

Macroprudential Regulation and Bank Risk

Anran Zhao

School of Economics, Jinan University, Guangzhou, China

Abstract

This paper explores the relationship between macro-prudential regulation and bank risks. By summarizing and analyzing relevant domestic and foreign literatures, this paper found that Chinese commercial banks are pro-cyclical and macro-prudential regulation policies have an impact on bank risks, and counter-cyclical macro-prudential policies need to be implemented in accordance with economic cycles and bank heterogeneity to reduce bank risks.

Keywords

Macroprudential regulation; Countercyclicality; Bank risks.

1. INTRODUCTION

The concept of "macro-prudential" was formally introduced in a public document of the Bank for International Settlements in 1986, and "macro-prudential supervision " received widespread attention after the outbreak of the Asian financial crisis in 1997. Macro-prudential supervision refers to the use of macro-level supervision to prevent excessive contraction of the financial system when multiple financial institutions suffer from a common shock, which may lead to a financial crisis. The People's Bank of China (PBOC) started to explore policy measures to strengthen macro-prudential management in 2009 and explicitly proposed to "build a counter-cyclical financial macro-prudential management system framework" in 2010.

In 2011, China's central bank formally introduced the dynamic adjustment mechanism for differential reserves. In 2012, the former China Banking Regulatory Commission issued the Measures for Capital Management of Commercial Banks (Trial), which incorporated macro-prudential capital requirements, realizing the organic combination of macro-prudential policies and micro-prudential supervision requirements. In 2016, it was upgraded to the Macroprudential Assessment System (MPA), and included more financial activities and behaviors in the scope of supervision. In 2017, the 19th Party Congress pointed out the need to improve the "dual-pillar regulatory framework of monetary policy and macro-prudential policy", and the establishment of the macro-prudential authority in 2019 marked the initial establishment of the dual-pillar framework. The establishment of the Macro-prudential Administration in 2019 marks the initial establishment of the dual-pillar framework. In recent years, China's financial regulators have been actively establishing and improving the macro-prudential regulatory framework, with a broader and more stringent overall regulatory scope. This paper explores the relationship between macro-prudential regulation and bank risks, summarizes relevant literature, and puts forward comments and suggestions.

2. LITERATURE REVIEW

2.1. Macroprudential Regulation

In the recent 40-year history of the global financial crisis, excessive pro-cyclicality of the financial system has become a fundamental mechanism in most financial crises. One of the core

objectives of macro-prudential supervision is how to curb the "excessive pro-cyclicality" of the financial system. Ba Shu Song, Wang Jing Yi et al. (2010) divide the macro-prudential regulation into two latitudes, the temporal dimension which considers how systemic risk expands through the interactions within the financial system and between the financial system and the real economy, and the cross-sectional latitude which deals with the common and interrelated risk exposures of financial institutions at a given time. According to Fang Yi (2013), three policy instruments, credit, capital and liquidity, constitute macroprudential instruments, credit policy instruments are based on loan-to-value ratios, capital policy instruments are based on countercyclical capital adequacy requirements, and liquidity policy instruments are based on deposit-to-loan ratios. Counter-cyclical regulation is the main element of macro-prudential regulation, and the implementation of counter-cyclical regulation is to reduce the inherent pro-cyclicality of the financial system from the time dimension, i.e. to prevent risks from being underestimated during economic bubbles and overestimated after the bubbles burst.

2.2. Pro-cyclicality of Banks

The inherent pro-cyclicality of the financial system leads to the accumulation and release of financial imbalances, which amplifies economic volatility and thus exacerbates systemic risks and financial instability. For most countries, commercial banks are the dominant financial intermediaries, and the procyclicality of the financial system is more often manifested in the procyclicality of commercial banks. Zhang, Jincheng and Li, Cheng (2011) and Feng, Ke and Liu, Jingping et al.(2012) concluded that commercial bank credit and capital regulation are pro-cyclical. Adrian & Shin (2010) argue that the risk expansion behavior of commercial banks is pro-cyclical, which can be expressed as Borio&Zhu (2012) argue that from the time dimension, the countercyclical regulation of macroprudential supervision for bank risk needs to maintain continuity.

In addition, many other scholars have studied the influencing factors affecting bank procyclicality from several perspectives. Athanasoglou et al.(2006) starts from the characteristics of macroeconomic environment to study the factors affecting the procyclicality of bank risk, the credit rating of banks, monetary policy and the supervision strength of regulators, etc., all affect the procyclical expansion behavior of bank asset size. Xiang Xinmin (2006) argues that the herd effect amplifies the pro-cyclicality of banks, and due to the cognitive bias of bankers, two herd behaviors of group over-lending and group refusal to lend occur in the bank loan market, resulting in credit expansion and contraction, and forming credit procyclicality. Moreover, there are also researchers who study the micro factors affecting bank procyclicality from the micro characteristics of banks. Wang Fei (2014) argues that the procyclicality of listed banks' risk is more strongly manifested than that of non-listed banks. Li Minghui et al. (2014) examine the impact of banks' micro characteristics on risk and suggest that regulatory authorities of Chinese banks should pay attention to the counter-cyclical supervision of the leverage ratio.

2.3. Macroprudential Policies and Bank Risk

From the existing research results, the effectiveness of the macro-prudential policies have achieved significant benefits in preventing systemic risks of banks. The research conducted by IMF (2013) and others based on macro perspective found that the implementation of macro-prudential policies can effectively curb credit overheating and mitigate the pro-cyclical characteristics of finance. Fan et al. (2013) measured the systemic risk of commercial banks in China from time and cross-sectional dimensions and concluded that countercyclical macroprudential policies need to be implemented in a timely manner. Aiyar et al.(2013) studied the data from 1998 to 2007 and found that the increase of the bank capital adequacy ratio significantly restrained the growth of the credit scale of the British banking industry. Claessens

et al.(2014) verified the data of about 2800 banks and found that macro-prudential policy tools effectively suppressed the growth of bank leverage ratio. Yener Altunbas et al.(2018) investigated the impact of macro-prudential policies on bank risks in 61 developed and emerging market economies, and found that macro-prudential instruments had a significant impact on bank risks, and banks with small scale, insufficient capital and higher wholesale financing share were more responsive to changes in macro-prudential instruments. Akinci, Rumsey (2018) extended the macro-prudential policy data of 57 developed and emerging market economies from 2000 to 2013 to conduct an empirical study, and the results showed that the tightened macro-prudential tools helped to restrain the growth of bank credit, housing credit and housing price. Liu Zhiyang (2018) finds that macro-prudential tools in China can significantly reduce the contribution of systemic risk of commercial banks, that macro-prudential supervision in China is more effective when the economy is in an upturn phase, and that the effect of macro-prudential supervision on large state-owned commercial banks is no less effective than that on other types of commercial banks. Based on the 2013 IMF macroprudential policy implementation questionnaire and data on major banks in 53 countries around the world, Shao Mengzhu (2019) analyzes the impact of macroprudential policy as a whole, as well as the implementation of different types of prudential instruments, on bank risk-taking and its channels of action. The study finds that the greater the implementation of macro-prudential policies in each country, the more effective it is in reducing bank risk-taking. Zhang Liqing, Zhang Yuyang selection (2020) use 29 economies in 2000-2013 quarterly data to investigate the heterogeneity of the financial sector to the effectiveness of macroprudential tools, the results show that macro-prudential policy variables on bank credit growth and overall prices has significant negative effects, in the financial sector higher concentration degree of opening to the outside world and banking sector, with low levels of financial market competition in the banking system, macro-prudential policy effectiveness is weak. For banking systems with higher systemic risk, macroprudential policies are more effective. Using the data of 227 commercial banks in China, Song Ke et al. (2019) found that macroprudential policies effectively reduced banks' risk taking by improving profitability. Meuleman & Vander Venet (2020) found that the regulatory policy based on liquidity coverage rate improved the ability of banks to cope with unforeseen liquidity shocks and effectively reduced the risk taking of banks.

Zhang, Jindi (2020) studied 16 listed banks in China and found that both enhanced macro-prudential regulation and tight monetary stance reduce banks' risk-taking; bank heterogeneity can have different effects on the effects of macro-prudential policies. Cheng Xiaoqing and Ge Lulan (2020), based on the securities market data of 16 listed banks in China from 2011 to 2017, calculated the systemic risk of banks by using the CoVAR method of quantile regression, and on this basis, tested the influence of macro-prudential assessment system on the systemic risk of banks and the channels of action through the differential method. The results show that the implementation of the macro-prudential assessment system can significantly reduce the systemic risk of banks.

2.4. The Effectiveness of Macroprudential Policies at Different Times

Liao Min et al. (2014) analyzed the regulatory effects of macroprudential policies in China using empirical methods and found that most of the prudential tools could achieve the expected objectives; however, some tools had "policy overshoot" or "policy offset" due to the imperfect institutional mechanism, and the policy framework still needs to be adjusted. "The policy framework needs to be further improved. Fang Yi (2016) studied the effectiveness of macroprudential policy and its portfolio, and argued that the premise of effective macroprudential policy is that the pegging target and the final regulatory target remain consistent, and the policy tools have a strong impact. Macroprudential policy can be effective only when the pegging target and the final regulatory target are equally directed or both are not

directed. Cerutti et al. (2017) analyzed the use of macroprudential policies in 119 economies and found that emerging economies used macroprudential policies most frequently. In particular, countries linked to foreign exchange, while developed countries are more likely to use borrower based policies. Usage is usually associated with lower credit growth, especially for households. Fan MingTai and Ye Sihui (2020) analyzed the use of macro-prudential policies in 62 countries from 2000 to 2018, and found that the global macro-prudential policies showed the characteristics of tightening direction and increasing intensity after the international financial crisis in 2008. The overall effect of global macroprudential policies in managing credit growth has been more significant than in curbing house price inflation. Wang Youxin, Wang Yi sail (2021) study found that when the Chinese economy is in the stationary phase and decline, macro-prudential policy to bring down the external fluctuation effect is more obvious, the best way of limiting loan-to-value ratio effect, other macro-prudential policy tools mainly applies to guard against the impact of the international foreign exchange market volatility on China's economy.

2.5. Limitations of Macro-prudential Regulation

However, macro-prudential regulation alone cannot prevent systemic risks and promote banking stability. Angelini (2012) with DSGE model of the banking sector, found in normal times, macro-prudential policy to promote macroeconomic stability basically didn't help, and even easier to create policy and monetary policy conflict, and in the event of a financial shock, regulatory capital such as prudent policy will affect the supply of the loan, but if with monetary policy coordination, can greatly improve the economic stability. Le YuGui (2014) argue that the macro-prudential regulation, the real economy development and the mutual relations between and among monetary policy target is lack of system research, could lead to a banking regulatory inefficiency, lost the value of the bank, the orientation of deviating from the regulatory itself, it is difficult to realize effective regulation, so need to guard against systemic risk, support the development of the real economy, and promote the monetary policy goal achieving "trinity" of the system point of view, macro-prudential regulation of banking industry target for research. Li Tianyu and Zhang Yishan et al. (2017) found in their research that both macro-prudential monetary policy and macro-prudential regulation can restrain systemic risks, but as a standing policy, macro-prudential regulation is superior to macro-prudential monetary policy. Hu Bo and Kong Guiming (2018) believed that the establishment of a multi-level, interconnected and effective risk governance framework with checks and balances is the core operating mechanism of the overall risk prevention and control of commercial banks, which is directly related to the actual effect of risk prevention and control and resolution.

3. CONCLUSION

According to the previous study, it is known that commercial banks in China are pro-cyclical, and banks tend to expand credit during the economic boom, while lending hesitation is more common during the economic downturn. Macro-prudential supervision treats the financial system as an integration and focuses on the interconnectedness of the financial system and the real economy. It prevents and resolves systemic risks by implementing counter-cyclical policies and cross-market and cross-industry supervision, thus curbing the huge costs of financial instability to the economy.

In the current international economic and financial environment, in order to maintain macroeconomic stability and through financial regulatory reform, efforts should be made to construct a counter-cyclical macro-prudential supervisory framework and mitigate the potential pro-cyclicality of some current institutional arrangements. Implementing counter-cyclical policies is the core element of constructing a macro-prudential supervisory framework. Central banks and supervisory authorities should analyze and judge the characteristics, levels

and changing trends of systemic risks based on the development and changes of credit growth, asset prices and leverage of the financial system, take measures to prevent the expansion of financial imbalances and the gradual accumulation of systemic risks, and mitigate the negative cyclical effects of banks. Through counter-cyclical prudential supervision, restrain commercial banks' credit expansion impulses and short-term behavior, and improve the risk-resilience of China's banking system.

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