Construction of China`s Banking Systemic Risk Supervision Framework Based on Three- dimensional Perspective

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Abstract

Banking systemic risk supervision is a complex project, Basel III emphasizes the core position of macro and prudential supervision, regulators not only cannot ignore the basic status of micro-prudential supervision, but also pay attention to the coordination between prudential supervision and other policies (monetary policy and fiscal policy). Based on the micro-prudential supervision, macro-prudential supervision as the core, the coordination between prudential supervision and other policies to complement the three- dimensional perspective to build China's banking system risk regulatory framework, with a view to maintaining the sound operation of China' s banking system.

Keywords: Banking systemic risk; micro-prudential supervision; macro-prudential supervision; monetary policy; fiscal policy

1. Introduction

The occurrence of the US financial crisis in 2007 has aroused the re-understanding and in-depth thinking of financial regulatory authorities on financial risk regulation. The banking industry is the core of the financial industry. The occurrence and spread of the systemic risk of the banking not only threaten the sound operation of the banking industry, but also seriously affect the healthy development of the real economy. Therefore, it is imminent to supervise the systemic risk of banking system. From the theoretical point of view, the comprehensive and effective supervision of banking systemic risk is conducive to the development and perfection of the theory of banking risk management. From the practical sense, the comprehensive and effective supervision of banking systemic risk is beneficial to the orderly and stable operation of banking industry.

At present, China`s industrial production is overcapacity, the flow of funds in the traditional industry is difficult and the debt is very heavy, some enterprises struggling to support; the loans of commercial banks mainly flow to the real estate, but the real estate industry has been flourishing, the country`s high vacancy housing area, the cumulative risk of banking loans have begun to take shape. In recent years, the rapid development of Internet finance, commercial banks are actively involved in network loans, credit card overdraft and bank regulatory loopholes and other factors lead to a variety of risks, over the years accumulated systemic risk may be concentrated in the banking sector. There are cyclical changes in economic development, the banking crisis is also follow this low, to strengthen supervision and prevention, can delay its occurrence or reduce its destructive power. World-renowned financial institutions have repeatedly predicted the next financial crisis, China`s economic downturn and bank lending areas are too concentrated, so that the probability of banking systemic risk increases. The famous international institution has been predicted that the next financial crisis may be occurred in China. In this troubled times, the Chinese government has introduced a series of stable economic and financial measures to prevent the banking systemic risk. With regard to the new situation of banking systemic risk prevention, it is necessary to pay attention and continue to carry out the research on the banking systemic risk supervision against China`s special national conditions and take preventive measures to maintain the overall financial stability. This paper can divided into five parts. The first part is the introduction, which points out the theoretical and practical significance of comprehensively and effectively supervising of banking systemic risk. The second part is the construction of three-dimensional regulatory framework System of China `s banking systemic risk. The third part is the necessity of elaborating the three-dimensional supervision of banking systemic risk. The fourth part is the optimization measurements of three-dimensional supervision of banking systemic risk, and finally part is the conclusions.

2. The Construction of Three-dimensional Regulatory Framework System of China `s Banking Systemic Risk

Banking systemic risk regulation is a complex project, Basel III emphasizes the core position of macro-prudential supervision, as regulators cannot ignore the basic status of micro-prudential supervision, but also pay attention to the coordination and cooperation between prudential supervision and other policies (monetary policy and fiscal policy). Therefore, it is necessary to construct the three-dimensional regulatory framework based on "point, line and face" to effectively and comprehensively supervise the occurrence and spread of banking systemic risk.

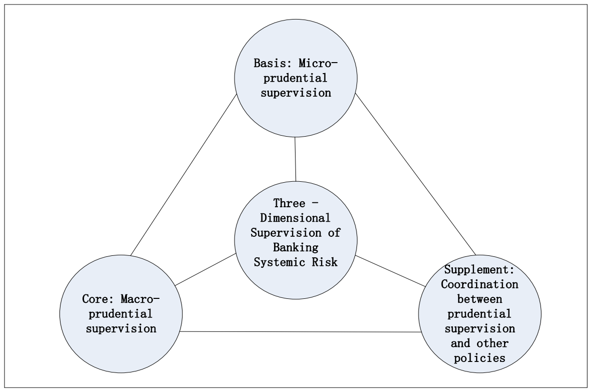

Chart-1: Three-dimensional Supervision Framework System of Banking Systemic Risk

Micro-prudential supervision, macro-prudential regulation and other policies(monetary policy and fiscal policy) cannot accomplish the goal of banking systemic risk supervision alone, so it is necessary to build "point, line, face" three-dimensional effective comprehensive regulatory framework to supervise the occurrence and spread of banking systemic risk.

2.1 The Basis of Banking Systemic Risk Supervision --Micro-prudential Supervision

The goal of micro-prudential supervision is to reduce the probability of a single bank bankruptcy and to maintain the sound operation of a single bank, with each bank in the banking system is equivalent to every "point" in the overall of the banking system, so micro-prudential supervision is the basis to prevent the banking systemic risk. Micro-prudential supervision emphasizes the exogenous nature of banking systemic risk, the object of supervision is more specific, the goal is to protect the vital interests of bank depositors, micro-prudential supervision real-time has a strong tracking of a single bank systemic risk evolution process and can take more detailed micro-methods and means for a single bank systemic risk identification and measurement, so the supervisory authorities should pay attention to micro-prudential supervision to prevent the systemic risk of banking system.

2.2 The Core of Banking Systemic Risk Supervision --Macro-prudential Supervision

Micro-prudential supervision is concerned about each individual "point" of a single bank, but the macro-prudential supervision is concerned with the whole "face" of the banking system. Micro-prudential supervision object is each financial institution, each financial instruments and financial markets in the entire banking system. Macro-prudential supervision considers banking system as the intricate organic organization, the purpose is to prevent systemic risk in the occurrence and spread between the banking system, so the macro-prudential supervision is the core of banking systemic risk supervision. Macro-prudential supervision should not only pay attention to the risk transmission between individual banks but also prevent the adverse impact of banking systemic risk to the real economy.

2.3 The Supplement of Banking Systemic Risk Supervision -- Coordination Between Prudential Supervision and Other Policies (Monetary Policy and Fiscal Policy)

Micro-prudential supervision (point) and macro-prudential supervision (face) needs monetary policy and fiscal policy(line) combine them as an organic combination, both micro-prudential supervision and macro-prudential supervision must rely on the transmission mechanism of monetary policy and fiscal policy in order to realize the stable operation of the banking system, so monetary policy and fiscal policy is a necessary complement to banking systemic risk supervision.

3. Analysis on the Necessity of Carrying out Three-dimensional Supervision System of Banking Systemic Risk in China

Combined with the complexity and diversification of banking systemic risk, the necessity of implementing the three-dimensional supervision system of China`s banking systemic risk is shown in the following figure:

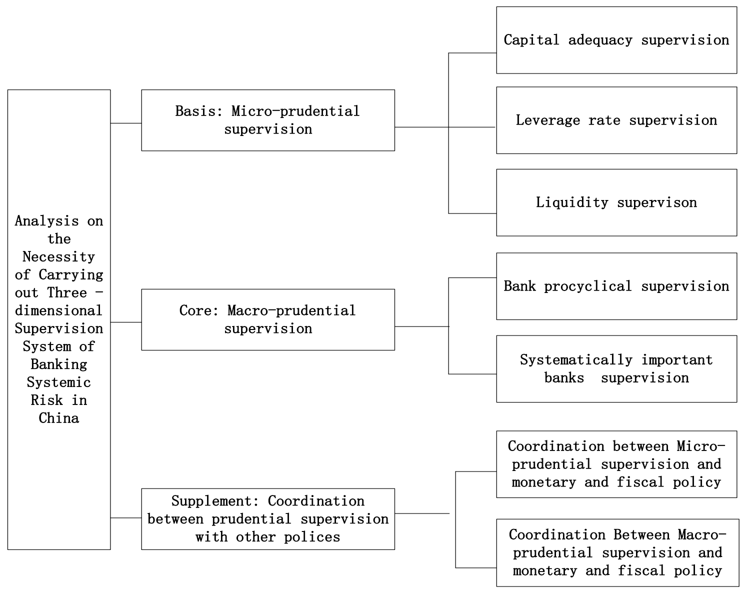

Chart-2: Analysis on the Necessity of Carrying out Three-dimensional Supervision System of Banking Systemic Risk in China

3.1 Analysis on the Necessity of Implementing Micro-prudential Supervision in Banking Systemic Risk

3.1.1 Analysis of the Necessity for Capital Adequacy Supervision

Capital adequacy ratio is the core of microeconomic prudential supervision of banking systemic risk, and the capital level held by banks determines its ability to absorb losses. Therefore, capital adequacy ratio is one of the most important indicators to measure banking supervision. China`s banking capital adequacy ratio has experienced the evolution process from soft constraint to hard constraint, which is also a reflection of China`s banking industry closely following the changes of Basel agreement. The necessity of strengthening the supervision of bank capital adequacy ratio is mainly reflected in the following aspects: first is to reduce the occurrence of bank arbitrage; second is to deal with the capital adequacy ratio of the pro-cyclical effect; third is to simplify the calculation of capital adequacy ratio, accurate calculation of bank risk weighted assets, revealing the true level of the banking system leverage.

3.1.2 Analysis on the Necessity for Leverage Rate Supervision

Foreign scholars have pointed out that there is a very close relationship between bank leverage and bank stability. Leverage is one of the effective indicators to measure bank supervision. The necessity of supervising bank leverage is as follows: first, it reduces the risk probability of accumulation and occurrence in banking system; second is to smooth the bank leverage rate of the cyclical effect; third is to adjust the high leverage coefficient of bank transactions, the bank`s highly leveraged transactions played an important role in pushing over to billow during the financial crisis in the United States, accelerated the spread of financial crisis, so banks deleveraging is imperative.

3.1.3 An Analysis of the Necessity for Liquidity Supervision

Bank`s liquidity risk is one of the forms of the banking systemic risk. Liquidity risk mainly comes from the bank`s assets and liabilities period do not match or comes from the contradiction between bank`s market liquidity and bank`s financing liquidity, so to maintain sufficient liquidity in prudential supervision situation of banking industry is equally important to capital adequacy. The necessity of strengthening the supervision of bank leverage ratio is mainly reflected in the following aspects: first is to reduce the risk cost of banking liquidity; second is to optimize the banking liquidity risk matching model; third is to improve the banking business and profit model.

3.2 Analysis on the Necessity of Implementing Macro-prudential Supervision in Banking Systemic Risk

3.2.1 An Analysis of the Necessity of Bank`s pro-cyclical Supervision

Bank`s pro-cyclical is mainly manifested in three aspects: bank loan loss provision, fair value valuation and bank capital supervision. The pro-cyclical performance of bank loan loss provision in the economic boom period, the enterprise obtains relatively high profits, so the bank`s credit default rate is very low, the bank`s loan loss reserve is reduced, the bank`s available funds increase; in the recession period it is the opposite. The pro-cyclical performance of fair value valuation is following: in the economic boom period, the use of fair value valuation of bank assets and corporate asset prices rose rapidly, enterprises to raise prices as assets can be secured from the bank to obtain more loans; in the recession period it is opposite. The pro-cyclical performance of bank capital supervision is that in the period of economic prosperity, the bank will allocate more funds to credit, which will reduce the actual capital adequacy ratio of banks, and during the recession, banks responded to liquidity shocks with less credit, shrinking credit, and increasing the banks` real capital ratios.

3.2.2 An Analysis of the Necessity of Systemically Important Banks Supervision

Micro-prudential supervision cannot maintain the stability of the entire banking system, so it is the inevitable choice that the regulatory authorities in all countries introduce macro-prudential supervision to deal with the banking systemic risk. Systemically important Banks are the center of the banking system network, and once these banks have problems, the spread and deterioration of systemic risk can be exacerbated by the business association between these banks. Systemically important banks need to strengthen macro-prudential supervision: first, the systemically important banks has a huge negative externalities; second, these banks have some moral hazard, they enjoy the government`s “hidden guarantee” in the collapse period; third, these banks rely on their own business size, market status and other factors have superior competitive advantage which is not conducive to the formation of reasonable and effective market price; fourth, these banks are not a serious cost of income does not match, these banks like to engage in high risk trading behavior, and therefore may obtain a higher risk of return, even if the problem depends on the government`s “hidden guarantee” will be paid by the government and taxpayers, the cost of income asymmetry will stimulate the banks to actively engage in high-risk investment behavior, this is undoubtedly a huge hidden risk for the occurrence of banking systemic risk.

3.3 An Analysis of the Necessity for Implementing the Coordination between Prudential Supervision and Other Policies in Banking Systemic Risk

3.3.1 An Analysis of the Necessity for Coordination between Micro-prudential Supervision and Other Policies

First is the analysis of the interaction mechanism between micro-prudential policy and monetary policy. Micro-prudential supervision policies such as bank capital adequacy ratio, leverage ratio and liquidity policy will affect bank capital utilization through monetary policy transmission mechanism. During the boom period, the bank capital adequacy ratio appropriate drop, increase the leverage money transactions, the bank`s liquidity cycle is accelerated, the implementation of these measures can promote the loose monetary policy to achieve good effect of monetary policy. During the recession period, bank liquidity to cope with the possible impact to improve their capital adequacy ratio, reduce trade leverage, the micro-prudential supervision policy will influence the effect of monetary policy.

Second is the analysis of the interaction mechanism between micro-prudential policy and fiscal policy. Micro-prudential supervision will affect fiscal expenditure and government taxation. In the economic boom period, the bank implemented a relatively liberal micro-prudential supervision policy, the bank`s credit scale expansion, the opportunities and scale of enterprises to apply for credit increases, corporate investment scale, corporate profits, can increase government revenue, so that fiscal policy can effectively play the role of automatic stabilizer. During the recession period, banks adopt the tightening micro-prudential regulation policy, bank credit will be contraction, the scale of the enterprise loans fell, a decline in investment scale, these factors will not only reduce government revenues, but also increase government spending, weaken the automatic stabilizers effect of fiscal policy.

3.3.2 An Analysis of the Necessity for the Coordination between Macro-prudential Supervision and Other Policies

First is the analysis of the interaction mechanism between macro-prudential supervision and monetary policy. The implementation of macro-prudential regulatory tools (such as counter-cyclical capital buffering and loan formation) will affect the bank`s credit behavior and then influence monetary policy effects through monetary policy transmission mechanisms. The countercyclical buffer capital can reduce the pro-cyclicality of bank credit, and during the economic boom, it is beneficial to the banking system to accumulate buffer capital to cope with the liquidity shock during the economic downturn. Loan-to-value policy limits the banking system in the financial accelerator effect of economic upward period, reduce the scale and scope of the banking system to real estate investment, alleviate the banking system's response to the financial impact, so it can be seen that the implementation of macro-prudential supervision will significantly affect the effectiveness of monetary policy.

Second is the analysis of the interaction mechanism between macro-prudential supervision and fiscal policy. The implementation of macro-prudential regulatory tools (such as counter-cyclical capital buffers, retained capital, dynamic provisioning, loans, etc.) will affect fiscal expenditure. In the boom period, the provision of counter-cyclical capital buffer and retained capital buffer can increase the bank`s capital buffer to maintain the sound operation of the banking system; in the recession period, the depreciation of capital buffers can improve the banking system`s ability to absorb losses, reduce the negative impact on the banking system liquidity, reduce the financial department bailout costs, reduce the pressure of fiscal expenditure, weak the economic cycle of volatility. The effective implementation of the fiscal policy can help achieve macro-prudential supervision target, the financial department can through the capital injection, deposits and debt guarantees, bank bailouts and other measures to eliminate market freeze, affect the market price of the banking system non-current assets, prevent individual banks risk change into the banking systemic risk.

4. Analysis on the Optimization Measurements of Three-Dimensional Supervision of Banking Systemic Risk

4.1 Optimizing Measurements for Micro-prudential supervision in Banking Systemic Risk

4.1.1 Optimizing Measurements for Capital Adequacy Ratio Supervision Reform

Capital adequacy ratio is the core of banking supervision, according to Basel III, China`s bank capital adequacy regulation reform measurements can be optimized from the following aspects:

First is to introduce different standards of additional capital requirements according to the importance of different levels of banking system. For example, the non-systemically important banks additional capital is 1%, the potential systemically important banks additional capital of 2%, and the systemically important banks additional capital is 3.5%.

Second is to introduce counter-cyclical capital buffer mechanism to deal with the bank capital adequacy ratio of the cyclical phenomenon. Basel II sets the buffer interval of 0-2.5%. The supervisory authority can set the counter-cyclical capital buffer according to the private sector credit and GDP ratio, financing cost, banking profit before tax, asset price and other indicators in China`s banking sector level.

Third is to increase the bank capital risk coverage of capital reserve buffer mechanism, and gradually increase the bank capital adequacy ratio standards. The People`s Bank of China has raised the core capital ratio from 4% to 6%; the common stock capital ratio has increased from 2% to 4.5%, plus a fixed capital reserve buffer ratio of 2.5%, so that the average capital adequacy ratio up to 7%; capital adequacy ratio increased from 8% to 10.5%, capital definition needs to be more specific, and enhance the ability of banks to absorb losses.

4.1.2 Optimizing Measurements for Leverage Supervision Reform

Capital adequacy ratio and leverage control closely with the supervision can improve the effectiveness of micro-prudential supervision, leverage management can be optimized from the following aspects:

First, the implementation of differentiated leverage regulation. China`s banking system contains a large number of banks, different types of banks, deposit and loan ratio and profitability are significantly different, if all banks to implement the same leverage requirements, may lead to vicious competition between banks is not conducive to bank business in an orderly manner, it should be developed to differentiate the leverage requirements.

Secondly, it is reasonable to set the standards for the regulation of leverage. The level of bank leverage regulation determines the effectiveness of bank leverage regulation. If the Banks` leverage ratios are too low, they will not have the inherent constraints on banks. If the Banks` leverage ratio is too high, it will put more pressure on bank capital requirements and increase the operating costs of banks.

Therefore, banks should implement the leverage ratio regulation policy of reverse economic cycle: during the economic boom, regulators should raise the standard of bank leverage and enhance the additional constraints on banks. During the period of depression, the regulatory authorities should reduce the standard of bank leverage, and use the countercyclical capital cushion and the leverage ratio of the economic boom to deal with the liquidity shock.

Third, encourage banks to implement diversified business strategies. China banking lever rate is higher than the European and American banks. The key reason is that China`s banking profit long-term dependence on traditional loan business spreads, but as China`s banking sector to the advancement of market-based reform of interest rates, bank loan business spreads space will gradually become smaller, the profit pattern of China`s banking sector rely on spreads will be unsustainable, if banks want to improve their ability of international competition in the market, diversified business strategy must be taken in the process of deleveraging will strengthen financial innovation, and actively expand the intermediate business and off-balance sheet activities.

4.1.3 Optimizing Measurements for Liquidity Supervision Reform

Under the influence of Basel III`s liquidity regulation, the risk income of China`s banking business will gradually change. Therefore, it is necessary for China`s banking industry to change its business model in a timely manner and actively to deal with the new regulations on liquidity regulation.

First is to refine the banking sector liquidity indicators. Regulatory authorities can set the bank liquidity indicators according to the degree of importance of different into key indicators and supporting indicators. The key indicators are mainly to measure the ability of banks to respond to liquidity shocks, including short-term liquidity indicators (liquidity coverage ratio) and medium and long-term liquidity indicators (net stable financing ratio). Auxiliary liquidity indicators mainly related to market testing tools, bank financing concentration, the contract period mismatch and can be used very easy to realize the four aspects of assets.

Second is to promote liquidity indicators compliance plan. Basel III has included short-term liquidity indicators (liquidity coverage) in the observation period since 2011, requiring 60% of the minimum liquidity coverage by 2015, 70% in 2016, 80 in 2017 % and reached 90% in 2018 until 100% in 2019. Basel III will include the medium-term liquidity target (net stable financing ratio) in the observation period in 2012 and the minimum regulatory standards will be established in 2018.

Third is to change the concept of liquidity risk management. China`s banking industry should be rational allocation of liquidity resources based on liquidity coverage ratio, and actively guide banks at all levels of branches to bear the risk of liquidity costs, to strengthen the bank branches at all levels of liquidity risk income accounting. For a single banking institution, banks can take the “individual liquidity adequacy” principle for risk control; for the entire banking system, banks can take the "overall liquidity adequacy" principle for risk control .

4.2 Optimizing Measurements for Macro-prudential supervision in Banking Systemic Risk

4.2.1 Optimizing Measurements for Systemically Important Banks Supervision Reform

Optimizing measurements for systemically important banks supervision reform can be divided into “before, during and after ” three steps .

The Implementation Phase of Optimizing Measurements	The Objective of Optimizing Measurements	The Content of Optimizing Measurements
Prior restrictions	To reduce the systemically important banks negative externalities	To limit the asset size of systemically important banks
		To limit the business dealings between systemically important banks and other financial institutions
		To limit the systemically important banks engage in high-risk trading or derivative business
Supervision in the matter	To improve the systemically important banks` regulatory standards	To standardize regulatory standards
		To improve capital adequacy requirements
		To improve carpal supervision system
Disposition after the matter	To improve systemically important banks post-disposal mechanism	To propose a recovery and disposal plan
		To establish post disposal mechanism
		To improve post-processing module

Chart-3: Optimizing Measurements for Systemically Important Banks Supervision Reform

First is prior restrictions, the purpose is to reduce the negative externality of systemically important banks, it can carry out from the following several aspects: first is to limit systemically important bank asset size and require China`s banking association debt must not exceed a certain percentage of all banking institutions liabilities, such as 10%; second is to limit the systemically important banks engage in high-risk trading or derivative business. Banks and other financial institutions business proprietary trading limit banks to use their own capital, hedge funds and private equity investment in the field must not exceed a certain proportion of total assets of the fund such as 3%; third is to limit systemically important banks engage in high-risk transactional or derivative operations.

Second is supervision in the matter, the purpose is to improve the supervision standards of systemically important banks, which can be expanded from the following aspects: first is to standardize the standard dimension of supervision. China banking regulatory commission (CBRC) will assess the importance of domestic systemically important banks based on four indicators of "scale", "alternative", "relevance" and "complexity", giving each indicator a weighting of 25 percent; second is to raise capital adequacy requirements. The China banking regulatory commission requires the banking system increase in excess capital 2.5% on the basis of the statutory capital adequacy ratio of 8%, attach importance bank capital is 1%, large banks` capital adequacy standards is 11.5%; third is to improve the carpal supervision system. Things regulation of systemically important banks in China mainly revolves around three major categories (operating performance, asset quality, prudent business class) and seven monitoring indicators (level of capital adequacy, asset quality, large risk concentration, provision for coverage degree, affiliates, liquidity, financial crime prevention and control) .

Third is to establish disposition after the matter, the purpose is to improve systemically important banks post-disposal mechanism, it can carry out from the following aspects: first is to put forward to recovery and disposal plan, requires systemically important banks to set up "living wills", systemically important bank timely submit the regulatory plan, detailed instructions on operation difficulty is how to recover from a series of pressure, how to properly handle facing a liquidity crisis and how to bankrupt when ordered to stop business provided; second is to establish the post disposal mechanism, establish a perfect and orderly bankruptcy liquidation mechanism, and effectively complete the cost sharing of bank rescue and disposal according to international guidelines; third is to improve disposal module, improve the recovery plan from the following several modules: bank governance structure, bank standard measure of key measures as well as the conditions of the financial regulatory authority intervention.

The improvement of the "disposal plan" should include the following modules: to perfect the specific information needed to isolate important legal entities; analyze the function matrix of the service function of systemically important banks and the order of importance of service function provided by ranking; establishment of emergency isolation or closure of service function modules; establish a mechanism to overcome the problem.

4.2.2 Optimizing Measurements for Bank`s Pro-cyclical Reform

Banks cyclical reform and optimization measures can be from the bank loan loss provision for cyclical, bank fair value valuation pro-cyclicality and bank capital regulation pro-cyclical three aspects.

Implementation of reform measurements	Optimizing Measurements
Bank Loan Loss Provision pro-cyclicality	To establish reverse cycle for the loan loss provision system
	To improve the dynamic adjustment of differential reserve system
Bank fair value valuation pro-cyclicality	To use the expected loss of impairment of bank assets
	To facilitate the separation of accounting standards from regulatory standards
	To Promote international accounting standards to converge with US accounting standards
Bank capital supervision Pro-cyclicality	Banks need to hold certain excess capital
	Banks should adopt a "total cycle" credit rating method
	Banks should optimize capital risk monitoring curves

Chart-4: Optimization Measurements for Bank`s Pro-cyclical Reform

The periodic pro-cyclical reform measurements of bank loan loss provisions can be started from the following aspects: first is to establish the counter-cyclical loan loss provisions system. The system is based on the principle of "prevention", according to the future of bank loan losses in the future expectations, systemic risk gradually accumulated in the bank at the same time counter-cyclical provision for loan loss provisions. During the economic boom, the ratio of banks` loan-loss provisions was raised to cope with the need to absorb credit losses during the recession. During the recession, the ratio of Banks` loan-loss reserves to banks was decreased in order to reduce the liquidity impact of the banking sector; second is improve the dynamic adjustment system of different reserve requirements. China`s banking industry should combine micro and macro-prudential concepts to regulate bank credit market and adjust bank credit market according to the deviation degree of bank credit and macro economy.

The pro-cyclical reform measurements for bank`s fair value valuation can be started from the following aspects: first is to use the expected loss method for depreciation of bank assets; the previous use of the loss method has been based on the objective basis for the provision of bank loan losses, although the method is objective but not forward-looking, it does not meet the prudential principle of accounting standards. Therefore, it is necessary to introduce the expected loss method to consider the future bank loan losses and help to smooth the bank`s pro-cyclicality; second is to promote the separation of accounting standards and regulatory standards, both perform their duties. The objectives of accounting standards and regulatory standards are quite different. The objectives of accounting standards reflect the changes in the financial status of banks. The goal of financial supervision is to prevent systemic risks. If the two goals are confused, there will be camera choice, or to reduce the authenticity of accounting information, or weaken the effectiveness of financial regulation, so it is necessary to separation of accounting standards from regulatory standards, they can perform their duties; third is to promote the convergence between the international accounting standards and the United States accounting standards, so that the global banking industry has a standardized general accounting standards as a reference sample and then make appropriate adjustments according to their own national conditions.

The internal rating method is the main reason for the pro-cyclicality of bank capital regulation. The following measures can be taken to mitigate the pro-cyclicality of bank capital supervision. First, the bank needs to hold a certain excess capital. Bank excess capital can be smooth to a certain extent in the recession of the credit crunch, reduce the external impact of the bank. Second, the bank should take the "total cycle" credit rating method.

The bank calculates the default rate of the bad credit rating of the bank according to the long cycle of the economy, the effect of the smooth economic cycle on the credit cycle, and the effect of the macroeconomic fluctuation on the repayment ability of the bank borrower. Third, the bank should optimize the capital risk supervision curve. The bank capital risk supervision curve is not a single optimal, but a combination of multiple risk control curves, and banks should adopt appropriate risk regulatory borders according to different economic cycles. In the boom period, banks can take a high confidence in the risk of regulatory curve of the border, because the period of bank capital is relatively abundant; in the recession period, banks need to lower the capital regulatory standards, to take a lower confidence level of risk regulatory curve, because in this period, the bank capital shadow prices will rise rapidly, the actual bank capital will show a contraction trend.

4.3 Optimizing Measurements for the Coordination between the Prudential supervision and other policies

Banking systemic risk supervision is a complex project, relying solely on micro and macro supervision cannot achieve a comprehensive and effective supervision aims, so it is necessary to coordinate the Prudential supervision and other policies(monetary policy and fiscal policy).

<table>
<tr><th colspan="2"></th><th>Objectives</th><th colspan="2">Instruments</th></tr>
<tr><td colspan="2">Micro-prudential supervision policy</td><td>Prevent a single bank crisis</td><td colspan="2">Capital adequacy requirements, leverage requirements, liquidity requirements, etc.</td></tr>
<tr><td colspan="2" rowspan="2">Macro-prudential supervision policy</td><td rowspan="2">Prevent the banking systemic crisis</td><td>Cross-time dimension</td><td>Counter-cyclical capital buffer, dynamic provision, upper limit of loan value ratio, upper limit of debt income ratio, retained capital, etc.</td></tr>
<tr><td>Cross-sectional dimension</td><td>Systematic capital additional requirements, recovery and disposal plans, risk isolation measurements, etc.</td></tr>
<tr><td rowspan="6">Other policies</td><td rowspan="3">Monetary policy</td><td>Price stability</td><td colspan="2">Policy rate, repurchase, etc.</td></tr>
<tr><td>Liquidity management</td><td colspan="2">Collateral management, reserve interest rates, etc.</td></tr>
<tr><td>Financial imbalance</td><td colspan="2">Reserve requirements, foreign exchange capital buffer, liquidity management, etc.</td></tr>
<tr><td rowspan="3">Fiscal policy</td><td>Total Demand Management</td><td colspan="2">Tax, automatic stabilizer, camera selection, etc.</td></tr>
<tr><td>Fiscal buffer</td><td colspan="2">Reduce the level of debt, taxation of financial institutions, etc.</td></tr>
<tr><td>Crisis of the rescue</td><td colspan="2">Capital injection, deposit and debt guarantee, bank bailout program, etc.</td></tr>
</table>

Chart-5:Maintain a Stable Combination of Policy Instruments for the Banking systemic Risk
Source: Zhu Bo. China`s Financial System Systemic Risk Research [M]. Southwest University of Finance and Economics Press .2014.P74. The author made some modifications.

4.3.1 Optimizing Measurements for the Coordination Between the Micro-prudential Supervision and Other Policies

First are the optimizing measurements for the coordination between the micro-prudential supervision and monetary policy. The coordination of both can be carried out from the following two aspects: on the one hand is the use of micro-prudential policy tools to enhance the effectiveness of monetary policy. Banks to raise the level of capital adequacy ratio can inhibit the volatility of bank asset prices in order to facilitate the realization of price stability. By adjusting the liquidity coverage ratio and the net stable financing ratio, the bank can match the available funds of the banks and expand the financing channels of the enterprises so as to promote the realization of the real economic development and the favorable employment objectives.

Banks through the implementation of the inverse cycle of the proportion of the operation, the economic boom of the era of high leverage ratio is conducive to prevent overheating investment, hot money influx; recession period low leverage ratio standard is conducive to prevent the economic downturn and the international competitiveness of enterprises decline, so the implementation The counter-cyclical leverage ratio can appropriately mitigate the issue of international balance of payments. On the other hand is the implementation of micro-prudential supervision to fully consider the impact of monetary policy transmission mechanism. It is necessary to combine the micro-prudential supervision and operation process with the monetary policy transmission mechanism, and act on the bank micro-prudential supervision tool combination through the monetary policy transmission mechanism to effectively prevent the systemic risk of the bank.

Second are the optimizing measurements for the coordination between the micro-prudential supervision and fiscal policy. The coordination of both can be carried out from the following two aspects: on the one hand, it is necessary to improve the fiscal policy system to support the sound micro-prudential supervision mechanism, micro-prudential supervision adopts a bottom-up movement mechanism, improve the micro-prudential supervision mechanism can promote safe and stable operation of each bank, if every bank can run steady has great contribution to the government tax effect.

Greatly reduce the cost of the government`s rescue of a single question bank; on the other hand is the implementation of micro prudential regulation policy need use fiscal policy transmission mechanism, micro prudential regulation policy tools achieve individual banks stable operation through the fiscal policy transmission mechanism.

4.3.2 Optimizing Measurements for the Coordination Between the Macro-prudential Supervision and Other Policies

First are the optimizing measurements for the coordination between the macro-prudential supervision and monetary policy. The coordination of both can be carried out from the following two aspects: on the one hand, the monetary policy framework is improved based on macro-prudential perspective. The stable price target of monetary policy should not only have a micro perspective, but also stabilize short-term product price. The supervisor should have more macro perspective to maintain long-term stability of the banking asset prices, in a banking crisis in the burgeoning it should take a tightening of monetary policy to prevent the banking systemic risk gradually accumulated, and use the intervention mechanism of the monetary policy response to the banking sector imbalances; on the other hand, the implementation of macro-prudential supervision policy is to pay attention to the bank credit cycle and the real economic cycle in a timely manner, and to coordinate with monetary policy. In general, during the economic boom, monetary policy should actively cooperate with macro-prudential policies to stabilize asset prices and prevent the accumulation of systemic risks in the banking industry, during the economic depression, macro-prudential policy should actively cooperate with monetary policy, focus on the changes of bank credit cycle, and reduce the negative impact of bank credit cycle on the real economic cycle.

Second is the optimizing measurement for the coordination between the macro-prudential supervision and fiscal policy. The coordination of both can be carried out from the following two aspects: on the one hand, it is to optimize the financial system arrangement and reduce the cost of rescue of systemically important Banks. The financial department should work closely with the banking system to optimize the rescue system, standardize the rescue procedures and properly use the rescue funds. If the banks in question, the supervisor should effectively use the rescue funds to rescue funds in the scope of the rescue fund, the impact on the real economy could be reduced by reducing the importance of bank failures. If beyond the reach of the rescue fund, the financial and judicial procedures should be used to make it go bankrupt in an orderly manner and reduce waste of resources. Another aspect is the macro-prudential policy to the real economy growth and the economic operation cycle as the main focus, macro-prudential regulation policies such as countercyclical capital buffer to conducive to the banking system on the real economy of financial support. In general, macro-prudential supervision policies should be effectively coordinated with fiscal policies in good times to reduce the accumulation of systemic risks in the banking industry. During the economic recession, fiscal policy should reasonably use the rescue fund to provide effective rescue for the banking industry, and cooperate with the implementation of macro-prudential supervision policies .

5. Conclusions

This paper constructs the systemic system of banking risk supervision from the perspective of supervision---micro-prudential supervision (basis), the macro-prudential supervision (core) and the coordination between prudential supervision and other policies (supplement).A comprehensive and effective supervision of bank systemic risk can reduce the systemic risk of banking system on the destruction of the real economy. The effective implementation of regulatory measures depends on the accurate measurement of the systemic risk of banks. Therefore, it is necessary to continue to carry out in-depth research on the systematic risk assessment of banks.

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