The Yuan's Internationalization and the Establishment of Money and Bond Markets in China

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I. The yuan's internationalization and money and bond markets

There has been an active debate over the internationalization of the yuan since the outbreak of the global financial crisis in 2008. In this paper, we look at the relationship between the yuan's internationalization and financial and capital markets.

In China, corporations obtain the bulk of their funding through direct loans from the banks, the deposit and loan rates of which are regulated. China's approach to monetary policy and management of its economy are ultimately dependent on direct administrative guidance and quantitative restrictions (including restrictions on the volume of loans).

At the same time, the lifting of capital controls is an essential component of the process of globalizing the yuan. Once capital is liberalized, China will have to move to a floating exchange rate regime in order to maintain an independent monetary policy. Based on Japan's experience in the 1980s, the lifting of capital controls will probably result in the deregulation of interest rates, since domestic rates will be affected by moves in unregulated interest rates overseas. And given that China depends largely on administrative guidance to manage its monetary policy, once capital is free to flow in and out of the country, China's macroeconomic policy tools will probably be rendered ineffective.

This all suggests that once China liberalizes its capital accounts, it will need to move forward with liberalizing interest rates and shift to indirect macroeconomic controls, primarily open market operations. Sustained development of China’s economy should also naturally require macroeconomic adjustments and resource allocation based on a price (interest rate) discovery mechanism.

We assume here that deep money and bond markets are needed to improve the central bank's ability to engage in open market operations. Money and bond market depth is also needed to absorb the impact from capital inflows and outflows. Furthermore, because the deregulation of interest rates increases interest rate risk, market participants must be provided with tools to hedge against that risk.

At the same time, the deregulation of deposit and lending rates will lead to a narrowing of bank interest margins, while the development of markets for direct financing is likely to shift corporate finance market share away from the banks' lending businesses. Both of these consequences will require a strengthening of bank management. Stronger management at financial institutions is also important from the standpoint of ensuring the effectiveness of indirect macroeconomic controls and managing the repayment risk on the overseas loans made possible by the lifting of capital controls.

Because the internationalization of the yuan will make it possible to hold yuan overseas, it will also create the need for access to deep money and bond markets, in particular more robust short-term money markets, into which overseas (non-resident) investors can invest their yuan holdings.

II. The deregulation of interest rates

1. The history of interest rate deregulation

As evident from Japan's experience in the early 1980s, the lifting of capital controls exposes domestic interest rates to movement in overseas rates, and thereby accelerates the process of interest rate deregulation.

Looking back at the history of interest rate liberalization in China, interest rates in the interbank market (on interbank loans, bills, government bonds, and policy financial bonds) were fully liberalized in the 1990s (Figure 1), and the focus of interest rate deregulation since 2000 has been on bank deposit and loan rates. This deregulation has proceeded on the basic principles of (1) foreign currencies first, and then the yuan, (2) the lending rate first, and then the deposit rate, (3) rural areas first, and then the cities, and (4) long-term and large accounts first, and then short-term and small accounts. It has taken several steps, starting with a widening of the band of fluctuation around the deposit and lending rates set by the People's Bank of China (PBC), and then in October 2004 the elimination of the maximum lending rate and minimum deposit rate. China is now at the point on its journey toward fully deregulated interest rates of gradually lowering the minimum lending rate and raising the maximum deposit rate.

In the area of direct corporate finance, as explained below China implemented a commercial paper market in 2005, a corporate bond market (as opposed to enterprise bonds; the difference is explained below) in 2007, and a medium term note (MTN) market in 2008, thereby increasing the range of products based on market interest rates[1].

1 For details on these products, see Sekine (2009).

Figure 1: Interest rate deregulation in China

Market interest rates		Deposit rates		Lending rates	
Affected rate	Year implemented	Affected deposits (Changes shown in %) *	Year implemented	Affected loans (Changes shown in %) *	Year implemented
		＜Foreign currency＞		＜Foreign currency＞	
Interbank borrowing market	1996	Deregulation of large accounts (at least $3 million)	2000	Deregulated	2000
Bill market	1998	Elimination of lower limit on small accounts	2003	＜Yuan＞	
				To small companies -10 to +20%	1998
Interbank bond market		Deregulation of small accounts with at least 1 yr term	2004	To small and medium-sized companies -10 to +30%	1999
Secondary market					
Cash securities	1997				
Repos	1997	＜Yuan＞		Rural credit cooperatives -10 to +50%	1998
Issuance market	1999	Large time deposits with insurance companies (at least RMB 30 million, over five years)	1999	Financial institutions at the county and lower level -10 to +30%	1999
Policy financial bond issuance	1998			Rural credit cooperatives** -10 to +100%	2002-03
		Rural credit cooperatives** +30 to +50%	2002-03	Commercial banks and urban credit Cooperatives -10 to +70% (the same regardless of company size)	1 Jan. 2004
				Rural credit cooperatives -10 to +100%	1 Jan. 2004
＜Introduction of bonds at market yields＞					
Commercial paper	2005	Fluctuation allowed below benchmark rate in each maturity	29 Oct. 2004	Elimination of upper limit (excluding urban and rural credit cooperatives)	29 Oct. 2004
Corporate bonds	2007				
Medium term notes (MTN)	2008			Urban and rural credit cooperatives -10 to + 130%	29 Oct. 2004

Note: 1. *Signifies interest rates' fluctuation limit relative to the statutory benchmark yield. A 20% figure when the benchmark yield is 6%, for example, signifies that 7.2% (6% x 1.2) is the upper limit of fluctuation).
2. ** Trials were begun in eight counties/cities in 2002, expanded to one or two counties or cities in each province nationwide in 2003.
3. The downward limit of lending rate fluctuation for a home loan for individuals was -10% in March 2005, -15% in August 2006, and -30% in October 2008. (Also see note 1)

Source: Nomura Institute of Capital Markets Research, based on People's Bank of China, *Zhongguo huobi zhengce zhixing baogao* (China monetary policy report) and various news reports

2. Benchmark interest rate

The market's benchmark interest rate provides a basis for establishing the price (interest rate) of a variety of financial products. As noted above, interbank interest rates have already been liberalized in China, but the undeveloped state of short-term money markets and bond markets has made the market formation of benchmark interest rates difficult. Both the repo market and interbank lending market are focused on transactions with terms of seven days and less, and include few transactions maturing in more than seven days. This has led to the long-standing problem of instability in longer-term interest rate formation.

Interbank lending rates are also unstable and subject to sharp swings. Because a large amount of funds become temporarily frozen during an IPO, interest rates tend to fluctuate sharply before and after a large IPO[2]. Some argue that interbank lending rates are made more volatile by the fact that bank deposit reserve requirements must be met on a daily basis, rather than on an average balance basis[3].

There was an attempt to create a benchmark interest rate in 2004 based on rates in the repo market, but it was not very successful. Consequently, the Shanghai Interbank Offered Rate (Shibor) was introduced in January 2007, a benchmark rate announced by the National Interbank Funding Center. Shibor is a weighted average of the offered rates of 16 reporting banks, and is published for overnight, one-week, two-week, one-month, three-month, six-month, nine-month, and one-year maturities.

The PBC is backing Shibor as the benchmark rate. There are already some derivative products that use Shibor as a benchmark, and the banks are starting to develop new products that reference Shibor. Furthermore, because of criticism that Shibor does not reflect the actual rates of transactions made by the reporting banks, changes are being made in the list of 16 reporting banks, based on differences between Shibor and actually transacted rates and on the banks' track record in developing products that reference Shibor.

3. Indirect macroeconomic controls

While interest rates have been on a steady path toward deregulation, it would be difficult to say, judging from China's most recent management of its economy, that China is using interest rate targets as a mechanism to indirectly control the broader economy. Indirect macroeconomic control refers to the use of open market operations to affect the level of funding and the level of short-term interest rates in the interbank market, which in turn affect long-term interest rates, the deposit and lending rates that banks offer their customers, and bank lending activity, and these ultimately affect the economic activity of each agent in the economy.

The only examples of macroeconomic controls that have been effective in recent years were the loan volume restrictions implemented in Q4 2007, which resulted in an economic slowdown, and the monetary easing implemented from Q4 2008, which led to a rapid increase in lending in H1 2009 and an economic rebound in H2 2009. These were referred to as “window guidance” or direct quantitative controls.

At the microeconomic level, as well, it has long been noted that regional governments still administratively intervene in the banks' decisions to lend to corporations. As is also evident from the latest economic stimulus, bank loans to regional state-owned enterprises that implement projects receiving government funds are an integral part of fiscal stimulus.

Ultimately, this leads to a large number of firms becoming insensitive to interest rates, and winds up creating a disconnect between interest rates and economic activity.

2 Reforms of stock issuance rules in 2009 (1) prevent institutional investors that participated in book building from applying for new shares through the internet and (2) set a limit on the number of shares one account can apply for through the internet.

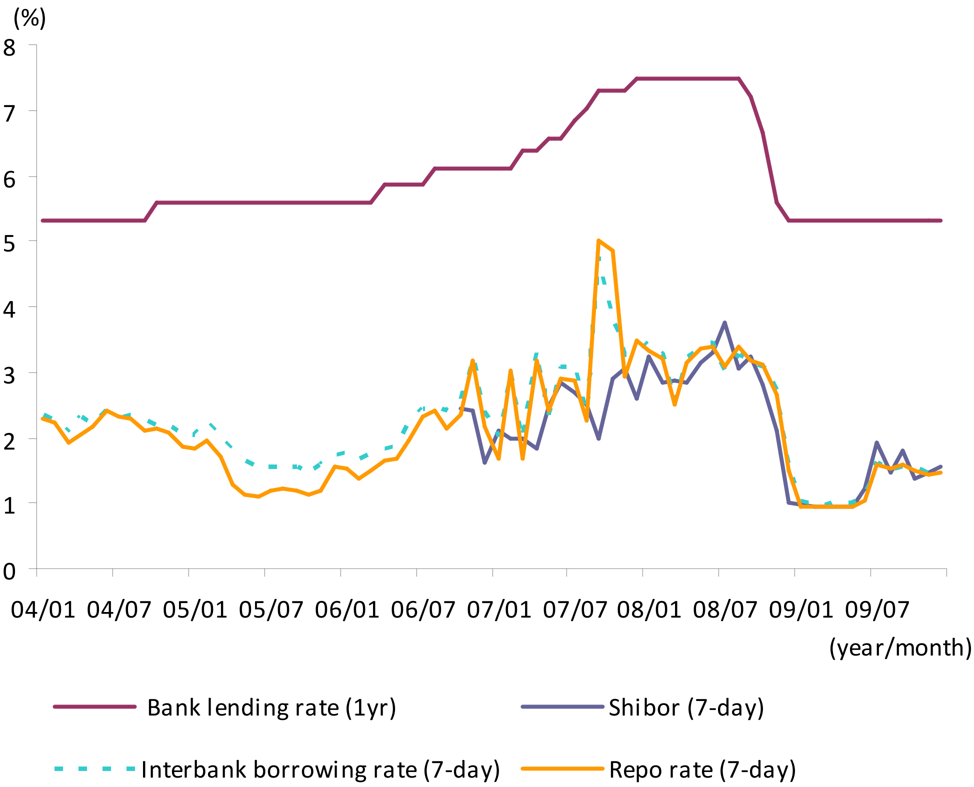
3 IMF (2009)

For the interest rate mechanism to function, it is also critical that market principles operate throughout the economy.

Although these problems remain in the context of overall macroeconomic management, it is possible to see areas of improvement in the area of financial market dynamics. Recently, the different interbank market interest rates, including Shibor, lending rates, and repo rates, have been moving in greater sync, although probably in part due to the lack of major IPOs and consequent reduction in interbank lending rate volatility since September 2009 (Figure 2).

In addition, corporate sector financing, which correlates directly with real economic activity, has always been effectively regulated in terms of issuance volume and interest rates, making it systemically difficult for the interest rate mechanism to function, but the introduction of commercial paper, corporate bonds, and MTN has increased the amount of funding obtained at market interest rates over the past few years. Furthermore, market interest rates are having an impact on firms' borrowing costs. In 2008, commercial paper yields basically moved in sync with yields on central bank bills, and this appears to be an example of market interest rates affecting company costs[4].

Figure 2: Short-term interest rate moves



Source: Nomura Institute of Capital Markets Research, based on CEIC data

4 People's Bank of China, *Zhongguo Huobi Shichang* (China's Currency Market), April 2009 (in Chinese)

III. Striving for greater depth in money markets and bond markets

1. Trends in the interbank lending market and the repo market

We look here at recent trends in short-term money markets, starting with the interbank lending market and repo market.

Short-term money markets have grown substantially since the year 2000. The growth in interbank market transaction volume from 2000 until 2009 was by a factor of 28.8X (45.2% annually), from RMB0.7 trillion to RMB19.4 trillion, for the interbank borrowing market, and by a factor of 46.0X (53.0% annually), from RMB1.6 trillion to RMB72.6 trillion, for the bond repo market. Growth in interbank borrowing market has been particularly strong over the past few years, with the increase roughly nine-fold between 2006 and 2009. The bond repo market grew by a factor of roughly 2.7X during the same period. The level of interbank cash (outright) bond transactions, which had been small relative to bond repo transactions, also grew to RMB48.9 trillion in 2009 (Figure 3).

Figure 3: Transaction value in money and bond markets

(yuan billions)

Year	Interbank markets			Stock exchange bond market	
	Borrowing	Cash bonds	Bond repos	Cash securities	Repos
2000	672.8	64.8	1,578.2	415.8	1,473.4
2001	808.2	84.4	4,013.3	481.6	1,548.8
2002	1,210.7	434.4	10,188.5	870.9	2,442.0
2003	2,411.3	3,161.0	11,720.3	575.6	5,300.0
2004	1,455.6	2,819.6	9,436.8	296.7	4,408.7
2005	1,278.3	6,337.9	15,893.2	277.9	2,326.1
2006	2,150.3	10,932.7	26,590.8	154.1	1,541.3
2007	10,646.6	16,591.6	44,792.5	126.7	1,834.5
2008	15,049.2	40,827.0	58,120.5	212.3	2,426.9
2009	19,350.5	48,868.2	72,573.0	208.5	3,547.6

Source: Nomura Institute of Capital Markets Research, based on People's Bank of China (2009) and PBC website, and ChinaBond (2009 Cash and Repo Transactions on the Interbank Bond Market)

The number of participants in the interbank market is also growing. The number of companies participating in the interbank borrowing market increased from 417 in 2000 to 788 (of which 340 were banks) in 2008. Most recently, participation was approved in 2008 for another four companies, two asset management companies and two auto sales financing companies. The number of participants in the interbank bond market increased from 315 in 2000 to 8,299 (of which 5,681 were nonfinancial firms) in 2008.

Rapid growth in the interbank lending market since 2007 can largely be attributed to the announcement of the *Measures for the Administration of Interbank Borrowing* on 9 July 2007, and their implementation on 6 August. Provisions in the law include (1) an expansion of eligibility for market participation (allowing six types of non-bank financial institutions to participate: financing companies, trust companies, asset management companies, financial lease companies, auto sales finance companies, and insurance asset management companies); (2) a lengthening of the loan term and creation of three different loan term maximums based on the type of institution (a one-year maximum for deposit-taking institutions and policy banks; a three-month maximum for financial asset management companies, lease companies, auto sales finance companies, and insurance companies; and a seven-day maximum for finance companies, securities brokers, trust companies, and insurance asset management companies); (3) a relaxing of restrictions on loan limits; and (4) an improvement in market transparency (disclosures).

The recent increase in repo and cash bond transactions can be attributed to growth in the interbank bond market, a more diverse range of products, broader eligibility for market participation, and improvements in the market maker system. The outstanding amount of central bank bills, owing to their large-scale issuance from 2006 until 2008 in support of sterilized operations, totaled RMB4.8 trillion at end-2008, roughly the same as the approximately 4.9 trillion in outstanding government bonds (in the interbank market) and the RMB4.1 trillion of financial bonds. Central bank bills account for a large share of interbank cash bond transactions, 61.6% in 2008 and 29.8% in 2009. Secured repos accounted for 37.6% in 2008 and 30.7% in 2009. Central bank bills have thus added depth to the short-term money market[5].

Within the interbank repo market, secured repo transactions totaled RMB70.0 trillion, while sell/buy-back repos totaled RMB2.6 trillion in 2009[6]. Although the level of sell/buy-back repo transactions is low, it grew roughly by a factor of 6 from 2006 to 2008, and by 48% YoY in 2009. We think this reflects a greater awareness of risk among participating financial institutions[7].

Overnight repos accounted for 84% of all secured repos in 2009, while repos of 14 days or longer only accounted for 5%. Of the repo underlying, central bank bills, government bonds, and policy financial bonds accounted for a combined total of 96%

5 The repo and cash transaction markets have always been marked by their large amount of trading in financial bonds, particularly policy financial bonds. The large volume of transactions can possibly be attributed to policy financial bonds having credit as strong as government bonds, a high frequency of issuance, and relatively shorter maturities (China Government Securities Depository Trust & Clearing Co. Ltd., (2006)).

6 With sell/buy-back repos, ownership of the repo position is transferred. Repo transactions on exchanges only totaled RMB243 million in 2008.

7 People's Bank of China (2009)

in 2008 and about 90% in 2009. The relatively stable yields of central bank bills is one reason why they are favored as collateral[8].

Furthermore, the *Administrative Rules Governing Market Makers for the National Interbank Bond Market* announced in January 2007 eased the criteria for becoming a market maker[9] and made their business environment easier, including through a reduction of trading commissions related to market-maker activities and the provision of access to real time trading data from the National Interbank Funding Center. This resulted in a 3.5-fold increase in the volume of trades conducted by market makers in 2008 relative to 2007.

2. Other short-term money market products

We look next at recent trends in other short-term money market products.

First we look at treasury bills (T-bills). Generally speaking, T-bills (short-term government bonds with one-year maturity or less) are important in the context of indirect macro control, given their major role in the central bank's open market operations. The issuance of T-bills has been growing since 2005. One reason for this is that the rollover issuance of T-bills became easier with the change in how Chinese government bond (CGB) issuance was managed in 2006, when management of the amount of CGBs issued each year was changed to management of the amount of CGBs outstanding.

The issuance of T-bills on the interbank market totaled RMB139.7 billion in 2005, RMB174.9 billion in 2008, and RMB570.6 billion in 2009. Although issuance in 2008 declined, the fraction of book-entry CGBs with a maturity of one year or less increased from 9.7% in 2007 to 11.7% in 2008[10].

CGBs are still typically held to maturity, primarily by commercial banks, and although CGBs accounted for about 30% of secured repo transactions in 2008, they only accounted for about 9% of cash bond transactions.

There does not appear to be any coordination between the PBC, the entity that conducts open market operations, and the Ministry of Finance, the entity that issues CGBs, and there is probably room for communication between the two to improve in order to broaden the scope of open market operations that currently depend heavily on central bank bills.

We look next at commercial paper, also known as short-term finance bonds (*duanqi rongzi zhaiquan*), which were introduced in 2005. Corporations issued paper with 1yr and shorter maturity on the interbank bond market in the amount of RMB145.4 billion in 2005, and this grew steadily to RMB461.2 billion in 2009. The amount of cash commercial paper (CP) transactions grew by a particularly sharp

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8 Ibid

9 The market maker system was introduced in 2001. There were 20 market makers as of the end of 2008.

10 China Securities Depository & Clearing Corporation, Ltd. (2009)

115% YoY in 2008, a turnover rate (transaction amount/average amount outstanding) of 779% (versus 458% in 2007), and these instruments have become important to China's short-term money market. We attribute this growth to CP investors having expanded beyond the commercial banks to include investment trusts and other financial institutions[11]. In addition, a registration system that simplifies the issuance process has been in effect since April 2008. In October 2008, small and midsize enterprises issued CP on a trial basis, and issuance of the paper, previously limited to blue-chip firms, became possible for BBB-rated companies as well.

Figure 4: Bond market issuance

(yuan billions)

Year	Government bonds				Policy financial bonds	CP	Central bank bills	Non-policy financial bonds
	Book entry	Certificate	Total	Out of which T-bills				
2000	269.2	190.0	459.2	20.0	164.5	0.0	0.0	0.0
2001	308.4	180.0	488.4	0.0	259.0	0.0	0.0	0.0
2002	446.1	147.3	593.4	26.5	317.5	0.0	193.8	0.0
2003	543.9	250.5	794.4	35.5	452.0	0.0	785.0	0.0
2004	441.4	251.0	692.4	63.5	434.8	0.0	1,507.2	74.9
2005	504.2	200.0	704.2	139.7	603.2	145.4	2,788.2	112.9
2006	653.3	235.0	888.3	212.2	865.0	292.0	3,657.4	69.5
2007	2,184.9	163.4	2,348.3	226.2	1,093.2	334.9	4,072.1	115.1
2008	666.5	188.1	854.6	174.9	1,080.9	423.9	4,296.0	127.6
2009	1,271.8	349.5	1,821.4	570.6	1,167.8	461.2	3,974.0	307.1

Note: Figures through 2008 from People's Bank of China (2009). Figures for 2009 estimated based on data from ChinaBond. Government bond total for 2009 includes RMB200 million of municipal bonds.
Certificate bonds are similar to individual savings; book-entry bonds are used in open market operations. T-bills have a maturity of one year or less. Non-policy financial bonds include bonds and subordinated debt issued by commercial banks and bonds issued by international development institutions.

Source: Nomura Institute of Capital Markets Research, based on People's Bank of China (2009), ChinaBond (2009 data), and Wind Information (T-bill data).

Lastly, in 2008, commercial bill issuance totaled approximately RMB7.1 trillion, the cumulative amount discounted by banks RMB13.5 trillion, and transactions among banks RMB109.7 trillion. Issuance of commercial bills has grown substantially, from only RMB700 billion in 2000 and RMB4.5 trillion in 2005.

The banks comply with the lending restrictions used for macroeconomic controls by adjusting their holdings of commercial bills, since the volume can be easily controlled. This makes the bill market vulnerable to impacts from the government's macroeconomic policies. In fact, in H1 2009, amid the implementation of monetary

[11] People's Bank of China (2009)

easing measures, there was a large amount of bank discounting and bill issuance without any actual transactions, and the funding obtained wound up flowing into the stock market and real estate market.

Meanwhile, there has been substantial progress in establishing infrastructure for the bill market. Bill transactions have become more standardized, and this has made the market larger and more efficient. More specifically, the PBC's Shanghai branch published a set of standardized transaction regulations governing interbank bill transactions (those interbank transactions in which discounted bills are further discounted) in the Yangtze Delta region from 2007 until 2008. These standardized transaction rules have also started to spread to areas outside of that region.

An investment product that incorporates bills was sold by banks and trust companies for the first time in 2008[12].

3. Bond market trends

We look next at the development of markets for other types of bonds over the past few years.

Concerning enterprise bonds and corporate bonds, in August 2007, the China Securities Regulatory Commission (CSRC) announced and implemented its *Provisional Measures for the Issuance of Corporate Bonds*. This made it possible to issue corporate bonds, which are different from the traditional enterprise bonds linked to public projects that have long been around. In some cases, enterprise bonds may be issued by business entities not defined as a company under the Company Law. The amount and other issuance terms of enterprise bonds must be approved by the National Development and Reform Commission (NDRC). In addition, the PBC reviews the yield at issuance and the CSRC reviews the qualifications of the securities firm underwriting the bond and other issuance-related risks. In contrast, corporate bonds only need approval from the CSRC after a review by the sponsoring securities firm and a shareholders' meeting or general shareholders' meeting resolution, and the issuance price is determined by book building. This has made issuance more flexible, and interest rates less regulated.

In January 2008, the NDRC also simplified the procedures for issuing enterprise bonds[13], and made it possible to issue unsecured bonds, asset-backed securities and mortgage backed securities, and bonds secured by third parties.

In response to announcement of *the Measures for the Administration of Debt Financing Instruments of Non-financial Enterprises in the Interbank Bond Market* in April, medium-term notes (MTN) were issued. MTN are defined as securities that have principal and interest redemption within a specified period and that are issued in installments by non-financial corporations according to a plan. They are primarily issued by large corporations operating in such state-supported industrial sectors as

[12] People's Bank of China (2009)

[13] The previously two-stage approval process (issuance amount and issuance) was combined into a single approval.

energy, transportation, electric power, communications, and metal materials. MTNs are highly liquid, with trading turnover of 879% in 2008 and 1,140% in 2009 (Figure 5).

Figure 5: Bond trading volume and turnover in the interbank market

(yuan billions)

Year	CGBs			Central bank bills			Financial bonds			Commercial paper			Medium-term notes		
	Amount outstanding	Transaction volume	Turnover (%)	Amount outstanding	Transaction volume	Turnover (%)	Amount outstanding	Transaction volume	Turnover (%)	Amount outstanding	Transaction volume	Turnover (%)	Amount outstanding	Transaction volume	Turnover (%)
2000	915.6	42.7	5.4	-	-	-	730.1	22.0	3.3	-	-	-	-	-	-
2001	1,097.3	48.8	4.9	-	-	-	841.8	35.6	4.5	-	-	-	-	-	-
2002	1,632.6	271.7	19.9	148.7	-	-	987.5	162.7	17.8	-	-	-	-	-	-
2003	2,103.4	820.1	43.9	337.6	943.9	388.2	1,178.9	1,396.9	129.0	-	-	-	-	-	-
2004	1,968.5	531.8	26.1	1,120.8	1,147.1	157.3	1,440.8	1,140.6	87.1	-	-	-	-	-	-
2005	2,310.2	1,087.3	50.8	2,262.7	3,066.3	181.3	1,950.8	1,894.1	111.7	138.0	279.0	404.3	-	-	-
2006	2,540.6	1,256.9	51.8	2,974.8	4,568.6	174.5	2,429.6	3,397.8	155.1	266.7	1,219.6	602.7	-	-	-
2007	4,325.5	2,144.7	62.5	3,065.5	9,207.6	304.9	3,070.0	3,402.9	123.7	320.3	1,342.7	457.5	-	-	-
2008	4,523.2	3,630.0	82.0	4,237.0	25,147.3	688.7	3,940.0	7,683.6	219.2	420.3	2,886.3	779.4	167.2	735.0	879.2
2009	5,230.0	3,681.2	75.5	3,355.5	12,610.2	332.2	4,587.9	14,529.0	340.7	424.8	2,302.5	544.9	746.1	5,205.5	1139.9

Note: As of October 2009. Turnover is trading volume/average amount outstanding.
Source: Nomura Institute of Capital Markets Research, based on data from People's Bank of China (2009) and ChinaBond

The increase in corporate financing through the bond market has attracted interest recently. Enterprise bond issuance was RMB171.0 billion in 2007, increasing to RMB236.7 billion in 2008 and to RMB425.2 billion in 2009. Issuance of corporate bonds, which were first introduced in 2007, totaled RMB28.8 billion in 2008 and RMB73.5 billion in 2009, while MTN issuance totaled RMB173.7 billion in 2008 and RMB688.5 billion in 2009. Commercial paper issuance amounted to RMB423.9 billion in 2008 and RMB461.2 billion in 2009 (Figure 6). The amount of funds raised through A share IPOs totaled RMB103.652 billion in 2008, less than the amount raised from bond issuance.

Since 2004, subordinated commercial bank bonds, hybrid securities, general financial bonds, and asset backed securities have also been introduced (Figure 7). This increase in the number of new products has given the bond market a more diverse maturity mix and risk profile, which we view as a positive. For example, the MTNs introduced in 2008 increased the amount of bonds maturing in three to five years from what were insufficient levels, and have become a benchmark for yields in this maturity range[14]. As entities with various types of credit risk become issuers, there will probably be a need to strengthen the role played by credit rating agencies to ensure rational market price formation.

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[14] People's Bank of China, *Zhongguo Huobi Shichang* (China's Currency Market), April 2009 (in Chinese)

Figure 6: Corporate funding from bond issuance

(yuan billions)

Year	Enterprise bonds	Corporate bonds	Medium term notes (MTN)	Commercial paper (CP)
2004	35.2	-	-	-
2005	65.4	-	-	145.4
2006	101.5	-	-	292.0
2007	170.9	11.2	-	334.9
2008	236.7	28.8	173.7	423.9
2009	425.2	73.5	688.5	461.2

Source: Nomura Institute of Capital Markets Research, based on data from People's Bank of China (2009), Wind Information (2009 Enterprise Bonds and Corporate Bonds), and ChinaBond (2009 MTN and CP)

Figure 7: Recent moves in money and bond markets

Year	Money market	Bond market
2005	・Introduction of commercial paper ・Establishment of money broker firms	・Issuance of general financial bonds ・Introduction of bond forward contracts ・Issuance of Yuan-denominated bonds by international development institutions ・Trial securitization of bank loans (asset backed securities)
2006	・Setting of benchmark rates ・Announcement of reference yield for interbank bond repos ・Announcement of Shibor ・Yuan interest rate swaps	・Issuance of commercial bank hybrid securities ・Issuance of restructured asset backed securities ・Bond borrowing and lending ・Start of debt management approach based on amount of CGBs outstanding ・Detachable convertible bonds (warrants, corporate bonds)
2007	・*Measures for the Administration of Interbank Borrowing* ・Expansion of eligiblity to participate in interbank borrowing market (including to trust companies, insurers, and leasing companies) ・Introduction of forward rate agreements (FRA)	・*Administrative Rules Governing Market Makers for the National Interbank Bond Market* ・Issuance of financial bonds by financial firms ・Corporate bond issuance ・Yuan-denominated bonds issued in Hong Kong (three banks, including the China Development Bank)
2008	・Full-scale implementation of interest rate swap agreements ・Standardization of interbank bill transactions (Yangtze Delta Region） ・Financial products invested in bills ・medium-sized firm	・Enterprise bonds: issuance procedures simplified, unsecured issuance allowed ・MTN issuance ・Interbank bond market, full inplementation of DVP settlement
2009	・Standardized master agreement for financial derivative transactions	・Municipal debt issuance

Source: Nomura Institute of Capital Markets Research, based on data from the People's Bank of China Website and various news outlets

4. Derivative market trends

The liberalization of interest rates has increased the need for financial derivatives to manage interest rate risk. New derivative products and agreements have been introduced in response, starting with bond forwards in 2005 and followed by interest rate swaps in 2006 and forward rate agreements in 2007.

The bond forward contracts introduced in 2005 were the first tool available in the interbank bond market for hedging interest rate risk, and by 2008, the notional principle of those trades totaled RMB500.3 billion, of which 74.9% were for a seven-day term and 65.4% referenced central bank bills. Trades totaled RMB478 billion for the first nine months of 2009, with most for a term of seven days and referencing either central bank bills or policy financial bonds. This provides further evidence of the importance of central bank bills as a vehicle for trading.

Yuan-based interest rate swaps were introduced on a trial basis in 2006, and implemented market-wide in 2008, specifically by easing the requirements for participating in the interest rate swap market from January 2008. Prior that that, only commercial banks approved for derivative transactions and their customers could trade on that market, but the rules were changed to allow all interbank market participants to trade. There are different categories for participants, however, each with different privileges. Financial institutions qualified as market makers or settlement agents can trade with all market participants, other financial institutions can trade with all financial institutions on their own account, and non-financial institutions can trade with financial institutions qualified as market makers or settlement agents for hedging purposes[15].

Trades grew substantially in 2008, to 4,040 transactions (up roughly 106% YoY) and a notional principal of RMB412.15 billion (up 90.1%). For the first nine months of 2009, the notional principal totaled RMB323.9 billion[16]. Variable interest rates reference rates for Shibor (overnight, one-week, and three-month), seven-day repos, and one-year term instruments. The most common benchmark rate, used for 71.9% of the notional principal, was the seven-day repo rate. Shibor, only benchmarked for 21.8% of the notional principal, has yet to catch on[17].

Forward rate agreements (FRAs) were introduced in 2007 to fill the void in products for hedging short-term interest rate risk, because yuan-based interest rate swaps typically had terms of two years to 30 years. All FRAs in 2008 referenced the three-month Shibor and had a term of one year or less. These interest rate swaps and FRAs were also used as hedging instruments by non-financial institutions. Foreign financial institutions, which have substantial experience with derivatives in overseas markets, have a large share of this market in China[18].

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15 People's Bank of China (2009)
16 China Foreign Exchange Trading System (2009)
17 Currency swaps between the yuan and foreign currencies began in the foreign exchange market in 2007.
18 People's Bank of China, *Zhongguo Huobi Shichang* (China's Currency Market), April 2009 (in Chinese)

5. Infrastructure

We finish with a look at the current status of infrastructure. First, one problem that has been noted with the bond market is that it is split between an interbank market and a stock exchange. As shown in Figure 3, the majority of transactions are conducted on the interbank market. The CSRC and the China Banking Regulatory Commission (CBRC), however, jointly released *the Notice Regarding Pilot Participation by Exchange-listed Commercial Banks in Bond Transactions on Securities Exchanges*, which opened the way for listed commercial banks to trade bonds on a stock exchange.

Second, non-banks were also included in the delivery versus payment (DVP) settlement system in July 2007, with the idea that market-wide DVP settlement would reduce trading risk.

Third, a single master agreement for the derivatives market was adopted in 2009. Until then, two different master agreements were used, one from the National Association of Financial Market Institutional Investors (NAFMII) and one from the China Foreign Exchange Trade System (CFETS), and this created legal risk and the potential for misunderstandings. The two organizations began the process of converging their master agreements in 2008, and announced their new master agreement in March 2009. As of 2 July 2009, 31 companies had signed 41 master agreements. The 31 companies, which include both Chinese and foreign firms, are all active traders of derivatives[19].

IV. Conclusion

As we have shown above, China's monetary authorities have been working feverishly to ensure the short-term money market and bond market have an infrastructure that can withstand much-needed liberalization of capital and interest rates.

The macroeconomic adjustments made thus far have largely consisted of quantitative controls, and a monetary policy using interest rates as a transmission mechanism has played a minimal role. Resources and funds continue to be allocated without resort to a price (interest rate) mechanism, and this status quo is likely to make it difficult to achieve sustained economic development moving forward. There are still a number of problems with China's financial markets, including a poorly functioning benchmark yield curve from the seven-day sector and longer, which is caused by a lack of liquidity and other issues.

Over the past few years, however, there have clearly been improvement efforts in the money market and bond market. Large volumes of central bank bill issuance has begun to deepen short-term money markets, which would help the PBC to conduct

[19] NAFMII Website: www.nafmii.org.cn/Info/211611

dynamic open market operations, The introduction of commercial paper and MTN has also both deepened and diversified markets. As markets become more diverse, credit ratings become increasingly important. Likewise, as capital is liberalized (including opened to non-residents), interest rates are deregulated, and corporations increasingly turn to direct financing for their funding needs, the role and profits of banks will come under threat. Strengthening the banks' management capabilities is thus an important prerequisite to any full-fledged lifting of capital controls. The liberalization of capital will require simultaneous reforms of money and bond markets, as well as of financial institutions.

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