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8 July 2012

Online at <https://mpra.ub.uni-muenchen.de/43733/>

MPRA Paper No. 43733, posted 13 Jan 2013 07:59 UTC

The change of the value of the RMB and its influences on China

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ABSTRACT

The issue of the change of the value of the Chinese currency has been focused by the world for several years. Its influences on not only China but also the rest of the world could not be neglected. Briefly historical background of the change of the Chinese currency as well as the influences it caused will be discussed in this essay by using the Mundell-Fleming Model as the basic concept to research and explain the particular situation in China. The result is that China should do the steady appreciation in terms of its currency rather than revalue it rapidly to improve the Chinese economy and several recommendations will be listed as well.

Keywords: exchange rate; FDI; monetary policy

1. Introduction

China has been becoming one of the two largest economic entities which are focused by the world. The changes of the exchange rate as well as the value of the Chinese currency deeply impact the global economy. Essentially, the exchange rate fluctuation significantly affects China's exports and imports and the Chinese government has been resisting the pressure for RMB appreciation in recent years. Especially after 1997, the financial crisis in Asia happened, many countries in the South and Southeast Asia devalued their currency immediately, which led China's net export decreasing straightly. However, the Chinese currency kept avoiding the depreciation during that period. The main reasons for this situation are: firstly, Chinese government had a relatively optimistic fiscal situation. The main goal of the government was boosting the government expenditure to achieve higher qualitative properties such as The Three Gorges hydro power station and Qinghai-Tibet Railway and re-allocated the resources. Secondly, it was concerned that China's price elasticity of the export demand was relatively low so that the depreciation of the Chinese currency had almost no influence on optimizing China's trade balances in that period. Finally, this situation exists because of the policy elements as well. Specifically, Zhu Rongji, the former premier, said that it was China's 'obligation' to keep the value of RMB relatively steady in order to avoid the stronger shocks in the financial crisis in Asia. But after 2002, China's main trade partners such as the U.S and Japan doubted that China made a deflation around the world. Then, large pressure of the Chinese currency's appreciation had been given by them so that the China's exports could be limited. Indeed, China is a huge nation of trading, the exports and imports account for a proportion of GDP which could not be ignored. Thus, the change of the value of the Chinese currency would deeply influence the Chinese economy. With the use of Mundell-Fleming model and the money multiplier theory, whether the Chinese currency should be appreciated or depreciated as well as the influences of the changes of the Chinese currency and their consequences will be discussed in this essay.

2. Literature Review

During recent years, especially after 2000, the RMB's appreciation had been become one of the most famous topics all over the world. Economists have done amount of research in terms of the Chinese currency appreciation issue.

Xu (2000) states that the flexibility of the exchange rate is not important to change the current account in balance, which means that China should insist its exchange rate policy which was established in 1994. However, Cline and Williamson (2008) state that there is a continuing appreciation on the RMB during 2000-2007 (17 percent increase during 2000-2004 and 26 percent increase in 2005-2007) so that the Chinese government should change the exchange rate policy to adapt this situation. Frankel and Wei (2007) report that the RMB was still mainly associated with the dollar during 2005-2007, although the government announced that the currency value would be linked to a basket of currencies such as euro and Japanese Yen rather than was only pegged with dollar. Wei (2006) reveals that the RMB's appreciation has non-linear influences towards China's GDP by using the Computational General Equilibrium. But Bremner and Dexter (2004) argue that the Chinese government will revalue the RMB in the future and the Chinese officials will see the benefits in terms of relatively flexible currency policy. Chou (2000) shows that there is a long-term negative influence on the Chinese exports which is caused by the exchange rate flexibility.

However, these essays or papers only do research from one or two elements towards the macro economy in China. Thus, there will be an entire linkage mechanism and analysis of the influences in terms of all main components' changes in this essay.

3. Model and Theory

3.1 The Mundell-Fleming Model

The Mundell-Fleming Model is an extension of the IS-LM Model, which is known as the IS-LM-BP Model. It is used in the open economy to reveal that the exchange rate is an important determinant in terms of the effects of the policies. Moreover, the Mundell-Fleming Model argues that a fixed exchange rate, free capital mobility, and an independent monetary policy cannot simultaneously maintained by an economy, which is called 'the Mundell-Fleming Trilemma' or 'the impossible triangle'. The details are as follows.

3.1.1 Under the flexible exchange rate

In this system, there is no limitation or restriction towards the exchange rate from the central bank. Based on the 'Mundell - Fleming Model', it is assumed that there is no free capital movement in this case. In other words, the exchange rate totally determined by the market.

Changes in the money supply

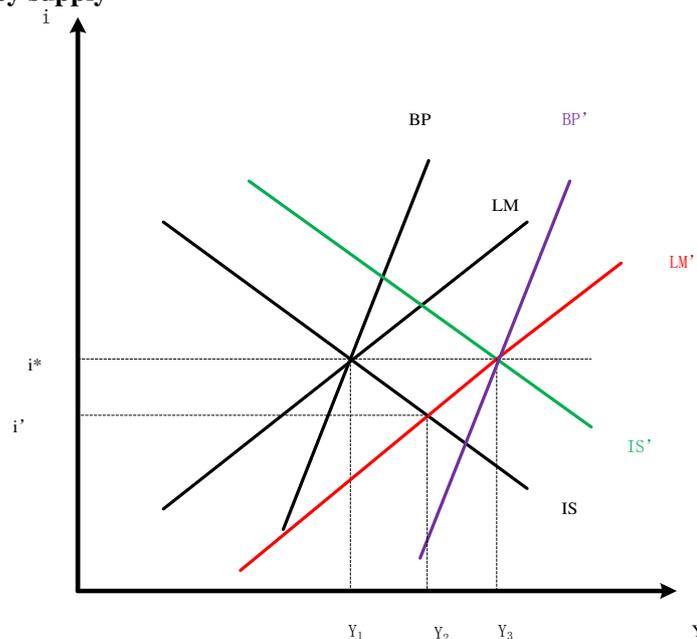


Fig1. Changes in the money supply

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If there is a money supply which might be given by the central bank, the LM curve will shift rightwards (from LM to LM' in figure 1). Then, the domestic interest rate will be lower than it abroad (i' in figure 1) and the income will increase (from Y_1 to Y_2 in figure 1), which means that the money would flow away into the world and the exchange rate will depreciate. The domestic goods will be cheaper than the foreign goods because of the depreciation, which will lead to a situation that the export of the country increases while the import decreases. Thus, net exports increase, which shift the IS curve rightwards in order to cover the decline of the domestic interest rate. At the same time, the BP curve (here it is assumed that there is no free capital mobility so the BP curve has a slope. If there is a free capital movement, the BP curve will be horizontal) shifts rightwards as well to achieve a new equilibrium point. And the income also increases (from Y_2 to Y_3 in figure 1).

To sum up, with the depreciation of the currency, the economy takes a relatively lower interest rate and higher income to make the balance of payment to be zero.

Changes in the government expenditure

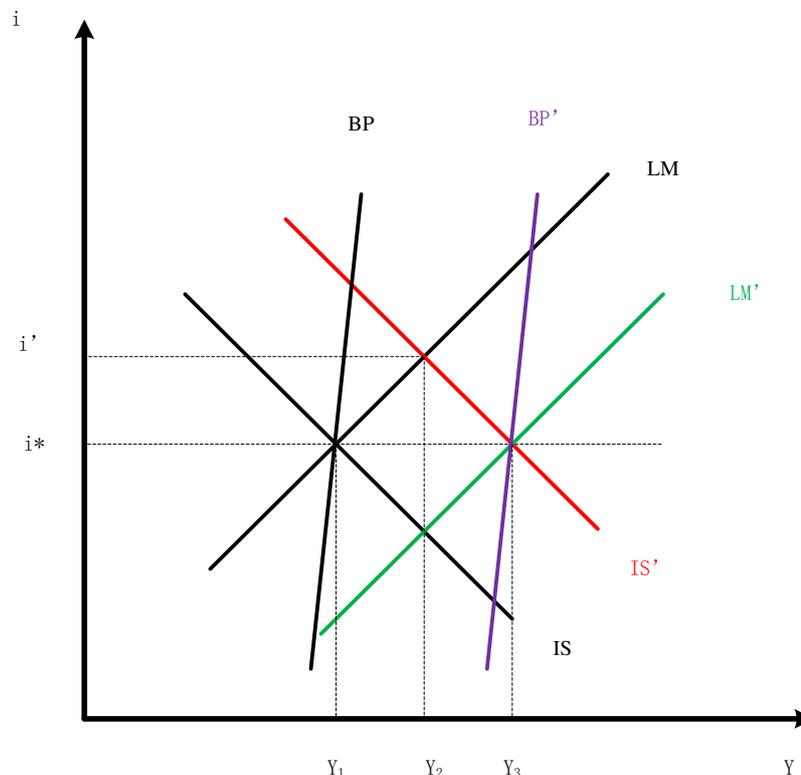


Fig2. Changes in the government expenditure

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If there is an increase in the government expenditure, the IS curve will shift rightwards (from IS to IS' in figure 2). Obviously, the change boosts both interest rate (i' in figure 2) and income increasing (Y_2 in figure 2). The capital will flow inside because of the increase of the domestic interest rate, which means that the exchange rate will be appreciated. The domestic currency will be stronger than foreign currency because of the currency inflows, which means that the goods abroad are cheaper than it domestically. Therefore, the imports will be increased and the exports will be decreased. In other words, net exports will be decreased. If there is no free capital mobility, the currency inflows also mean that both current account and capital account will surplus, which is called 'Twin Surplus'. Then, the BP curve (here it is also assumed that there is no free capital mobility) will shift rightwards.

To sum up, with the appreciation of the currency, the net exports will be decreased and there will be a 'Twin Surplus' exists.

3.1.2 Under the rigid exchange rate

In this system, there is a limitation or restriction towards the exchange rate from the central bank or government. It means that a sticky exchange rate is announced by the central bank and the central bank might buy or sell some amount of the domestic currency to maintain the exchange rate. Specifically, if there is pressure to force the domestic currency's exchange rate to be depreciated because the demand of domestic currency will be exceeded by the supply of domestic currency in foreign exchange markets, and then the local government will buy domestic currency with foreign currency in order to decrease the supply of domestic currency in the foreign exchange markets. As a result, the domestic currency's exchange rate could be kept at its targeted level by doing this. If there is pressure to force the domestic currency's exchange rate to be appreciated. The supply of domestic currency will be exceeded by the demand of domestic currency in foreign exchange markets, and then the local government will buy foreign currency with domestic currency in order to increase the supply of domestic

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currency in the foreign exchange markets. By doing this, the domestic currency's exchange rate could be kept at its targeted level. Based on the 'Mundell - Fleming Model', in this case, there could be free capital mobility and independent monetary policy.

Changes in the money supply

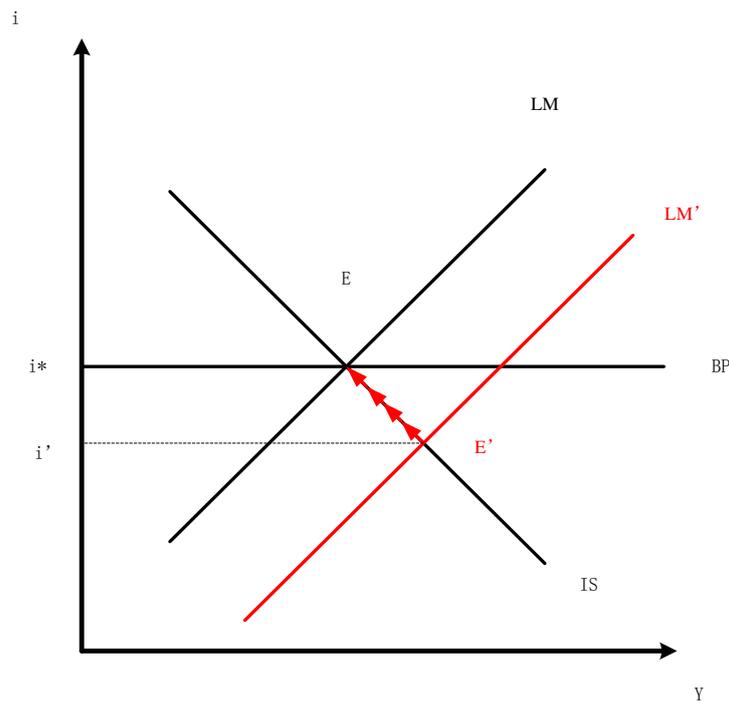


Fig3. Changes in the money supply

If there is a money supply from the central bank, the LM curve will shift rightwards (from LM curve to LM' curve in figure 3). Then the interest rate will be decreased (from i to i' in figure 3) so the currency will flow abroad because of the relatively low interest rate, which means that the equilibrium point will move from E' back to E in figure 3. In other words, the monetary policy is efficient in short-run case but is inefficient in long-run case. Therefore, fiscal policy should be used to regulate the economy.

Changes in the government expenditure

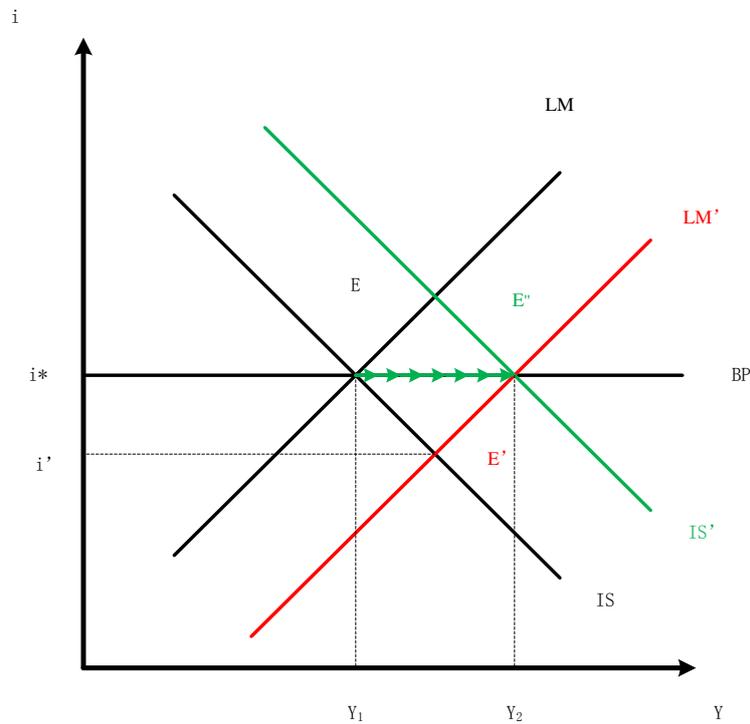


Fig4. Changes in the government expenditure

Based on what have been discussed above, when the monetary policy is inefficient, the fiscal policy should be used in order to control the economy. Specifically, if there is a government expenditure, the IS curve will move rightwards (from IS to IS' in figure 4). Then the equilibrium point will be moved from E to E'', which means the income Y will increase from Y_1 to Y_2 . Then the economy is efficient.

3.2 The Money Multiplier Theory

The money multiplier theory is used to explain the amplifying effects of the high-powered currency which are from the central bank to regulate the macro economy. Details are as follows.

Firstly, several concepts should be clearly explained. The elements of this theory are as

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follows. High-powered money consists of currency which presents as H in terms of both notes and coins and banks' deposits at the central bank. M means the supply of money. D presents the deposits and CU means the money supply consists of currency. Therefore, as shown in the Fig. 5, there are several relationships as follows.

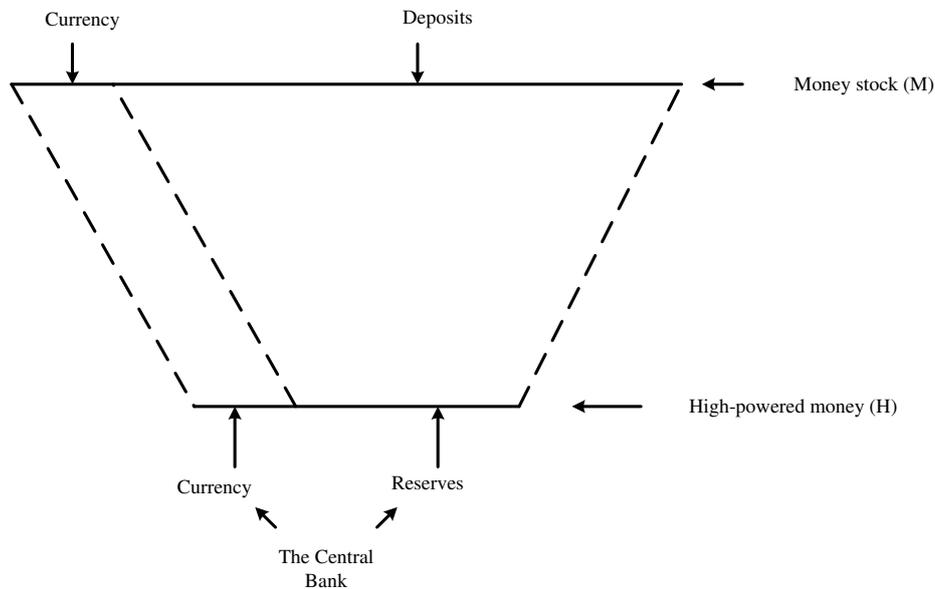


Fig.5 The Money Multiplier Theory

Relationship one: the money supply equals to the currency plus the deposits.

$$M = CU + D$$

Relationship two: High-powered money supply consists of currency and reserves.

$$H = CU + \text{reserves}$$

Then cu is defined as the currency-deposit ratio, re is defined as the reserve-deposit ratio. Thus, relationship three: the money supply in terms of its determinants is expressed as:

$$M = \frac{1 + cu}{re + cu} \cdot H$$

Here, $(1+cu)/(re+cu)$ is concerned as the money multiplier, which is larger than 1. Thus, the high-powered money from the central bank has magnifying effects.

4. Analysis of the situation in China

According to the model above, a particular focus on the Chinese current economy should be taken. If there is a change in terms of the exchange rate, then a chain reaction exists, which is shown in Fig. 6. The chain reactions which are caused by the appreciation will be discussed in this section.

LINKAGE MECHANISM

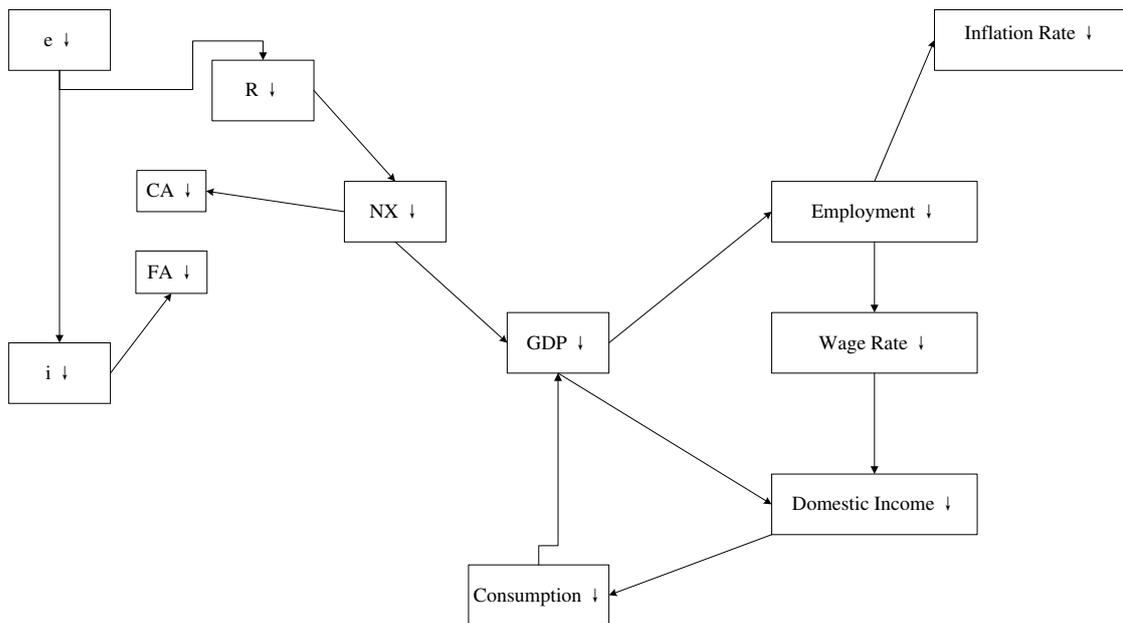


Fig. 6 Linkage Mechanism

In this figure:

e -- The nominal exchange rate

R -- The real exchange rate,

i -- The interest rate,

CA -- the Current Account,

FA -- the Financial Account

NX -- the export.

As can be seen in the figure, if there is an appreciation of the RMB, which means that the nominal exchange rate will be decreased, the real exchange rate will be decreased because the positive correlation between the nominal exchange rate and the real exchange rate. Then the net export will be decreased, which means that the increase rate of the GDP will be falling. There is also a link between the GDP and the employment. If the increase rate of the GDP is falling, the job opportunities will be decreased, and then the employment will be decreased as well. If the employment decreases, the inflation rate should be decreased.

Here is the point; the inflation pressure is extremely high in current China, which is reverse to the result of the mechanism. The reasons why this situation exists and the influences caused by them are as follows.

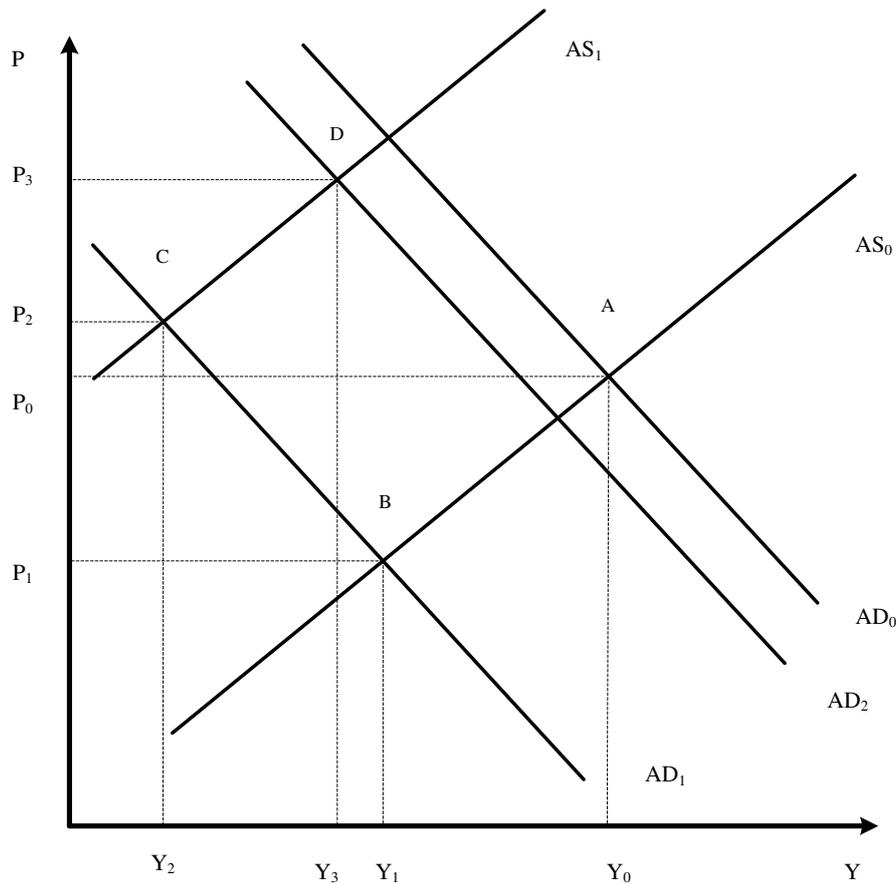


Fig. 7 The changes based on the government behaviors

The entire process is shown in Fig. 7. AS is the aggregate supply curve, AD is the aggregate demand curve. There is no doubt that the outputs as well as the prices are determined by the aggregate supply and the aggregate demand. Therefore, the horizontal axis represents the output and the vertical axis represents the prices.

The initial situation is on point A. The output is Y_0 and the price level is P_0 . Based on the mechanism above, when the appreciation happened, the aggregate demand will be decreased (from AD_0 to AD_1), then the output and the price level will be falling (from Y_0 to Y_1 , P_0 to P_1 , respectively), which means that there is a movement from point A to point B.

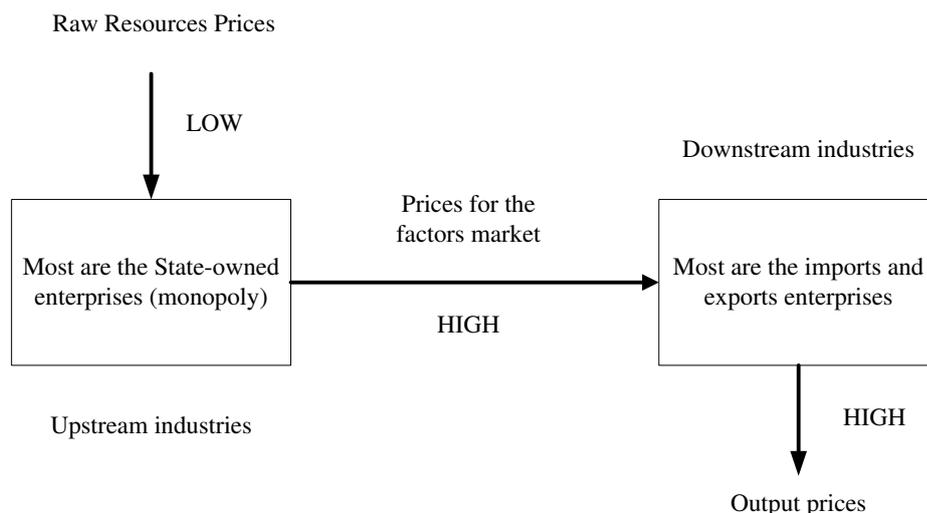


Fig. 8 The brief structure of China's enterprises

Concerning the AS curve's movement, the two reasons are as follow. Firstly, the structure of enterprises in China is briefly shown in the Fig.8. It could be seen that most state-owned enterprises hold the extremely low priced raw resources from The National Development and Reform Commission because of the tremendous influences which are given by these enterprises towards the Chinese economy and moreover these enterprises commonly are those who monopolize the energy sources such as electric power and coal. Therefore, the prices setting are not based on the competitive environment. For the downstream industries which are mainly constructed by the imports and exports enterprises will achieve distorted prices from the upstream industries. In other words, there is wrong resources allocation in the market which will influence the aggregate supply decreases. In other words, the AS curve moves from AS_0 to AS_1 . Then the price level will be increased and the output still be decreased (from P_1 to P_2 , Y_1 to Y_2 , in figure 7, respectively).

Under this circumstance, the China's government realized that the GDP could not decrease any more. Then in March 6th in 2009, the 11th National People's Congress announced that the government will make 4 trillion RMB investments to stimulate

domestic demand. The director of the National Development and Reform Commission Zhangping listed these investment's target markets. There were 1.5 trillion for the infrastructure such as railway, highway, airports and water resources engineering; 0.15 trillion for education and security etc; 0.21 trillion for energy conservation and emission reduction as well as ecological engineering; 0.37 trillion for the structure reform and technology improvement; 1 trillion for the reconstruction in Wenchuan after the earthquake. As this 4 trillion government expenditure came out, the bank loans were activated as well. There were 9.59 trillion loan increment from the central bank in 2009 and 7.95 trillion loan increment from the central bank in 2010. In fact, these credits from central bank will be expanded in the real money stock level. According to Rudiger Dornbusch (2008), the money multiplier exists in terms of money stock determination. Specifically, if this nearly 9.6 trillion loan increment from the central bank flew into the market, the real number was much higher. These two reasons lead the aggregate demand increases (from AD_1 to AD_2), and then the prices become higher and the GDP increases (from P_2 to P_3 , Y_2 to Y_3 , in figure 7, respectively).

According to what have been discussed above, the RMB obviously faces pressure from outside appreciation and inside depreciation. Moreover, there are several sequels left due to those government behaviors. First of all, most of the loans which are from the central bank and commercial banks flow into the real estate. Based on the analysis in the previous paragraph, there is such a massive 'loan-linkage' among most banks, which might drive the Chinese economy into the risky area in terms of the subprime crisis. And another direct influence is that the housing prices bubble and the overheated investment towards the real estate. These phenomena are those just on the surface, the deeper damage is that the tremendous capital and investment movement from other fields and industries. Obviously, when there are extremely high profits in one field, all capital and investment will be absorbed by this field. That is to say, if there are high profits in the real estate, many other leading enterprises in other fields will be attracted into the real estate. These massive profits for these enterprises are attractive, but view from the long-run case, it is extremely bad for the Chinese economy. The direct result of

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this is that more and more money will be moving into the real estate which will lead the competitiveness of other enterprises in their own fields to be decreasing. In addition, the innovation and the sustainable development of other fields will be decreased as well. These adverse effects had been shown in the housing bubble which happened in Japan and Hongkong several years ago. As far as the current China's situation, the ability of innovation is exactly low. If the government keeps the overheated real estate existing, which is mainly caused by the appreciation and the loans linkage, the substantial economy will be weaker and weaker in the future. More importantly, if there is a financial crisis happens, the Chinese economy will be destroyed immediately.

Secondly, the 4 trillion RMB government expenditures did not impact the Chinese economy through a positive path. The initial target of these 4 trillion yuan government investments is to improve the employment rate and reduce the gap between the rich and the poor. Inversely, due to the structure of Chinese enterprises, the small and middle-sized enterprises shocked even bankrupted which were caused by the money supply while the stated-owned enterprises became bigger and bigger. This is because that the stated-owned enterprises are commonly related to the resources fields which the small and middle-sized enterprises do not have the chance to achieve share of the market. In other words, on one hand, because of the reduction of the small and middle-sized enterprises, the wage rate decreases, the employment rate decreases. On the other hand, the state-owned enterprises are becoming the oligopolistic enterprises which means that the rich will be richer as well as the poor will be poorer. Under this circumstance, labor shortage happened in most cities in the coastal area in China. In fact, the enterprises in the coastal area are which mainly relate to the imports and exports. Therefore, the labor shortage negatively impacts on the efficiency of these enterprises and then influences China's net export.

Finally, the high price level means the high inflation rate which will cause many negative effects on the Chinese economy. One of the most obvious characteristics is that if one kind of commodity's price is increasing, other commodities' prices will be

increasing as well. Then the wage rate will be decreasing and this will further increase the inflation rate. Therefore, the gap between the lower wage rate and the higher inflation rate will be greater and greater, which will lead the China's income distribution and the Chinese economic structure become much more imbalanced. In addition, the high inflation will make a great uncertainty to the investment and the consumption, which will further distort the China's economic structure. Precisely, price level is a hint for the producers which mean that a distorted price will lead a distorted production. In other words, the high price is not the reflection from the real demands. If the Chinese economy keeps developing as this, China's over-investment and overcapacity will be worse and worse in the future. Moreover, if there is a high inflation rate, the easiest way for the enterprises to achieve high profits is increasing the price of their products. Therefore, none of these enterprises would invest their money to the innovation system, which means that the productivity will be decreased and the competitiveness of these enterprises will be weaker and weaker.

To sum up, the rapid appreciation of the RMB will deeply damage the Chinese economy.

What should the Chinese currency do? Depreciating immediately? The answer is no. The reasons are as follows. First of all, the world economy had been falling into the valley because of the financial crisis and China was shocked less than other countries in this disaster. Therefore, the world put an extremely high expectation on the Chinese economy. This is the reason why there is a great pressure of appreciation of the Chinese currency. Another reason is that if the RMB depreciate immediately, the China's terms of trade will increase as well as other countries' terms of trade will decrease. Many cases of anti-dumping in terms of Chinese export goods happened in many countries, which are invisible pressure of the value change of the Chinese currency. Thirdly, as the mechanism shown above, if there is a depreciation of the RMB, the inflation rate will be higher and higher, which definitely do harm to the Chinese economy based on the

previous analysis.

To sum up, the immediately depreciation of the Chinese currency will deeply damage the Chinese economy as well.

5. Conclusion

According to what have been analyzed above, a conclusion could be drawn that China likely traps into a dilemma, which means that both appreciating rapidly and depreciating immediately will do harm to the Chinese economy. Specifically, under both appreciation and depreciation, the Chinese economy will confront to the international pressure as well as domestic pressure. But doubtlessly, based on the current international situation, the steady appreciation of the RMB is the trend and a chance to improve the Chinese economy. However, because of those several 'mistakes' which were done by the China's government, the Chinese economy has been deeply distorted. Something new should be done by the Chinese government in the future to reverse the current relatively worse situation of the Chinese economy.

6. Recommendation

Based on the previous analysis and conclusion, in order to improve the Chinese economy, there are several recommendations as follows.

From the international point of view, it is the best for the Chinese government to partly release the exchange rate rigidity and to promote the RMB to be the international currency. In fact, it is said that there might be a directly exchange between the RMB and the Japanese Yen in June, 2012. Obviously, this news is good for the Chinese currency to be the international currency and is moreover good for the imports and exports

between the two countries. There are also many advantages for the Chinese economy to reduce the risk of relying on the US dollar and minimize the exchange cost while the export activities. In addition, China should change the structure of its export goods. Specifically, developed countries' exports goods commonly are high elastic manufactured goods; the change of the exchange rate will have more efficient influences. Inversely, the exports goods generally are relatively low elastic commodities, the change of the exchange rate will less influence the balance of the payment. Therefore, China should change the structure of the export goods. In other words, China's government should transfer its export goods from the lower elastically primary commodities to the higher elastically manufactured goods and then the China's government could improve the balance of payment by changing the nominal exchange rate.

From the domestic point of view, the China's government should insist on promoting the structure reform. The state-owned enterprises must be pushed into the market; the management system of these enterprises must be changed in order to activate them and achieve the relatively optimal resources allocation. Precisely, the property right of the state-owned enterprises should be clearly identified. Furthermore, the state-owned enterprises should be transferred from political role to the profitable and efficient role. These suggestions are only the tip of the iceberg, there are much more things should be done in the future. The improve path of the Chinese economy is a long travel. In fact, China has been trapped into a bottleneck of growing. If China could grab the chance to drastically reform in order to create much greater space for growing, it will be stronger and stronger.

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