

Uniqueness of speculative capital flows and monetary policy responses in China (2007-2010)

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There is a common understanding that hot money flowed into China before the Chinese yuan depegged the US dollar the first time in 2005. However, controversies remain on whether there have been large speculative capital flows to China since the yuan depegged the second time in 2010 and the significance of their impact. This paper discusses the uniqueness of China's speculative capital and its monetary policy responses. It analyzes the costs and benefits of hot money to China and provides both short term and long term solutions. It argues that China's past and current monetary policies caused speculative inflows, but the unique socialist style market economy in China has helped the country to minimize the impact of hot money in the short run.

Keywords: speculative capital flows, monetary policies, China, RMB, hot money, exchange rate

I. INTRODUCTION

As the name indicates, speculative capital flows are not for trade and production purposes, but for speculations. With increased global financial integration, speculative capital often crosses the country borders to take advantages of interest rate differentials or/and to bet on currency movements. It may enter the country gradually, but often moves out quickly to take short term profits (Calvo, 1998), leaving behind overheated prices and asset bubbles. For this reason, speculative capital flows are also called hot money flows.

Nations have been recovering at different speeds after the recent global financial crisis. While countries like China and Brazil rebounded quickly, the United States announced its second quantitative easing to revive its feeble economy in November 2010. Just five months prior, the People's Bank of China (PBOC) announced to depeg Renminbi (RMB) from the US dollar in June 2010. Expectations of RMB appreciation and interest rate differentials between China and the US have many suspecting a huge influx of speculative capital to China.

However, much debate is still in process on whether there have been significant amount of speculative capital flows to China, how speculative flows got in, where they went, and what the appropriate policy responses are. This paper studies these issues extensively. It argues that China's monetary policies caused economic and monetary imbalances that attract speculative capital. The uniqueness of China's speculative capital flows and its monetary policy responses reflect the characteristics of China's socialist style market economy, which in turn, gives the country an edge to minimize the speculative flows and their negative impact.

Part II of the paper addresses the costs and benefits of speculative capital in China. Part III summarizes conflicting results of hot money studies from existing literature. Part IV and V identify the uniqueness of speculative capital flows and policy responses in China. Part VI concludes.

II. COSTS AND BENEFITS OF SPECULATIVE CAPITAL FLOWS IN CHINA

Speculative capital flows are healthy byproducts of global portfolio diversification. They could also help boost foreign exchange reserves for countries that are lacking them (IMF Staff Position Note, 2010). However, the benefits of speculative capital are far outweighed by their costs. One can observe the impact of its destructions from the Mexican Currency Crisis in 1994 and the Asian Financial Crisis in 1997.

The devastating effect of speculative capital flows would strike China more than other countries. China's high economic growth and sound fiscal position attract foreign capital of all kinds. Furthermore, monetary policies, both in China and other countries, attract productive and unproductive capital to China. For example, quantitative easing in the US created excess liquidity globally that offers speculators risk free opportunities to borrow low cost American dollars and to invest in higher yield currencies such as the Chinese yuan. Speculative capital will increase China's monetary base, leading to price booms and putting more pressure on inflation and real exchange rates. Furthermore, additional foreign money often is overinvested in hot sectors such as stock and real estate, causing asset bubbles and financial instability. Given China's imbalanced economic structure, one would expect that if the bubble bursts and hot money flows out of the country, the disturbance will tilt the delicate economic balance maintained by the Chinese government with a great effort, and leave the country to deal with significant economic and social costs.

III. LITERATURE REVIEW

Existing literature on the significance of speculative capital and its impact on China vary greatly. There is a common agreement that there was hot money flowing into China right before the Chinese yuan depegged the US dollar the first time in 2005 (Prasad & Wei, 2007, Goldstein, 2006). As a strong defender of China's fixed exchange rate policy, McKinnon et al. (2009) shows that one-way-bet on expected yuan appreciation during that time caused speculative inflows and distorted China's financial markets.

China quickly recovered from the global financial crisis in 2007 (See Table 1 for growth of GDP, international trade, current and capital account, Foreign Direct Investment, and foreign exchange reserves in China). In 2010, China's GDP grew 10.3 percent, current account surplus and foreign exchange reserve reached \$305.4 billion and \$2.847 trillion respectively, and Foreign Direct Investment (FDI) reached \$105.74 billion, increased 17.4 percent from 2009. The growth trends continued in 2011. The FDI was up 23.4 percent to \$10.03 billion in January 2011, and the foreign exchange reserve passed \$3 trillion two months after. To cool off the local economy and fight off inflation, the Chinese government has kept raising interest rates. The interest rate differentials between China and the US have been positive since the end of 2007, the gap continues to widen after the Fed's 2nd quantitative easing (See Figure 1).

June 19, 2010, PBOC announced it would depeg the RMB from the US dollar and allow it to float within a narrow band. Since then, expectation of RMB appreciation has been indisputable. Non-Deliverable Forward (NDF) is usually used to measure the overseas market perception of the RMB. Based on one-year NDF provided by Bloomberg, RMB is expected to appreciate 5% in 2011 (See Figure 2 and 3 for one - year NDF and China-US Exchange rate).

Given the expected RMB appreciation and positive interest rate differential, a situation similar in 2005, has there been a one-way-bet on yuan appreciation causing speculative inflows around the time the RMB depegged US dollar again in June 2010? The results were not so conclusive this time, however. For example, two articles both written in January 2010 have derived two completely different views. One indicates that hot money was minimal in 2009 (Chan, 2010), but the other says it was severe (Nielsen, 2010). Different opinions exist even within the Chinese government agencies. State Administration of Foreign Exchange (SAFE)'s first official report on hot money estimates that speculative flows into China were only \$35.5 billion in 2010 ("China Reports US\$35.5b," 2011). But China Daily, the largest English-language newspaper funded by the state government, estimates hot money in first quarter of 2010 alone was \$71.5 billion (Lan, 2010). In general, official data often declare the hot money problem is small and controllable, and private sector data usually indicate otherwise. Martin & Morris (2008) estimate that approximately \$1.7 trillion hot money flowed to China during 2003-2008, one of the largest in the world. But SAFE reports the amount was only \$300 billion during 2003-2010 ("Report on the Monitoring," 2011).

Divergence of opinions could be partially explained by different methods used to estimate speculative inflows. Since hot money is speculative in nature, one of the most common assumptions is that the origin of the speculative inflows is not recorded and cannot be explained by official data, therefore, hot money is calculated as subtracting the net of trade and FDI flows from the changes of foreign exchange reserves (Martin & Morrison, 2008). Prasad & Wei (2007) propose another method in which they substitute net trade for current account balances.

The situation gets more complicated when the currency value in reserves need to be adjusted. Since China's reserves are invested in different currencies but marked-to-market in US dollars, the estimated value of reserves invested in non-US-dollar assets fluctuates. To illustrate, at the end of 2009, depreciations of euro and yen against the US dollar were equivalent to reserve value loss that indicated capital outflow (Chen, 2010). Since the exact currency composition of Chinese reserves still remains a mystery, with such huge reserve holdings, a slight difference in composition assumption could easily lead to totally different estimations of hot money flows from time to time.

Also as it will be stated in part IV, since speculative inflows could be easily disguised as official trade and FDI flows, for instance, FDI has surged every time the market expects yuan to appreciate, subtracting trade and FDI from changes of reserves may not always yield an accurate estimation of hot money.

The fourth explanation for estimation differences was provided by the SAFE. SAFE's estimation of \$35.5 billion hot money flows in 2010 has many suspecting it downplayed the impact of speculative capital flows. SAFE calculates hot money as subtracting the sum of trade surplus, FDI, investment gains, and overseas stock offerings from the total increased amount of foreign exchange reserves. However, private sectors have been unaware of the existence and value of investment gains and overseas stock offerings. Moreover, SAFE's report ("Report on the Monitoring," 2010) says that under the unique Chinese financial acceptance and payment system and the new cross-border yuan-settlement program, "Chinese companies have been paying for more imports in yuan, meaning less foreign currency drains from the economy." It concludes that the \$35.5 billion hot money could still be overestimated.

Studies of impact of speculative flows also vary. Chinese official says the hot money was not the driving force for domestic stock market in 2010 ("Report on the Monitoring," 2011). But other studies show that speculative flows exacerbate business cycle fluctuation and volatility in China (Guo & Huang, 2010)

VI. UNIQUENESS OF CHINA'S SPECULATIVE CAPITAL FLOWS

China's monetary policies partially caused the speculative capital flows. Since its economic reform started in 1978, export has helped the country maintain employment and economic growth. The devaluation of the Chinese yuan in the 1980s and pegging of yuan to US dollar until 2005 had given China a great advantage in international trade. Over the years, accelerated growth in current account surplus and foreign exchange reserves has put tremendous pressure on China's real exchange rate and inflation. The export-led growth has caused economic and monetary imbalances and partially caused the speculative flows every time the country tried to relax its exchange rate policies.

1. How Did the Hot Money Flows Get In?

The Chinese government has been careful in controlling capital flows in and out of the country. It implemented various policies to encourage long term productive capital such as FDI and to block speculative inflows. Stringent capital controls in China caused the uniqueness of its hot money flows. It forces speculative capital to enter the country in many creative ways-disguised as FDI and trade, hidden as off-balance sheet lending, entered country via various illegal channels or through domestic companies and residents. As discussed earlier, this is one of

the reasons for differences in hot money estimations in China. If hot money doesn't come in China through official channels, it is very difficult to trace and measure. On one hand, SAFE announces that capital inflows to China matched China's overall economic activities. On the other hand, SAFE admits that most hot money came in via "many cross-border arbitrage activities, betting on China's economic growth and the appreciation of yuan-denominated assets, stay in the country under the cover of long-term investment and are hard to distinguish using conventional measures" ("Report on the Monitoring," 2011).

1) Speculative capital flows are disguised as FDI and trade flows.

Trade and foreign direct investment offer many possible opportunities for both domestic and foreign companies to bring in speculative money. Companies can easily overstate FDI and manipulate trade data, i.e., over-invoicing export or inflating wages. It is estimated more than half of the speculative capital came into China as disguised FDI or trade (Martin & Morris, 2008). China's FDI hit a record high of \$105.8 billion in 2010. Chinese official says such increase was due to increased confidence of foreign investors to China. But given that utilized FDI has always been a small proportion of contracted FDI (Table 2: Contracted vs. Utilized FDI), it is suspected that a percentage of FDI has been disguised hot money flows.

2) Speculative capital flows are hidden as off-balance sheet foreign lending

Off-balance sheet lending such as lending between a parent company and subsidiaries is easy and untraceable. This is another perfect vehicle for hot money transfer. Off-balance sheet lending was more than doubled to RMB 4 trillion in 2010 (Alloway, 2011). Fitch also reported approximately \$3 trillion yuan in off-balance sheet lending that was not recorded in official data (Back, 2011). It is difficult to track how much unofficial lending has foreign origin. But if just a very small proportion of this capital is for speculative purpose, its economic impact could be severe and long lasting. Even the government officials said that "society wide financing" was a better measurement for liquidity than just net new loans reported by banks (Back, 2011).

3) Speculative money comes in through illegal banks and exchanges

Underground banks or illegal money exchangers are common in China's Pearl Harbor Delta region. Illegal banks and exchanges had been one of the main hot money channels before the global financial crisis. They are still very active today. The government has increased effort in monitoring and controlling these illegal activities. During 2009, Chinese government detected and closed 44 cases of illegal cross-border transactions worth \$3.5 billion in Shenzhen alone (Gu, 2010).

4) Domestic companies instead of foreign hedge funds transfer speculative money

When speculative capital destroys an economy, foreign hedge funds are usually the ones to blame. But hedge funds are not the carriers of hot money in China. China was notorious for its round tripping FDI in the past (Xiao, 2004). Now the same tricks are used to transfer hot money flows. For example, some Chinese companies set up false firms disguised as foreign enterprises and use them to channel short-term speculative capital. Even foreign hedge funds invest money

through their domestic partners in China. Local companies are familiar with Chinese rules and regulations and it is easier for them to find loopholes in trade and FDI.

5) Speculative money is transferred by Individual Chinese

A resident Chinese has a \$50,000 annual limit to bring money into China from abroad. A Hong Kong resident, benefitting from the “One China Two Systems” policy, can bring in \$11,600 a day. With 1.34 billion Chinese, 7 million residents in Hong Kong, and more than 80 million overseas Chinese, the total capital they may potentially bring in could add up to a significant amount quickly.

The World Bank announced that remittances from overseas Chinese workers increased about a third to \$40.63 billion in 2008 regardless of the fact that the numbers of workers in foreign land declined about 3000 from the previous year (“Hot money boosts,” 2009). In 2008 and 2009, overseas Chinese workers' remittances and compensation reached \$48.5 and \$48.7 billion respectively, each counting for approximately 1 percent of China's GDP. From the Chinese government perspective, these inflows were speculative in that they came back to China to take advantage of higher returns and higher expected yuan value.

2. Where Did the Hot Money Flows Go?

In order to be able to take profit quickly, speculative capital usually invests in hot sectors such as equity and real estate. Overinvestment in these sectors could quickly drive up prices and cause asset bubbles.

The evidence is mixed, however, on whether hot money overheats Chinese stock markets. Guo & Huang (2010) find hot money is one of the driving forces of Chinese stock market valuations. After the yuan was depegged the first time, the Shanghai Composite Index went through a bubble during 2005-2008.

Even so, it is often observed that the Chinese stock markets plummeted when speculative inflows surged before 2005. To test the relationship between hot money and Chinese stock performance, the author calculated hot money flows during 2000-2010. Since the data of investment gains and overseas stock offerings are not available (from SAFE's method), the author followed the methods by Martin & Morrison (2008) (represented by MM in Figure 4) and Prasad & Wei (2007) (represented by PW in Figure 4). The results show the presence of speculative inflows in 2003 and 2004 before China lifted the peg the first time in July 2005. But the hot money came in with a much stronger force in 2009 and 2010, reaching \$185.2 and \$159.7 billion before the second peg was lifted June 19, 2010.

SAFE claims that hot money didn't drive the Chinese stock market (“Report on the Monitoring,” 2010). This is proved by the author's calculations. The correlations between hot money and the Shanghai Composite Index have been low for the past decade. The co-movement is 0.31 during 2000-2010, and is only 0.08 during 2000-2007 (See Table 3). It seems that in the early years of the decade, hot money and stock performance had gone separate ways. Speculative inflows in 2004 increased 175% from 2003, but the stock market dropped to one of its historical lows (See Figure 5). However, during recent years, the pair has been moving in the exactly same direction. The correlation has picked up dramatically to 0.98 during 2008-2010 (Table 3) which indicates that hot money could be one of the forces behind the Chinese stock market gains in 2009 and 2010.

Has hot money heated up the real estate market in China? The average house price in China tripled from 2005 to 2009. Many cannot afford to purchase houses because of the high price-to-income ratios (Chovanec, 2009). It is suspected that both domestic and foreign money helped form the real estate bubbles. Nearly one-sixth of China's 10 trillion yuan new loans went into the property sector in 2009 (Xin & Miles, 2010). Real estate investment reached 4.8267 trillion yuan in 2009, increased 33.2 percent year on year ("China's fixed-asset," 2011). It is essential for the government to provide housing for its citizens. But the economic impact is quite different depending on whether these houses were built for consumption or for speculation purpose. Guo (2010) finds that hot money ranks as the second largest factor that causes real estate price fluctuations in China. The market has been cooling down in 2011 under various government policies and regulations.

Much of the capital, both speculative and non-speculative, has gone to yuan denominated financial assets, mostly in the form of yuan deposits or yuan bonds. After 2005, RMB has gradually become a hot currency and used more often in international transactions. Offshore yuan denominated debt became very popular. Investors in Hong Kong were willing to pay a 40 percent premium to buy the same Chinese bond when it was denominated in Hong Kong dollars rather than Chinese yuan because of their betting on yuan appreciation. Standard Chartered Bank says it underwrote 8.4 billion yuan of RMB denominated debt instruments in 2010 alone (Chen, 2010). Figure 6 shows RMB deposits in major Chinese financial institutions have increased steadily at 20.6% per year during January 2007 to May 2011. With China-US interest differentials and expected yuan appreciation, investors may potentially earn a 7 percent risk-free annual return by simply making a yuan deposit.

Hot money may have gone to other hot investment sectors such as auto manufacturing and basic/building materials, which may also cause bubbles in these sectors.

V. UNIQUENESS OF CHINA'S MONETARY POLICY RESPONSES

Even though the Chinese government denied there were significant hot money flows in recent years, it has always been vigilant in managing and controlling the speculative capital. The socialist style market economy allows the Chinese government to promote economic growth on one hand by controlling exchange rate and interest rate, and to minimize the impact of hot money on the other by utilizing various sterilization and capital control tools. Of course, there is doubt about the effectiveness of China's monetary policies and real impact of the speculative money beyond the superficial official data. But the uniqueness of Chinese economy gives the country an edge to minimize the speculative flows and their negative impact, at least, at the official level.

Policy responses to speculative flows depend on the causes of such flows. In China's case, expected exchange rate appreciation and positive interest rate differential are the roots of hot money. Nonetheless, to protect international trade, the government chooses not to address the main causes, but to put the main focus on managing money supply and controlling capital flows.

1. Exchange Rate Adjustments

Chinese monetary policies partially caused speculative capital flows. Over the years, export-led Chinese economy has built up enormous current account surplus and foreign exchange reserves that called for RMB revaluation. Since RMB was depegged in mid June 2010,

predictions of how much and how fast RMB will adjust vary, but the direction of adjustment is clear.

Since anticipated RMB appreciation is one of the main reasons attracts speculative capital flows, adjustments of exchange rates will release the pressure and stop speculations. This was what Japan did in the 1980s. Some have suggested a one-time revaluation of RMB in a magnitude large enough to eliminate speculation and to allow the government to maintain monetary autonomy (Morris, 2006). But opinions vary greatly on exactly how much the RMB is undervalued. Paul Krugman (2010) cites work by the Peterson Institute that the RMB is 20 to 40 percent undervalued. In July 2005 the Chinese government made a gesture by appreciating RMB of 2.1 percent. This only raised speculators' appetite further and attracted more hot money. The common opinion was that the adjustment was too small and more appreciation was expected to come.

Competitive export has brought China growth and prosperity. Export of goods and services has always been a major contributing factor of China's GDP (Table 4). Average export to GDP ratio is about 35 percent during 2005-2010. Chinese government has been using its exchange rate as one of the main tools to promote trade. One time large currency revaluation will hurt exports dramatically and hence is unacceptable. Japan's lost two decades after yen appreciation by the 1985 Plaza Accord has also made China very cautious on making significant exchange rate adjustments. RMB appreciation could slowdown China economic growth significantly even when it is tightly managed. Based on the China Macro Strategy, a global market research published by the Decusche Bank (Ma & Lu, 2010), a 10 percent appreciation of the RMB will reduce China's real GDP growth by 0.6 percent, increase unemployment rate by 0.4 percent, and reduce real export by 2.5 percent (see Table 5). Since evidence is inconclusive on flexible exchange rate prevent speculative capital flows, China has been trying to adjust its exchange rate policy slowly and steadily.

Thus, large exchange rate adjustments, especially a one-time appreciation, have not been chosen to defend against speculative capital. By not revaluing RMB, China is facing its first dilemma - an upward spiral on yuan appreciation. Undervalued RMB attracts speculative capital, which adds more liquidity to money supply and put more pressure for the currency to appreciate, therefore causes more speculative inflows. Unless the currency is properly valued, the government will constantly fight this battle.

2. Interest Rate Reduction

If speculative inflow is caused by interest rate differentials, then the country with higher interest rates should reduce them to stop the arbitrage opportunity. As an example, in December 2010, Turkey cut interest rates to fight speculative capital even though the country had high inflation at the time.

Nevertheless, effectively controlling inflation has always been the primary objective of the Chinese government. It holds the inflation at low and medium levels to maintain financial and social stability. Since the 4th quarter of 2010, inflation pressure has forced the Chinese government to raise interest rates four times to cool off overheated economy (See Figure 7).

Therefore, the Chinese government lost the second tool to fend off speculative capital. Increasing interest rates causes another dilemma - an upward spiral on inflation. Excess money supply puts pressure on inflation and forces the government to raise interest rate. High interest rate differentials between China and other countries attract speculative capital which adds more

liquidity to money supply, causing price boom and putting more pressure on inflation, and force the government to raise interest rates higher.

3. Sterilization

Since China chose not to use the first two policy responses, it has to find other mechanisms to minimize the impact from increased money supply due to speculative inflows. One way to reduce excess liquidity is through sterilization.

The Chinese government has been managing foreign exchange reserves since the beginning of its economic reform. In order to keep RMB pegged or trading at a narrow range, the Chinese government prints yuan to buy US dollar (thus build up huge foreign exchange reserves), then sells government bonds or Central Bank bills to keep yuan out of circulation. This method has high opportunity costs because the PBOC has to pay a higher yield in order to sell its bills or bonds but much of the foreign exchange reserves have been invested in low yield U.S. Treasuries.

Another method to take money out circulation is to increase commercial banks' reserve requirements. Since selling bonds becomes very costly, PBOC is relying more on raising banks' minimum reserve requirements to sterilize excess money supply. The PBOC adjusted reserve ratios 10 times each during 2007 and 2008, 8 times in 2010, and again raised 6 times in the first 6 months of 2011. As of June 20, 2011, the reserve requirement ratio of Chinese banks has been standing at a high of 21.5 percent (See Figure 8).

Since constant changes of reserves disturb banks' regular operations and hurt their profitability, the Central bank in the US is usually unwilling to adjust reserve ratios. Most Chinese banks, especially the large ones, are State Owned Enterprises (SOEs). They have responsibilities to serve the country and to maintain social stability instead of only maximizing profit like the US banks do. State Owned banks are part of China's monetary policies. Government actively uses them as tools to maintain employment and fight inflation. Adjusting reserve requirements shift the sterilization cost from the central bank to the commercial banks. Chinese banks are now liquidity squeezed and forced to gradually cut back investments in the capital markets.

There are other sterilization methods used by the PBOC which include imposing credit ceilings or credit quotas on commercial banks. By the end of the 2010, nearly a fourth of China's total monetary base was illiquid (Fan, 2010). Taking excess money supply out of circulation helps the government effectively control inflation and reduce overheating. However, providing returns for enormous amount of money laying idle is a daunting task. One cannot help questioning the efficiency of capital allocation in China.

Some doubt the success of China's sterilization operation. McKinnon et al. (2009) comment that since the Chinese bond market is not deep enough, the open market operation cannot be successful. But others prove that sterilization has been successful (Ouyang, Willett, & Rajan, 2010). The Chinese government has been using sterilization to mop up liquidity for many years, which indicate that either sterilization was successful or the government was willing to pay the price to keep exchange rate under control. Due to the unique characteristics of Chinese economy, one cannot estimate sterilization cost as if it were conducted in other countries. From the Chinese government's perspective, having full employment, manageable inflation, and stable growth are far more important than banks' lost profit and higher yields paid on government bonds/bills.

4. Capital Controls

China is also notorious for administratively controlling capital flows. For example, foreign companies must get permissions before convert foreign currencies into yuan for investment. They are not allowed to invest in Chinese capital markets directly, and there is a limit for their investments. Domestic companies have foreign debt quotas and the limits are constantly adjusted. For individuals, there is a deposit limit of \$50,000 per year and withdraw limit of \$10,000 per day. The maximum purchase limit is \$500 per day. All the transactions are being centrally registered for control purpose.

Since 2010, the Chinese government has been further tightening the monitoring effort and closing loopholes through which hot money flows. As an example, In July 2010, Xinhua News (2010) reported finding 190 cases of hot money worth 7.35 billion US dollars from various channels.

In order to promote globalization and freer international markets, most countries are less inclined to use capital controls. Even if they do, the effectiveness of using capital controls to reduce speculative inflows is questionable (Schadler, 2008). China is one of the few countries uses capital controls extensively. As a centrally planned economy, it has the ability to carry out such extreme measures. In short term, capital controls have been effective to shelter China from speculative capital and enabled the country to achieve monetary policy autonomy (Yu, 2008). In the long run, one would expect that when China's financial markets are gradually integrated with the rest of the world, the effectiveness of capital controls will be dramatically lessened.

5. Outward Redirection of Capital Flows

Another way of reducing net capital inflows is to promote capital outflows. For the past few decades, Korea's high economic growth has attracted large capital inflows. Since Korean residents and institutions have been actively invested in global equity markets, the outward investment has offset the huge capital inflows (Kim & Yang, 2008).

Since China joined WTO in 2001, the government has gradually reduced the obstacles to outward investment. Starting in 2002, in order to increase Chinese companies' competitiveness in international markets, government has been encouraging large SOEs to "Go Global" to start overseas operations. Chinese government has not yet allowed its citizens to invest freely in global markets. However, Qualified Domestic Institutional Investor (QDII) such as qualified Chinese banks and mutual funds are allowed to invest overseas under a set of guidelines and rules.

Lately, since dollar assets offer low returns and have high probability of depreciation, the incentive to invest overseas has not been high enough to balance capital inflows in China. "In 2010, China's institutional and individual clients sold 1.33 trillion US dollars in foreign exchange to banks in 2010, while purchasing only 932.7 billion US dollars" (Economic Observer, 2011). As a result, Chinese government has been the major carrier of capital outflows through the Sovereign Wealth Funds (SWFs) such as China Investment Corporation (CIC) and SAFE Investment Company. Four China's SWFs rank among the top eleven of the world largest wealth management funds, totaling more than \$1.1 trillion in assets. SWFs help China manage part of its foreign exchange reserves, earning higher returns than what US treasuries and agency bonds may offer, and providing some offset effect for speculative capital inflows.

6. Suggested other Potential Policy Responses

China could do more to minimize the impact of hot money. It could liberalize and promote capital outflows further, for example, encourage capital outflows in private sectors. China is gradually integrated with the global financial world. It is an urgent matter for it to speed up financial sector reform that will benefit the country in the long term. A sound and efficient financial system allocates capital inflows more efficiently instead of merely restrict them. Further, since trade surplus causes exchange rate undervaluation and lead to speculative capital, it is suggested to reduce trade surplus by reducing tariffs and subsidies and increasing the wages of Chinese workers.

VI. CONCLUDING REMARKS

Since speculative capital flows tend to speculate on interest rate differentials and exchange rate movement, there is always a relationship between a country's monetary policies and hot money. However, none has presented such an extreme and consistent case as in China.

China has used its exchange rate policies to promote export and economic growth. International trade has made China "the global manufactory" today, and partially contributed to the country's great achievement of becoming the number two economic power in the world. But export led monetary policies also caused economic imbalances such as overinvestment in fixed asset and trade (Table 4), low domestic consumption, and regional development and income inequalities. When a country is overly relying on trade, it is sensitive to global crisis and contagion effect. Accumulation of trade surplus and reserves may cause misaligned exchange rate and potential presence of speculative capital flows. Therefore, speculative capital in china is mainly caused by its monetary policies, in large part, by its exchange rate policy.

It will be a long process to rebalance Chinese economy. In the short term, China's current monetary policy is still focus on trade. A tight controlled exchange rate will protect export. To maintain exchange rate stability and shelter its fragile financial system, it is necessary for China to control capital flows, especially capital inflows with speculative nature. The Chinese government has enormous power in controlling the economy under the socialist regime, which allows it to enforce strict capital controls and to effectively minimize speculative capital. SAFE's first hot money report has claimed that victory.

However, due to the tight capital controls in China, hot money often disguised as long term investment and is difficult to be traced and measured. Regardless of what the government data says, it is hard to tell exactly how much speculative money has entered the country. If the speculative money could find ways in, it would be easily to find its ways out as well. Even if the capital stays for longer term, its speculative nature will not help increase the productivity of the country.

To prevent speculative capital in the long run, it is important to attack its roots. With increased globalization, China will and must open its current account gradually. In the future, China's exchange rate policy will play more roles in maintaining global balance instead of merely promoting domestic trade. In order to do that, China should use various policies to implement structural and institutional reforms. For example, government should build a stronger social welfare net to reduce savings and increase consumption. Increased domestic demand will lead to less reliance on export; therefore, allow the Chinese currency to be used as an effective

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tool to fight inflation and hot money, and to shelter the country from potential impact from future global financial crises.

Globalization also makes monetary policy coordination increasingly important. As an illustration, if China is to reduce saving, the United States should do just the opposite, to reduce deficit. This warrants another research effort on monetary policy cooperation.

APPENDICES

Table 1 Growth Rates of Economic Indices in China (2007-2010)

	Real GDP	Utilized FDI	Trade Balance	Current Account	Capital Account	Foreign Exchange Reserves
2007	11.4%	18.6%	44.8%	46.8%	-22.9%	43.3%
2008	9.6%	23.6%	14.4%	17.3%	-1.5%	27.3%
2009	8.7%	-2.6%	-30.8%	-31.9%	29.7%	23.3%
2010	10.3%	17.4%	1.9%	3.0%	16.2%	18.7%

Source: IFS, Ministry of Commerce of the People's Republic of China, and author's calculation

Table 2 Contracted Vs. Utilized Foreign Direct Investment in China

	FDI (\$Billion)	Grow Rate (%)	Utilized FDI (\$Billion)	Growth Rate (%)
2000	22,347	32.1	40.7	1
2001	26,140	17	46.9	15.1
2002	34,171	30.7	52.7	12.5
2003	41,081	20.2	53.5	1.4
2004	43,664	6.3	60.6	13.3
2005	44,001	0.8	60.3	-0.5
2006	41,485	-5.7	69.5	4.5
2007	37,871	-8.7	74.8	18.6
2008	27,514	-27.3	92.4	23.6
2009	23,435	-14.8	90	-2.6
2010	27,406	16.94	105.735	17.44

Source: Ministry of Commerce of the People's Republic of China.

Table 3

Correlation Coefficients between Speculative Capital and Shanghai Composite Index

Time Period	Correlation Coefficients
2000-2010	0.31
2000-2002	-0.98
2000-2005	0.15
2000-2007	0.08
2005-2010	0.34
2006-2010	0.20

2007-2010	0.09
2008-2010	0.98

Source: author's calculation

Table 4 Export and Fixed Capital Formation in China (as % of GDP)

	Exports of goods and services (% of GDP)	Gross Fixed Capital formation (% of GDP)
2000	23	34
2001	23	35
2002	25	36
2003	30	39
2004	34	40
2005	37	40
2006	39	40
2007	38	39
2008	35	41
2009	27	46
2010	33	

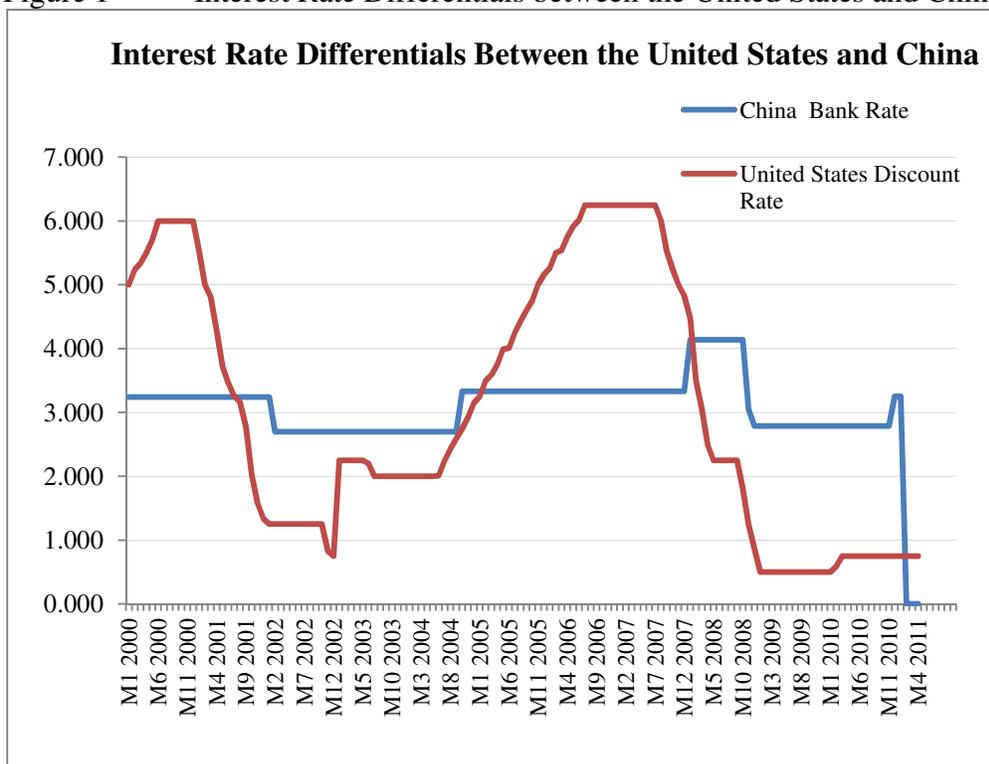
Source: IFS and author's calculation

Table 5 Impact of RMB Appreciation on Macro Indicators in China
(All in RMB except otherwise stated, percentage change from baseline)

Appreciation of RMB	3%	10%
RMB NEER	2.10%	7.00%
Real GDP	-0.20%	-0.60%
Real exports	-0.70%	-2.50%
Real imports	0.30%	1.00%
Trade balance (\$)	0.20%	0.20%
Trade balance as % of GDP	0.20%	-0.70%
Employment	-0.10%	-0.40%

Source: Ma. J. & Lu. W.J. (2010, June 21). Quantifying the impact of RMB appreciation. *China Macro Strategy*, Deutsche Bank AG/Hong Kong.

Figure 1 Interest Rate Differentials between the United States and China



Source: IFS

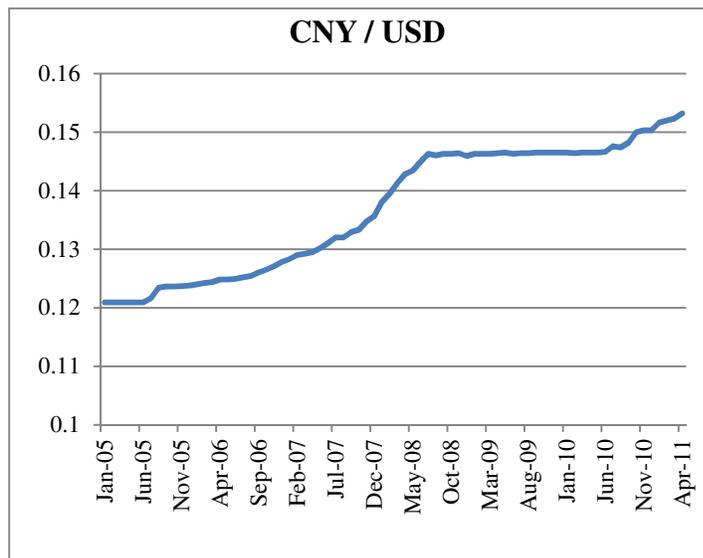
Figure 2 12 Month Non-Deliverable Forward USD/CNY



Source: Bloomberg. Retrieved July 18, 2011

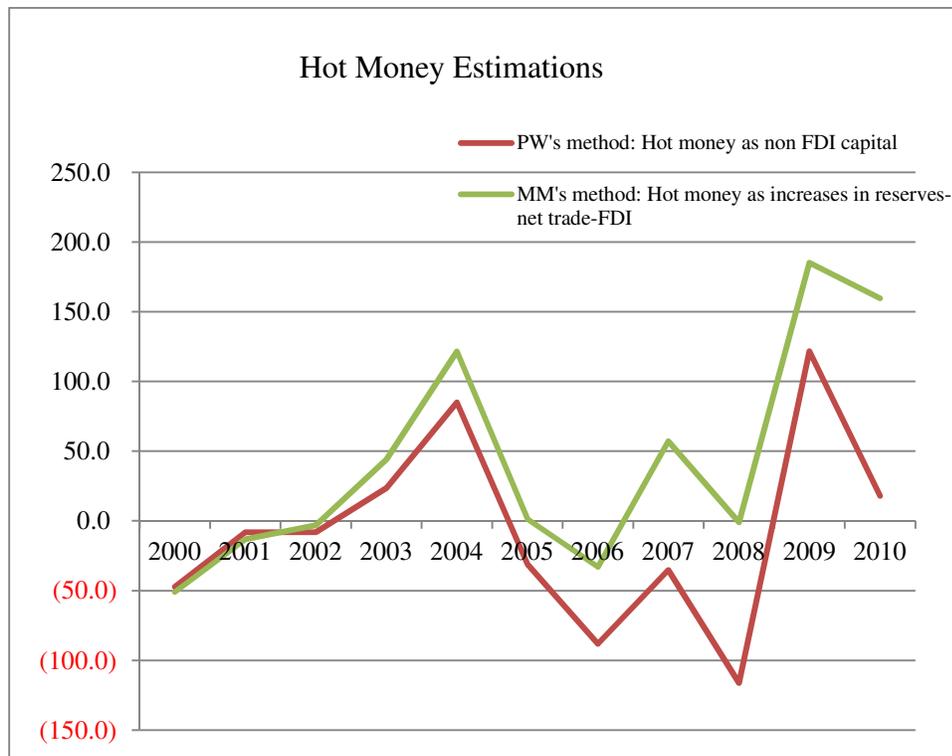
<http://www.bloomberg.com/apps/quote?ticker=CCN%2B12M:IND#chart>

Figure 3 Exchange Rates between Chinese Yuan and US Dollar (CNY/USD)



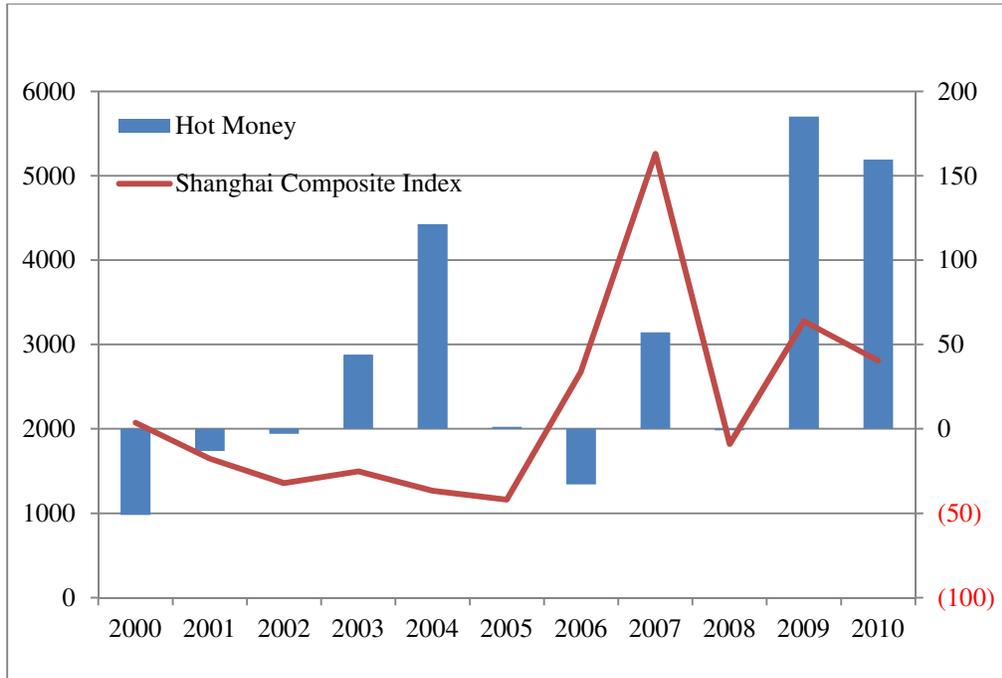
Source: IFS

Figure 4 Hot Money Estimations (2000-2010)



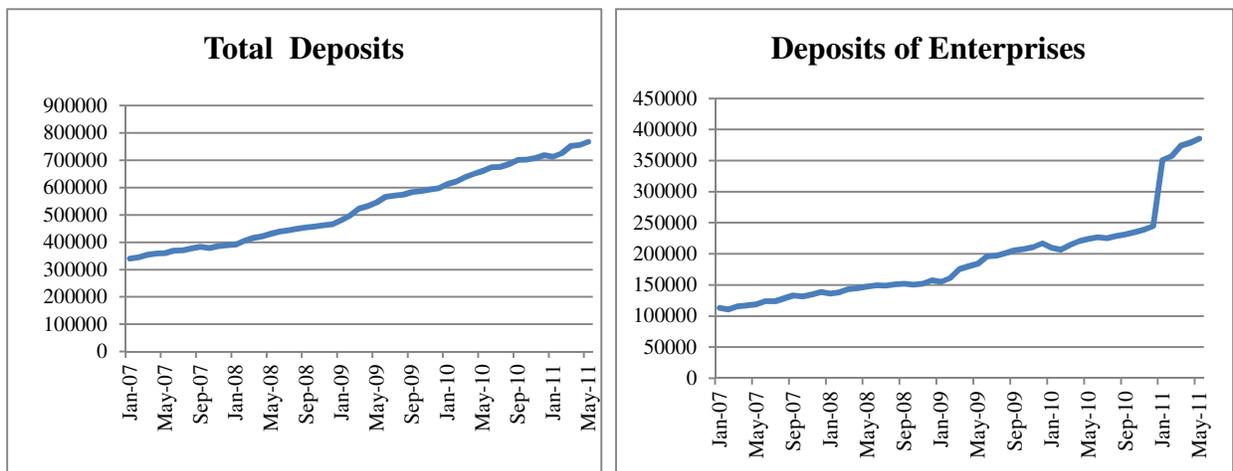
Source: Author's calculation and IFS

Figure 5 Speculative Capital Flows and Chinese Stock Market Performance

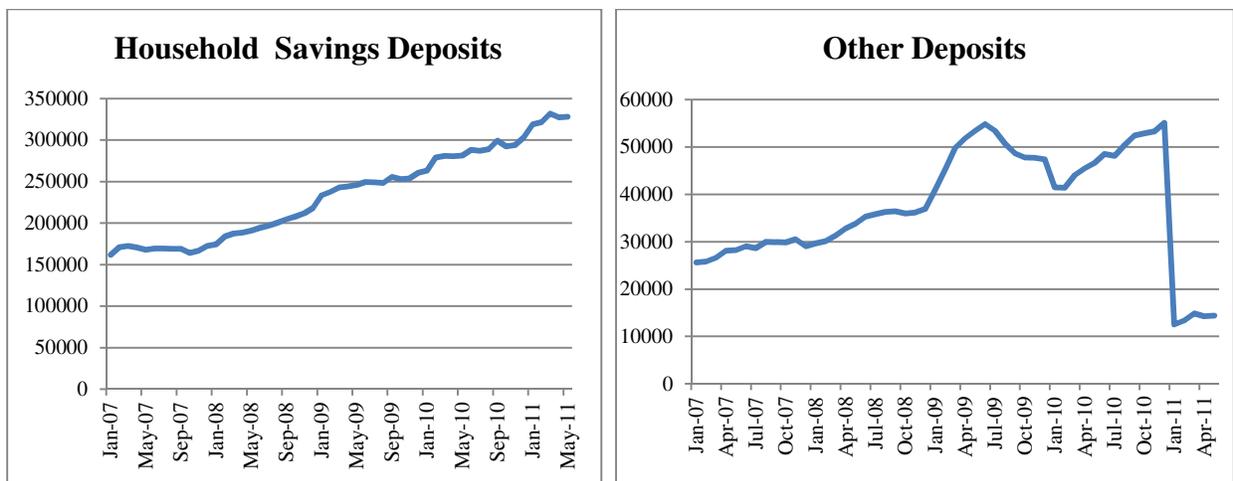


Source: Author's calculation, IFS, and Bloomberg

Figure 6 RMB Deposits in Chinese Financial Institutions

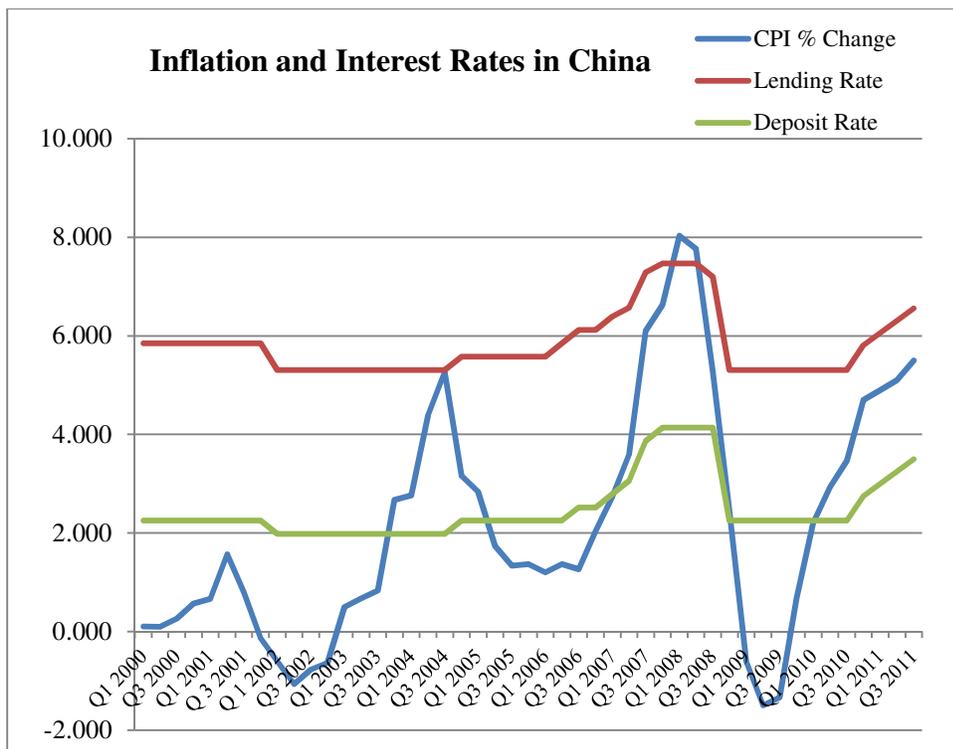


Uniqueness of speculative capital flows



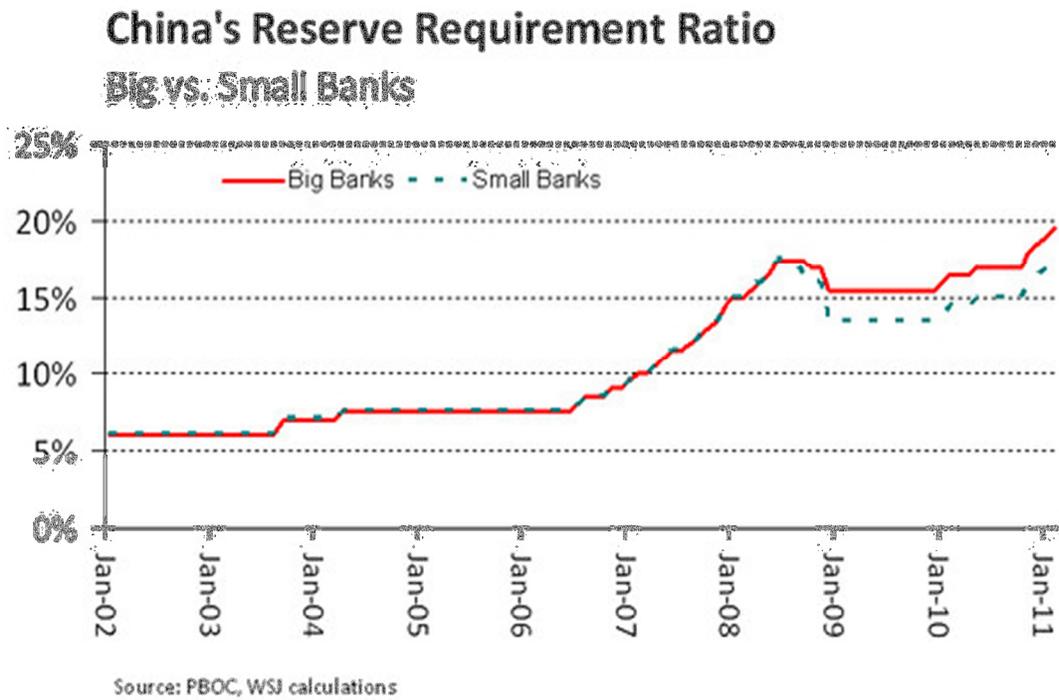
Source: People’s Bank of China

Figure 7 Inflation and Interest Rates in China



Source: IFS

Figure 8 Changes of China's Reserve Requirement Ratios



Source: Orlik, T. (2010, February 22). China's Reserve Requirement Ratios: Big vs. Small Banks (Figure). In *China's Central Bank Reserved on Reserve Requirement Ratio*. Retrieved July 18, 2011, from <http://blogs.wsj.com/chinarealtime/2011/02/22/chinas-central-bank-reserved-on-reserve-requirement-ratio/>

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