banks in 12 advanced economies during 1994-2006. Dependence on liquid assets for external funding, Hassan, M. Kabir et al. (2019) [4] conducted a comprehensive assessment of the liquidity risk of Islamic banks, supervisory and regulatory factors, and macroeconomic factors were all determinants of liquidity risk.

Ren Feifei and Zhang Dongchao (2017) [5] showed that the impact of internal factors on the liquidity risk of commercial banks was relatively greater than external influence factors. And the impact of broad money supply on liquidity risk was significantly positively correlated. Fang Ming et al. (2017) [6] found that monetary policy and non-performing loan ratio within banks, the average return on assets could affect the liquidity level of banks. Sun Lu et al (2018) [7] showed that the impact of various bank liquidity was different. Deposits were crucial to the liquidity of the banking industry, and the increase in inter-bank borrowing ratio would reduce the liquidity of the banking industry structure. Guo Hongyu et al. (2018) [8] showed that asset securitization did not improve the liquidity of commercial banks. Wan Peng (2018) [9] selected nine liquidity indicators to study the liquidity of 12 listed banks. The conclusions showed that the liquidity of large commercial banks was generally better than that of joint-stock commercial banks. Wang Ce et al. (2019) [10] through

the establishment of a time series model, concluded that the capital adequacy ratio had a weak influence on liquidity. And the non-performing loan ratio was negatively correlated with the liquidity of commercial banks. On the whole, scholars at home and abroad have conducted rich research on the liquidity of commercial banks, but they have rarely focused on the liquidity risk analysis of small and medium-sized commercial banks.

This paper focuses on the liquidity risk of small and medium-sized commercial banks. Firstly, this paper will analyze its current situation by using financial indicators, and then analyze its causes, and finally put forward the methods to reduce the liquidity risk of banks.

Analysis of the Current Situation of Liquidity Risk of Small and Medium Commercial Banks

In 2009 and 2015, China issued the regulatory standards for liquidity risk. This paper selects five banks from small and medium-sized joint-stock commercial banks, namely, Shanghai Pudong Development Bank, China Ever-bright Bank, HuaXia Bank, Industrial Bank and Minsheng Bank. Three banks were selected from the city commercial banks, which were represented by Shanghai Bank, Nanjing Bank and Ningbo Bank as liquidity indicators. The year was selected from 2012 to 2016. In this paper, three indicators for measuring liquidity risk are selected, which are liquidity ratio, deposit-loan ratio and non-performing loan ratio, and the liquidity analysis of 8 banks for 5 years.

Deposit-loan Ratio (LDR) .

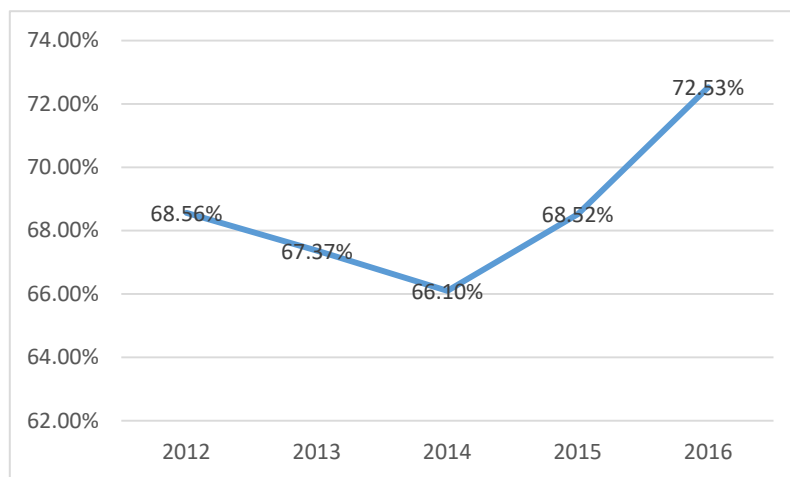


Fig.1 deposit-loan ratio of small and medium commercial banks in China

The higher the deposit-to-deposit ratio means that the liquidity of banks is lower, because banks use the main source of funds for the least liquid liabilities.

It can be seen from Figure 1 that the loan-to-deposit ratio of China's small and medium-sized commercial banks has a v-shape from 2012 to 2016. From 2012 to 2014, the loan-to-deposit ratio is a downward trend. However, the loan-to-deposit ratio is a fast growth mode from 2014 to 2016. The main reason for the loan-to-deposit ratio curve of China's small and medium-sized commercial banks is that the China Banking Regulatory Commission canceled the 75% ceiling in 2015. To a certain extent, the increase in the loan-to-deposit ratio reflects the increase in the liquidity risk of China's small and medium-sized commercial banks.

Liquidity Ratio. The liquidity ratio is mainly used to measure the ability of banks to repay short-term debt. The higher the liquidity ratio, the stronger the bank's ability to repay short-term debt.

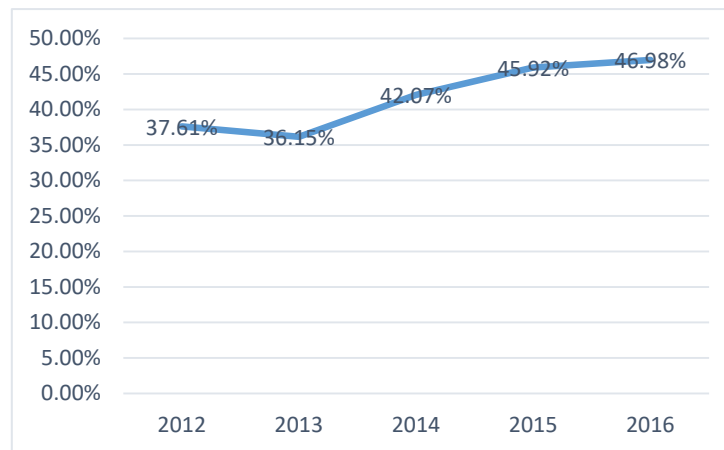


Fig.2 Liquidity ratio of small and medium commercial banks in China

It can be seen from Figure 2 that from 2012 to 2016, the liquidity ratio of China's small and medium-sized commercial banks was the lowest in 2013. It has an increasing trend from 2013 to 2016, but the increase rate is not high. The reason why the lowest proportion of liquidity in 2013 is due to the “money shortage”.

Shanghai Pudong Development Bank's loan-to-deposit ratio is the highest among the selected samples, and the liquidity ratio is the lowest. These indicate that Shanghai Pudong Development Bank's liquidity risk is relatively high.

Non-performing Loan Ratio. The NPL ratio can measure the liquidity risk of commercial banks. Small and medium-sized commercial banks are not as supportive of state credit as large state-owned banks, so they are relatively more affected by the NPL ratio.

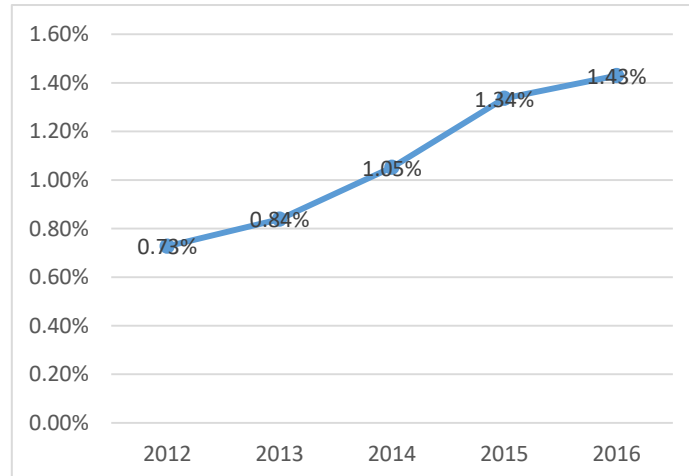


Fig. 3 Non-performing loan ratio of China's small and medium commercial banks

It can be seen from Figure 3 that the non-performing loan ratio of China's small and medium-sized commercial banks is on an upward trend from 2012 to 2016.

From the analysis of the current situation of China's small and medium-sized commercial banks, the loan-to-deposit ratio of small and medium-sized commercial banks is on the rise. The non-performing loan ratio is also increasing, but the liquidity ratio is also on the rise. This does not mean that the liquidity risk of small and medium-sized commercial banks is small, because the ratio of deposits and loans and non-performing assets are still rising.

Analysis of the Causes of the Liquidity Risk of Small and Medium-sized Commercial Banks

Main Causes of Liquidity Risk of Commercial Banks. Asset and liability maturity mismatch, unstable source of liabilities, deterioration of asset quality and changes in customer behavior are the

main causes of liquidity risk in commercial Banks.

The asset and liability maturity mismatch is one of the main sources of liquidity risk of commercial banks. The deposit of the customer is one of the main liabilities of the bank, and the deposit can be divided into demand deposits and time deposits. Bank loans can be divided into short-term loans and medium and long-term loans. If the proportion of medium and long-term loans is too large, it is easy to cause loans that cannot be recovered in time to satisfy customers' withdrawals. At this time, banks will borrow funds through other channels to ease liquidity pressure.

Unstable sources of liabilities will create liquidity risk of banks. One of the main sources of funds for commercial banks in China is to absorb deposits. In recent years, the financial market has continued to develop, Internet finance has arisen, and customers have become more and more keen on investing in wealth management, which has led banks to face difficulties in absorbing deposits. In addition, in order to use funds flexibly, customers prefer short-term deposits.

Deteriorating asset quality also creates liquidity risks for Banks. In recent years, China has implemented a new economic normal strategy and slowed down the development of China's economy. The non-performing asset ratio of China's commercial banks has shown an obvious upward trend. In the context of slow economic growth, some of China's small and medium-sized enterprises cannot adapt to the new economic environment. These enterprises have difficulties in survival, resulting in banks not being able to recover their loans. Thus the non-performing loan ratio of these banks increases.

As different wealth management products continue to appear in the financial market, customers' investment choices become more diversified, and residents' awareness of personal financial management is also increasing. Therefore, residents are more willing to invest the remaining funds in high-yield wealth management products, such as insurance, funds, bonds and stocks. The changes in the behavioral habits of these customers can increase the uncertainty of banks' funding sources and increasing the management of bank liquidity risks.

More Severe Liquidity Risks of Small and Medium-Sized Banks. Small and medium-sized commercial Banks have weak capital strength and low asset quality. In the category of commercial banks, the non-performing loan ratios of China's joint-stock commercial banks and rural commercial banks are higher than those of large commercial banks, especially rural commercial banks. The high non-performing loan ratio of rural commercial banks must be paid attention, otherwise it may cause the liquidity risk of small and medium-sized commercial banks.

The asset structure of China's small and medium-sized commercial banks is relatively simple. The proportion of loans is relatively high, while the proportion of securities is relatively low. The financing channels of small and medium-sized commercial banks are also relatively simple. It is mainly from deposits, less from capital markets, indicating that financing is passive. The single structure of assets and liabilities makes the liquidity risk of China's small and medium-sized commercial banks one step closer.

State guarantees to small and medium-sized commercial banks in China are limited. The root of the self-confidence of the safety factor of China's banks lies in the guarantee of national credit. However, China's small and medium-sized commercial banks are not subject to national credit guarantees. The main reason is that once a problem occurs in a large bank, the whole banking system will be fatally harmed. This is the so-called "Too Big to Fail". The state must give financial support when the big bank is in crisis. However, the size of small bank assets is relatively small, and the impact on the banking system is very limited once there is any crisis. In China's banking sector, once there are some liquidity crises and runs which often affect small and medium-sized commercial banks and credit cooperatives.

Small and medium-sized commercial banks rely too much on inter-bank lending. China's small and medium-sized commercial banks will over-supply credit funds to the real estate development market and local government financing platforms, mainly to improve the bank's profitability. This will result in an increasing stock of credit, and the turnover of bank funds will also slow down, and the liquidity risk of banks will increase. In order to enhance liquidity, small and medium-sized

commercial banks will rely too much on inter-bank lending. Inter-bank business has the characteristics of short term and high liquidity management requirements. Inter-bank borrowing can adjust the flow of commercial bank funds in a short period of time. This is only a temporary method. It is not a long-term means to circumvent the liquidity risk of banks.

So, the main causes of liquidity risk of small and medium-sized commercial banks are weaker capital strength, lower asset quality, single asset-liability structure, and limited state guarantees .

Countermeasures to Improve the Liquidity Risk of Small and Medium-Sized Commercial Banks

In the past few years, China's small and medium-sized commercial banks have developed rapidly. As small and medium-sized commercial banks are affected by internal and external factors, the management and prevention of liquidity risks are particularly important. In the previous section, we have analyzed the current situation of the liquidity of China's small and medium-sized commercial banks and the causes of liquidity. The following points are proposed:

Improvement of the Asset and Liability Matching. Banks should appropriately shorten the term structure of loans, optimize their asset portfolios, and increase the maturity structure of liabilities.

Optimization of Asset and Liability Structure. From the perspective of the asset structure of China's small and medium-sized commercial banks, the general asset structure is relatively simple, the main assets are loan projects. And the continuous development of the securities investment business is also difficult to change the current status of the relatively simple asset structure. Diversification of the types of assets of small and medium-sized commercial banks should be implemented. Banks can increase the holdings of better-quality bonds in an appropriate amount, which will increase the proportion of assets with stronger liquidity in banks.

Improving the Credit Quality of Small and Medium Commercial Banks. One of the main reasons for the increase in potential liquidity risk of commercial banks in China is the accumulation of bad debts. In order to control the continuous decline of loan quality, credit risk and interest rate risk should be considered comprehensively, and the probability of default of the loan enterprise should be evaluated. It is necessary to strengthen supervision and risk management of credit behaviors and minimize the rate of non-performing assets.

Adhering to Financial Innovation. The continuous development of Internet finance has changed the channels and ways for banks and customers to contact. Yu'eobao is a representative of the innovative products of Internet finance. It has the advantages of high profitability and service innovation, which has a certain impact on the traditional banking business. Small and medium-sized commercial banks should make certain innovations in financial products and financial services. Through simplifying the online payment procedures, developing network financing services for small enterprises, and strengthening cooperation with wealth management institutions to expand online wealth management services.

Conclusion

Through the analysis of the liquidity risk of small and medium-sized commercial banks, this paper finds that the liquidity status of China's small and medium-sized commercial banks needs to be improved. Compared with large commercial banks, the liquidity situation of China's small and medium-sized commercial banks is more severe. They have weak capital strength, low asset quality, single asset and liability structure, and limited state guarantees. In today's society, the financial market is particularly complicated. It is hoped that small and medium-sized commercial banks according to the characteristics of their own businesses will establish a set of financial indicators to measure liquidity risk of banks.

References

- [1] Khan M S, Scheule H, Wu E. Funding liquidity and bank risk taking[J]. Journal of Banking & Finance, 2017, 82: 203-216.
- [2] Ghenimi A, Chaibi H, Omri M A B. The effects of liquidity risk and credit risk on bank stability: Evidence from the MENA region[J]. Borsa Istanbul Review, 2017, 17(4): 238-248.
- [3] Chen Y K, Shen C H, Kao L, et al. Bank liquidity risk and performance[J]. Review of Pacific Basin Financial Markets and Policies, 2018, 21(01): 1850007.
- [4] Hassan M K, Khan A, Paltrinieri A. Liquidity risk, credit risk and stability in Islamic and conventional banks[J]. Research in International Business and Finance, 2019, 48: 17-31.
- [5] F.F.Ren and D.C.Zhang. Study on the Influencing Factors of Liquidity Risk of Commercial Banks in China[J].Hainan Rong,2017(08):16-25.(In Chinese)
- [6] M.Fang and Y.F.Li. An Empirical Analysis of the Influencing Factors of the Liquidity of China's Commercial Banks[J].Financial Education Research,2017,30(02):9-18.(In Chinese)
- [7] L.Sun, W.J.Li and T.F.Xie. An empirical study on the influencing factors of liquidity level of listed commercial banks in China [J]. Financial Theory and practice, 2018 (08): 12 -16.(In Chinese)
- [8] H.Y.Guo, L.Gao and K.D.Shi. The Impact of Asset Securitization on Liquidity Risk of Commercial Banks——Based on the Perspective of Liquidity Buffering[J].Financial Forum,2018,23(02):9-19+34.(In Chinese)
- [9] P.Wan. Evaluation of Liquidity Risk of China's Commercial Banks[J].Journal of Luoyang Teachers College,2018,37(03):66-69+73.(In Chinese)
- [10]C.Wang, X.M.Wen, and Y.L.Zhou. Research on Measurement and Management of Bank Liquidity Risk in China under the New Situation[J]. Financial Education Research, 2019,32(04):55-61.(In Chinese)