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Summary

The decision to revaluate the yuan/dollar exchange rate on July 21, 2005 by 2% was the most important financial event in China that year. The practical fixed exchange rate system used by China for a long time was abrogated, and a new exchange rate system was adopted. Under the new system, China will reform the exchange regime by moving into a managed floating exchange rate regime with reference to a basket of currencies. This means that the adjustments in the rate of exchange fluctuation will not only govern the relationships between the yuan and U.S. dollar, but also between the yuan and other main currencies such as the euro and the Japanese yen. However, since neither the composition of the currency basket nor the weights of its constituent currencies have been announced, it is not possible to determine in advance how the float will be managed, or whether a currency basket regime will be adopted. It would be interesting to investigate what exchange rate regime has actually been adopted since July 21, 2005.

In this thesis, we employ an empirical analysis and a theoretical analysis to examine the exchange rate regime of China.

In Chapter 2, we use an empirical analysis to investigate the actual exchange rate regime after the Chinese exchange regime reform on July 21, 2005. First, to investigate the interdependent relationships among the U.S. dollar, euro, yen, and Chinese yuan, we employ the Granger causality test, by applying the LA-VAR approach developed by Toda and Yamamoto (1995). We found evidence to suggest that the causal relationship between the U.S. dollar and Chinese yuan is significant in the pre-reform period; however, the correlation of the dollar and yuan disappears in the post-period sample. On

the other hand, however, the interdependent relationship between the yen and yuan is identified in the first period after the reform. The causal relationship between the euro and yuan is observed in the second period after the reform. These observations indicate that the choice of the yen and the euro as the foreign currencies in the currency basket of China is reasonable. Furthermore, the result is almost robust to the conventional empirical techniques employed in the analysis.

Second, we estimated the weights of major currencies in the currency basket of China, based on the innovation accounting approach. The result suggests that U.S. dollar shocks account for more than 93.5% of the yuan's exchange rate variation, even in the post-reform period. In contrast, the yen and euro do not contribute significantly to the yuan's exchange rate fluctuations: they explain less than 1.2% of the yuan's exchange rate movement in the period after the reform. Thus, it is interesting to find that the explanatory power of the yuan's own shocks increased in the period after the reform.

The results of the empirical analysis show that, although the Chinese government claimed to have changed its exchange rate system from a dollar peg system to a currency basket regime, the weight of the dollar is still large, and there are no signs that more weight has been assigned to the other currencies in the basket, such as the Japanese yen and the euro.

In Chapter 3, we use a theoretical analysis to analyze the optimal basket peg for China, under the policy objective of stabilizing the trade balance of China. We built a three-country model based on the new open economy macroeconomic approach. As the original contribution of our study, we introduce asymmetrical price-setting behavior among the countries into the framework of our model, by assuming that a fraction s of the firms in each country adopt PTM price-setting, and so the percentage of firms that adopt PCP price-setting becomes $1 - s$. Moreover, we placed special emphasis on the case of invoicing-currency pricing, and then examined how these assumptions affect international monetary policy transmission.

The findings of the theoretical analysis can be summarized as follows. First, as a result of introducing invoicing-currency price-setting into the model, the exchange rate of yuan/dollar and yen/dollar play a more important role in international monetary policy transmission. Specifically, under traditional PTM price-setting, if firms in China, Japan and the U.S. are all PTM firms, the domestic general price of each country remains unchanged in the short run. Because the price is not influenced by a change in the exchange rate in the short run, this implies that there is no exchange-rate pass through. In contrast, by introducing invoicing-currency price-setting into the model, we

obtain the result that, if all firms are PTM firms, the domestic general price in China is still influenced by the rate of exchange of yuan/dollar, and the domestic general price in Japan is also still influenced by the rate of exchange of yen/dollar. This result also influences the reaction of China to an unanticipated monetary shock in Japan. Thus, the key point of our model is to assume that the U.S. dollar dominates the yen and yuan, even in trade transactions between China and Japan.

Second, we confirm that the percentage of PTM firms has a significant role in the response of the exchange rate to monetary policy. For example, after a monetary shock in Japan, the exchange rate depreciation of yen/dollar is dependent on the percentages of PTM firms in each country. Specifically, if the percentage of Japanese PTM firms is lower than that of U.S. PTM firms, the degree of yen/dollar depreciation will be smaller. Fourth, the international transmission of monetary policies depends on firms' price-setting behavior. Consequently, the external effects of foreign monetary policies may be asymmetric when domestic firms' price-setting behaviors differ. For example, if China adopts the dollar-peg regime, following the increase in Japanese money supply, the degree of Chinese monetary contraction depends on the ratio of PTM firms in each country.

Finally, based on the theoretical analysis, we employ a numerical simulation to investigate the optimal weight of the U.S. dollar and Japanese yen in the currency basket of China, under the policy objective of stabilizing the trade balance. The result of the numerical simulation shows that, when the weight of the dollar is around 60%, and the weight of the yen is around 40%, the current account of China becomes almost independent of Japanese monetary shocks.

The model in chapter 3 is rich enough to incorporate various features of the trade structure in China, Japan, and the U.S. It has been shown that, if China adopts the currency basket regime and if invoicing-currency pricing holds, China has to assign a much larger weight to the Japanese yen in its currency basket.

According to the analysis in this thesis, we consider that the Chinese currency regime reform of July 21, 2005 is not static, but proceeds in a proactive, controllable, and gradual way that is evolving toward greater flexibility. For example, on August 10, 2005, China announced that a basket peg would be used. On September 25, 2005, the People's Bank of China widened the band of the yuan exchange rate against non-dollar currencies from +/− 1.5% to +/− 3%. Then, on May 21, 2007, China increased the fluctuation band of the yuan/dollar from 0.3% to 0.5%.

At present, as a transitional stage toward a floating exchange rate, the currency basket regime appears a viable exchange rate regime for China. The currency basket regime is

a form of "intermediate" exchange rate regime that was adopted by some Asian countries (like Malaysia) after the Asian financial crisis in 1997. Although the administration and transparency of the currency basket peg may be more complicated than the current peg to the U.S. dollar, it could also protect China from sudden movements of the U.S. dollar against other currencies.

In future, the Chinese government should move toward a floating exchange rate system, while it prepares to deregulate capital controls on such items as forward and future foreign exchange transactions, interest rate swaps, and domestic firms' borrowing foreign currencies, and foreign firms' borrowing the Chinese yuan, not only inside China, but also outside China, and in offshore markets.