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Working Paper

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HWWI Research Paper, No. 2-5

Provided in Cooperation with:

Hamburg Institute of International Economics (HWWI)

Suggested Citation: Jikang, Zhang; Yuanyuan, Liang (2006) : Institutional and structural problems of China's foreign exchange market and the RMB's role in East Asia, HWWI Research Paper, No. 2-5, Hamburgisches WeltWirtschaftsInstitut (HWWI), Hamburg

This Version is available at:

<https://hdl.handle.net/10419/48206>

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HWWI Research

Paper 2-5
by the
HWWI Research Programme
International Trade and Development

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ISSN 1861-504X

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October 2006

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Institutional and Structural Problems of China's Foreign Exchange Market and the RMB's Role in East Asia

Zhang Jikang and Liang Yuanyuan*

Abstract

This paper examines the structural characteristics of China's inter-bank foreign exchange market and evaluates the prospects for the renminbi to become a regional lead currency. While China has made considerable progress in reforming her foreign exchange market and thereby set the preconditions for gradually moving toward more flexibility in her exchange regime, the foreign exchange market is still hampered by several structural and institutional problems that will continue to put a constraint on the renminbi's role in East Asia.

* An earlier version of this paper was presented at the HWWA/HWWI conference on East Asian Monetary and Financial Integration in Hamburg, Germany, December 15-16, 2005 as well as at the Hamburg Institute's International Finance Seminar on December 13, 2005. We would like to thank participants at these meetings, especially our discussant Alvaro Santos Rivera, for very useful comments and suggestions. All remaining errors are those of the authors alone. Some parts of this paper draw from Zhang and Liang (2006).

1. Introduction

One big question mark with respect to East Asian monetary integration is the Chinese currency's potential role in this process. In the 1980s and 1990s, the Japanese government tried to promote the yen as the key regional currency. But the "yen bloc", as it was often referred to, never came into being, despite the yen's status as one of the leading international currencies as well as the existence of highly developed and liquid financial markets in Japan.¹ Today, after years of deflation and economic weakness in Japan, the prospects for a yen bloc have diminished even further. The failure to establish the yen as the regional anchor currency in East Asia is also due to non-economic factors, i.e., the other East Asian countries are not willing to accept a Japanese leadership role in East Asia for political and historical reasons. This puts the spotlight on the Chinese renminbi (RMB).

Several authors have predicted a growing orientation of East Asian countries' exchange rate policies toward that of China (see, for example, Ho, Ma and McCauley 2005, Hefeker and Nabor 2005, and Volz 2006). But there are many uncertainties surrounding the RMB's prospects for becoming the leading currency in the region, such as whether China will be able to sustain her economic growth path and maintain political stability and whether China will be able to develop deep and liquid primary and secondary financial markets. In this paper, we will focus on another aspect that is crucial for developing key currency status, that is, the development of a fully functioning foreign exchange (FX) market. In particular, we investigate the institutional and structural impediments facing the Chinese FX market, taking into account the most recent reforms that accompanied the official change of the Chinese exchange rate regime to a currency basket in July 2005.

Our analysis shows that, while China has made considerable progress in reforming its FX market, for the time being the RMB is far from being prepared to take over the lead role in regional monetary integration and to act as a regional anchor currency. The FX market is hampered by low liquidity, high market concentration, limited transaction instruments, distorted market supply and demand, and passive intervention by the People's Bank of China (PBOC).

This paper is structured as follows: Section 2 will give a brief historical overview of the development of China's foreign exchange market, followed by an explanation of its current institutional structure in Section 3. Section 4 discusses structural features of the FX market, and Section 5 analyzes its problems. Section 6 discusses the recent reform measures in detail. Section 7 summarizes and gives recommendations for further FX market reforms.

¹ On the yen bloc see Kwan (2001).

2. The Development of China's Foreign Exchange Market

Pre-1979: Strict Central Control

Before 1979, China had a highly centralized regime governing the supply, demand, and allocation of foreign exchange. All FX earnings (mainly export proceeds) had to be surrendered to the state-owned banks and the PBOC. All FX expenditures (i.e., for imports or non-trade purposes) had to be approved under the confines of the national FX plan, which leaned toward the state sector.² There was no market element in the formation of the exchange rate, which was fixed to the British pound from 1952 and then to a basket of international currencies from 1973.

1979-1993: FX Retention and Swap

Liberalization of FX use began in 1979 with an earnings retention scheme designed to encourage exports. Under this scheme, exporters were entitled to retain a share of their FX earnings, initially with respect to exports above some quota but from 1998 according to the full measure of exports. From 1981 to 1984, exchange rates were set differentially for trade and non-trade activities.³

The first sign of an actual FX market in China appeared in October 1980 when retained FX claims became transferable, first through the swap service launched by the PBOC, then in provincial swap centers, and finally in an integrated nationwide swap market.⁴ The late 1980s saw the expansion of FX swap activity, with the number of market participants increasing and swap exchange rates becoming more flexible. By the end of 1993, there were 108 local swap centers and 18 markets joined to the nationwide system. A mechanism for forming a market exchange rate had thereby been established in coexistence with an official pegged rate.

The development of the swap market with its diversity of swap rates had its own problems, including discrimination, rent-seeking, and unauthorized actions. Nevertheless, it acted as a transitional device, laying a foundation for the

² The FX plan was formulated by the State Planning Commission in consultation with the Ministries of Trade and Finance and the PBOC. See Zhang (2003).

³ The exchange rate for trade activities was set at 2.8 RMB/USD, while the official rate still stood at 1.5 RMB/USD. This practice was abolished on January 1, 1985.

⁴ Despite the name, the swap market provided spot transactions only.

emergence of a true FX market in China. The 1979-1994 period also saw frequent adjustments of the official exchange rate, with a trend devaluation of the RMB against US dollar.⁵ After the gradual devaluations of the official rate, the central bank was well prepared to unify the exchange rates and reform the exchange rate regime.

1994 and Post-1994: Compulsory Settlement on a Centralized Platform

The year 1994 was a turning point in China's FX reform. In that year, the system of FX retention and submission that had existed for 15 years was replaced with a compulsory settlement system under which foreign exchange earners were obligated to sell their FX to state banks, while foreign exchange users could buy it subject to certain conditions. On April 1, 1994, the "single managed floating exchange rate regime based on market supply and demand" was adopted. On April 4, 1994, the China Foreign Exchange Trading System (CFETS) began operation, thus launching China's first unified national inter-bank FX market. The government's FX management method was also adjusted to rely more on systematic economic and legal measures, in contrast with the former command approach. New rules governing the purchase of FX by individuals for overseas visits, study, or other personal needs took effect on April 1. These rules have been relaxed gradually over time, with the upper limit on individual purchases raised to USD 8,000 as of August 2005 from an initial USD 600 per person per visit in 1994. The success of the 1994 reform enabled conditional convertibility of the RMB under the current account and brought a real FX market into existence.

Reform continued under the basic framework of the FX purchase and sale system after 1994. In 1995, China added yen trading and ended the circulation of foreign exchange certificates. In July 1996, the FX transactions of Foreign Invested Enterprises (FIEs) were integrated into the FX purchase and sale system, allowing FIEs to buy foreign currency freely on the inter-bank market. On November 27, 1996, China formally notified the International Monetary Fund of the RMB's convertibility on the current account. In 1997, qualified Chinese companies were allowed to open FX settlement accounts to retain a portion of FX earnings from current account transactions. The PBOC's forward FX purchase and sale experiment was launched in 1997.

The 1997-8 Asian financial crisis interrupted China's aggressive reform timetable. A series of regulations were enacted and clarified by the PBOC to

⁵ These adjustments were frequent, small, and slow, with mixed appreciation and depreciations, but on the whole the RMB had been devalued against the US dollar from the early 1979 level of 1.50 RMB/USD to 5.72 RMB/USD at the end of 1993. Six large official devaluations took place in 1981, 1984, 1985, 1986, 1989, and 1990.

strengthen the responsibilities of the State Administration of Foreign Exchange (SAFE) with respect to falsely obtaining FX, failing to surrender FX, illegal arbitrage, and so on. The swap centers were closed on December 1, 1998, with all FX transactions thereafter integrated into the FX purchase and sale system.

In 2001, trading in dollar-denominated B shares on China's stock market was opened to Chinese nationals (having formerly been limited to foreign passport holders) with necessary currency exchange supported by the CFETS. Trading in euros was introduced in April 2002. Then, in October 2002, all enterprises that qualified for conducting international business or had regular FX incomes from current account transactions were allowed to open foreign currency accounts for holding up to 20 percent of their previous year's FX income. Two-way trading was permitted from October 2003, with trading hours extended from half to full day.

2005 is another landmark in the development of China's FX market. Eight foreign currency pairs started trading in the inter-bank market in May 2005. On July 21, the RMB was revalued with a 2 percent appreciation against the US dollar, and the peg to the US dollar was replaced with a reference to a basket of currencies. The July reform was followed by successive reform measures in August⁶ to enlarge the scope of forward FX purchase and sale and swap between the RMB and foreign currencies to the retail market between banks and their customers, to invite non-financial enterprises and non-bank financial institutions to participate in the inter-bank market, to add a quote-driven dealer market trading mechanism into the current auction market, and to introduce inter-bank FX forward and swap trading. In addition, a long expected market maker system for USD-RMB trade was finally announced in November 2005 based on the CFETS platform.⁷

3. The Current Organization of the Foreign Exchange Market

China's FX market is composed of two parts, the inter-bank or wholesale market and the retail market (see Figure 1). The major parties involved in the FX market are as follows: a) the CFETS, which functions as the trading platform for the inter-bank market and is responsible for clearing the market and for providing the supervisory authorities with market information; b) the PBOC and SAFE, which function as regulatory authorities (the PBOC authorized SAFE to regulate

⁶ Details of these policies can be seen in the "Notice of the People's Bank of China on Accelerating the Development of the Foreign Exchange Market" which came out on August 8, 2005 on the central bank's website: www.pbc.gov.cn.

⁷ Details can be found on the State Administration of Foreign Exchange's website: www.safe.gov.cn.

the inter-bank spot and forward markets and regulates the retail market through SAFE); c) designated FX banks and other non-bank financial institutions⁸ authorized by SAFE to engage in foreign exchange business; d) enterprises that earn and spend FX, whose activities were restricted within the scope of the retail market until the FX market reforms in August 2005, which granted them the right to trade directly in the wholesale market; and e) individuals who have FX trading needs.

[Figure 1 around here]

The nature of the inter-bank FX market is for designated FX banks to square their FX positions derived from retail FX business after maintaining an allowable FX working position.⁹ Before the August 2005 reform, the inter-bank market had been a centralized, order-driven auction market making use of organized exchange trading and an electronic broking system, while retail transactions had been carried out in an over-the-counter (OTC) market. In May 2005, a new trading system was introduced on the CFETS platform for the trading of eight foreign currency pairs, pioneering the use of market making and request for quote trading arrangements before these were further applied to the inter-bank forward market and the inter-bank spot market in later reforms. Currently, China's FX market is a quasi-centralized hybrid market with a quote-driven dealer market system facilitated by market makers going hand in hand with the original order-driven auction market utilizing an electronic broking system.¹⁰

As an administrative unit of the PBOC, the CFETS is not only a trading platform but also serves as an information and supervision platform. The CFETS trading services mainly cover the foreign exchange market, the bond market, and the bill market. In the foreign exchange market, the core of the CFETS platform is a membership-based exchange with a nationwide real-time electronic trading system. With an "auction market" trading mechanism similar to that of an electronic broker, members make back-to-back (anonymous) quotes on the trading platform through either on-site or distant trading terminals.¹¹ The electronic trading platform automatically enables real-time matching of orders. The clearing function is integrated into the CFETS platform, providing members with centralized, two-way netting/clearing.

Since the introduction of eight foreign currency pairs and the August 2005 market reform, the CFETS trading platform has been updated to incorporate new features, such as a market making system and request for quote trading

⁸ Non-financial enterprises were not allowed access until the August 2005 reform.

⁹ This allowable FX working position has to be verified and approved by SAFE.

¹⁰ The market structure part of this paper focuses primarily on the inter-bank market.

¹¹ Distance connections can be realized through Digital Divide Network, frame-relay, or dial-up.

arrangements. We will discuss the recent FX market reforms in greater detail in Section 6.

This market infrastructure was originally put in place to serve the needs of the compulsory FX settlement system and facilitate the PBOC's absolute control of the market. But now it seems that CFETS must undergo major transformation with respect to market-orientation, services offered, technology, efficiency, and risk management. The possible direction of reform will lean toward establishing parallel sub-trading systems targeting different market segments. In the meantime, the CFETS should become more independent of the central bank.¹²

4. Structural Features of the FX Market

4.1 Market Size

China's inter-bank FX market is still small and shallow, even though market size has seen a large increase in recent years. The average daily turnover in China's inter-bank FX market is very low compared to that on the world's major markets (see Table 1). But China's market is growing quickly, with daily turnover in 2004 up by 177 percent relative to 2001 and in 2001 by nearly half relative to 1998. By contrast, all major markets except Japan experienced a decline in turnover between 1998 and 2001, with recovery then following in 2004.¹³

[Table 1 around here]

The small scale of China's FX market is attributable in part to institutional factors. Restrictions on FX holdings for financial institutions and non-financial enterprises, as well as for individuals, figure significantly in stunting the development of the market. So, too, do capital control measures which discourage cross-capital flows. Other structural features also have a hand in limiting the market size. China's FX market has been experiencing a high concentration of FX trading among a few large banks that balance trades internally, turning to the inter-bank market just once a day to readjust their reserves to the allowable level (see the discussion in Section 4.3). Market entry requirements which restrict the pool of market participants, prohibition of two-way trading (both buying and selling) during the same trading session until October 2003, and the limited scope of products have all played a part in keeping

¹² For a discussion on the need for reform of the CFETS see Zhang and Liang (2006).

¹³ According to the BIS, the main factors driving the fall in turnover were the introduction of the euro, the growing share of electronic broking in the spot inter-bank market, consolidation in the banking industry and global concentration in the corporate sector.

the market both small and shallow.

The recent dramatic growth in China's inter-bank market follows a sluggish start in the 1990s (see Figure 2). The years 1997 to 1999 actually showed a downturn, from which the market did not recover until 2001. This downturn is attributable in part to the adverse impact of the Asian financial crisis but also to a broad-based inspection campaign carried out by SAFE to ferret out the purchase of FX under false pretences and other illegal market activity. With the recovery of economic growth domestically, China's admission to WTO, and improvement in the foreign trade and investment balance, the market picked up momentum, entering a period of fast growth from 2001 to 2004, with an average growth rate of 50.32 percent. Market turnover reached a new height of USD 209 billion in 2004, with a daily average of USD 830 million.

[Figures 2 and 3 around here]

The rising turnover on China's inter-bank market coincided with rapid growth in balance of payments flows (see Figure 3). Under the compulsory FX purchase and sale system, the inter-bank market functions solely for banks to net out FX positions derived from retail trade. This retail trade is in turn driven by bank customer activity captured in the current and capital accounts. In recent years, short-term capital inflows have played a major role in feeding the increase in supply on the FX market. Besides economic fundamentals, this sharp increase in market turnover was driven also by short-term factors on the supply side, including faster settlement of export revenues due to the three percent reduction in the export tax rebate in 2004, speculation on RMB appreciation, the reductions by banks of their FX working positions to relieve the RMB demand pressure, the repatriation of capital raised in stock listings by overseas listed companies, and the conversion of foreign funds for investment in China's stock market by Qualified Foreign Institutional Investors.

From 1994 to 2004, spot trading in four currency pairs (RMB against US dollar, RMB against HK dollar, RMB against Japanese yen, and RMB against euro) constituted the whole inter-bank market turnover. But since market segments were enriched after several market reforms in August 2005, the total market size now also covers trading in eight additional foreign currency pairs (for a total of twelve) as well as inter-bank forwards. Figures 4 and 5 give an overview of the market activity in the eight foreign currency pairs currently trading. It can be seen that, though monthly volumes vary a lot, trading in these currency pairs is already an important addition to the total turnover in China's FX market.

[Figures 4 and 5 and Table 2 around here]

The inter-bank forwards started trading in August 2005, but, judging by the number of transactions (see Table 2), the market turnover is still lingering on a low level and can make little contribution to the total market volume.

With more diversified trading products, China's inter-bank FX market will be able to attract more trading interest in the long term. Market size will also benefit from increasing volume brought by newly launched market segments, such as foreign currency pairs and inter-bank forwards, but so far this market still lacks depth and breath, and a substantial growth in market size has yet to come.

The July 2005 revaluation heralded reforms in the RMB exchange rate regime. With more flexibility in the exchange rate formation mechanism being introduced in the future, China will be expecting larger variations in its FX market. A small and shallow market is certainly no boon to smoothing exchange rate variations. This may add to authorities' concern about allowing further flexibility in the exchange rate regime and cause delay in the reform timetable; on the other hand, without a more flexible rate, a truly deep market will be hard to achieve.

4.2 Market Segments

China's FX market is limited in product scope mainly to spot trading in US dollars. For a long time since its establishment, the inter-bank market only offered spot transactions between the RMB and the US dollar, the HK dollar, the Japanese yen, and the euro, respectively. It was not until May 2005 that FX trading was expanded (from the original four) to include eight new foreign currency pairs and not until August 2005 that inter-bank forwards were introduced.¹⁴ In the retail market, trading is also dominated by spot transactions, with a small forward market and a nascent swap market.

The Bank of China (BOC, not to be confused with the PBOC) was the first financial institution allowed to offer forwards, beginning in 1997, with the other banks following suit after 2002.¹⁵ This market segment was opened up to all financial institutions during the August 2005 reform, when retail market FX swaps also started trading.

With the inception of forward transactions in 1997, the BOC's trading volume rose to a peak of USD 11.5 billion in 2000 (see Figure 6). This growth

¹⁴The eight foreign currency pairs include EUR-USD, AUD-USD, GBP-USD, USD-CHF, USD-HKD, USD-CAD, USD-JPY and EUR-JPY.

¹⁵ Presently, forward contracts exist for eight currencies (US dollar, Hong Kong dollar, euro, yen, pound, Swiss franc, Australian dollar, and Canadian dollar) and 14 different terms (from seven days to 12 months).

reflected a need for businesses to hedge against currency risk during a period when the RMB was under pressure to depreciate in the wake of the Asian financial crisis. Rather than devalue, though, the PBOC responded to the crisis by tightening the floating band. This led to a highly stable relationship between the RMB and the US dollar (see Figure 7). Under such conditions, the need to hedge risk diminished, and the forward market contracted. In 2002, the BOC's forward trading volume declined by about two-thirds from its peak, but the market has rebounded since 2003, when more players entered the market.

[Figures 6-10 around here]

Compared with the global FX market (see Figure 8), the lack of product range in the Chinese market restricts overall growth in market turnover and limits the functions of the market, especially the risk-hedging function.

China's FX market is also limited by its trading concentration in the US dollar. When the inter-bank market was established in 1994, only the US dollar and the Hong Kong dollar were traded. The yen was added in 1995 and the euro in 2002. The US dollar, however, remains the overwhelmingly dominant currency, accounting for 97.8 percent of total turnover in the first half 2005.¹⁶

The dominance of the US dollar actually strengthened during the late 1990s and was little influenced by the introduction of the euro in 2002 (see Figure 9). The high concentration in US dollar trading is not inconsistent with the important role the dollar plays in global trade and investment as a vehicle currency (see Figure 10). Further, given the highly stable RMB-USD exchange rate, conducting their affairs in dollars allows those engaged in international business to minimize exchange risk. Having come to take the stability of the exchange rate for granted, market participants do not net out their open positions immediately but rather minimize transaction costs by netting out positions internally. Therefore, US dollar domination in the FX market is also a factor in the low level of overall market activity.

Great expectations had been attached to the introduction of new currency pairs, especially the EUR-RMB pair. In fact, however, the euro has not come to play an important role in China's FX market either in terms of increasing market turnover or in terms of influencing the formation mechanism of the RMB-USD rate. The reason is that the RMB-EUR rate is determined indirectly by the EUR-USD rate vis-à-vis the stable RMB-USD rate. Since banks in China can obtain a better EUR-USD rate in the international market, if they have open EUR-RMB positions, they first convert euros to dollars in the international market and then trade the RMB-USD position in the domestic inter-bank market

¹⁶ The PBOC stopped the disclosure of FX market turnover data in the second half of 2005.

instead of directly trading EUR-RMB positions.

The US dollar domination in China's FX market reflects market participants' dependence on the central bank to clear the market under the rigid exchange rate regime. Lack of motivation to hedge two-way exchange risks also prevented participants from building up professional skills in FX risk management and retarded the development of FX derivatives. This may turn out to be one of the most important fragilities when an exit from the current peg brings in more variations in the rates.

To sum up, China's inter-bank FX market is currently mainly a spot market. Forward and swap trading have just recently emerged, with volume trivial so far. Even with the introduction of eight foreign currency pairs in 2005, the domination of RMB-USD trading is likely to continue into the near future. The lack of diversity with respect to transaction types restrains market turnover and limits liquidity.

4.3 Market Participants and Concentration

Though membership in CFETS reached 389 by March 2006 (see Table 3), market activity remained highly concentrated among a small number of banks. This contrasts with the diverse body of market participants in the global FX market, which includes dealers and non-financial entities as well as banks and non-bank financial institutions. The global FX market has seen trading between banks and other financial institutions seize an increasing share of turnover (33 percent in 2004) (BIS 2004).

[Tables 3 and 4 around here]

China's FX market is characterized by approaching monopoly, especially on the buy side. Although nearly half of CFETS's members are foreign banks, their trading volume amounts to only a small portion of the total. In 2004, the top five market participants,¹⁷ all of them domestic banks, took away nearly 80 percent of market trading (see Table 4). These large banks are usually net sellers in the market, with the rest of the market's participants net buyers. The BOC itself is estimated to account for more than half of net FX selling in 2002 (Xin 2003).

On the buy side, the PBOC's net purchase of FX accounted for an average of 68 percent of the total inter-bank market turnover in the period from 1995 to 2004 (Figure 11). In recent years, the PBOC has been obliged to undertake massive

¹⁷ They are the BOC, the Agriculture Bank of China, the Industrial & Commercial Bank of China, the China Construction Bank, and the China International Trust & Investment Corporation (CITIC). The first four are commonly referred to as the "Big Four".

buying in the face of heavy supply pressure brought on by speculation on RMB appreciation and a relatively high interest rate paid on RMB deposits. The result has been an increase in official reserve assets to USD 610 billion at the end of 2004, up USD 324 billion in just two years.

[Figure 11 around here]

5. Problems in China's Foreign Exchange Market

5.1 Distorted Market Supply and Demand

Foreign exchange market institutions and the choice of exchange rate regime bear integrally upon one another. A more flexible exchange rate regime for China capable of generating an exchange rate consistent with balance of payments fundamentals cannot be achieved without a foreign exchange market in which supply and demand represent the true preferences of market actors. On the other hand, China's trouble-ridden exchange rate regime is itself to blame for many structural problems in the FX market. Thus, beginning to fix the cracks in market supply and demand not only would help tackle many structural deficiencies in the FX market but also would be a crucial step toward disentangling the Gordian knot of the RMB exchange rate regime and, in the medium run, developing the RMB into a regional lead currency.

Three main problems exist with the market supply and demand for foreign exchange in China. First, supply and demand do not express the will of market participants but rather follow from their compliance with distorting regulations. Under the FX purchase and sale system, exporters and foreign investors must surrender at least 75 percent of their FX earnings to the designated FX banks, and these banks, in turn, must sell their foreign currency receipts on the inter-bank FX market, subject to an allowable working position. On the supply side, then, neither the ultimate suppliers (i.e., exporters and investors) nor the designated banks that enter the inter-bank market have the freedom to choose their preferred levels of FX holdings. On the demand side, capital controls impede Chinese investment overseas and restrict FX use by businesses and individuals.

Second, in recent years a pronounced excess dollar supply has emerged on China's FX market. This excess supply follows from mounting surpluses in the current account and strong inflows of foreign direct investment coupled with an explosive growth in short term capital flows. A growing part of the excess supply of foreign currency must be absorbed by the PBOC. The imbalance in China's FX market is aggravated by the compulsory supply and impeded demand that is the product of the regulatory system. With trends of a rising trade surplus, stable

FDI inflows, and strengthening short-term capital inflows powered in part by speculation on RMB appreciation and in part by higher interest rates on RMB deposits (see Figure 12), the gap between supply and demand is being driven ever wider.

Third, the supply and demand for FX are not fully reflected in the inter-bank market on the CFETS platform. This is because the large Chinese banks transfer a part of their position-squaring operations to Hong Kong or to the black market. Therefore, the excess supply of foreign exchange on the inter-bank market is not reflective of overall market conditions. All in all, the distorted market supply and demand compromise the market's ability to yield a meaningful value for the exchange rate.

[Figures 12 and 13 around here]

5.2 Passive Intervention of the PBOC

Surging excess supply of USD in the FX market has put pressure on the RMB to appreciate. In order to maintain the pegged RMB-USD rate, the PBOC has had to intervene by purchasing large quantities of US dollars and then sterilizing these purchases through the issuance of central bank bills in order to control the money supply. The PBOC was forced to play the super market maker role in the FX market. So far, the PBOC has been quite successful in keeping a tight rein on money supply growth through its sterilization operations and in draining liquidity from the banking system (see Figure 13); however, the PBOC's passive intervention could lead to problems.

First, supply and demand imbalances under a compulsory FX settlement system leave no leeway for the PBOC, which must absorb the appreciation pressure. Second, the commitment to maintain stability in the RMB-USD rate results in high US dollar concentration in the FX market. Third, constant intervention in the FX market imposes high monitoring and administrative costs. Finally, PBOC sterilization operations could lead to a vicious cycle, pushing interest rates higher only to attract greater speculative inflows that must be purchased by the PBOC and in turn sterilized. As Figure 12 shows, the interest rate on RMB deposits has already been pushed above the US Federal Funds rate. The downside of this kind of passive intervention is that the PBOC loses independence in conducting monetary policy.

One way to go about relaxing the constraints on the PBOC would be to delegate the role of market maker to one of the state-owned commercial banks. Any one of the Big Four could be considered for the role. This step could help provide liquidity in the market and ease the pressure on the PBOC.

China has been aided in maintaining its currency peg in the face of sizeable current account surpluses by its use of capital controls. These controls have helped protect against the kind of large-scale capital movements that forced many Asian countries off their pegs during the Asian financial crisis. With the gradual easing of capital controls in China, not only does the currency face greater danger of “one way bet” speculative attacks but independent monetary policy becomes more difficult to pursue.¹⁸ In the past few years, expansionary fiscal policy has been the preferred approach to averting economic slowdown, but, with the Chinese economy’s continued robust growth cycle and a looming threat of inflation, monetary policy could be vital to achieving a soft landing.

6. New Reform Measures in FX Market

Shortly before and after the July 21 RMB revaluation, several new reforms (cf. Section 2) were introduced in the FX market, mainly focusing on three aspects: 1) broadening market access, 2) enriching market segments, and 3) transforming trading arrangements. Theoretically, these new reform measures can improve on the market structures by increasing liquidity and enhancing market functions. But doubts should be cast as to whether these measures can fully deliver their intended effects and whether this “parallel” and “top-down” reform methodology can work well in the FX market.

6.1 Broadening of Market Access

As a result of the market reforms, there were 389 CFETS members as of March 2006, an increase of 23 over June 2005. Among the new participants, Sinochem Corporation became the first non-financial enterprise ever to enter the inter-bank market. Meanwhile, foreign banks continue to show a strong interest in China’s FX market.

Foreign banks’ participation: strategic thinking

The active participation of foreign banks in China’s FX market is due more to long-term strategic concerns than to short-term profit concerns. Even though foreign banks make up the largest share of banks in the market, their share of

¹⁸ The “impossible trinity” holds that, with free capital mobility, a fixed exchange rate and independent monetary policy cannot be realized simultaneously.

trading volume is lackluster. The foreign banks have, in fact, entered the market mainly to gain a foothold, with the potentially growing international role of the RMB and the Chinese market in mind.

First of all, the RMB is still inconvertible, but a gradual loosening of capital controls has already begun, allowing a certain limited volume of cross-broader capital flows in both directions. China's strong foreign trade sector and economic growth will ensure the RMB an increasingly central role in East Asia and the international arena. The RMB will be one of the most frequently traded currencies in the international FX market, and these banks' are counting on their early-on experience and familiarity with RMB trading in China's FX market to give them a competitive edge in the future.

Secondly, foreign banks will receive full access to China's banking sector by the end of 2006 as part of China's WTO commitment. There will exist huge opportunities for the provision of new financial products and services soon, many of them involving FX trading. Besides, gestures of goodwill through helping develop China's financial market can also help foreign banks maintain an amicable relationship with the Chinese authorities, which is very important now that reforms in China's financial market are making headway and bringing with them new potential sources of revenue.

No matter what their motives are, foreign banks' presence in China's FX market will have great demonstration and spillover effects for domestic institutions, and, with their rich experience of FX trading, sophisticated FX risk management skills, and deep understanding of the market, they will become a main pillar in new products trading.

Non-financial enterprises: latent needs of hedging against FX risks

With combined exports and imports standing at USD 1,422.12 billion in 2005,¹⁹ non-financial enterprises, especially companies engaged in foreign trade, have every reason to become big players in the FX market. However, the long-time stability of the exchange rate has caused inertia among Chinese enterprises when it comes to hedging against FX risks. The lack of FX risk management awareness and skills may prevent these enterprises from being deeply involved in the inter-bank market. Transaction cost is another concern considering the fact that 54.7 percent of exports in 2005 were in the form of processing trade, which tends to have a relatively low degree of risk exposure and small profit margins. Last but not least, alternative ways of hedging against FX

¹⁹ Data from the Ministry of Commerce of the People's Republic of China website: <http://zhhs.mofcom.gov.cn/tongji.shtml>.

risks can also woo the enterprises away from the domestic FX market. According to a survey conducted after the July 21 reform (PBOC 2006), foreign trade companies in China have responded to the exchange rate adjustment by providing a variety of tools for hedging against greater exchange rate volatilities, with trade finance (used by 31 percent of respondents) as their foremost choice. The use of financial derivatives such as forwards and swaps is still less prevalent. In 2005, the value of forward FX sales was only 2 percent of total FX sales in the spot market, while forward FX purchase was only 4 percent of total FX purchases. The less-regulated offshore market for non-deliverable forwards (NDF), in which some large enterprises have already been participating, is another source of competition for the Chinese onshore FX market.

Overall, broadening market access to a wider range of institutions would theoretically increase market liquidity and boost trading volume. According to the market microstructure theory, the heterogeneity of market participants in terms of their motives, analytical methods, and possession of private information and the resulting differences in expectations is responsible for most of the trading volume and exchange rate volatility in the FX market.²⁰ But, in reality, it may take a while for these new participants to familiarize themselves with the rules and skills required for using the FX market to hedge against emerging exchange rate risks. How to encourage new players to enter the market and existing participants to trade in the market goes well beyond simply approving new memberships.

6.2 Enrichment of Market Segments

Measures to enrich FX market segments mainly included adding the eight foreign currency pairs in the spot market and establishing an inter-bank forward market.²¹ This will enrich the original inter-bank market segments, which previously featured only spot transactions in four RMB related currency pairs, enhance the market functions, and provide market participants a new scope for investing their FX holdings as well as hedging against FX risks.

Trading in foreign currency pairs is dominated by the three currency pairs formed by the USD against the EUR, the HKD, and the JPY, respectively, while the EUR-USD pair enjoys the deepest trading, with a market share of 41 percent (Figure 14). Bid-ask spreads in trading among the foreign currency pairs are tight, indicating strong competition among market makers and quite high liquidity.

[Figure 14 around here]

²⁰ See Sarno and Taylor (2001).

²¹ Other measures, such as opening the retail market forward FX settlement business to all foreign exchange designated banks and introducing swap transactions, will not be discussed here.

Foreign currency pair trading: an experiment ground

The most significant feature of the initiation of foreign currency pairs trading is that it was launched in a market parallel to the original spot market. The eight foreign currency pairs were not simply added to the original inter-bank market but formed a new market of their own, making use of a separate trading system on the CFETS platform. The addition makes China's FX market a more complete market, incorporating both RMB against foreign currency transactions and foreign currency against foreign currency transactions. At the same time, the introduction of the foreign currency pair trading through a parallel market has allowed Chinese authorities to experiment with new FX market reforms without implementing them fully in the original RMB pairs market.

Instead of being restricted by the old market structures, this parallel market experiments with brand new trading arrangements, such as market making, and adopts international practice by introducing foreign banks as market makers and setting up electronic trading systems with flexible trading options. New structural reforms were thus experimented without any changes being made to the FX market institutional frameworks, such as the compulsory FX settlement and rigid exchange rate regime. As an instant structural reform of trading arrangements in the original spot market can be costly and risky insofar as the original market trades RMB related currency pairs and thus cannot avoid the sensitive issue of the RMB exchange rate, conducting experiments in a parallel market circumvents these hurdles and reduces the reform costs. Besides, market activity in the parallel market can provide decision makers with key information needed to carry on further reforms.

Inter-bank forward market

Establishing the inter-bank forward market was seen as the key to making China's FX market a truly functional market which can satisfy market participants' risk hedging needs. Yet, so far, the onshore forward market has not lived up to expectations and has suffered from a low level of market activity, one-way quotes, and a lack of independent pricing.

a) Market activity

By the end of 2005, 64 banks had gained authorization to trade in the

inter-bank forward market.²² Inter-bank forwards in four currency pairs were offered by the CFETS in the new market's debut on August 15, 2005, but by the end of 2005 only RMB-USD and RMB-JPY had been traded in the market and, not surprisingly, trading has been dominated by the USD. Among the 277 market transactions in 2005, 263 involved RMB-USD forwards trading, while the other 14 involved RMB-JPY trading. Term structures are quite diversified, with 7 different terms for USD forwards and 4 for JPY forwards. The most liquid contracts are 1 month and 12 month USD forwards.

Lack of liquidity and limited scale are common for a nascent market, and the onshore market also has to face competition from the RMB NDF market (see below), a market offering products with similar functions and with longer history; however, one-way quotes and a lack of independent pricing are the two largest impediments to greater market activity.

b) One-way quotes

One-way quotes result from ubiquitous expectations of RMB appreciation and the imbalance in the retail forward market. As already noted, “agents transact because they differ.” (Lyons 1991) Homogeneous expectations, on the other hand, lead to one-way quotes and difficulty in striking a deal. In the current market environment, it is hard not to bet on the appreciation of the Chinese currency. The only heterogeneity comes from different expectations concerning the degree and speed of appreciation, resulting in sporadic trades. The other reason for one-way quotes originates in the retail market, where expectations of RMB appreciation induced a sharp rise in FX forward sale at the same time that expectations of a US interest rate rise caused a discount in US dollar forwards, which in turn led to a decline in FX forward purchase. The imbalance in the retail market was carried over to the inter-bank market by banks, which, more often than not, inherit a long forward position in the US dollar from their retail businesses.

c) Lack of independent pricing

Since its establishment, quotes in the onshore market have followed that in the RMB NDF market closely. Information flows and the transmission of prices and volatility between two financial markets trading similar products are normal. In the absence of capital controls, arbitrage between two markets will also lead to convergence in prices. But in the case of the RMB onshore forward market two things have stood in the way of price convergence. First of all, there are capital controls in place.²³ Secondly, the onshore market and the NDF market target different market participants and therefore have different pricing mechanisms.

²² Among them, 48 are foreign banks, while 16 are domestic banks.

²³ Ma, Ho and McCauley (2004) note that there is a large difference between the onshore interest rate and NDF market implied interest rate, reflecting the existence of strict capital controls.

Major participants in the NDF market are multinationals and hedge funds. Expectations, based on interest rate spreads or often purely on speculation, dominate the NDF pricing. On the other hand, the onshore market primarily caters to banks' and enterprises' risk hedging needs. Pricing in the onshore market should thus be based on covered interest parity and be more rational than that in the NDF market. So the current similarity between the two markets points to the onshore market's lack of independent pricing. Actually, market participants in the onshore market largely base their quotes on the prices in the NDF market instead of on interest parity.

The NDF market is greatly exposed to speculation and large volatility. Thus, without independent and more rational pricing in the onshore market, its risk-hedging functions will be limited, and it will be in a disadvantage position in its competition with the NDF market. As mentioned above, the RMB NDF market has 10 more years of history and a higher liquidity than the onshore market. Considering the self-fulfilling quality of liquidity, the onshore market is already lagging behind. Lack of independent, let alone competitive, pricing can be deadly to the nascent market in its race to draw liquidity.

The underdeveloped money market in China may be the first to blame for the lack of independent pricing in the forward market. So far, China's money market remains inefficient, stifling it from becoming a market where highly liquid products with a whole spectrum of maturities are traded. The determination of interest rates is still regulated by the central bank. As a result, no representative market interest rates for different maturities are quoted, and the onshore forward market, in turn, has no interest rate needed in order to apply the interest rate parity based pricing rules.²⁴

6.3 Transformation of Trading Arrangements

After the market making system and the quote-driven dealer market system were introduced on January 4, 2006, China's FX market became a quasi-centralized hybrid market featuring the coexistence of a quote-driven dealer market and an order-driven auction market utilizing an electronic broking system. These two transformations in trading arrangements are milestones in China's FX market reform and will have far-reaching influences on the market structure and exchange rate formation mechanism as well as the central bank's monetary policy.

²⁴ The only "market" interest rate in China is the seven day repo rate.

Diversified market liquidity provision mechanism

Providing liquidity is the primary role of a market maker. Market makers regularly quote both bid and ask prices and stand ready to buy and sell at the quoted price. Market makers can absorb excess market supply or demand by holding inventory and make a profit through bid-ask spreads. The role of market makers is thus crucial to achieving market clearing and providing liquidity. A market making system is especially important to nascent markets, which often—as is the case in China—suffer from low liquidity or a one-sided market. With a mixed quote-driven dealer market and order-driven auction market structure, liquidity can be provided through multiple mechanisms, and market participants are given more flexibility in choosing trading arrangements depending on the purposes of the transaction, the type of counterparty, the level of transparency, the information they have, and the size of the order (Harris 2002). The biggest problem in China's FX market structure is a lack of liquidity, and the transformation of the trading arrangement, which brings a diversified market liquidity provision mechanism and increases the probability of deal-making, is the most important move among all the reform measures from the point of view of boosting market liquidity.

Price discovery and the exchange rate formation mechanism

Another important role of the market maker is price discovery. The other reform measures can indirectly have an impact on the exchange rate formation mechanism by changing FX market structures. But the introduction of market makers and quote-driven dealer markets in the spot market where the RMB is traded against foreign currency pairs has a more direct and central role in the determination of the RMB exchange rate. After the new trading arrangement was put in place, the RMB central rate went from being determined by previous day's closing rate formed in the inter-bank spot market to being determined by the weighted average of the prices quoted by 15 market makers consisting of both local banks and foreign banks. However, it should be duly observed that the price discovery function of market makers in China's FX market is still rather limited. There still exists a narrow floating band prescribed by the central bank, and regulators also regulate market makers' net open FX position (both gross aggregated position and single currency position) to limit their scope of price discovery.²⁵

²⁵ Market makers cannot hold short positions in the US dollar.

The central bank's control of the FX market

As mentioned earlier, before the market making system came into being, the central bank was the largest de facto “market maker” in China’s FX market. Facing strong RMB appreciation pressure, the central bank had—and still has—to frequently and passively absorb excess US dollar supply in order to both clear the market and at the same time maintain the US dollar peg. This leads to a variety of problems, including lack of independence and flexibility in administering monetary policy. Assigning market making responsibilities to commercial banks gives the central bank a way out of this vicious circle and allows the central bank more freedom to tackle problems at home and to experiment with new open market operations such as currency swaps. The growth rate of FX reserves is also expected to fall with an easing of the pressure on RMB appreciation, so that the central bank would no longer need to absorb huge US dollar sell orders. The central bank’s adjustment to its FX market control mechanism comes with the transformation in trading arrangements. Market makers will inevitably take over at least part of the information processing and price discovery functions. The Chinese authorities have clearly stated their policy of not yielding to foreign political pressures by making any one-off exchange rate adjustments.²⁶ Thus, continuing to breathe more latitude and more market forces into the exchange rate determination mechanism and as a result allowing a certain amount of room for the gradual appreciation of the RMB is an expedient way of coping with the RMB appreciation pressure.

7. Summary and Implications for the RMB’s Role in East Asia

To sum up, China’s FX market is characterized by low turnover; heavy concentration in spot trading, with the retail market in forwards just recently opened up; nascent inter-bank forwards and retail market swap transactions; dominance by US dollar trading, with all other foreign currencies accounting for only a tiny part of the market; a membership-based exchange trading platform evolving toward a mixed trading mode incorporating some features from the dealer market, with banks as the most prevalent type of participants; a high degree of market concentration on both the sellers’ side by the BOC and the buyers’ side by the PBOC; and its simple function as the place for designated FX banks to net out open positions, with only a limited capacity to serve investment

²⁶ This was clearly stated when Premier Wen addressed the press after the fourth session of the 10th National People’s Congress. See Wen (2006).

or risk-hedging needs of FX users.

Among them, the most central problem is the lack of liquidity. Without a deep market, all reform measures will only remain technical adjustments with no profound impact on market functions. The recent policy initiatives addressed some of the structural problems in the FX market and are expected to increase market liquidity, enhance market functions, and influence exchange rate formation mechanisms. But the new reforms and the newly established market have some of their own problems in need of redress, which may reduce their effects with respect to correcting existing structural failures. The new reforms in the FX market are carried out in a “top-down” and “parallel” way. With a “top-down” reform, the market has to undergo a transitional stage in which market participants are given some time to adapt to the new trading rules, to invest in human resources and technology, and to acquire the right market sense. In turn, it may take a while before the market earns recognition and builds momentum in accumulating liquidity. The new FX market reforms were also instituted in a “parallel” way without completely changing the old system, which means that the two institutional factors that most seriously constrain the development of China’s FX market haven’t been thoroughly removed and may continue to take their toll. Nascent market segments such as the inter-bank forward market need to have more independent pricing in order to fully realize their risk-hedging potential. In conclusion, certain structural problems in China’s FX market such as low liquidity will linger and continue to afflict the market, but, with the new reforms coming into effect after overcoming their own problems and with the institutional restrictions to be phased out in the future, market structures can expect great improvement in the future.

The fact that these institutional constraints and the structures in the FX market are inter-related presents a dilemma for moving forward, as liberalizing on one front is difficult as long as the status quo is maintained on the other. Specifically, the rigidity of the exchange rate regime imposes limits on the growth and diversification of the FX market. But at the same time, allowing more flexibility in the exchange rate requires a broader, more diversified, competitive, and efficient market platform on which real forces of supply and demand can determine the RMB value of foreign currency. A profound change in one institutional pillar or the other is required to break loose from the status quo.

Both the rigid exchange rate and the underdevelopment of the Chinese FX market considerably limit the RMB’s prospects for becoming a regional lead currency anytime soon. Despite the enormous size of the Chinese economy and its growing role in world and regional trade, the RMB will not be able to act as key or anchor currency for an East Asian “RMB bloc” unless China develops deep and liquid financial markets and unless the RMB becomes fully convertible. For the latter to happen, continued FX market reform is crucial.

In our view, key elements of FX market development must include: a) further stimulating market demand by lowering market entry requirements, removing the “real trade background” rule in FX trading, and allowing a certain amount of speculation; b) encouraging enterprises and banks to build up their skills and resources in FX risk management and speed up reforms in the banking sector; c) improving the financial environment by speeding up development in the money market, in the market determination of interest rates, and in the credit rating system; d) phasing out the central bank’s control in the FX market and prudentially and gradually opening capital accounts; and, finally, e) introducing more flexibility in the exchange rate regime.

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Table 1: Foreign Exchange Market Daily Average Turnover in Selected Markets, 1995-2004 (USD billion/day)

	1995	1998	2001	2004
China	0.26	0.21	0.30	0.83
Hong Kong	90	79	67	102
Japan	161	136	147	199
Singapore	105	139	101	125
United Kingdom	464	637	504	753
United States	244	351	254	461

Source: CFETS, BIS (2004).

Note: For markets other than China's, daily averages are for the month of April and cover spot, forward, and swap transactions. For China, volume is based on the entire year and pertains only to inter-bank spot transactions.

Table 2: Monthly Number of Transactions in the Inter-Bank Forward Market

August 2005	8
September 2005	23
October 2005	38
November 2005	94
December 2005	114

Source: *China Money*, various issues.

Table 3: CFETS Members by Institutional Type

	January 2003	March 2006
Wholly state-owned banks	4	4
Joint stock commercial banks	10	11
Policy banks	3	3
Urban commercial banks	22	44
Branch of commercial banks	108	109
Foreign banks	164	189
Trust & investment companies	2	2
Rural credit cooperatives	9	26
Non-financial enterprises	0	1
Total	322	389

Source: *China Money*, various issues.

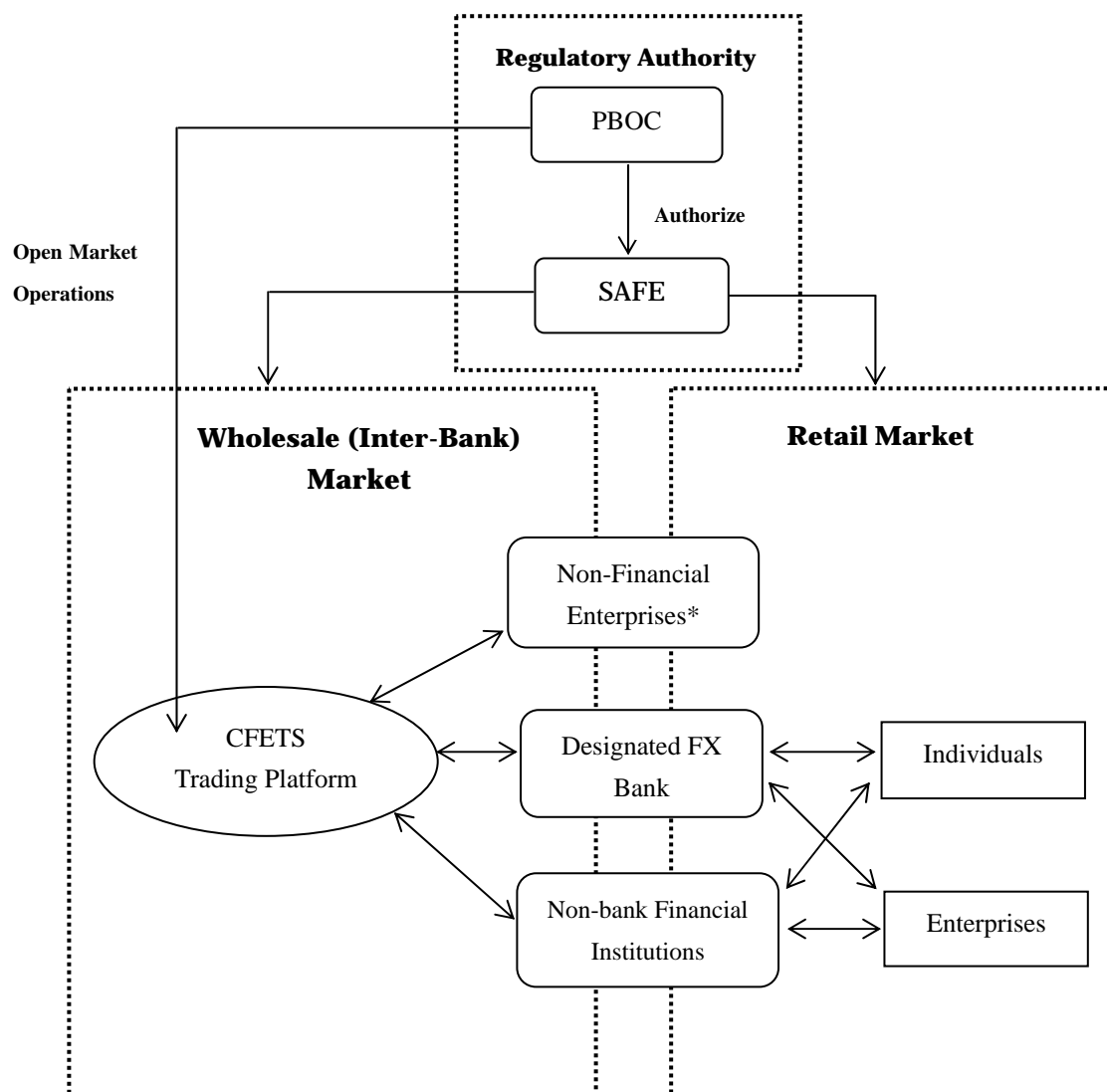
Table 4: Market Concentration (in percent, as of December 2004)

C1	50.57
C2	64.70
C3	71.71
C4	76.14
C5	79.86

Source: Calculations based on trading volume figures in *China Money*.

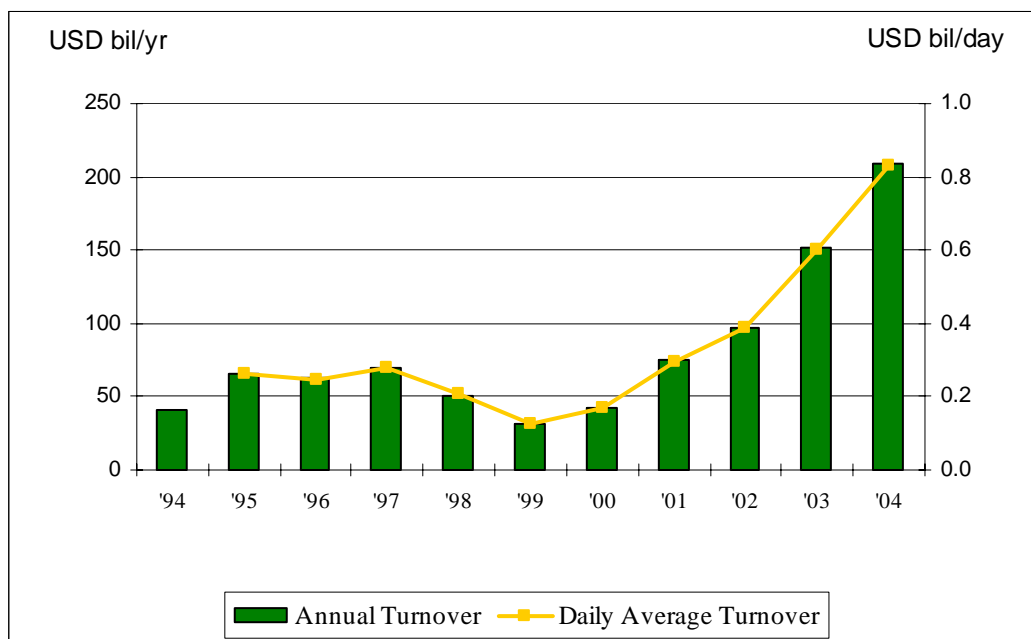
Note: C1 indicates the market share of the market participant with largest trading volume and C5 indicates the market share of the largest five participants.

Figure 1: Organization of China's Foreign Exchange Market



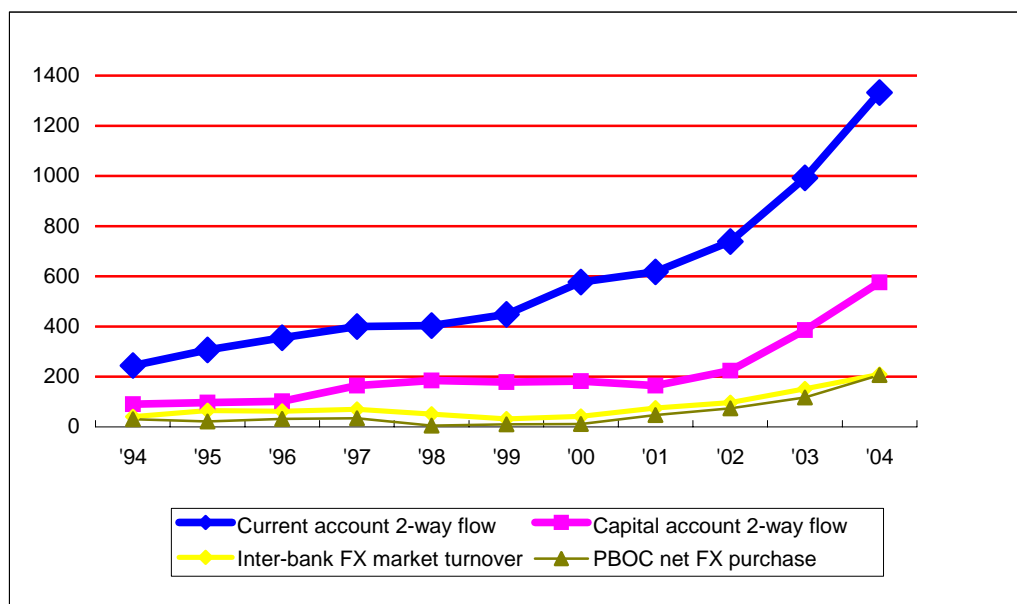
* The new rules in August 2005 gave permission for non-financial enterprises to trade directly in the inter-bank market, but the first actual market entry license did not emerge until March 2006.

Figure 2: Annual and Daily Average Turnover in China's Inter-bank FX Market, 1994-2004



Source: *China Money*, various issues.

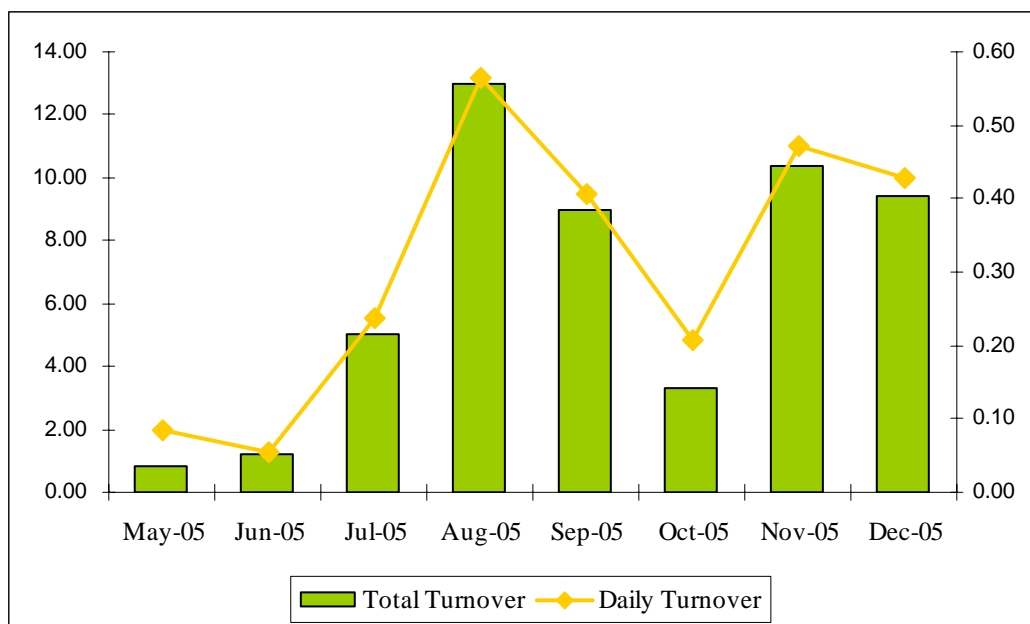
Figure 3: FX Market Activity & Balance of Payment Flows, 1994-2004 (USD billion)



Sources: CFETS, *PBOC Quarterly Statistical Bulletin*.

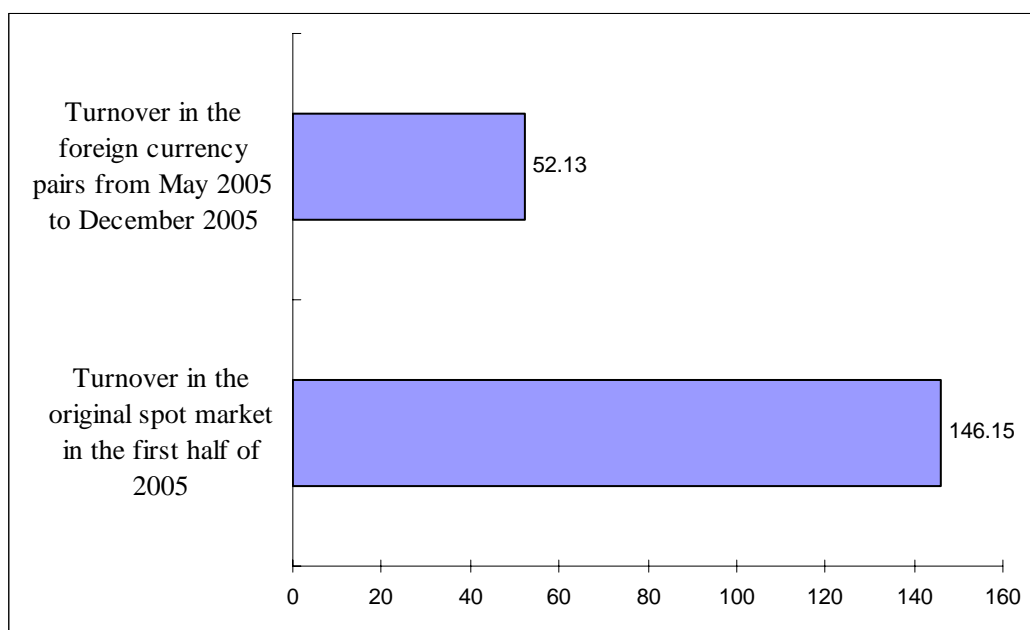
Note: PBOC net purchase of FX is measured by the change in official reserves assets.

Figure 4: Monthly and Daily Turnover in Foreign Currency Pairs (USD billion)



Source: *China Money*, various issues.

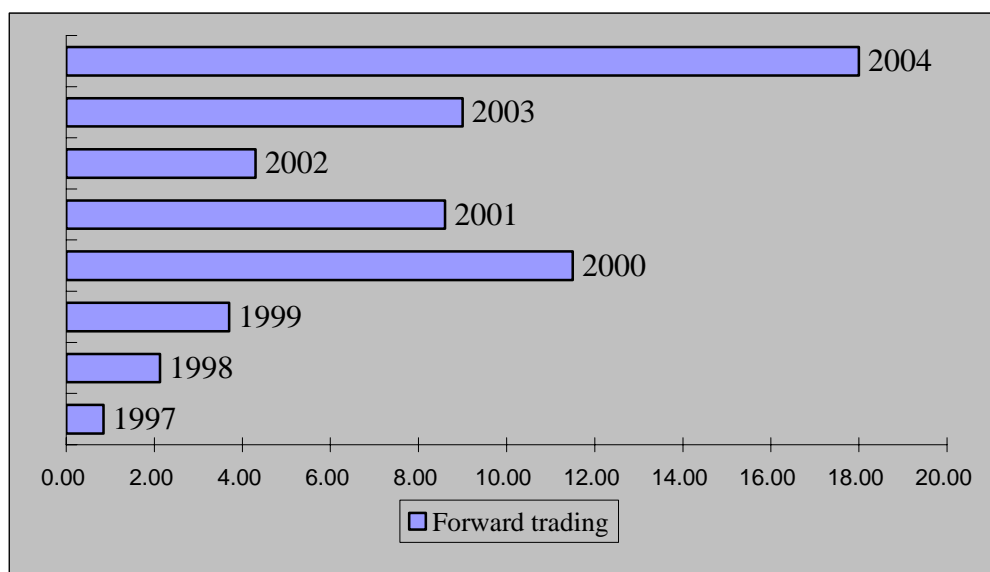
Figure 5: Turnover in Foreign Currency Pairs and the Original Spot Market (USD billion)



Source: *China Money*, various issues.

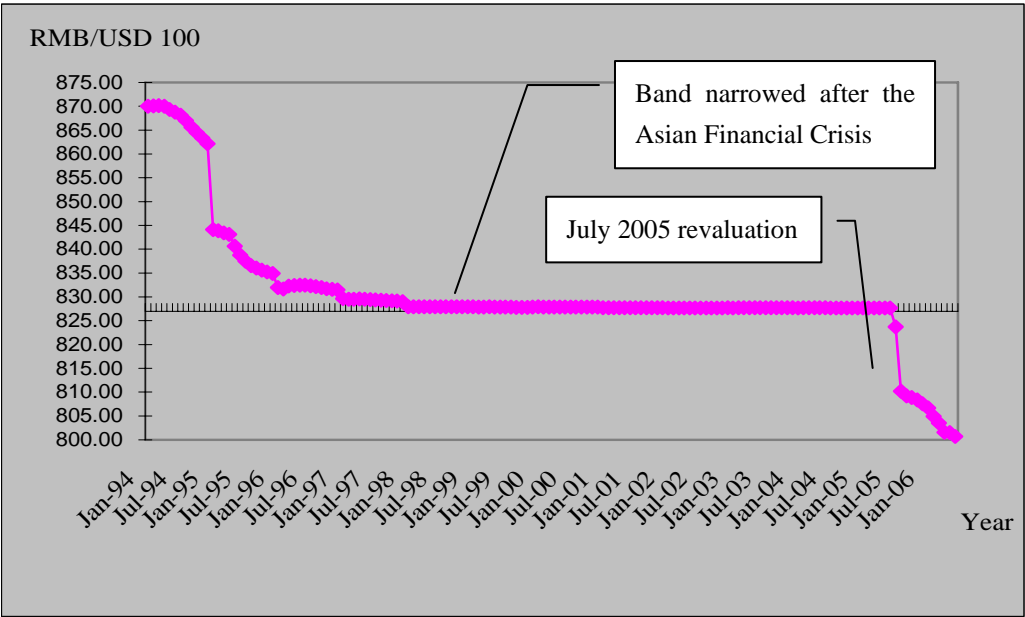
Note: As China's central bank stopped the practice of disclosing inter-bank turnover figures in the spot trading market involving the RMB in the second half of 2005, a comparison between these two segments across the same time range cannot be made.

Figure 6: Retail Market Forward FX Trading (USD billion)



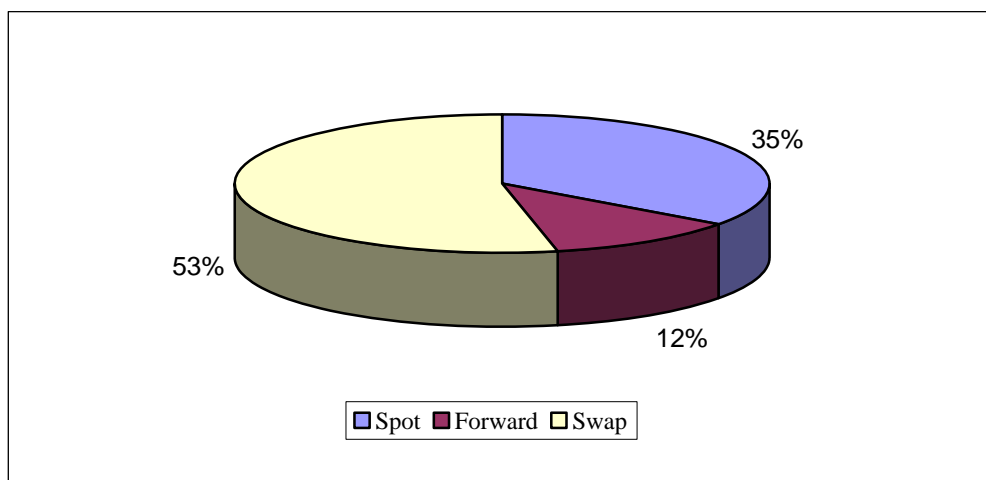
Sources: Data for the years 1997-2002 are from *Bank of China Annual Reports*, while data for the years 2003-2004 are estimations made by Zhang (2005).

Figure 7: RMB-USD Exchange Rate, January 1994 - June 2006



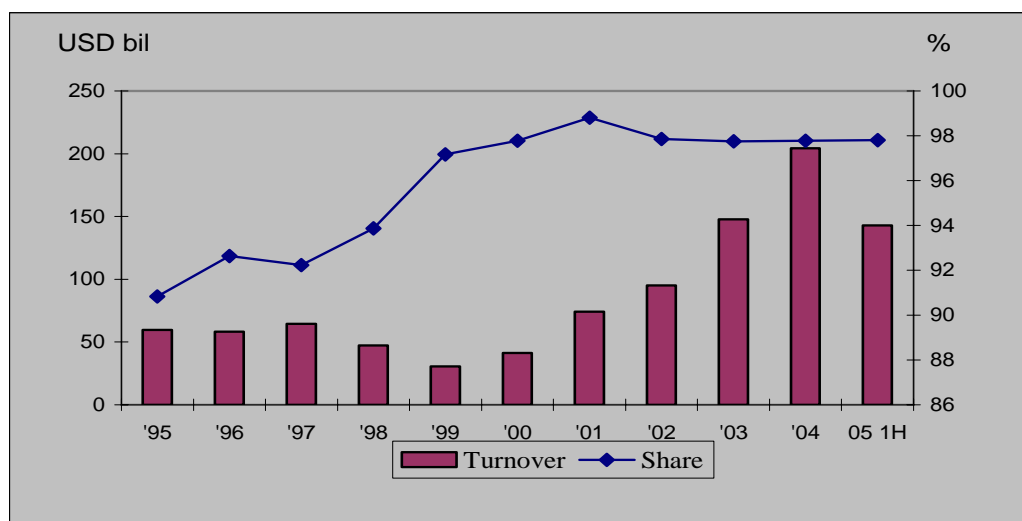
Source: PBOC.

Figure 8: Shares of FX Trading by Transaction Type in Global FX Markets, 2004



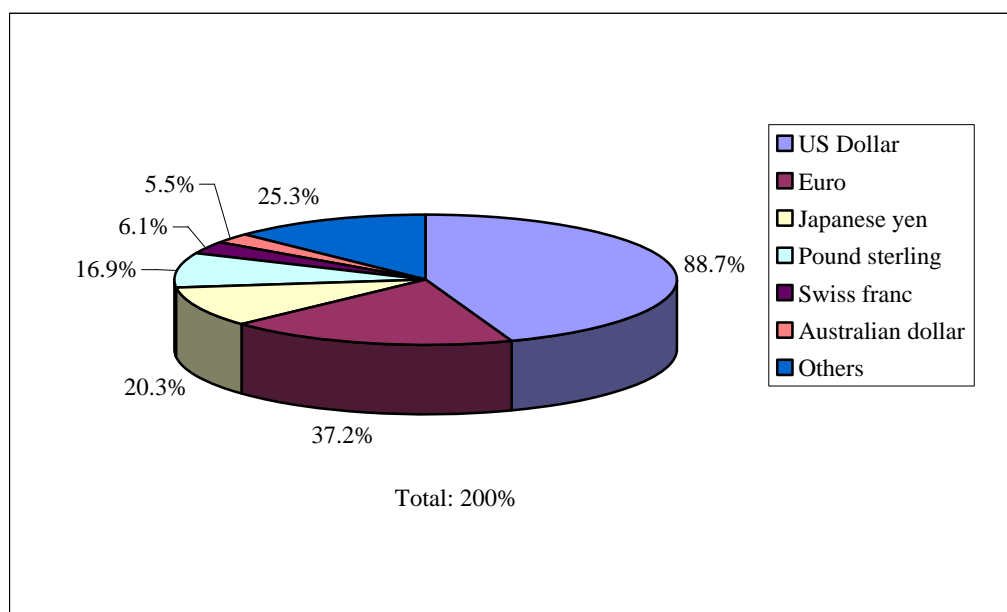
Source: BIS (2004).

Figure 9: Turnover & Share of the US Dollar in the Inter-Bank Market, 1995-first half 2005



Source: *China Money*, various issues.

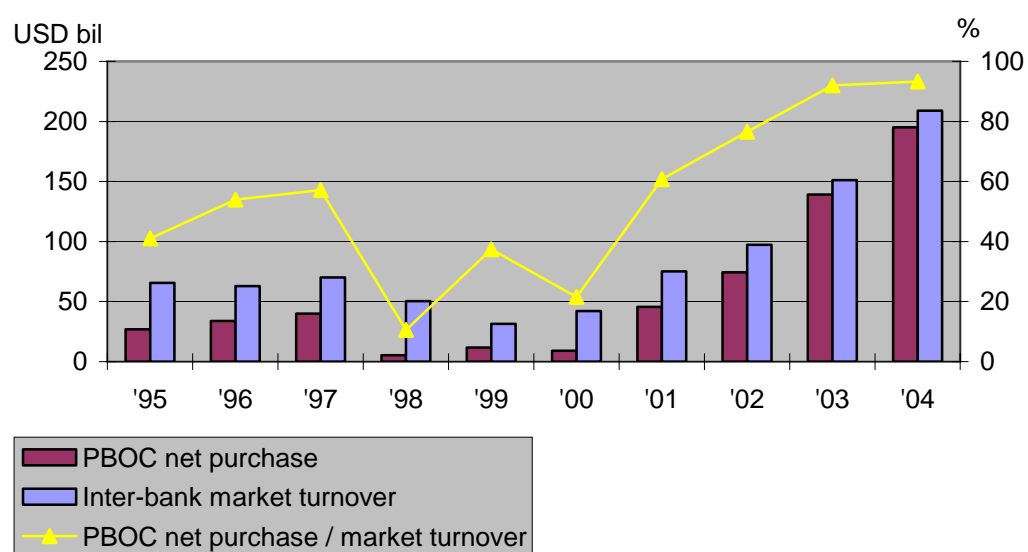
Figure 10: Currency Composition in the Global FX Market, 2004



Source: BIS (2004).

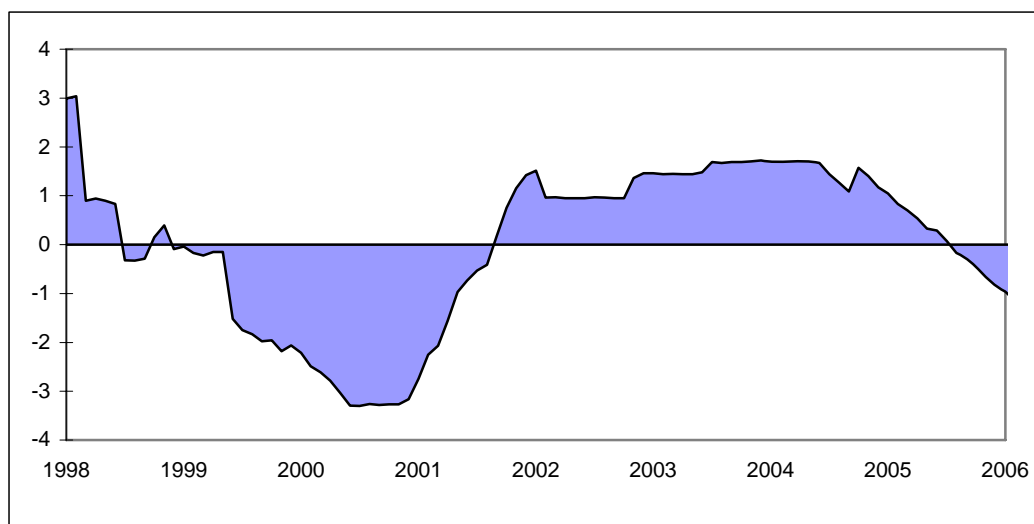
Note: Since each currency pair involves two currencies, the total sums up to 200 percent.

Figure 11: PBOC Net Purchase of FX & Inter-Bank Market Turnover, 1995-2004



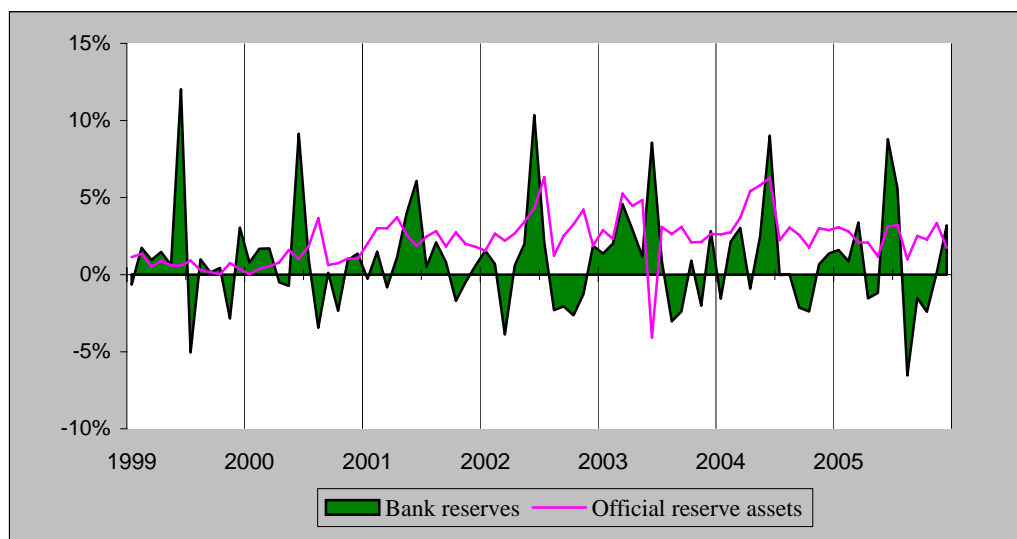
Sources: Shu (2001) and Preeg (2003).

Figure 12: Difference between RMB Bank Deposit Rate and US Federal Funds Rate, 1998-June 2006 (percentage points)



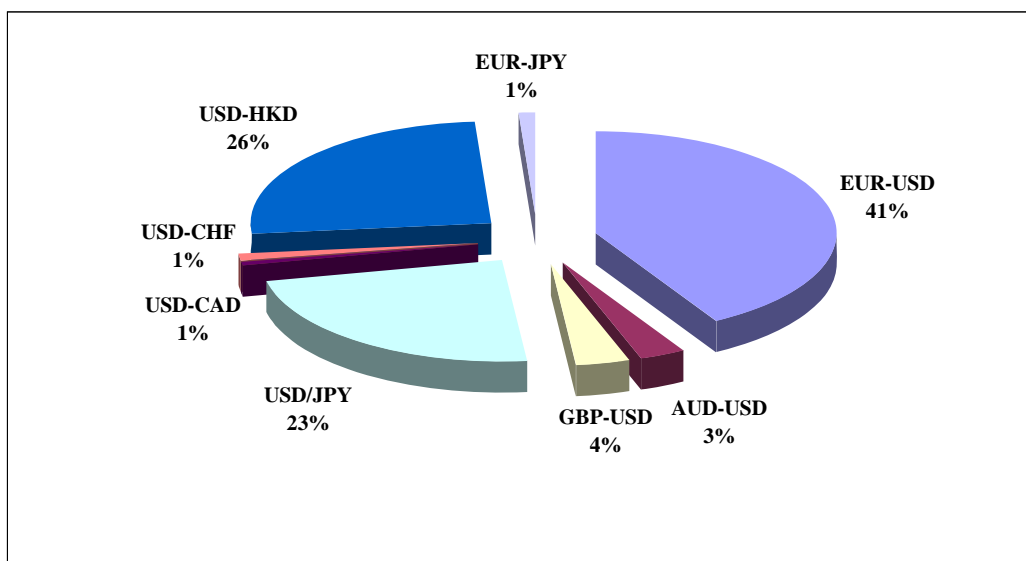
Sources: Federal Reserve Bank of St. Louis and IFS.

Figure 13: Growth in China's Bank Reserves & Official Reserve Assets, September 1999 – June 2006 (monthly rate of change)



Sources: SAFE and IFS.

Figure 14: Currency Composition in Foreign Currency Pair Trading in China's FX Market (in percent), May 2005-December 2005



Source: *China Money*, various issues.

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