The Stability of RMB Exchange Rate and Its Perfection of Present Exchange Rate Mechanism[1]

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Abstract: From the middle of 1990's to July 2005, China's exchange rate system actually has even been a single exchange rate regime pegged to the US dollar. Under the system, the RMB exchange rate is relatively stable against US dollar and not stable in terms of China's equilibrium exchange rate. Such regime of RMB exchange rate gradually shows its disadvantages with China's deep reform, opening up and rapid economic development. It leads to the conflicts between the stability of bilateral exchange rate and the equilibrium of RMB exchange rate. Properly understanding the stable exchange rate of RMB is a basic prerequisite for gradually reforming the present exchange rate mechanism on the basis of our economic development conditions. This paper analyzes an alternative exchange rate regime based on a basket of currencies. The potential measures including the build-up of exchange rate target zone are also discussed.

Key words: international standard money, stable exchange rate, exchange rate regime

1. INTRODUCTION

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Exchange rate, the price of the nation's currency or foreign exchange financial asset, not only influences the domestic economic equilibrium, but also has impact on the harmony of international economic relationship. A lot of facts indicate that the exchange rate, either too rigid or too floating, does not benefit the development or stability of the economy unless the nominal exchange rate is relatively stable based on the equilibrium exchange rate.[5]

After the Asian financial Crisis, especially after 2003, the academia warmly discusses the stability of RMB (Renminbi yuan) exchange rate and the reform of RMB exchange regime when the central bank faces the pressure of RMB appreciation and the demand for changing the single exchange rate regime pegged to US dollar from the western countries, especially from the USA and Japan. Regarding the issue whether we should keep the RMB exchange rate stable or appreciate it, a lot of scholars mainly analyze the pressure of appreciation, the effects of post-appreciation, and the reasons and influential factors that maintain the stability of RMB exchange rate. Zhang and He (2003) analyze the effect of undervalued RMB and the costs and benefits of RMB appreciation based on the analysis of the RMB internal appreciation pressure. Furthermore, they analyze the alternative scenarios adopted by the currency authority that faces the appreciation pressure from home and abroad. Zhou (2004) analyzes the dynamic change of the appreciation pressure of RMB. He believes that the RMB is mainly facing three kinds of pressures: the appreciation pressure from the foreign exchange market, the appreciation demand of external politics, and the balance of domestic policy. Yang (2004) argues that the significant problem of RMB exchange rate is the long-term undervalue problem of RMB exchange rate, which needs to be adjusted, not the reform of RMB exchange rate. Therefore, the theory basis of RMB exchange appreciation or stability is indispensable. He also explores the reasons for the RMB appreciation pressure using other theories, including the economic equilibrium theory, the equilibrium rate theory, purchasing power parity theory, real exchange rate and real effective exchange rate, and the theory of the dual movement of the tradable and non-tradable product price. Liu (2004) takes advantage of the equilibrium model of exchange rate to estimate the standard equilibrium exchange rate, and further analyzes the effect of short impact of the balance of payment and real exchange rate through the impact-effect method of VAR model. Zeng and Feng (2002) argue that we should discuss the decision mechanism rather than the effect of RMB appreciation. According to their view, the best way to keep the stability of RMB exchange rate is to change the regulations on RMB exchange rate formation, relax foreign exchange control and widen the channels of the capital flow, increase the exchange hold of the domestic citizens and form a real market mechanism of RMB exchange rate. In short, the main view is to reform the existing exchange rate regime and implement a more flexible exchange rate regime and arrangement while there is still some controversy over the steps and the choice of the exchange rate regime.

A lot of scholars (Ding 2004, Liu 2004 and Zeng and Feng 2003) have undertaken research on stability of RMB exchange rate, RMB exchange rate system and related topics. However, it is obvious that, as witnessed in some research results and the existing interpretation of some scholars, they regard the stability of pegged exchange rate as the stability of RMB exchange rate. For the issue of the RMB appreciation, most scholars emphasize on the analysis of the economic effects after the appreciation. They did not conduct an in-depth and systematical analysis on the relationship between the stable RMB exchange rate and the RMB exchange rate mechanism innovation. This paper will define stable exchange rate, explore the relationship between stable exchange rate and exchange regime and arrangement, and analyze the deficiency of RMB exchange rate mechanism and the cost of maintaining existing nominal exchange rate stability. This paper will also clarify the one-side comprehension that,

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[5] According to Nurkse (1945), equilibrium exchange rate refers to the exchange rate which can achieve the balance of international payments (see Goldstein 1995, 18). Later, Swan (1963) developed the theory of equilibrium exchange rate. He defines that equilibrium exchange rate only can be achieved through both external and internal equilibrium, namely, the exchange rate that can maintain the balance of international payment, full employment, and stable price. From the perspective of the relation between economic growth and exchange rate, Jiang (2004) argues that the equilibrium exchange is the one which can keep the economic growth under the condition that the international payment is not constrained with capital flow.

under the single RMB exchange rate regime pegged to US dollar, the stability of RMB exchange rate against US dollar is not a real stable exchange rate. In order to explore the innovation mechanism of RMB exchange rate, this paper builds a pegged exchange rate model and discusses the creation of the target zone. The pegged exchange rate is a weighted mean of the currencies in a basket, the basket composed of the currencies of the countries and areas which have a large amount of foreign trade and investment dealings with China, including US dollar, Euro and Yen.

2. THE DIFFERENT CONNOTATIONS OF THE STABLE EXCHANGE RATE UNDER DIFFERENT INTERNATIONAL MONETARY SYSTEM

Under the gold currency regime, every country adapted the fixed exchange rate mechanism based on the gold content of its currency. The fixed mint parity ratio was based on the gold content per unit currency of a county. Because a country's exchange rate was restricted by its regulatory mechanism, its floating range was narrow and the exchange rate was stable. Usually, the exchange rate fluctuation is limited in the range of gold transaction point. During this period, international currency exchange rate was characterized by the spontaneity of the exchange rate arrangement and the exchange rate operational mechanism. Namely, it formed spontaneously in the process of in global economy communication and its operation is realized through the self-correcting process of the market mechanism. This exchange rate maintained the stability of foreign exchange rate and the currency value. Therefore, this fixed exchange rate actually is a real stable exchange rate.

Prior to the end of the World War II, the International Monetary System centered on the US dollar, the Bretton Woods System, was founded. Under this system, the exchange rate mechanism was mainly to implement the adjustable pegged exchange rate regime. IMF (International Monetary Fund) members agreed to set the official price in January 1934 that $35 US dollars equaled to 1 ounce gold. $1 US dollar equaled to 0.888671 gram gold, and the other IMF members keep their fixed ratios to the US dollar according to their domestic monetary parity. Theoretically, the Bretton Woods System gold-dollar standard system is a kind of gold exchange standard. The issue and circulation of US dollar as the international standard currency were based on gold. During this period, there was an obvious stability of a country's exchange rate against US dollar. Because of the effect of the Triffin Dilemma and the relative decline of American economy status, USA (United States of America) could not keep the relationship between US dollar and gold. As a result, the Bretton Woods System collapsed after it experienced several US dollar crises.

After 1978, the contemporary international monetary system was based on the Jamaica agreement. This monetary system was a managed floating rate, characterized with pluralism of international reserves and diversified exchange rate arrangement. The gold was no longer exchange currency. This exchange rate regime includes the single-floating, pegging-floating and plural-floating. Under this system, the currency lacks an official gold par. The basis of exchange rate fluctuation is determined and influenced by international foreign currency demand and supply. The government has the autonomy to implement the domestic currency and exchange rate regime.

Compared with the traditional gold standard regime, the characters of current credit standard system mainly base on US dollar are: 1) the international currency standard has a tendency of pluralism. As the globalization of the world economy and the integration of international economic areas, US dollar, as well as some other countries' credit currency such as the Euro, Yen and Pound, acts as the international currency standard in some degree. There is a dynamic influence of currency standard according to the adjustment and occurrence of its country or economic body's status among the global economy framework. 2) The content of international currency totally changes. Durability, divisibility, portability and homogeneity of currency, as the universal equivalent of international economy trade, are no longer the sufficient and necessary conditions. The common character of international currency standard is the symbols of value. The foundation of the exchange rate begins to change. The standard of weighing the rationality of exchange rate is not the gold parity, but the equilibrium exchange rate. That is the exchange

rate that realizes the internal and external equilibrium at the same time. Because the credit currency standard does not rely on the precious metal such as gold, its circulation largely depends on the economy of the country or the economy body which issue the currency. In a country, the factors, including the relative status of its economy, the fiscal policy, and the tendency of its currency policy, have great impact on the strength of currency and the credibility of this international currency standard. Furthermore, this system will influence the stability of the effective exchange rate especially the capacity of the developing countries, which pegged their exchange rate target to a lot of or several international currency standards

3. THE FEATURE AND DRAWBACK OF THE FORMER RMB EXCHANGE RATE FORMING MECHANISM

Since the exchange rate regime reformed in 1994, China has nominally adopted a single managed floating exchange rate regime based on market supply and demand. However, during several years, because the exchange rate of RMB is only pegged to the US dollar and its floating range is narrow. Scholars generally regard the RMB exchange rate mechanism as a fixed exchange rate regime pegged to the US dollar before July 21, 2005[6]. After the Asian Financial Crisis, IMF also classifies China's exchange rate regime as a fixed exchange rate regime pegged to the US dollar. Although the fixed exchange rate regime pegged to the US dollar has its historical rationality and positive significance, it is a relative stability of RMB nominal exchange rate against US dollar and not a real stable exchange rate.

Pegged exchange rate can naturally exist in the fixed exchange rate as well as in nominal managed floating rate regime. The pegged exchange rate can achieve such microeconomic return as the stability of exchange rate that can promote trade and investment. However, it also has some macroeconomic costs, especially at the period of the inflation or the deflation. Generally speaking, under the international circumstance the major economic giants all adopt floating exchange rate regime because the weakness of the pegged exchange rate is obvious and fatal.

First, pegged exchange rate regime can not effectively reduce the fluctuation of the nominal exchange rate under the existing international exchange rate regime. Among those countries and areas adopting pegged exchange rate regime, their currency values are relatively stable within a period when we concern their relationships with the pegged currencies. However, their currencies are in the situation of non-equilibrium floating within the global background. In light of the fact that the mainstream of international exchange rate regime is the floating rate regime, the exchange rate of major developed countries' currencies, such as US Dollar, Yen, Pound and Euro, is freely floating. The currencies of developing countries peg one or a group of the major currencies, which means that their currencies freely float comparing with the countries whose currencies are not pegged. Meanwhile, their weighted average effective exchange rate fully lies in the exchange rate fluctuation of the major developed countries and is not connected with domestic economy. This disconnection will cause the non-equilibrium interference of exchange rate and consequently influence the economy development.

Second, the pegged exchange rate regime actually widens the fluctuation range of the effective exchange rate, encourages the non-stable speculation, and increase the probability of financial crisis. Exchange rate is the relative price of two currencies. In the long run, it is the relative embodiment of economic powers among countries. Because of the imbalances of economic development among countries, the relative value of currencies changes. Correspondingly, the exchange rate changes as well. The rigid pegged exchange rate has inhibited this natural floating tendency. The "accumulated inhibition effect" provides the substantial economic base for the attack of international hot money. However, because the central banks of developing countries do not have sufficient foreign currency reserves and financing channels to borrow money, their capacity to maintain the pegged exchange rate is inefficient without the assistance of the key developed countries and the international finance organizations. The

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[6] The Public Announcement of the People's Bank of China on Reforming the RMB Exchange Rate Regime http://www.pbc.gov.cn/english//detail.asp?col=6400&ID=542 access in 2007.

"flock effect" from the confidence crisis further intensifies the impact on pegged exchange rate, forces a country to implement the floating rate regime hastily, and increases the economic cost of exchange rate regime renovation.

Under the pegged exchange rate regime, the Chinese government emphasizes on the RMB fixed exchange rate with US dollar. From 1998 to the first quarter of 2005, the floating range of RMB exchange rate against US dollar is very narrow, with a range of 0.3%. The RMB exchange rate against non-US dollar currencies varies according to the change of the US dollar against other currencies. From the table below, we observe that the RMB exchange rates against currencies such as Euro and Yen have a wide margin of devaluation while the RMB exchange rate against US dollar maintains stability.

Table 1 The average RMB exchange rate against the key foreign currencies

(100 units of foreign currencies)

	1997	1998	1999	2000	2001	2002	2003	2004	2005
US dollar	828.97	827.91	827.83	837.84	827.70	827.70	827.70	827.68	827.65
Yen	6.8608	6.3488	7.2932	7.6864	6.8075	6.6237	7.1466	7.6552	7.51490
Euro						800.58	936.13	1029.00	996.10

Source:http://www.safe.gov.cn/model_safe/tjsj/rmb_list.jsp?id=5&ID=110200000000000000 access in 2006.

Single pegged exchange rate system against US dollar keeps the nominal stability of RMB exchange rate, but it has two major problems. First, the stable RMB exchange rate is a nominal stable exchange rate and it may not achieve equilibrium of RMB exchange rate. Second, the floating of RMB exchange rate again non-US dollar currencies depends on the floating of US dollar again these currencies, which is result of US domestic economic conditions, macro fiscal and monetary policies, and the demand and supply of foreign exchange rate market. Therefore, the RMB exchange rate fluctuation does not reflect the domestic economic activities and may not gain equilibrium of exchange rate. When US dollar has a wide range of fluctuation with the world main currencies such as Yen and Euro, the RMB equilibrium exchange rate accordingly fluctuates sharply and exchange rate conflicts between the US dollar and RMB currency increase. For instance, after the middle of 1990s, especially after the Asian Financial Crisis, RMB currency faced a large pressure of depreciation because the depreciation of major Asian currencies including Yen. US dollar depreciated against Euro and Yen after 2002, which partly cause the appreciation pressure of RMB currency. Therefore, it is not correct to regard the stable RMB exchange rate pegged US dollar as a stable exchange rate. We should not neglect the interference of international major standard currencies into the stability of RMB exchange rate.

4. THE COST TO MAINTAIN THE NOMINAL STABILITY OF RMB EXCHANGE RATE UNDER THE FORMATION MECHANISM OF OLD EXCHANGE RATE

There is a tendency of international economic integration and the pluralism of international standard currency, and the pluralism of China's trade relations. The cost and the defects of keeping the nominal exchange rate of RMB stable increasingly become obvious:

First, pegged RMB exchange rate lacks a strong capability to deal with the change of modern pluralism of international standard currency components. In the annual report released on June 26, 2005, the Bank for International Settlements pointed out that the central banks in many countries would keep diversified assets besides their main foreign exchange reserves US dollar. Until 2004, the foreign exchange reserve of many countries, except Japan, consisted of no more than 57% of US dollar. The ratio is relatively high when only concerning the economic scale of the USA, while it is not high comparing the proportion of the regions dominated by US dollar to the global economy. With the issue and circulation of the Euro, effect and status of Euro has been strengthened and consolidated as a standard

currency. Now over 50 countries establish the regime of pegging their currency to Euro. From global view, the Euro now accounts for about 25% of the international trade settlement. The settlement of export trade between the Euro area and non-Euro area are increasingly based on Euro, which accounts for 50-60% of the total settlement. About one fifth of the global foreign exchange reserve is the Euro[7].

Second, the China's macro economy is excessively affected by the fluctuation of US dollar. The USA adjusts its currency policy due to the change of its economic situation. It obviously has an impact on China's monetary policy because of the pegged RMB exchange rate. In the process of the change of US dollar exchange rate, American economy stepped into adjustment phase after its rapid growth period when the new bubble economy collapsed. The strong US dollar policy since the late nineties of last century was based on the economic base, but this foundation has severely been weakened. Compared with the same period in 2004, the US dollar devaluation range is about 25%-30%. The US dollar effective exchange rate against Yen devaluated by 24 percent and against Euro by 35 percent. From 1999 to 2004, the US dollar effective exchange rate against Euro devaluated by 65 percent and against other currencies by 25 percent. Although American economy recovers recently, its devaluation expectation still remains. The continual devaluation of US dollar increases the pressure on appreciation the RMB exchange rate. Moreover, around 60 % to 70% of China's foreign currency reserve is US dollar[8]. The value of reserve will lose as much as 3.4 billion whenever the US dollar exchange rate against other currencies decreases 1 percent.

Third, the pegged RMB exchange rate does not favor the stable currency supply and the independence of China's monetary policy. Since 2002, the devaluation of US dollar against Euro and Yen has resulted in the excessive devaluation of RMB against Euro and Yen. The RMB devaluation increased China's imbalance of international payments.   According to the statistical data on China's finance activities released by the People's Bank of China, in the first half-year of 2005, China's foreign currency reserve was $711 billion US dollars, increased by 51.1% compared with the same period. At the end of June 2005, the foreign currency reserve increased by $101 billion US dollars, increased by $ 33.7 billion US dollars compared with $ 470.6 US dollars the same period of 2004[9]. In the February 2006, China's foreign currency reserve reached up to $853.6 billion US dollars, surpassed Japan's $850.1 billion US dollars reserve for the first time, and become the country that has the most foreign currency reserve[10]. The rapid expansion of foreign currency reserve increases the costs and difficulties for the central bank to maintain stable currency supply through write off approaches. Since April 2004 the central bank has frequently issued notes in order to write off[11]. China monetary policy report in the fourth quarter of 2005 indicated that central bank note balance reached ¥ 2066.2 billion Yuan, which resulted in millions of financial cost. This increased the supply pressure of base money. Other factors increasingly put pressure on China's inflation in some degree after 2004. These factors are: 1) the price of international energy continually increases; 2) the devaluation of effective exchange rate results in the high price of import products; 3) the export expansion, characterized by the extensive raw materials, increases the demand of production factors; 4) the rapid growth of domestic fixed asset investment. Meanwhile, the devaluation of US dollar results in wide range of RMB devaluation against non-US dollar international currencies including the Euro increases the RMB appreciation expectation. The depreciation also attributes to a large scale of speculative capitals flowing into China through different means. This not only puts pressure on China's currency supply, but also restrains the application of interest rate policy. In spite of its overheated domestic investment and huge inflation pressure, China still needs to keep low interest to restrain the international speculative capital flowing into China market.

Moreover, the pegged RMB exchange rate can not enhance the competitiveness of enterprise. In

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[7] Lu, Shiwei. The Analysis of the US dollar challenges from the Euro and the future of Euro. *International Problem Research*, 2005 vol.1.

[8] Yan, Qiongfang. The empirical research on the proper scale of China's foreign exchange reserve. Statistics and Consult, 2006 vol.1 p.19.

[9] See http://www.pbc.gov.cn July 14, 2005.

[10] Shanghai Stock Newspaper April 4, 2006.

[11] Fan, Jianjun. Rethinking the China's interest rate policy after observing the raising of interest. National Development Research Center Investigation Research Report 2266. December 26, 2004.

China, the upgrading of economic status in the world and the improvement of people's living standard finally depend on the increase of entrepreneur competitiveness. The enterprise competitiveness not only includes the improvement of its technology and management standard, but also involves the strength and capacity dealing with market and risk. However, the improvement of enterprise competitiveness is very slow compared with the upgrading of China's overall competitiveness. This correlates to the exchange rate mechanism in some degree. Because of the traditional exchange rate regime pegged to the US dollar, the normal exchange rate frequently or seriously deviates from the equilibrium exchange rate. The foreign trade firms will face a disastrous economic situation. Firms can not enhance the technology, improve management, neglect the exchange rate risk, or lack the impetus to enhance technology and management. In late 1990s, especially after the Asian financial crisis, the US dollar is strong with the rapid growth of USA economy. Although the RMB nominal exchange rate against US dollar does not change too much, RMB effective exchange rate increases obviously. The RMB appreciation results in domestic deflation, overstocked products, decrease or even a serious loss of profits, diminishment of invest capability in the technology. But US dollar becomes weak after 2002, so does the RMB. The environment of foreign trade become loosing and does not benefit the improvement of China's enterprise competitiveness.

In addition, the pegged exchange rate further attributes to the deterioration of trade provisions. Pegging the weak US dollar, RMB foreign exchange rate decreases correspondently against non-US dollar foreign currencies. Although it will increase the export, it leads to the low level expansion of China's international trade and intensifies the raw material, resource and environment bottleneck. China trade is big but not strong. Its trade growth mainly depends on a large consumption of raw materials and resources, not on investment in R&D and technology. The most of enterprises in China just earn a little processing fee because only a few export products are their own brands. The enterprise management ability can not match the production capacity in the international trade. The processing trade and foreign-owned enterprises account for a large proportion of total export, with 55% and 56% respectively in 2004. It is essential to change the pattern of trade growth in order to realize the transition from large trade to strong trade. The low level export expansion partly results from the wide range of RMB exchange rate devaluation. This leads to not only a fierce price competition with the products of other countries, but also deterioration of trade environment, heavy environmental pollution and huge resource consumption.

Finally, it intensifies the international trade conflicts. In recent years, devaluation of RMB currency has contradicted with China's rapid economic development. The favorable balances of current account, capital account, and foreign currency reserves have continuously increased in recent years. The international trade conflicts are rising and some countries including the US put pressure on Chinese government to appreciate the RMB. U.S. Congress even passed bills to urge RMB appreciation in 6 months. According to *Foreign Market Access Report 2006*, 18 countries and areas initiated 63 anti-dumping and anti-subsidy investigations, protecting measures, and other special investigations,[12] with total value of $2.1 billion US dollars. The textile trade and other export trade frictions have become the focus of China's foreign economic trade since 2005.

5. DISCUSSION ON THE SELECTION OF NEW RMB EXCHANGE RATE REGIME ALTERNATIVE

With the intensification of economy reform and open-up and the increase of the economic strength, the former RMB exchange rate regime is not adapted to China's sustainable economy development. It is necessary to reform and improve the existing RMB exchange rate forming mechanism. The goal of RMB exchange rate reform is to achieve and maintain a real stable RMB exchange rate. Such stability

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[12] Foreign Market Access Report 2006 issued by the Ministry of Commerce of the People's Republic of China, English version is available at http://download.china.cn/ch/pdf/060331-en.pdf access in 2006.

should be determined by the currency demand and supply in the exchange market. Therefore, the market oriented reform is the core of China's RMB exchange rate regime reform. On one side, China has a high speed economy development, with increasing degree of market-based growth and open-up. On the other side, China is still on economy regime transition stage with a relative deficient capital market, and the finance regime and enterprise system have not been fully built-up. This situation will last for a long period. Therefore, the improvement of RMB exchange rate mechanism should be based on the characteristics of this period. Comparing with the existing exchange rate regime, we should let the exchange rate fluctuated with the market while the RMB exchange rate can not completely determined by the market. In the light of the RMB appreciation expectation and international hot money for RMB appreciation, the adjustment and the improvement of RMB exchange rate-forming mechanism should be timely and orderly carried out according to the economic development situation and the international environment. Compared with the existing exchange rate regime, the new one should be a single managed floating rate regime based on the market supply and demand. In the near future, it is proper to peg a basket of currencies instead of the US dollar. In the middle or long run, the main choice is to expand the range of fluctuation and achieve exchange rate target zone and managed floating exchange rate regime.

First of all, from the single-pegged exchange regime to peg a basket of currencies as reference might achieve the real stability of RMB exchange rate. As the further economic integration, the increasing trade and investment among countries especially the developed countries enforces the dependence of each country. As a result, one currency devaluation or appreciation will influence another in the basket. The weighting average fluctuation of the whole basket has narrower range than the fluctuation of single US dollar. Considering the high proportion of the US dollar asset in China's foreign asset reserves, a basket of currencies can reduce dependence on the US dollar and lower the risk of international reserve asset management. The exchange rate is close to the actual rate when RMB exchange is pegged to a basket of currencies. The pegged a basket of currency exchange rate can not only eliminate the negative effect brought by the US dollar exchange rate fluctuation, but also reduce the friction among the trade partners and meet the demand of economic development after accessed into WTO.

When we choose a basket of currencies, we should comprehensively consider the factors including international trade, foreign currency reserves and current debts. The components of the currency basket and its weighting coefficients may vary according to the government policy objectives. If aimed at trade stability, the optimized weighting coefficient in the currency basket is the trade weighting coefficient. Because the existing RMB exchange rate regime aims to promote macroeconomics stability and economy growth through foreign trade, China's exchange rate regime should to mainly maintain the trade stability. The gross export accounts to 41.3% of GDP in 2004. China's foreign trade has significant influence on domestic economy. This requires that the factors including trade volume and trade partners should be considered when choosing the components of RMB currency basket.

Table 2 The export and import the first ten largest trade partners in 2004

Nation	Overall import and export value ($1000)	The percentage of increase (%)	The percentage in China's total export-import value (%)
1 Europe Union	17,728,696	33.6	15.4
2 USA	16,962,624	34.3	14.7
3 Japan	16,788,636	25.7	14.5
4 Hong kong	11,267,841	28.9	9.8
5 South-East Asian Countries	10,587,977	35.3	9.2
6 South Korea	9,006,821	42.5	7.8
7 Taiwan	7,832,382	34.2	6.8
8 Russia	2,123,196	34.7	1.8
9 Australia	2,039,084	50.3	1.8
10 Canada	1,551,638	55.1	1.3

Source: from the Ministry of Commerce of the People's Republic of China http://www.mofcom.gov.cn/

Table 2 indicates that the total export-import volume of the first ten largest trade partners accounts for 83.1 percent of the total export-import volume of 2004. We can consider these ten currencies for currency basket through econometric method. A linear equation has been built: RMB = f (Euro, US dollar, Yen, Hong Kong dollar … Canada dollar). Based on the quarterly data from 1999 to 2004 about the ten currencies exchange rates and RMB exchange rate, we applied regression analysis and got a basket of currencies for the reform of RMB exchange rate. The t test significance and the correction of variables are showed in table 3.

Table 3   Regression results of all variables

Variable	Estimation value	t -test
constant	10.135483	2.136447
EUR (Euro)	-0.000862	-0.914631
US dollar	0.002314	1.965134
Yen	-0.001654	-1.003572
HKD (Hong Kong dollar)	23.014967	0.135794
Singapore dollar	-0.000965	-0.870954
KRW (South Korea Won)	-0.000398	-0.405307
Nt (New Taiwan dollar)	0.004351	0.936257
Ruble	-0.000136	-0.497315
AUD (Australia dollar)	-0.000267	-0.268794
CAD (Canada dollar)	0.000196	0.344773

Adjust R^2=0.999997   D.W. = 2.861102   F-statistic=5438222

From the table above, the HKD, KRW, Ruble, AUD and the CAD are the secondary currency and should be eliminated from the model. For example, the t-test value for HK dollar is 0.135794 and the US dolar1.965134, which indicates that HK dollar has much less influence than US dollar. As a result, the influence of HKD can be neglected. The remains, US dollar, Yen, Euro, Nt and CAD is regressed again and the results are showed in table 4.

Table 4   Regression results of five currencies

Variable	Estimation value	t -test value
constant	0.901464	1194.406
US dollar	1.005647	1121.344
Yen	-0.009464	-1.764843
Euro	0.006914	1.964727
Nt	-0.005314	-0.651365
Singapore dollar	-0.001753	-0.997466

Adjust R^2=0.999997   D.W. =2.436102   F-statistic=2374222

From table 4, we observe that the t-test value of Nt is -0.651365, which is much lower than that of other currencies. Moreover, from the correlation matrix below, it is obvious that the Singapore dollar is highly related with other currencies. As a result, we consider Nt and Singapore dollar as secondary currency and eliminate them.

From the regression analysis, we observe that three currencies explain almost 99.9997 % of the change of RMB exchange rate. The overall model fitting is high and the t-test value of each currency is significant. Namely, the currency basket including US dollar, Yen and Euro can fit the historical fluctuation of RMB exchange rate. However, that this basket is rational or not still needs further discussing. In our view, from the data analysis process above, ten basket currencies are relatively correlated. If we add more currencies in the basket, it not only brings the unnecessary repetition and affects the credibility of the model, but also inevitably faces the problem that how to eliminate the correlation in order to reach a high fitting precision. It will increase the fluctuation of RMB exchange rate, foreign currency reserve and management cost. The implementation of a basket of currencies, whose components are US dollar, Yen and Euro, can not only largely overcome the flaws mentioned above, but also have strong feasibility and guarantee the stability of RMB exchange rate.

Table 5   Correlation matrix

	US dollar	Yen	Euro	Nt	Singapore dollar
US dollar	1	0.877990	0.846100	0.864244	0.903451
Yen	0.877990	1	0.827612	0.913444	0.936414
Euro	0.846100	0.827612	1	0.834678	0.862472
Nt	0.864244	0.913444	0.834678	1	0.913476
Singapore Dollar	0.903451	0.936414	0.862472	0.913476	1

After regression analysis based on three currencies, we get the result:

Table 6   Regression results of three currencies

Variable	Estimation value	t-test value
constant	0.899659	1265.528
US dollar	1.002124	1132.458
Yen	-0.013021	-2.537530
Euro	-0.009091	-2.756121

Standard error of regression=0.000039 R^2=0.999998

Adjust R^2=0.999997   D.W. = 2.361102   F-statistic=1718222

Furthermore, we can consider the percentage of import and export value of the three countries as the weighted currency ratio of the basket. That the weighing of three currencies multiplied by RMB base exchange rate gives a new basket exchange rate M. $M = \sum W_i X_i$ (W_i denotes the weigh of currency *i* in China's import and export and X_i the RMB exchange rate against the currency *i*). In addition, the US dollar accounts for a large proportion of China's foreign currency reserve. When the type and weigh of the currency basket match the foreign currency reserve, the reserve can effectively adjust the exchange rate. The export and import firms can avoid the risk of exchange rate fluctuation and the loss from the fluctuation of exchange rate will decrease. Therefore, the weighing of the basket currency should be the revised weighing of the currency in the foreign reserve: $M=\sum W_i Y_i X_i$ (Y_i denotes the weighing of currency *i* in the foreign exchange rate).

Furthermore, exchange rate target zone as the main selection of improvement of RMB exchange rate. The basic idea is to choose an exchange rate target zone which has a base exchange rate and define the range of floating volatility around the central rate. The Central Bank takes measures to guarantee

fluctuation range within the target zone boundary. With this target zone, the government can provide the market participants a stable expectation through transparent and open rules. The stable expectation can increase the participates' confidence and makes their behavior match the objective of Central Bank to keep the exchange rate within the target zone. Within the exchange rate target zone, the formation of exchange rate mainly rests on the supply and demand. The equilibrium exchange rate meets the rule that the marginal cost equals to the marginal gain, therefore, efficiently allocates the resource. The exchange rate target zone regime will have the advantages of both the fixed exchange rate regime and the floating exchange rate regime and can avoid the disadvantages of them.

Currently, the implementation of capital account control does not make the currency authority face the *three terrible plights*. In the long run, the free capital flow is a popular trend. China must maintain the independence of monetary policy, but this independence may rest on the cost of the exchange rate objective and exchange rate regime. In this view, it is necessary to choose a proper exchange rate regime and decrease the influence of international speculative power.

The exchange rate target zone is significant for China. First, the monetary policy will be more independent. The government needs not to frequently interfere with the exchange rate when the exchange rate is within the target zone. Second, within in the zone, the exchange rate is largely determined by the market and the effective exchange rate can reach equilibrium. Consequently the distortion of the resource allocation between the trade department and non-trade department will be corrected and the competitiveness of China's enterprises will be enhanced and sustained. Third, it can eliminate or reduce the criticism and attack from the international community that China manipulated exchange rate and dumped the foreign currency. Finally, the risk and cost of expectation will increase and the hot money will decrease because the exchange rate is no longer a stable single-direction fluctuation.

When we decide the fluctuation range of exchange rate, the following factors should be considered: 1) the change of the price level of import and export products; 2) export situations; 3) China's foreign exchange reserve; 4) international balance of payment. According to the actual fluctuation of RMB exchange rate and the macroeconomic situation, we can build a fluctuation range for the exchange rate target zone. When the exchange rate is in the target zone, the central bank should avoid direct interference, promote the market exchange rate forming regime, enhance the flexibility of exchange rate, and employ the exchange rate regime's effect to adjust external balance. When the exchange rate reaches to the boundary, the central bank should comprehensively apply monetary policy instruments, rather than the single currency supply approach, to maintain the exchange target zone. Boundary interference modern and marginal interference within the target zone approach can be combined to actively interfere with the foreign exchange market. The central bank can adopt European Union monetary warning system. First, the central bank can raise or decrease interest rate, adjust the capital market, and maintain a stable exchange rate. If there is no obvious effect, the central bank can change the money supply to influence the capital flow. In order to keep the stability of exchange rate, the central bank can directly buy or sell foreign exchange in the market to adjust the demand and supply. Second, the RMB exchange target zone can make a flexible exchange policy and realize the domestic balance objective. However, the Base Exchange rate can be changed according to the change of Purchasing Power Parity in the long run. Third, the central bank can establish an exchange rate index based on a basket of currencies. In addition, the buffer fund can also be used to reduce the fluctuation of exchange rate.

China has an abundant foreign currency reserve. The government has established a strong image especially through the performance in the Asian financial crisis. This will enhance the credibility of the exchange target zone.

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3. Points out that from 1997 till July of 2005, the exchange rate of RMB is relatively stable in terms of US dollar and not stable in terms of China's equilibrium rate of exchange. Such exchange rate arrangement gradually shows its disadvantages with China's further reform and opening up and the rapidly economic development，also leads to the conflicts between keeping the bilateral exchange rate stable and keeping the RMB equilibrium rate of exchange stable. Properly understanding the stable exchange rate of RMB is a basic prerequisite for gradually reforming the exchange rate mechanism on the basis of our economic development conditions (2003, 2005).

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