The Emergence and Development of Shadow Banking System and Its Supervisory Review

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ABSTRACT

Since the eighties of last century, with the rapid development of financial liberalization and the innovation of financial instruments, the shadow banking system has developed rapidly and promoted the prosperity of global financial market. However, because of its characteristics and the lack of relevant supervision and review, shadow banking system is considered to be an important reason for the financial crisis in 2008. This paper introduces the definition classification of shadow banking system, expounds the means of running mechanism and internal risk analysis, and analyzes the economic effect of shadow banking system from both micro and macro aspects and puts forward relevant supervision and review suggestions on the macro level.

KEYWORDS
Shadow banking system; financial crisis; risk analysis; macro supervision review.

INTRODUCTION

Shadow Banking System (SBS) was first proposed by Macaulay, the former CEO of the US Pacific Investment Management Company (PIMCO), who defined shadow banking system as "a large variety of non-bank financial institutions that have the essence of real banks yet cannot be called as banks". In 2008, Paul Krugman defined the shadow banking system as "non-banking financial institutions that operate with means of financial leverage and have a large portfolio of securities and complex financial instruments, which mainly include brokers, hedge funds, money market funds, structured investment instruments, investment banks and non-bank mortgage institutions." In a speech in 2005, Tim Geithner, governor of the New York Federal Savings Bank, defined the shadow banking system as a "parallel banking system." [1-3]

Due to the emerging financial instruments and the deepening reform of the financial system, SBS has been sharply developed since the entry of 21st century. In Europe and the United States and other countries of the capital market, the SBS in the volume of transactions and assets have been achieved beyond, and then gradually become a kind of financial institutions that is as crucial as traditional commercial banks.

The development of SBS is a double-edged sword. On the one hand, it has a positive impact on promoting financial reform and development, providing funds for all types of small and medium-sized enterprises, stimulating financial market

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development. On the other hand, since SBS has the features of high degree of operation, with large assets, low transparency, and the lack of regulatory characteristics, the existence of SBS greatly expands the risk of the financial system, hence it will endanger the national economy. [4]

In the global financial crisis, the high leverage ratio of SBS has caused the abnormal expansion of the risk, and led to a run on financial system due to lack of liquidity, which increased the pressure to maintain financial stability. As the boundaries of SBS and traditional commercial banks gradually blurred, coupled with the lack of regulation, when the regulatory authorities are aware of the importance of problems of SBS, the entire financial market has long been on the brink of collapse.

Based on the macro-supervision and research of the SBS, this paper studies the influence of the SBS on macroeconomic stability and financial security from its concept, operation mode and internal risk, and studies the current control measures of it in Europe and the United States and promotes supervision review recommendations on the macro level.

THE CLASSIFICATION OF SHADOW BANKING SYSTEM AND ITS OPERATING MECHANISM

At present, the SBS contains the following forms: one is the structural investment entity; the second is the credit market investment fund company; another one is the securities institutions initiated by the political and legal departments. From a global perspective, the categories and forms of SBS in major economies are characterized by differences in the degree of economic development and differences in financial institutions: in Europe, SBS mainly includes securitized financial activities and hedge funds and other investment funds, which has similar function with commercial banks. In the United States, SBS mainly includes various types of credit investment funds, money market funds, finance companies, government-sponsored residential financial institutions. These institutions are less regulated than commercial banks, yet its expense is that these institutions cannot get government liquidity support and loan insurance protection. In China, due to the system is imperfect, coupled with derivatives transactions have just started, SBS China has large differences with the one in Europe and the United States and other countries, which mainly includes private equity, pawn, car finance companies, financial leasing companies, small loans, rating companies, private lending and so on.

The operating mechanism of the SBS. The shadow banking system has three participants: depositors, lenders and specialized nonbank financial institutions. Unlike traditional banks, SBS absorbs not only money from depositors but also from all kinds of financial institutions. Although having the same credit intermediary functions, SBS credit conversion process has the following characteristics: Firstly, the source of funds. Financial institutions finances through the issuance of commercial paper, long-term bonds; Secondly, the capital warehouse. Through a single channel or multi-channel transfer agencies to issue asset-backed commercial receipt to finance; thirdly, asset securitization; fourthly, wholesale financing. Securitized capital products are financed in the wholesale financing market. [5]
INHERENT RISK OF SHADOW BANKING SYSTEM

More and more researchers use various models to analyze the risk of SBS. Su et al. [6] set the RSB as an independent variable, and used the vector autoregressive model (VAR) for empirical research, quantitatively analyzed the impact of SBS on economy and finance. Song et al. [7] constructed the GARCH-VaR model and the CoVaR model respectively to analyze the risk spillover effects of the SBS on the commercial banking system. Through the empirical study of the ARIMA model, He et al. [8] found that the growing SBS size and the stock market have long-term stability relationship. Huang et al. [9] used the BSI index to simulate the shadow banking system stability data, using the VAR model to study the SBS development and the stability of the relationship between the banking systems, and concluded that the development of the shadow banking system has a dual impact on the stability of the banking system.

Here we briefly introduce the widely accepted VaR (Value at Risk) risk analysis model by investment banks and commercial banks, the specific method is as follows:

\[ VaR_i = \Phi^{-1}(1-\alpha)\sigma_i - \mu_i, \]  

(1)

Here, \( \alpha \) represents the significance level, and \( \Phi^{-1}(1-\alpha) \) represents the quantile of the normal distribution at a certain confidence level.

In addition, Engle [10] proposed in 2002 the dynamic conditional correlation model (DCC), which is widely used in financial market volatility risk research. The DCC model is as follows:

\[ H_t = D_t R_t D_t, \]
\[ R_t = \text{diag}\{Q_t\}^{-1/2} Q_t \text{diag}\{Q_t\}^{-1/2}, \]
\[ Q_t = C Q_o + A \epsilon_{t-1} \epsilon_{t-1}' + B Q_{t-1} \]

(2)

Here, \( H_t \) denotes a conditional covariance matrix, which is obtained by the variance of each asset and the correlation coefficient matrix; \( Q_o \) denotes an unconditional covariance matrix and \( Q_t \) denotes a correlation coefficient matrix.

ANALYSIS OF THE ECONOMIC EFFECTS OF SHADOW BANKING SYSTEM

Analysis of Micro-economic Effect of Shadow Banking System

From the microscopic point of view, the rapid development of SBS has brought about economic effects of high leverage, asset securitization and financial innovation.

After the Basel Accord has been agreed and implemented, in the face of increasingly stringent capital adequacy regulation, in order to create higher profits, traditional banks have carried out a large number of off-balance-sheet business through asset securitization to achieve high profit. In the process of asset securitization, in order to avoid the risk and to protect profit, financial institutions carried out a lot of financial
innovation, and all kinds of complex new financial derivatives were created. Therefore, the high degree of leverage of the financial industry quickly formed, which exacerbated the financial market turmoil.

Analysis of the Macroeconomic Effects of Shadow Banking System

THE IMPACT OF SHADOW BANKING SYSTEM ON MONETARY POLICY

In terms of credit creation. As SBS acts as credit agents as traditional banks, SBS also has the function of money creation. Assuming that the initial capital of the SBS is $100 and the equity capital is 10%, the money creation process is as Table 1.

However, since the deposit reserve ratio of commercial banks is stipulated by the law of authorities, and the equity capital retention rate of SBS does not have a statutory standard, which is determined by the various institutions, in addition, the lower the rate of equity capital retention is, the higher the leverage will be. Therefore, when the leverage rate continues to rise, SBS's currency creation role will be amplified, the resulting risks are also increasing.

As for the currency transmission mechanism, the credit creation of the SBS leads to a decrease in the effectiveness of the currency quantity tool. The development of SBS also affects the base currency and the money multiplier.

At the fundamental currency level, financial products led to the partial diversion of savings deposits, and the reduction in new loans led to a reduction in the size of deposits, which reduced the general deposits of traditional banks.

As for the level of money multiplier, the reduction in general deposits increases the demand for bank deposits, which affects the excess deposit reserve of commercial banks, resulting in a decline in the money multiplier. The historical experience of the United States shows that the expansion of the total credit is much faster than the expansion of the money in the caliber, the total social credit increased from 1.5 times to 4 times, the narrow money multiplier decreased from 4 to 2.

THE INFLUENCE OF SHADOW BANKING SYSTEM ON INTEREST RATE MARKETIZATION

China's interest rate is not fully market-oriented, with more financial control and lack of financial innovation, and derivatives market has just started. In this context, in order to avoid supervision, SBS came into being. In the operation mechanism of the SBS, the new complex financial instruments involved in the large number of market-oriented pricing break through the original price control, forcing the traditional commercial banks to gradually survive, and to gradually loosen the interest rate control and to raise the interest rate level to a certain extent to promote China's interest rate marketization process.

| TABLE 1. MONEY CREATION OF SBS. |
|-----------------|----------------|----------------|
| SBS  | Capital | Liabilities | Equity Capital |
| A    | 100     | 90          | 10             |
| B    | 90      | 81          | 9              |
| C    | 81      | 72.9        | 8.1            |
| D    | 72.9    | 65.6        | 7.29           |
|      |         |             |                |

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ANALYSIS OF THE MACRO - REGULATION OF SHADOW BANKING SYSTEM IN THE WORLD

In the United States, the "Dodd-Frank fat Wall Street Reform and Consumer Protection Act" contains several regulations on the SBS supervision: First, to increase supervision; Second, to introduce the "Volcker Rules"; Third, to strengthen the supervision of private equity funds and hedge funds; Fourth, to enhance the asset securitization and financial derivatives business regulation.

On the EU side, after 2010, the European Central Bank continued to improve and reform institutional arrangements and laws and regulations on financial markets. Among them, "Alternative Investment Fund Manager Directive" has a certain representative, which on the shadow bank's content mainly includes: first, to include the SBS which is represented by hedge funds, private equity funds into the regulatory areas; second, strengthen the supervision procedures. The "Directive" limits the leverage of alternative investment funds; it stipulates that all alternative investment funds must establish trusteeship accounts in the EU and identify independent rating agencies.

CONCLUSION

(1) SBS credit creation challenges the effectiveness of monetary policy. With the scale of interest rate market reform and financial "off-media" to achieve, the difficulty of monetary policy regulation will increase. The central bank needs to include the scale of social financing in financial statistics, strengthen supervision, and realize effective monitoring of shadow banks.

(2) The financial products provided by the SBS usually have the characteristics of a highly leveraged long chain. Once the economic environment deteriorates, the SBS’s assets will shrink sharply. Regulators should specify the proportion of the shadow banking system's own capital and reduce the high leverage ratio. Control the value of the real assets of the shadow banking system and control the income generated can reduce the source of risk.

(3) People have to treat the domestic shadow banking system differently. It is necessary to enable it to play a role as the useful supplement to the financing channels, as well as to effectively protect it from its risks. SBS in developed countries has typical characteristics of taking asset securitization as the core of product innovation, yet in China, the typical characteristics of China's shadow banking system is that it takes arbitrage financing as the core of market innovation. As for different functions of SBS, it is necessary to take differentiated regulatory measures.

(4) China's financial products are less innovative, the homogenization of financial service between SBS and traditional banks is still high, which is mainly within the system of asset transformation. It is necessary to promote the innovation of financial products under the premise of reasonable supervision. People should recognize the role of corporate finance, and to provide policy guidance for the development of financial institutions.

(5) Learn from the experience of foreign bank deposit insurance system. When the capital chain of shadow banking system breaks, people should open the central bank discount window to solve the crisis of liquidity problems.
REFERENCES

8. DX He, JC Li. Analysis on the Correlation between Chinese Shadow Banking System and a Share Market [J]. Shanghai Finance, 2015, 4: 77-82.