

Research on the Relationship between Fictitious Economy and Real Economy in China

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Abstract

Today's society is still in a post-crisis era. Economic development is still in the process of transformation. Understanding the relationship between the fictitious economy and the real economy can provide a reference for the further formulation of relevant economic policies by the country. Based on the economic data of National Bureau of Statistics of China from 2005 to 2015, this paper makes empirical analysis of the relationship between the real economy and the virtual economy by using the methods of principal component analysis, cointegration and vector error correction (VECM). The results show that the two There is a long-term cointegration between the short-term have a certain impact on each other to suppress the impact.

Keywords

Virtual economy; real economy; principal component; VECM model.

1. Introduction

Since entering the 21st century, China's fictitious economy has developed rapidly, including financial markets (this article refers to financial institutions, securities markets) and the real estate market. Some scholars pointed out that because of the rapid development of virtual economy, excessive expansion of virtual capital and real estate bubble Phenomenon further impedes the development of the real economy. Some scholars also point out that the growth of the fictitious economy has injected more capital into the development of the real economy, thus accelerating its development. Therefore, this paper selects the data from 2005 to 2015, selects the appropriate variables to represent the virtual economy and the real economy respectively, and uses the co-integration, vector error correction and other measurement models to explore the long-term relationship between the two.

No matter at home or abroad, with the economic development, there has been no shortage of scholars studying the development relationship between the real economy and the fictitious economy. Whether there is any relationship between the development of virtual economy and the development of real economy, whether the fictitious economy has positive influence on the real economy, whether the real economy can promote the development of fictitious economy, etc., domestic and foreign scholars have different research methods and conclusions

When foreign scholars study the relationship between virtual economy and real economy, the research focuses more on the relationship between financial market and economic growth. Erdal Demirhan (2011) made an error correction model and an impulse response function for the research data. Empirically concluded that economic growth and financial development are causal and mutually reinforcing. In the meantime, Carmen Maria Angyal (2012), using the ARIMA method and the Johansen cointegration test, confirmed that there is no cointegration between most stock indices and economic growth, emphasizing that the most important factors contributing to the current financial and economic crisis are the financial sector and entities Out of line between the economy. Domestic scholars mainly study the impact of virtual economy on the operation of real economy, the relationship between over-expansion of virtual economy and financial crisis, and the countermeasures to promote the simultaneous and healthy development of virtual economy and real economy. Dong Junhua (2013) took China's stock and real estate market as the research object and

conducted an empirical study on the relationship between the fictitious economy and the real economy. It found that the fictitious economy and the real economy in our country may deviate in the short run. However, in the long run, this deviation will gradually disappear, the two will converge to the long-term equilibrium. Zhang Yan (2014) conducted an empirical test on the gray relational degree and marginal spillover effect between China's FIEs and the real economy in China from 2001 to 2012. The results show that there is a high correlation between FIEs and the real economy in China Degree, and the marginal spillover effect of the virtual economy on the real economy is far more than the marginal spillover effect on the virtual economy by the real economy. According to Zhou Yingying and Liu Chuanzhe (2014), in the process of fictitious economy development, virtual capital accumulates effectively with the continuous accumulation of social idle funds. Some funds are used for investment in the real economy and further the expansion of the real economy investment scale. Hu Xiao (2015) argues that the way and extent of the impact of virtual economy on the real economy is closely related to its level of development. With the continuous development of the fictitious economy, its influence on the industrial economy of the real economy is getting stronger and stronger, while its promotion to the growth of the real economy is getting smaller and smaller. If it exceeds a certain level, it will even inhibit the growth of the real economy.

Through the above literature review, it is easy to see that the development trend of this topic still focuses on the development of virtual economy and real economy, the focus of this study is to study whether the mutual causal relationship between each other, whether the development of virtual economy can promote the entity Further economic development also hinders the development of the real economy. It is enough to see that this research can provide a reference direction for our country's economic development policy formulation in the future and can better achieve a sound economic development

2. Data processing and Variable Selection

2.1 The Selection of Real Economy Variables

In the current literature, the quantitative choice of the real economy is not uniform. The most common practice is to use the GDP after removing financial industry GDP and real estate GDP to represent the real economy. This article also follows this approach. The data are taken from the National Bureau of Statistics. What is the real economy? My understanding of the real economy using the exclusion method, that is, remove the virtual economy industry is the real economy industry. So, what are the virtual economy? Western countries, the financial market is equivalent to the virtual economy, because of its essence is the capital speculation, and in the context of China's current economic development, real estate investment in some ways has also become a means of capital speculation, and can not be counted as pure Real economy, so this article will be deducted financial GDP and real estate GDP as a variable on behalf of the real economy

2.2 The Selection of Virtual Economic Variables

In order to select the variables that can represent the virtual economy in an all-round way, the paper selects the financial industry and the real estate industry as the main body of the virtual economy, respectively selects the representative variables in the securities market, financial institutions and real estate industry. After comprehensive consideration, finally decides to use the securities market transaction volume, Financial institutions loan balance, real estate investment amount of three variables.

In order to better fit the final model and the results at a glance, this paper further uses principal component analysis to deal with the above three variables to achieve the purpose of reducing the dimension of variables, which not only can extract the effective information, but also reduce the number of variables, Making the follow-up model structure is simpler, and the result of the relationship between virtual economy and real economy is more intuitive. The principal component analysis cumulative factor matrix is shown in Table 1-1 below. X1 is the first principal component. From the contribution rate and cumulative contribution rate, the principal component analysis results

are very satisfactory. The first principal component can explain 94.05% The amount of information is therefore further predicted by getting the first principal component variable x to represent the fictitious economy

Table 1-1 Principal Components Analysis Cumulative Factor Matrix

variable	Contribution rate	Accumulated contribution rate
X1	0.9405	0.9405
X2	0.0589	0.9994

After obtaining the principal component variables of the virtual economy, the variables are normalized during the process of the principal components. Therefore, correspondingly, the real economy variables should be synchronized and standardized to obtain the real economy variable Y, and the time series of the two variables is drawn as As shown in Figure 1-1, there seems to be a long-term equilibrium trend between the two. The relationship between fictitious economy and real economy needs further empirical analysis.

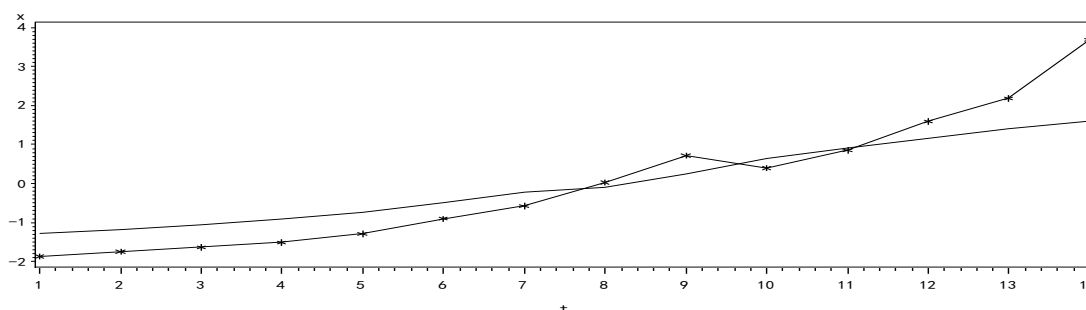


Figure 1-1 Fictitious economy and real economy timing diagram

3. Empirical Analysis

3.1 Unit Root and Cointegration Test

3.1.1 Stationarity Test

The premise of cointegration test is that the variables have the same order homogeneity. The commonly used methods of stationarity test include ADF test, DF test and PP test. In this paper, ADF unit root test is used. The two variables of the virtual economy X and the real economy Y obtained above are respectively tested for stationarity. The results are shown in the following Table 1-2. The two original variables X and Y and their first-order difference post-variables are all tested through the stationarity test, The second-order difference post-variables all passed the test of stationarity, which satisfied the same-order single-whole premise of cointegration test

Table 1-2 Stationarity test results

variable	P<Tau	Stationary
X	0.703	unstable
X(1)	0.486	unstable
X(2)	0.001	smooth
Y	0.899	unstable
Y(1)	0.560	unstable
Y(2)	0.001	smooth

3.1.2 Cointegration Test

Co-integration test needs to be further carried out after the stationarity test is carried out on the variables. There are different methods for co-integration test, such as Johansen co-integration test and residual stationarity test, the latter is adopted in this paper. First of all, Granger causality test is done on two variables in order to find out whether the causal relationship between the two variables of virtual economy and real economy affects each other. The results of the Granger causality test are shown in the following tables 1-3. The virtual economy X is the Granger reason of the real economy

Y, that is to say, a certain proportion of the reasons for the development of the real economy can be explained by the development of the virtual economy.

Null hypothesis	p value	conclusion
X is not Granger reason of Y.	0.028	X is the Granger reason for Y.
Y is not a Granger reason for X.	0.215	Y is not a Granger reason for X.

In view of the results of Granger causality test, the parametric equation about the real economy Y and the virtual economy X is further established according to the post-processing variables. The software simulation shows that the fitting model is

$$Y = 0.575X + rt$$

$$t = (0.001)$$

The fitting degree of the above model is 93.51%, and the stationary test of the residual rt is done. The $P < \tau$ value is 0.029, which indicates that the residuals are stable, that is, the cointegration relationship exists between Y and X. Therefore, in the long run, the fictitious economy has a long-term promotion and development effect on the real economy. Each time the fictitious economy changes by 1% and the real economy changes by 0.575%, the impact is significant.

3.2 Vector Error Correction Model Fitting

In order to test the short-term equilibrium relationship between the two variables of virtual economy and real economy, we use VECM (Vector Error Correction) model. Empirical evidence shows that the fitting results of the error correction model of virtual economy X and real economy Y are as follows

$$\Delta Y = 0.292 - 0.135\Delta X + 0.047ECMt-1$$

$$p = (0.001) \quad (0.048) \quad (0.013)$$

$$\Delta X = 1.039 - 2.481\Delta Y + 0.225ECMt-1$$

$$P = (0.003) \quad (0.048) \quad (0.003)$$

The regression results of the above models show that the P values of all the parameters pass the test. The first formula shows that the current volatility of the fictitious economy has a significant impact on the current volatility of the real economy and the previous error also has a significant impact on the current volatility. The second formula shows that the current volatility of the real economy has a significant impact on the current volatility of the fictitious economy and the previous error also has a significant impact on current volatility. At the same time, the absolute value of the parameters shows that the current volatility of the real economy has greatly adjusted the current volatility of the fictitious economy. For every 1% fluctuation in the real economy, the fictitious economy fluctuates by 2.481%. The fluctuation ratio of the previous period error to the current fictitious economy is 0.225. Therefore, from the perspective of short-term equilibrium model, the real economy fluctuations have a greater impact on the fictitious economy, and the results of the long-term model are different.

4. Conclusions and Recommendations

Through the above empirical analysis, the results of fitting cointegration and vector error correction model fitting results, the initial short-term equilibrium relationship between virtual economy and real economy has been reached. In the short term, the current volatility of the real economy has a greater impact on the current fictitious economy; in the long run, the fictitious economy is the Granger reason of the real economy, and the change of the fictitious economy is significant to the real economy with long-term co-existence The whole relationship.

The empirical conclusions tell us that the fictitious economy and the real economy interact and contain each other, and the short-term and long-term relations have different conclusions. Short-term economic policies should encourage the development of the real economy and the long-term economic policies can not ignore the development of fictitious economy. At present, our country is in the critical period of economic restructuring. Understanding the relationship between the fictitious

economy and the real economy is of great significance to formulating the corresponding economic policies.

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