

# Analysis of the spillover effects of China's real economy and financial markets

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**Abstract:** There is a very close relationship between the real economy and the financial market. Under the background of the current uncertain world factors and the severe challenges of Sino-US trade friction, the relationship between the real economy and the financial market is representative. This paper starts with the relationship between financial market and real economy, analyzes the status quo of the two, and takes the stock market as an example for empirical analysis, and finally proposes recommended measures.

## 1. Introduction

Economic integration has brought convenience to the development of national economies and has enhanced the interdependence of financial markets around the world. The current Sino-US trade friction has had a very negative impact on the Chinese economy, and the relationship between financial markets and the real economy has fluctuated significantly. In this context, the important role of finance in the reform of capital market construction and investment and financing systems has become increasingly prominent. With China's active actions in the real economy and financial markets, financial integration plays a significant role in supporting the development of the real economy, which enhances the spillover effects of the real economy and financial markets from the external environment. Therefore, in-depth analysis and study of the spillover effects of financial markets and the real economy have urgent practical significance for the healthy development of China's real economy.

## 2. Financial markets and the real economy

### 2.1. The relationship between financial markets and the real economy

Since the reform and opening up, China's national economy has developed steadily, wealth has been highly concentrated, and economic operations have been in a stable state. Now it has become the second largest economy in the world, and the real economy has contributed. At the end of 2017, the market value of China's stock market was 36.54 trillion dollars, the stock of bonds was 40.69 trillion dollars, and the scale of financial assets was about 1.19 times of the total GDP. Although the overall size of China's financial market has shrunk, we must pay more attention to the coordinated development of financial markets and the real economy, which will have a profound impact on the entire economic and social activities. With the change of China's financial environment, the financial industry has been independent of the real economy to a certain extent, and has formed a form of interaction and interaction between the two.

The real economy is an important support in the modern economic system and plays an important role in promoting social stability and development. The relationship between finance and the real economy has evolved with the development of each of the economy and finance. As the size of the real economy continues to expand, the financial and real economy are beginning to merge. The various functional innovations and structural changes of modern finance, as well as the changes in the fields of science and technology, organizational forms, and management models within the real economy, make the financial and real economy each other's external environment, and also develop the two into mutual control and Mutual constraints. The real economy is the foundation of financial existence. Finance is the product of the development of the real economy. Aside from the real economy to emphasize the development of finance alone, it will lead to the proliferation of

financial capital. Finance is separated from the real economy, and financial capital will disrupt the order of the real economy. Finance is the main tool to promote the development of the real economy, providing an effective payment intermediary for the real economy and helping the real economy to achieve the original accumulation of capital.

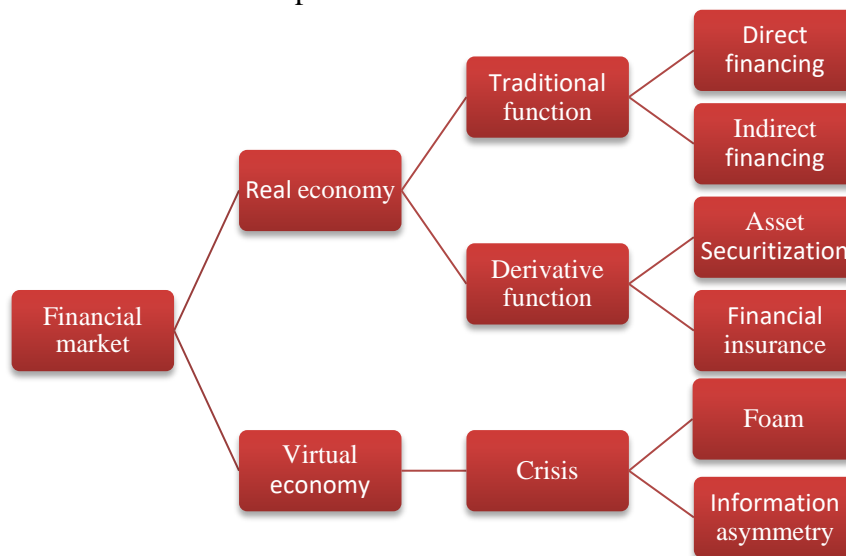


Figure 1 Financial market and real economy, virtual economic relationship diagram

Through the analysis of the financial crisis, it is found that if it is separated from the real economy, the financial system will be over-expanded, leading to the outbreak of the financial crisis. In the process of running the national economy, it is necessary to accurately grasp the relationship between the real economy and the financial market, scientifically dispose of the relationship between the two, and avoid problems such as the shrinking of the physical industry caused by improper disposal. Once this happens, the development of financial markets will not be guaranteed, which may eventually lead to economic recession and even financial crisis. The development of the financial industry has become an important part of the current economic life, and it is increasingly affecting the real economy.

## 2.2. The status of the financial market to support the real economy

Under the influence of the slow growth of the global economy, the foundation for the financial market to support the solid economy to stabilize and recover is not strong enough. In this context, China began to transform its economic structure. Although inflation risks will not show a clear trend in the short term, financial services and the real economy are not perfectly connected, and there is a situation of “disengagement from the virtual”. Even to a certain extent, the role of financial promotion of economic development, the function and the financial crisis for economic development are gradually becoming the focus of attention from all walks of life with the process of economic globalization, enterprise transnationalization and economic financialization.

With the growing demand for sustainable development in the real economy, the relationship between financial activities and economic operations is getting closer. Between finance and economic operations, due to changes in the degree of financial system construction and coordination with the economic operation stage, there have been a series of advancement or hindrance effects on economic development. On the one hand, whether it is a microeconomic, meso-level or macro-level productive economic entity, the demands for financial basic functions such as investment and financing, information exchange and market convenience are increasingly urgent. On the other hand, the financial system has penetrated into the process of economic development through the use of strong intermediary, agglomeration, resources and radiation functions, through the use of deposits, investment and financing, resource allocation and other economic means, and gradually become the core factor affecting the sustainable development of modern economy.

Practice has proved that finance has been transformed from a trading intermediary in the era of capitalist competition to a social dominant force in the modern market economy that controls and influences the real economy. With the growth and improvement of modern finance, financial potential has fully penetrated into the micro, meso and macro levels of modern economic development, forming the financial economic power in the economic system. Only by confronting and guiding this kind of penetration and making financial activities under the guidance of national policies can be an economic power to promote the high-speed, efficient and sustainable development of the real economy, can we better develop the market economy. Perfecting the financial market and improving the financial system are important links in promoting economic growth. Economically efficient development is inseparable from the positive function of finance, and the positive performance of finance is inevitably based on the improvement of the financial system and the smooth transmission mechanism.

### 3. Research status of the relationship between financial market and real economy

With the globalization of financial innovation and market information, there are spillover effects among multiple markets, which has become the consensus of economic and financial circles. Early researchers used linear correlation to analyze spillover effects between financial markets. King and Wadhvani studied the “contagion effect” of the stock market in London, New York and Tokyo during the 1987 stock market crash. Lee and Kim used correlation coefficients and dependent variable analysis to study the stock price linkages of 12 countries during the 1987 stock market crash. Bollerslev proposed a generalized ARCH model, and Engle constructed a dynamic condition-dependent LARCH model. At present, ARCH and LARCH models are the most widely used in the study of volatility information spillovers among multiple financial markets. Hamao et al. first used the LARCH model to analyze the major international stock markets, and Engle et al. used LARCH model data to study the international foreign exchange market. During the financial crisis, financial markets were more closely linked. Edwards and Susmel linked the volatility information spillover to the financial crisis, pointing out that there is a strong consistency in stock price volatility between Latin American countries during the financial crisis. Enye proposes a DCC model and analyzes the correlation of returns between US stocks and bonds. Diebold and Yilmaz used the spillover index to study daily fluctuations in US stocks, bonds, foreign exchange, and commodity markets.

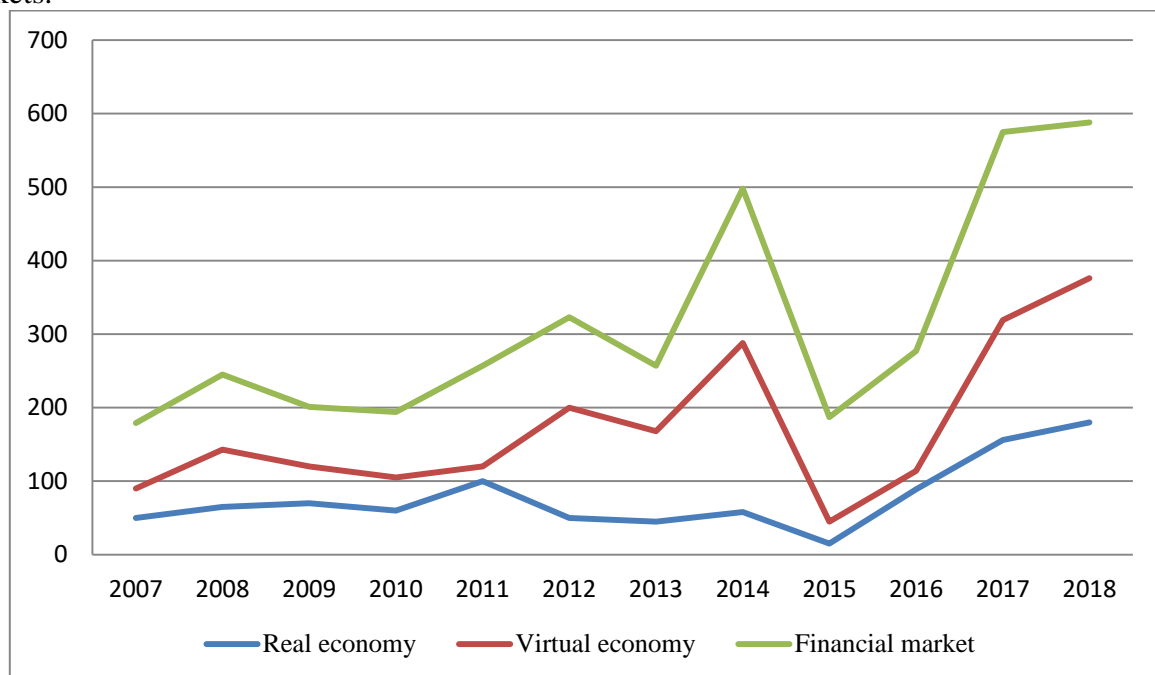


Figure 2. Relevant research literature on financial markets, virtual economy and real economy

In the study of multi-market information spillovers, domestic scholars often use advanced foreign models to explore information spillovers. Hong Yongsen and others studied the information spillover between the Chinese stock market and the international market. Liu Jinquan and others studied the information spillover between China's Shanghai and Shenzhen stock markets and the Hong Kong stock market. Wang Bao and others studied the spillover effects between China's domestic stock market, bond market, foreign exchange, and banks. Zhang Lianggui and others studied the volatility spillovers between the sectors in the Chinese stock market to analyze the risk spillover effects among different financial institutions in China. Based on domestic and international research, the existing literature mainly uses the GARCH model to analyze the spillover effects between financial markets. In the analysis of China's financial market, some literatures discuss a number of financial markets, but there is not much research literature focusing on China's stock market, bond market, and dynamic fluctuations of information spillovers before and after China's two stock market crashes.

#### 4. Empirical Analysis of the Spillover Effects of China's Real Economy and Financial Markets

Spillover effect refers to the interaction between the questions of different regions and different types of financial markets and the causal relationship between the stock market and the real economy. This article will provide an effective analytical method in conjunction with relevant historical data.

##### 4.1. Source of sample data.

The sample data for this article are from the People's Bank of China website. In the selection of sample data, the Shanghai Stock Exchange Index, domestic credit, and broad money M2 were selected as the indicators for the stock market, credit market, and money market. For convenience, they are denoted as sz, loan, m2, respectively, and logarithmically taken to reduce the fluctuation range of these time series as much as possible.

##### 4.2. Inspection and establishment of stationarity.

According to the test result of the unit root, LNsz, LNloan and LNm2 are non-stationary time series due to the existence of the unit root. In order to eliminate non-stationary interference, the order difference time series is used, that is, LNsz, LNloan and LNm2 are converted into DLNs2, DLNloan and DLNm2, respectively. The amplitude of the graph is 0.02 or 0.3, so DLNs2, DLNloan Both DLNm2 and the DLNm2 are time series of stationary. In order to quantify the stationary characteristics of the time series, the ADF test method is used again. The test structure has no unit root, so DLNs2, DLNloan and DLNm2 are time series of stationarity.

##### 4.3. Establish a vector autoregressive model.

The author uses the EVZEWS software to analyze the AR root, and the results include the reciprocal values of all roots. Therefore, the VAR model established using the time series of LN2, LNloan and LNm2 has stability. The EVZEWS software is used to analyze the lag order. The result is that the most appears is 0th order, followed by 4th order, so only the lag order can be taken.

Table1. Analysis of data verification results

LAG	LOGL	LR	FPE	AIC	SC
0	89.2563	18.3645	0.0023	-2.3694	-2.7896
1	78.2369	15.8579	0.0078	-2.3615	-2.1123
2	69.3656	13.2369	0.0125	-2.1478	-2.7891
3	83.2636	2.7429	0.0078	-2.1111	-2.1948
4	70.3695	10.3894	0.0069	-2.7834	-2.3674
5	76.2365	4.3256	0.0018	-2.5861	-2.1579

##### 4.4. Test the causal relationship.

After establishing a VAR model with a lag order of 4, the test results show that the p value of

DLNM22 is DLNSZ2 is 0. 0229; DLNLOAN2 is the cause of DLNSZ2, the p value is 0. 0236, these two assumptions are rejected. In other words, when the lag order is 1, the credit market and the money market are both reasons for the stock market.

## **5. Strategies for financial markets to support the development of the real economy**

The goal of dealing with the relationship between finance and the real economy is to integrate finance and the real economy. Any separation between the two will undermine the normal development of the economy. The reform of financial reform cannot be separated from the real economy, and the adjustment of financial structure should precede financial liberalization.

### **5.1. Mobilize positive factors within the real economy to promote financial development.**

The real economy is characterized by low profitability and insufficient growth momentum due to problems such as lack of innovation, extensive management, and poor management. These problems are also one of the main reasons for its separation from finance. Coordinating the relationship between finance and the real economy needs to take the initiative of the real economy to achieve its own sustainable development, and then lead the development of finance with the needs of the real economy, so that the separation of finance and the real economy can be solved.

### **5.2. Optimize the financial market structure and solve the internal imbalance problem.**

The imbalance of financial structure will hinder the development of the real economy, and it is also the main factor leading to the separation of China's financial and real economy. The imbalance of China's financial structure is mainly reflected in the imbalance of asset structure, the imbalance of regional structure, the imbalance of financial business structure, and the imbalance between financial intermediation and financial market development. Therefore, the key to solving the problem cannot be relying solely on macroeconomic regulation and control. The key point is to optimize various financial structures, to solve the separation of finance and the real economy with structural optimization, and to follow up a series of supporting reform measures.

### **5.3. Accelerate the reform of financial liberalization.**

Financial liberalization will have a positive impact on the development of the real economy. Financial liberalization reform can not only eliminate financial repression, but also increase the scale of savings, promote the development of direct financing, and improve the efficiency of investment-to-investment conversion. At the same time, financial liberalization has eliminated government intervention in financial markets and improved capital allocation efficiency. Therefore, in order to solve the current imbalance of financial market structure, it is necessary to release financial development energy through financial liberalization reform and eliminate the separation of financial and real economy.

### **5.4. Pay attention to the reform and development of the capital market.**

The relationship between finance and the real economy can be seen separately. Part of it is the relationship between indirect finance and the real economy, and the other is the relationship between direct finance and the real economy. The development of the capital market can improve the dynamics of the financial system, solve the problem of information asymmetry within the real economy, and optimize the soft environment for the development of the real economy. Therefore, it is necessary to broaden the financing channels of the real economy, reduce financing costs, and strengthen the domestic capital market.

## **6. Conclusion**

In recent years, the external dependence of China's economy has remained at a relatively high level. At present, there are problems of excessive financial separation and financial suppression in China. This financial market structure is not only difficult to adapt to the needs of the development

of the real economy, but also worsens the problem of China's dual economic structure in disguise, and it is difficult to adapt to the requirements of modern market economy construction. Through empirical research on the spillover effects of the stock market and the real economy, the relationship between the two is not significant. At the same time, the spillover effect of the real economy on the stock market after the crisis has gradually weakened. Therefore, improving the structure of the financial market will help promote the healthy development of the real economy. It is necessary to speed up economic restructuring and industrial structure upgrading, and provide a strong support for the real economy in the financial market to better play the positive role of the financial market in the real economy.

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