

# Analysis of the Impact of the International Balance of Payments Surplus on the Target of Monetary Policy: Evidence from China

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**Abstract:** *This paper starting from elaborating the reasons and current situations of the double surplus of international balance of payment in China and through regression analysis, this article examined the effect double surplus of international balance of payments has on the goals of monetary policy and tested the certain intermediary effect money supply has on the relation between foreign exchange reserves and GDP. The study found that the increase in foreign exchange reserves can promote the upgrading of the gross domestic production and money supply plays a certain intermediary role in the relationship between these two matters.*

## 1. INTRODUCTION

China's economic development is in the background of the opening, With the accelerating pace of China's opening to the outside world, especially after joining the WTO in 2001, our country is more closely linked with the world. The international balance of payments has an important impact on the realization of the goal of monetary policy in China. For more than ten years, the double surplus of the current account and the capital financial account is closely related to the level of economic development of a country. The huge surplus in the balance of payments has led to a sharp increase in foreign exchange reserves. Foreign exchange reserves increased from \$ 165.574 billion in early 2001 to the end of 2014 of \$ 3,843,018,000,000, A large number of foreign exchange reserves show that China has been out of the current economic development in most developing countries are still plagued by the foreign exchange gap. It means that China has abundant international payment capacity, and the double surplus of international payments also has an important impact on China's economic growth.

## 2. LITERATURE REVIEW

R.J .Carbaugh (1976) [1] thought that the shortage of foreign exchange reserves will affect some economic variables so as to have a serious impact on GDP and economic growth. Tao Ting (2010) [9] carried out dynamic test on the relationship between foreign exchange reserves and economic growth according to time series data, of which the sample interval is from 1952 to 2008. The analysis found out that foreign exchange reserves is the Granger cause of economic growth, but without a two-way Granger relationship, and foreign exchange reserves has a long-term positive impact effect on economic increase. Yao Xuesong (2014) [10] tested the relationship between China's foreign exchange reserves and GDP by using time series data from 1990 to 2011 and corresponding measurement method. The test results showed that the foreign exchange reserves and China's GDP have a long-term stable co integration relationship and there are greater positive influence and contribution degree between each other with a reciprocal causation relationship.

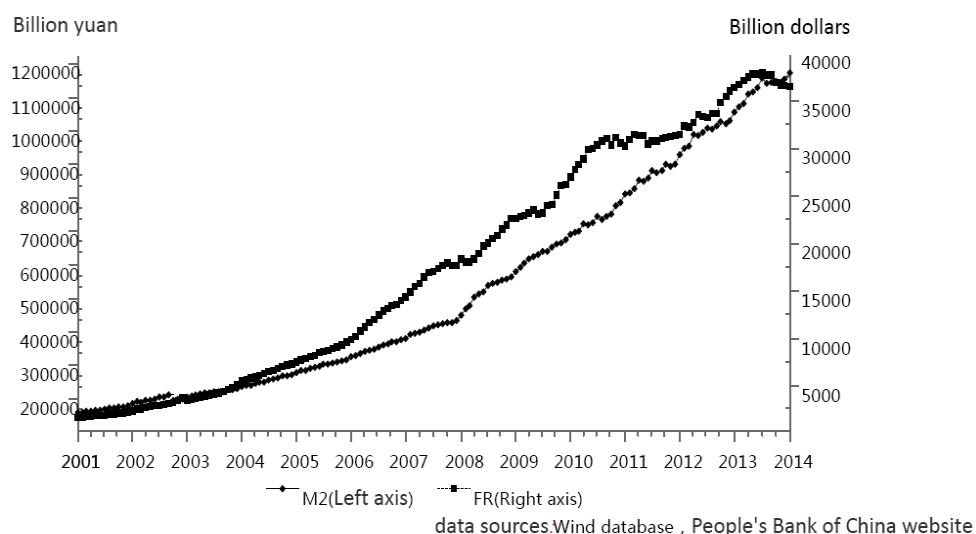
**3. CURRENT SITUATION OF CHINA'S DOUBLE SURPLUS OF BALANCE OF PAYMENTS**

Since joined the WTO in 2001, the scale of China's foreign trade has expanded rapidly and the international balance of payments structure has entered a new stage. From 2001 to 2014 years (except 2012), the current account balance of payment and capital and financial accounts are both in a surplus state, which is the so-called China's double surplus phase of international balance of payments.

Analysis on table 1 shows that from 2001 to 2014, China's current account surplus reached a total of two trillion and five hundred and three billion two hundred and thirty million dollars, while the capital and financial account surplus reached one trillion and six hundred and twelve billion four hundred and eighty million dollars. Current account and capital and financial accounts show a complementary relationship, like in 2004, the current account has only 68 billion and 900 million dollars but the capital and financial accounts reached one hundred and eight billion and two hundred million dollars. Fundamentally, the double surplus of China's international balance of payments situation is commensurate with our country's current economic development task, the level of economic development as well as the international competitiveness, and this situation will exist as a long-term trend. The relevant economic policy formulated by the Chinese government can only alleviate rapid growth trend of the situation.

**Table1.** China's international balance of payments "double surplus" situation (2001~2014)

Year	Current account	Growth rate (%)	Capital and financial account	Growth rate (%)
2001	174	-	348	-
2002	354	103.5	323	-7.1
2003	431	21.5	549	69.9
2004	689	60.1	1.082	97
2005	1.324	92	953	-11.8
2006	2.318	75.1	493	-48.3
2007	3.532	52.3	942	91.1
2008	4.206	19	401	-57.4
2009	2.433	-42.1	1.985	394.6
2010	2.378	-2.2	2.869	44.5
2011	1.361	-42.8	2.655	-7.5
2012	2.154	58.3	-318	-112
2013	1.482	-31.2	3.461	-119
2014	2.197	48.2	382	-89



**Figure2.** Changes in foreign exchange reserves (FR) and money supply (M2) in China during 2001-2014

Figure 2 reflects the changing situation of cumulative foreign exchange reserves and money supply from 2001 to 2014. Since 2004, China's foreign exchange reserves have entered a rapid growth phase and in 2006, it exceeded the trillion dollar mark. As of December 2012, China's foreign exchange reserves have exceeded a total of 4 trillion dollars. With the continuous increase of foreign exchange reserves, the generalized money supply is also increasing, and a large amount of increase in foreign exchange reserves affected the growth of domestic money supply to a certain extent. Due to the formulation of relevant economic policies by Chinese government, the M2 has declined by the end of 2013.

#### 4. RESEARCH FRAMEWORK DESIGN

##### 4.1. Variable Set

Foreign exchange reserves (FR), China's double surplus of international balance of payments is reflected in the huge foreign exchange reserves in the end. Therefore, this article used the foreign exchange reserve as a substitution variable to double surplus of international balance of payments.

Money supply (M2), an intermediate indicator of monetary policy analysis can be linked to the analysis on the impact double surplus of international balance of payments has on the goals of monetary policy, namely the money supply. Therefore, this paper selected money supply as the intermediary variable to examine the regulation and control monetary policy has on macroeconomic.

The ultimate goal of monetary policy (GDP), since 1998, the ultimate goal of China's monetary policy is to stabilize the value of the currency and to promote economic development. Therefore, the analysis based on the realization of goal of monetary policy in our country are mainly focused on the role of monetary policy played in stabilizing the price and maintaining the stable growth of GDP these two aspects. In this paper, GDP this Macroeconomic objectives is considered as a substitution variable to the goal of monetary policy.

In order to control the impact other factors has on monetary policy objectives, this paper sets the control variable group as: interest rate (I), exchange rate (R) and consumer price index (CPI).

##### 4.2. Model Construction

In this paper, we design the following three models to test the effect of the balance of payments surplus on monetary policy objectives, in which money supply as an intermediate variable.

$$\text{Model 1: } GDP = \alpha_0 + \alpha_1 I + \alpha_2 R + \alpha_3 CPI + \alpha_4 FR + \varepsilon$$

$$\text{Model 2: } M2 = \beta_0 + \beta_1 I + \beta_2 R + \beta_3 CPI + \beta_4 FR + \varepsilon$$

$$\text{Model 3: } GDP = \delta_0 + \delta_1 I + \delta_2 R + \delta_3 CPI + \delta_4 FR + \delta_5 M2 + \varepsilon$$

**Table 2.** Model variable description

Variable type	Variable name	Variable code
independent variable	Foreign exchange reserve	FR
control variable	interest rate	I
	exchange rate	R
	Consumer price index	CPI
dependent variable	gross domestic product	GDP
Mediator variable	money supply	M2

## 5. EMPIRICAL ANALYSIS

Using Spss software to multiple regression estimation model, The results as shown in table 3. Table 3 reported the impact the double surplus international balance of payments has on monetary policy objectives. In model 1, foreign exchange reserve (FR) and gross domestic product (GDP) showed significant positive change relationship, while the degree of explanation foreign exchange reserves has on promoting the goal of monetary policy is 0.319, and the significant test passed the level of 0.01 showed that the growth of foreign exchange reserves played a great role in promoting GDP. In model 2, when the explained variables was replaced by the generalized money supply(M2), the foreign exchange reserves has strong explanatory power to money supply with the regression coefficient of 0.370 and t test value of 3.06, which indicated that the increase in foreign exchange reserves will lead to the increase in money supply. In model 3, when the foreign exchange reserves and money supply are introduced into the same model to conduct regression, this paper found that the model goodness of fit was obviously improved to 0.9996, and the regression coefficient of money supply variables was 0.651, which is still significant with a significant level of 0.01. This showed that the amount of money supply can promote growth on GDP and at the same time, the variable regression coefficient of foreign exchange reserves was significantly and t test value was 3.16. The above conclusions of the study effectively proved that foreign exchange reserves can promote the growth of GDP and in the relationship between these two matters, money supply variables plays a certain intermediary role.

**Table 3.** *Effects of the balance of payments surplus on monetary policy objectives*

	Model 1	Model 2	Model 3
FR	0.319*** (3.96)	0.370** ( 3.06 )	0.078** ( 3.16 )
M2			0.651*** (13.67 )
I	-0.093 ( -0.36 )	-0.608 (-1.57 )	0.303*** ( 4.85 )
R	-0.316*** (-3.33 )	-0.256 (-1.80 )	-0.149*** ( -6.26 )
CPI	-0.0042 ( -0.28 )	-0.0043 (-0.19 )	-0.0015 ( -0.44 )
$R^2$	0.9646	0.9628	0.9996

## 6. CONCLUSIONS AND IMPLICATIONS

This paper discusses the impact of the international balance of payments surplus on monetary policy objectives, the test of the relationship between the amount of money supply in the foreign exchange reserves and the GDP of a certain intermediary effect, The results show that: first, the foreign exchange reserves can significantly improve the GDP, the international balance of payments double surplus has a significant explanatory power for the gross domestic product, But to the rational management of international balance of payments and foreign currency reserves, foreign exchange reserves is neither better nor the more the better, the scale of foreign exchange reserve has a modest problem(qifeng guo, 2003),Increase of foreign exchange reserves is beneficial to promote the realization of the ultimate goal of monetary policy, but a large amount of foreign exchange reserve of China's monetary policy operation will produce certain negative effects. With the increase of the impact of foreign exchange reserve on the money supply, there will be a gradual strengthening of the endogeneity of money supply, monetary authorities will not be able to independently control the money supply, leading to inflation(caiyun tao, 2010).Second, money supply in the relationship between foreign exchange reserves and GDP showed a certain intermediary effect show that foreign

exchange reserves to improve gross domestic product is achieved by increasing the money supply the conduction mechanism, reflecting the international balance of payments surplus subject to monetary policy implementation and to promote China's rapid economic growth has made contributions

Based on the research results, this paper puts forward the following suggestions: first, the rational management of international payments and foreign exchange reserves to maintain the balance of payments and foreign exchange reserves at a moderate level. Fully rational use of foreign exchange reserves, improve their earnings. Second, quickening marketization of interest rate marketization, the interest rate as benchmark of money market, can really reflect the market capital supply and demand relation and the ultimate goal of monetary policy.

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