

# The Affection of the Funds Outstanding for Foreign Exchange on Asset Prices in China

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**Abstract** – With the funds outstanding for foreign exchange increasing rapidly in recent years, the consequent monetary supply made an obvious impact on asset prices in China. Asset prices including properties and stocks all tended to hike more quickly. The paper gave an analysis about how the funds outstanding for foreign exchange affected asset prices, with the theoretical method combining econometric analysis. In the end, the article came up with some corresponding control measures and political suggestions.

**Keywords** – Position for Forex Purchase; Monetary supply; Asset prices

## 1. Introduction

### 1.1. Research background

In China, the funds outstanding for foreign exchange often refer to the corresponding domestic funds paid by the People's bank of China, which is always in charge of purchasing foreign exchange assets. They comprise a great deal in the capital account of Chinese financial system (mainly refers to the central bank). On the historical and systematical grounds, they and the domestic credit placement by the People's bank of China have become two most significant factors influencing base currency issued by the central bank. The distinct traits and mechanism of the funds outstanding for foreign exchange made it rather passive in the process of the monetary supply. Meanwhile, the independence and

activity of Chinese monetary policies severely suffered. Over the past few years, the funds outstanding for foreign exchange in China fluctuated consistently, which had an important bearing on the country's real economy. Therefore, we will analyze the affection of the funds outstanding for foreign exchange on the asset prices (real estate prices for instance), from the perspective of empirical and logical approach. In the end, we come to the final conclusion.

### 1.2. Literature review

There are a lot of researches regarding the funds outstanding for foreign exchange at home and abroad. However most of the economic specialists and scholars focused on how foreign exchange policy could intervene in monetary policy in a certain country. In the 1960s,

Robert A. Mundell and John Marcus Fleming, two famous American economists, came up with the renowned M-F model. According to the classical model, if one country adopted the Fixed Exchange Rate System, the effects of monetary policy could wear off on the condition of open economy and free capital flows. Vice versa. On this basis, Paul Krugman (1999) put forward what's called "Theory of Trilemma". Chinese scholars also made a profound study on the economic impact of the funds outstanding for foreign exchange. Qi-gui Zhu (2006) found that, Chinese foreign exchange reserve played an important role in influencing domestic monetary policy. Song (2010), through a hard practical study, reached the conclusion that the funds outstanding for foreign exchange gave a big challenge to the affectivity of the central bank's monetary policy. Yang and Liang (2012) suggested enhancing the coordination of various other economic policies, and they also lay emphasis on the reasonable control of the funds outstanding for foreign exchange. All in sum, the majority of present studies in the field concentrated on the impact of the funds outstanding for foreign exchange on monetary supply or the commodity prices. To some extent, the role of asset prices was overlooked. This paper will embark from such a worthy perspective, in a bid to exploring and supplementing related knowledge hierarchy.

## **2. The asset prices transmission mechanism of the funds outstanding for foreign exchange**

As far as the Chinese economic development is concerned, the latest round of economic robust growth dates back to 2002. In the midst of high-speed development, there seemed to exist a over-heated trend. Even under the sharp impact of the global financial crisis in 2008, China's GDP still maintained the increase of 8 percent upon the corresponding period. With the rapid development come the soaring commodity prices. It's apparent that inflation standard out. In contrast to the past inflation experienced, the ongoing inflation was not the outcome of domestic credit. The character of disequilibrium made it totally different from the previous ones that were in the form of the rises in overall prices caused by over investments in fixed asset. Nowadays, the inflation in China was mainly reflected in the hot real

estate market and stock market and so on. Although the central bank repeatedly raises the deposit reserve requirement ratio, the effects are far from satisfaction. Above all, the domestic excessive monetary liquidity almost has nothing to do with domestic credit expansion. A good many funds flowing to the asset market come from the passive monetary supply caused by the funds outstanding for foreign exchange. That's responsible for over-heated economy and consistent appreciation of RMB. In details, the transmission mechanism can be put in two aspects.

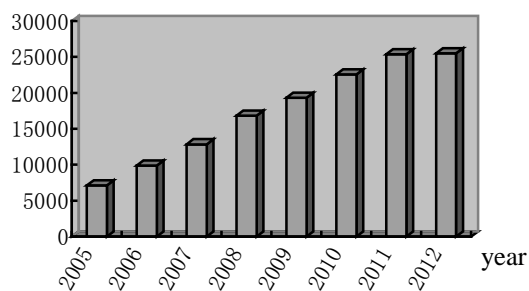
1. The monetary liquidity brought by the funds outstanding for foreign exchange flooded the asset market, which was in charge of the rising asset prices. Demographic bonus and the huge labor force advantage have contributed to the long-term current account surplus since reform and opening-up. The reform of RMB's exchange rate regime in 1994 and 2005 limited the exchange rate volatility with the strict system of exchange, settlement and sales. A massive build-up of the foreign exchange reserve play down the possibilities of monetary crisis. Nevertheless, a wealth of base money, thereby, was released into the market as a result of double favorable balance of international payments and the exchange system. The independence of monetary policy has been rode a lot. At the same time, more and more hot money gain access to China through some informal channel because of the promising outlook. Both of them were far too speculative, thus short run by the investors. The shorter investment cycle and inclination to higher profitability put the large amount of capital far from the real economy. Asset bubble forms easily.

2. The offset policy of the central bank aggravated the unevenness of monetary supply in different sectors, deepening the speculative atmosphere. the funds outstanding for foreign exchange increased the base money directly, which to a large extent was involved in the inelastic RMB exchange rate. As a whole, Chinese commercial banks had barely the autonomy in controlling the scale of the exchange they purchased and sold. To avoid the further inflation, the central bank continuously adopted the offset policies to withdraw excessive liquidity in market. However, this method has generality. That is to say, the real economy had a bigger impact on account of the austerity policies than the asset investment

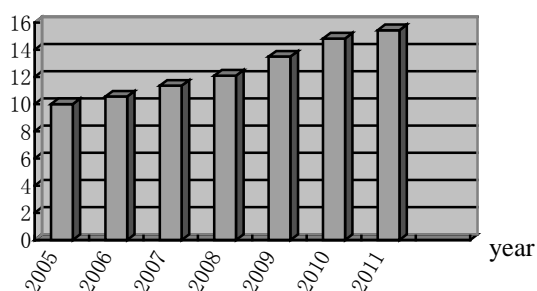
sectors. The capital spent in the production and circulation field was further squeezed. The base money released by the funds outstanding for foreign exchange was multiplied by money multiplier. Thus, more currency enters into the investment field, compared to the real economy. The structural imbalance of monetary supply worsened. Asset prices hiked quickly.

In sum, Let's put the both transmission mechanisms simply under the current specific economic conditions: the substantial balance of payments surplus→the growing funds outstanding for foreign exchange→the rising base money→the increasing monetary supply→the excessive liquidity flowing into the asset fields→the asset prices confronting more climbing pressure. The following is the statistical data of China's funds outstanding for foreign exchange and real estate selling price index in recent years.

billion yuan



**Diagram 1. China's funds outstanding for foreign exchange at the end of per year since 2005.**



**Diagram 2. China's real estate selling price index at the end of per year since 2005.**

### 3. The empirical research on the relation between the funds outstanding for foreign exchange and national real estate selling price index

According to the analysis above, the funds outstanding for foreign exchange affected the asset prices mainly through monetary supply transmission in China. Therefore, this paper selects three variables as major research object, including the funds outstanding for foreign exchange, the overall money supply and asset prices. Limited by optional data, we choose the sample space ranging from the 2nd quarter in 2005 to the 2nd quarter in 2011. For simplicity, W stands for the funds outstanding for foreign exchange (united by 1000 billion Yuan). F stands for the real estate selling price index that is representative of asset prices. M2 stands for general monetary supply (united by 100 billion Yuan). The real estate selling price index here is calculated on the basis of the 2nd quarter in 2005 which is assumed to be 100.

Time(quarter)	F	M2	W
2005.2	100	27.58	62.62
2005.3	101.71	28.74	66.3
2005.4	103.45	29.88	71.21
2006.1	105.11	31.05	76.49
2006.2	107.01	32.26	82.87
2006.3	108.41	33.27	89.67
2006.4	110.04	34.56	98.98
2007.1	112.1	36.41	107.75
2007.2	115.27	37.78	114.45
2007.3	120.3	39.31	125.74
2007.4	123.45	40.34	128.38
2008.1	124.44	42.31	142.49
2008.2	124.82	44.31	153.57
2008.3	124.7	45.29	162.52
2008.4	123.09	47.52	168.43
2009.1	122.84	53.06	172.63
2009.2	125.06	56.89	177.91
2009.3	128.21	58.54	185.37
2009.4	132.62	61.02	193.11
2010.1	137.05	64.99	200.59
2010.2	139.10	67.39	205.94
2010.3	139.66	69.65	213.26
2010.4	140.78	72.59	225.76
2011.1	144.95	75.81	237.04
2011.2	148.6	78.08	246.68

**Table 1. The real estate selling price index, general monetary supply and the funds outstanding for foreign exchange.**

### 3.1. Stationary test

First of all, we made those three groups of time series variables above undergo the stationary test. This paper adopted ADF unit root test. In order to mitigate the volatility of the data, it's necessary to have those variables take log processing. The new obtained series are recognized as  $\ln F$ ,  $\ln M2$  and  $\ln W$ , respectively. The outcome of ADF test was listed as following:

variable	ADF value	1% critical value	5% critical value
$\ln F$	-0.407287	-3.769597	-3.004861
$\Delta \ln F$	-3.684217	-3.769597	-3.004861
$\ln M2$	-0.091158	-3.788030	-3.012363
$\Delta \ln M2$	-4.430075	-3.769597	-3.004861
$\ln W$	0.983090	-2.674290	-1.957204
$\Delta \ln W$	-4.702921	-4.416345	-3.622033

Table 2.ADF unit root test.

Apparently,  $\ln F$ ,  $\ln M2$  and  $\ln W$  all failed to pass the stationary test. They turned out to be non-stationary time series. But after the first difference process,  $\Delta \ln F$ ,  $\Delta \ln M2$  and  $\Delta \ln W$  all passed the test under the corresponding critical value level. For that matter, some equilibrium relation among them did exist.

### 3.2. VAR model

VAR model is a extensively applied dynamic econometric model introduced by Sims(1980).It has a relatively correct predictive result. In terms of the effective model, we are able to figure out how much the different impulses influenced the variables system. Having a string of tests, we regard the lag periods as 3.The VAR equation calculated by the Eviews is summed up in the following:

$$\ln F = 1.6042\ln F(-1) - 1.1457\ln F(-2) + 0.2386\ln F(-3) + 0.0535\ln M2(-1) - 0.0872\ln M2(-2) + 0.1126\ln M2(-3) + 0.0776\ln W(-1) - 0.0211\ln W(-2) - 0.0334\ln W(-3) + 1.0456;$$

$$\ln M2 = -0.6212\ln F(-1) + 0.1651\ln F(-2) - 0.0729\ln F(-3)$$

$$+ 0.8177\ln M2(-1) - 0.6847\ln M2(-2) + 0.8247\ln M2(-3) - 0.3045\ln W(-1) + 0.2295\ln W(-2) + 0.2365\ln W(-3) + 2.033;$$

$$\ln W = -0.2528\ln F(-1) + 0.846\ln F(-2) - 0.3314\ln F(-3) - 0.1001\ln M2(-1) + 0.3074\ln M2(-2) - 0.186\ln M2(-3) + 0.8456\ln W(-1) + 0.2236\ln W(-2) - 0.1959\ln W(-3) - 0.6649.$$

#### 3.2.1. VAR model stationary condition check

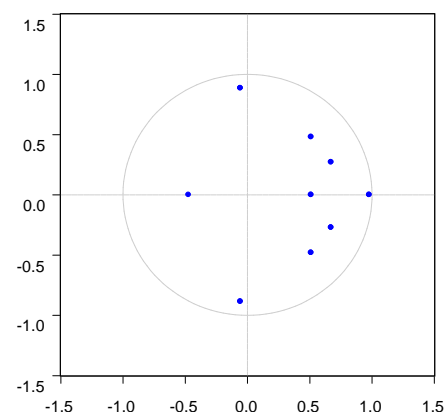


Diagram 3. Inverse roots of AR characteristic polynomial

All the inverse roots of AR characteristic polynomial are distributed in the unit cycle. The VAR model is a proved stable system. Based on that, it's feasible to undergo the analysis of impulse response function and variance analysis.

#### 3.2.2. The analysis of impulse response function and variance analysis

Due to the article length limits, we just gave the conclusion of the analysis of impulse response function and variance analysis in line with the VAR model.

After a regular standard deviation of impact, the real estate selling price index reflected gradually from the 2nd period, strengthening in subsequent periods till the 36th period. It showed a lasting positive effect.

Variance analysis displayed some other worthy findings. M2 has a relatively low contribution capability in forecasting the error of the real estate selling price index. Contrarily, the funds outstanding for foreign exchange works better, surpassing the M2. This suggests that the funds outstanding for foreign exchange are more difficult to control.

### 3.2.3. The conclusion of the model

The econometric model proved that certain stable long-term equilibrium relation has formed between the funds outstanding for foreign exchange and asset prices (real estate for instance). Indeed, given the reversed transmission mechanism, the funds outstanding for foreign exchange has a larger impact on the asset prices than expected. It's undoubtedly vital to solve the inflation problem departing from the funds outstanding for foreign exchange.

## 4. The suggestions

### 4.1. More attention to the supervision and regulation of the funds outstanding for foreign exchange

As is depicted in the context above, the constantly growing funds outstanding for foreign exchange are directly responsible for the asset bubble, further leading to the inflation. The central bank must reform the management administration of inflation. On the one hand, it has to lay more emphasis on the detection of the influx of the funds outstanding for foreign exchange. On the other hand, aptly easing the investment environment of domestic real economy has a rather important role. The all policies should aim to channel more speculative capital into the development of the real economy.

### 4.2. Improving the foreign exchange management, accelerating RMB internationalization

As a matter of fact, the over-stiff foreign exchange management system has become an obstacle to the free flow in Chinese capital market. It's time to speed up the RMB internationalization, reduce the control of capital account, and bring down the expectation over the RMB appreciation. The pressure of excessive liquidity released by purchasing the foreign exchange is likely to slowdown, while the exchange rate flexibility is allowed to be broadened. Also government is supposed to encourage the possess of foreign assets for the enterprises and individuals.

### 4.3. Punishing the speculative capital, encouraging investment overseas.

In the present situation, international speculative capital flourish. Most of them targeted the short-term and fast revenue. Illegal entrance makes a big part. The strict examination of FDI (Foreign direct investments in China) is crucial to ensure the healthy structure of foreign capital introduced. It's incumbent on the relevant department to keep track of the suspicious funds. The government needs to impose massive cost on that illegal speculative capital, creating a fairer and more impartial market atmosphere.

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