China's Financial System: Opportunities and Challenges*

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Abstract

We provide a comprehensive review of China's financial system, and explore directions of future development. First, the current financial system is dominated by a large banking sector. In recent years banks have made considerable progress in reducing the amount of non-performing loans and improving their efficiency. It is important that these efforts are continued. Second, the role of the stock market in allocating resources in the economy has been limited and ineffective. Further development of China's stock market and other financial markets is the most important task. Third, the most successful part of the financial system, in terms of supporting the growth of the overall economy, is a non-standard sector that consists of alternative financing channels, governance mechanisms, and institutions. This sector should co-exist with banks and markets in the future in order to continue to support the growth of the Hybrid Sector (non-state, non-listed firms). Finally, in order to sustain stable economic growth, China should aim to prevent and halt damaging financial crises, including a banking sector crisis, a real estate or stock market crash, and a "twin crisis" in the currency market and banking sector.

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I. Introduction

In this paper we provide a comprehensive review of China's financial system and extensive comparisons with other countries. Almost every functioning financial system includes financial markets and intermediaries (e.g., a banking sector), but how these two standard financial sectors contribute to the entire financial system and economy differs significantly across different countries. In this regard, we discuss what has worked and what remains to be done within the two sectors, and examine how further development can better serve the entire economy. We also examine a non-standard financial sector, which operates outside the markets and banking sectors and consists of alternative financing channels, governance mechanisms, and institutions. Finally, we provide guidelines for future research and policy making on several important unresolved issues, including how China's financial system should integrate into the world's markets and economy without being interrupted by damaging financial crises. Although there is no consensus regarding the prospects for China's future economic growth, a prevailing view on China's financial system speculates that it is one of the weakest links in the economy and it will hamper future economic growth.

We draw four main conclusions about China's financial system and its future development. First, when we examine and compare China's banking system and financial markets with those of both developed and emerging countries, we find China's financial system is currently dominated by a large banking system. Even with the entrance and growth of many domestic and foreign banks and financial institutions in recent years, China's banking system is still mainly controlled by the four largest state-owned banks. Three of the 'big four' banks have recently become publicly listed and traded companies, with the government being the largest shareholder and retaining control. This ownership structure has served these banks well in terms of avoiding major problems encountered by major financial institutions in developed countries that are at the center of the ongoing global financial crisis. Moreover, the level of non-performing loans (NPLs; over GDP) has been steadily decreasing after reaching its peak during 2000- 2001. The continuation of the effort to improve the efficiency of the banking system, including further development of financial institutions outside the Big Four banks and extending more credit to productive firms and projects, is an important task of reforming China's financial system in the short run.

Our second conclusion concerns China's financial markets. Two domestic stock exchanges, the Shanghai Stock Exchange (SHSE hereafter) and Shenzhen Stock Exchange (SZSE), were established in 1990. Their scale and importance are not comparable to the banking sector; and they have not been effective in allocating resources in the economy, in that they are highly speculative and

driven by insider trading. Going forward, however, financial markets are likely to play an increasingly important role in the economy, and their further development is the most important task for China's financial system. We propose several measures that can increase their size and scope and help to improve the efficiency of the markets.

Third, in an earlier paper, Allen, Qian and Qian (2005, AQQ hereafter) find that the most successful part of the financial system, in terms of supporting the growth of the overall economy, is not the banking sector or financial markets, but rather a sector of alternative financing channels, such as informal financial intermediaries, internal financing and trade credits, and coalitions of various forms among firms, investors, and local governments. Many of these financing channels rely on alternative governance mechanisms, such as competition in product and input markets, and trust, reputation and relationships. Together these mechanisms of financing and governance have supported the growth of a "Hybrid Sector" with various types of ownership structures. Our definition of the Hybrid Sector includes all non-state, non-listed firms, including privately or individually owned firms, and firms that are partially owned by *local* governments (e.g., Township Village Enterprises or TVEs).[1] The growth of the Hybrid Sector has been much higher than that of the State Sector (state-owned enterprises or SOEs, and all firms where the central government has ultimate control) and the Listed Sector (publicly listed and traded firms with most of them converted from the State Sector), contributes most of the economic growth, and employs the majority of the labor force. We believe these alternative channels and mechanisms should be encouraged going forward. They can co-exist with banks and markets while continuing to fuel the growth of the Hybrid Sector.

Finally, in our view a significant challenge for China's financial system is to avoid damaging financial crises that can severely disrupt the economy and social stability. China needs to guard against traditional financial crises, including a banking sector crisis stemming from an accumulation of NPLs and a sudden drop in banks' profits; or a crisis/crash resulting from speculative asset bubbles in the real estate market or stock market. China also needs to guard against new types of financial crises, such as a "twin crisis" (simultaneous foreign exchange and banking/stock market crises) that struck many Asian economies in the late 1990s. Since its entrance to the World Trade Organization (WTO) in 2001, the integration of China's financial system and overall economy with the rest of the world has significantly sped up. This process introduces cheap foreign capital and technology, but

[1] We include firms partially owned by local governments in the Hybrid Sector for two reasons. First, despite the ownership stake of local governments and the sometimes ambiguous ownership structure and property rights, the operation of these firms resembles more closely that of a for-profit, privately-owned firm than that of a state-owned firm. Second, the ownership stake of local governments in many of these firms has been privatized.

large scale and sudden capital flows and foreign speculation increase the likelihood of a twin crisis. At the end of 2007, China's foreign currency reserves surpassed US$1.5 trillion, overtaking Japan to become the largest in the world; it increased to US$2.3 trillion as of September 2009 with a large fraction of the foreign reserve invested in dollar denominated assets such as T-bills and notes.[2] The rapid increase in China's foreign exchange reserves suggests that there is a large amount of speculative, "hot" money in China in anticipation of a continuing (possibly considerable) appreciation of the RMB, China's currency, relative to all other major currencies, especially the US dollar. Depending on how the government and the central bank handle the process of revaluation, there could be a classic currency crisis as the government and central bank try to defend the partial currency peg, which in turn may trigger a banking crisis if there are large withdrawals from banks.

The remaining sections are organized as follows. In Section II, we briefly review the history of China's financial system development, present aggregate evidence on China's financial system, and compare them to those of developed and other developing countries. In Section III, we examine China's banking system and reforms. In Section IV, we briefly examine the growth and irregularities of financial markets, including the stock market, real estate market, and listed firms, and propose several initiatives to develop new markets and further develop existing markets, as well as measures to improve corporate governance among listed firms. In Section V, we examine the non-standard financial sector, including alternative financial channels and governance mechanisms. Motivated by the success of this financial sector and firms in the Hybrid Sector, we also compare the advantages and disadvantages of using the law as the basis of finance and commerce. We then examine different types of financial crises and how China's financial system can be better prepared for these crises in Section VI. Finally, Section VII concludes the paper. In terms of converting RMB into US dollar, we use the exchange rate of US$1 = RMB 8.28 (*yuan*) for transactions and events occurring before 2005, and the spot rate at the end of each year for those activities during and after 2005 (Figure 7-B provides a graph of the evolution of exchange rates between the RMB and US$).

II. Overview of China's Financial System

II.1 A Brief Review of the History of China's Financial System

China's financial system was well developed before 1949.[3] One key finding in reviewing the

[2] According to the U.S. Treasury Department, China's holding of U.S. treasury securities reached $798.9 billion in September 2009. Morrison and Labonte (2008) estimate that around 70% of China's foreign reserves are in dollar denominated assets.

[3] For more descriptions of the pre-1949 history of China's financial system, see AQQ (2008); for more anecdotal evidence on China's financial system in the same period, see, for example, Kirby (1995) and Lee (1993).

history of this period, including the rise of Shanghai as one of the financial centers of Asia during the first half of the 20th Century, is that the development of China's commerce and financial system as a whole was by and large *outside* the formal legal system. For example, despite the entrance of Western-style courts in Shanghai and other major coastal cities in early 1900s, most business-related disputes were resolved through mechanisms outside courts, including guilds (merchant coalitions), families and local notables. In Section V.3 below, we argue that modern equivalents of these dispute-resolution and corporate governance mechanisms are behind the success of Hybrid Sector firms in the same areas in the 1980s and 1990s, and that these alternative mechanisms may be superior to the law and legal institutions in adapting to changes in a fast-growing economy like China.

After the foundation of the People's Republic of China in 1949, all of the pre-1949 capitalist companies and institutions were nationalized by 1950. Between 1950 and 1978, China's financial system consisted of a single bank − the People's Bank of China (PBOC), a central government owned and controlled bank under the Ministry of Finance, which served as both the central bank and a commercial bank, controlling about 93% of the total financial assets of the country and handling almost all financial transactions. With its main role to finance the physical production plans, the PBOC used both a "cash-plan" and a "credit-plan" to control the cash flows in consumer markets and transfer flows between branches.

The first main structural change began in 1978 and ended in 1984. By the end of 1979, the PBOC departed the Ministry and became a separate entity, while three state-owned banks took over some of its commercial banking businesses: The Bank of China[4] (BOC) was given the mandate to specialize in transactions related to foreign trade and investment; the People's Construction Bank of China (PCBC), originally formed in 1954, was set up to handle transactions related to fixed investment (especially in manufacturing); the Agriculture Bank of China (ABC) was set up (in 1979) to deal with all banking business in rural areas; and, the PBOC was formally established as China's central bank and a two-tier banking system was formed. Finally, the fourth state-owned commercial bank, the Industrial and Commercial Bank of China (ICBC) was formed in 1984, and took over the rest of the commercial transactions of the PBOC.

For most of the 1980s, the development of the financial system can be characterized by the fast growth of financial intermediaries outside of the "Big Four" banks. Regional banks (partially owned by local governments) were formed in the Special Economic Zones in the coastal areas; in rural areas, a network of Rural Credit Cooperatives (RCCs; similar to credit unions in the U.S.) was

[4] BOC, among the oldest banks currently in operation, was originally established in 1912 as a private bank, and specialized in foreign currency related transactions.

set up under the supervision of the ABC, while Urban Credit Cooperatives (UCCs), counterparts of the RCCs in the urban areas, were also founded. Non-bank financial intermediaries, such as the Trust and Investment Corporations (TICs; operating in selected banking and non-banking services with restrictions on both deposits and loans), emerged and proliferated in this period.

The most significant event for China's financial system in the 1990s was the inception and growth of China's stock market. Two domestic stock exchanges (SHSE and SZSE) were established in 1990 and grew very fast during most of the 1990s and in recent years in terms of the size and trading volume. In parallel with the development of the stock market, the real estate market also went from nonexistent in the early 1990s to one that is currently comparable in size with the stock market.[5] Both the stock and real estate markets have experienced several major corrections during the past decade, and are characterized by high volatilities and speculative short-term behaviors by many investors.

These patterns are in part due to the fact that the development of a supportive legal framework and institutions has been lagging behind that of the markets. For example, on a trial basis, China's first bankruptcy law was passed in 1986 (governing SOEs), but the formal Company Law was not effective until the end of 1999. This version of the Company Law governs all corporations with limited liability, publicly listed and traded companies, and branches or divisions of foreign companies, as well as their organization structure, securities issuance and trading, accounting, bankruptcy, mergers and acquisitions (for details see the website of China Securities Regulatory Commission, or CSRC, http://www.csrc.gov.cn/). In August 2006, a new bankruptcy law was enacted, and it became effective June 1, 2007. We provide a brief analysis of the status and problems of the stock market and real estate market in Section IV below.

Following the Asian Financial Crisis in 1997, financial sector reform has focused on state-owned banks and especially the problem of NPLs (the China Banking Regulation Committee was also established to oversee the banking industry). We will further discuss this issue in Section III. China's entry into the WTO in December 2001 marked the beginning of a new era, as we continue to observe increasing competition from foreign financial institutions and more frequent and larger scale capital flows. While increasingly larger inflows of foreign capital and the presence of foreign institutions will continue to drive further growth of the financial system and economy, larger scale capital flows can also increase the likelihood of damaging financial crises. We will discuss these issues in Sections IV and VI.

[5] At the end of 2007, the total market capitalization of the two domestic exchanges (SHSE and SZSE) is around $1.8 trillion, whereas total investment in the real estate market is around $3.12 trillion.

A developed financial system is characterized by, among other factors, the important role played by institutional investors. In China, institutional investors began to emerge in the late 1990s: the first closed-end fund, in which investors cannot withdraw capital after initial investment, was set up in 1997, and the first open-end fund, in which investors can freely withdraw capital (subject to share redemption restrictions), was established in 2001. By November 2009, there were 65 fund companies managing 551 funds with 520 open-ended funds and the rest close-ended. The total net assets value (NAV) increased from RMB11 billion (or US$ 1.3 Billion) in 1998 to RMB 2.26 trillion (or $328 billion) in November 2009, which is still small compared to the assets within the banking sector. In 2003, a few Qualified Foreign Institutional Investors (QFII) entered China's asset management industry, and they have been operating through forming joint ventures with Chinese companies. On the other hand, China allowed Qualified Domestic Institutional Investors (QDII) to invest in overseas markets beginning in July 2006. At the end of 2008, the ten QDII funds have a total of $109.4 billion assets under management; fifteen new QDII funds are waiting for approval (to begin operations) as of November 2009.

At the national level, the China Investment Corporation (CIC) was established in September 2007 with the intent of utilizing the accumulated foreign reserves for the benefit of the state and $207.91 billion foreign reserves under management at the establishment. It makes occasional announcements about its investment, but the overall transparency of its investment strategy is low. Since inception, CIC has made some aggressive investment decisions, including the well publicized $3 billion (pre-IPO) investment in private equity group Blackstone, and the $5 billion investment in Morgan Stanley (mandatory convertible bond, can be converted into almost 10% of equity).

Endowed with limited capital and problems with the administration of the pension system, pension funds have not played an important role in the stock or bond market.[6] With a fast aging population and the growth of households' disposable income, further development of a multi-pillar pension system including individual accounts with employees' self-contributed (tax exempt) funds that can be directly invested in the financial markets is important for the development of both the financial system and the fiscal system as well as for social stability. At the top of the pension fund system, China's National Social Security Fund (NSSF) was established in August 2002 and is administered by the National Council for Social Security Fund. This (sovereign) fund is mainly

[6] While there is a nationwide, government run pension system (financed mainly through taxes on employers and employees), the coverage ratio of the pension system varies significantly across regions and is particularly low in rural areas. Moreover, there is a very limited amount of capital in individual accounts and most of the capital has been invested in banks and government projects with low returns. See, for example, Feldstein (1999, 2003) and Feldstein and Liebman (2006), for more details on China's pension system.

funded by capital and equity assets derived from the reduction (and floating) of state-owned shares of listed companies, fiscal allocation from the central government, and other investment proceeds. It has recently shifted its core investment strategies of focusing on the domestic A-share and bond markets to a more diversified basket of assets, including investments in emerging markets and Europe. At the end of 2008, the fund had a total of $89.2 billion in assets and this is expected to grow to RMB 1 trillion ($146.5 billion) in one year, according to a talk by Chairman Dai, Xianglong in October 2009. Finally, there is no hedge fund that implements "long-short" strategies, as short selling is prohibited.

Insert Figure 1 here.

Figure 1 depicts the current structure of the entire financial system. In what follows we will describe and examine each of the major sectors of the financial system. In addition to the standard sectors of banking and intermediation and financial markets, we will document the importance of the non-standard financial sector. Due to space limitation, we do not cover China's "foreign sectors" in this chapter; for discussions on the history and the role of these sectors in supporting the growth of the economy, see, for example, AQQ (2005b), and Prasad and Wei (2005) for a review on foreign direct investment (FDI).

II.2 Size and Efficiency of the Financial System: Banks, Markets, and Alternative Finance

For a comparison of countries, we follow the law and finance literature and in particular the sample of countries studied in La Porta, Lopez-de-Silanes, Shleifer and Vishny (hereafter LLSV, 1997a, 1998). They classify most of the countries by their legal origin; countries with the English common-law (French civil-law) origin provide the strongest (weakest) legal protection to investors and strong legal protection is also associated with better economic and financial 'outcomes.' In Table 1, we compare China's financial system to those of LLSV sample countries (as of 2005), with measures for the size and efficiency of banks and markets taken from Levine (2002) and Demirgüç-Kunt and Levine (2001).

We first compare the *size* of a country's banks and equity markets relative to that country's gross domestic product (GDP; first four columns of Table 1). In terms of total market capitalization, China's stock market, 32% of its GDP in 2005, is much smaller than most of the LLSV sample countries (Panel A) with a weighted (by each country's GDP) average of 102% of GDP; it is also smaller than most of other major emerging economies (see Panel B) with a weighted average of 65% of GDP. "Value Traded" is perhaps a better measure of the actual size of the market than "market

capitalization," because the latter includes non-tradable shares or tradable shares that are rarely traded. In this regard, the size of China's stock market (26% of GDP) is even smaller than those of LLSV countries (with a weighted average of 117% of GDP) and emerging economies (with an average of 62% of GDP) as of 2005. Similarly, the size of China's banking system, in terms of total bank credit to non-state sectors, is 31% of its GDP in 2005, much smaller than most of LLSV country groups (with a weighted average of 78% of GDP), and not much different from the average of other major emerging economies (with a weighted average of 32% of GDP).[7] In terms of the ratio of overhead costs to total assets (1%), China's banking sector is quite efficient compared to most other countries, but this is perhaps due to different methods of measuring costs.

Insert Table 1 here.

The next two columns of Table 1 ("Structure indices") compare the relative importance of financial markets vs. banks, with a lower score indicating that banks are more important relative to markets. China's scores for both "Structure Activity" (Log of the ratio of Float supply of market cap/Total Private Bank Credit) and "Structure size" (Log of the ratio of Market Capitalization/Total Private Bank Credit) are smaller than the sample averages of LLSV countries, and its score on "Structure size" is also smaller than the average of other emerging economies. These numbers suggest that China's financial system is bank-dominated, and more so than many other developing and developed countries. In terms of "Structure efficiency" (Log of product (Market capitalization/GDP) × (bank overhead cost/bank total assets)), which denotes the relative efficiency of markets vs. banks, China has a lower score than most other countries, suggesting that its banks are relatively more efficient than markets compared to other countries. "Structure regulatory" measures the extent to which commercial banks are restricted to participate in activities outside commercial lending, and China's score of 16 is higher than most other countries, suggesting that by law commercial banks in China face tight restrictions to operate in other areas.

We also compare the development of the financial system ("Financial Development"), including both banks and markets (the last three columns of Table 1). China's overall financial market size, in terms of both "Finance Activity" (Log of product of (Float supply of market/GDP) × (Private credit/GDP)) and "Finance Size"(Log of product of (Market capitalization/GDP) + (Private credit/GDP)), is smaller than the LLSV sample average level and each of the four subsamples, and not much different from the averages of other emerging countries. In terms of "Finance Efficiency"

[7] If we look at total bank credit, including loans to state sectors, the ratio of China's bank credit to GDP rises to 1.10, higher than even the German-origin countries (with a weighted average of 1.06). The difference between total bank credit and private credit suggests that most of the bank credit is issued to companies that are ultimately owned by the state.

(Log of (Total floating supply/GDP)/Overhead cost), China's measure is below the average of LLSV countries, and only slightly higher than the average of other emerging countries. Based on the above evidence, we can conclude that China's banks and markets, or the formal sectors of the financial system, are small compared to its economy. Moreover, the banking sector does not lend much to the Hybrid Sector, which as we will see in Section V, is the dynamic part of the economy.

If banks and markets are small relative to the overall economy of China, then where do most firms get the capital and funds? As shown in AQQ (2005, 2008), the four most important financing sources for all firms in China, in terms of firms' *fixed asset investments*, are, (domestic) bank loans, firms' self-fundraising, the state budget and FDI, with self-fundraising and bank loans carrying most of the weight. Self-fundraising, falling into the category of alternative finance (non-bank, non-market finance), includes proceeds from capital raised from *local* governments (beyond the state budget), communities and other investors, internal financing channels such as retained earnings and all other funds raised domestically by the firms. The size of total self-fundraising of all firms has been growing at an average annual rate of 23.1% over the period of 1994-2008, and reached $1706.4 billion at the end of 2008, compared to a total of $380.8 billion for domestic bank loans for the same year. It is important to point out that equity and bond issuance, which are included in self-fundraising (but falls into the category of formal external finance), apply only to the Listed Sector, and account for a small fraction of this category.

While the Listed Sector has been growing fast, SOEs are on a downward trend, as privatization of these firms is still in progress. Around 30% of publicly traded companies' funding comes from bank loans, and this ratio has been very stable. Around 45% of the Listed Sector's total funding comes from self-fundraising, including internal financing and proceeds from equity and bond issuance. Moreover, equity and bond sales, which rely on the use of external markets, only constitute a small fraction of total funds raised in comparison to internal financing and other forms of fundraising. Combined with the fact that self-fundraising is also the most important source of financing for the State Sector (45% to 65%), we can conclude that alternative channels of financing are important even for the State and Listed Sectors.

Not surprisingly, self-fundraising plays an even more important role for firms in the Hybrid Sector, accounting for close to 60% of total funds raised, while individually owned companies, a subset of the Hybrid Sector, rely self-fundraising for 90% of total financing. Self-fundraising here includes all forms of internal finance, capital raised from family and friends of the founders and managers, and funds raised in the form of private equity and loans. Since firms in this sector operate

in an environment with legal and financial mechanisms and regulations that are probably poorer than those available for firms in the State and Listed Sectors, financing sources may work differently from how they work in the State and Listed Sectors, and those in developed countries. In Allen, Chakrabarti, De, Qian, and Qian (ACDQQ, 2008), the authors argue that alternative finance channels, substitute for formal financing channels through banks and markets, and expand the capacity of financial systems in emerging countries such as China and India.

III. The Banking and Intermediation Sector

In this section we examine the status of China's banking and intermediation sector. After reviewing aggregate evidence on bank deposits and loans, we analyze the size and time trend of NPLs. Finally, we review evidence on the growth of non-state banks and financial intermediaries.

III.1 Aggregate Evidence on Bank Deposits and Loans

As in other Asian countries, China's household savings rates have been high throughout the reform era. Given the growth of the economy, the sharp increase in personal income, and limited investment opportunities, it is not surprising that total bank deposits from individuals have been growing fast since the mid-1980s. From Figure 2-A, residents in metropolitan areas contribute the most to total deposits beginning in the late 1980s (roughly 50%), while deposits from enterprises (including firms from all three sectors) provide the second most important source. The role of deposits from government agencies and organizations (including non-profit and for-profit organizations, not shown in the figure) has steadily decreased over time.

Insert Tables 2-A, 2-B, and Figures 2-A and 2-B here.

Table 2-A compares total savings and bank deposits across China, Japan, South Korea, and India during the period 1997-2008. In terms of the ratio of Time and Savings Deposits/GDP, China maintains the highest or second highest level (an average of over 90% in recent years), while Japan leads the group in terms of total amount. Looking at the breakdown of bank deposits, interest-bearing "savings deposits" are by far the most important form of deposits in China, providing a good source for bank loans and other forms of investment. Figure 2-B compares total (nonstate) bank credit (over GDP) extended to Hybrid Sector firms in China, and privately owned firms (including those publicly listed and traded) in Taiwan and South Korea. For South Korea, we also plot the bank credit ratios during its high economic growth period of the 1970s and 1980s (each year appearing on the horizontal axis indicates the time period for China, while a particular year *minus* 20 indicates the time period for South Korea). We can see that the scale and growth of China's 'hybrid' bank credit

during 1991-2008 are far below those (of private bank credit) of Taiwan and South Korea in the same period, but are similar to those of South Korea twenty years ago.

Table 2-B breaks down China's bank loans by maturities, loan purposes, and borrower types during the period 1994-2008. While there has been a shift from short-term to long-term loans (first two columns), the majority of loans goes to SOEs in manufacturing industries ("Industrial Loans" and "Commercial Loans"). Most of the "Infrastructure/Construction Loans" (a small component of total loans) fund government sponsored projects, while the size of "Agricultural Loans" is much smaller. More importantly, the size of loans made to TVEs, privately- and collectively-owned firms, and joint ventures (last 3 columns), which all belong to the Hybrid Sector, is also much smaller. Consistent with the aggregate evidence from Section II above and our firm-level evidence below, we find that bank loans have been one of the important financing sources for Hybrid Sector firms, but the majority of the bank loans goes to State and Listed Sectors. Researchers have argued that the imbalance between loans made to the State Sector and the Hybrid Sector reflects the government's policies of wealth transfer from the Hybrid Sector to the State Sector via state-owned banks (e.g., Brandt and Zhu 2000).

III.2 An Evaluation of NPLs and Further Reform of the Banking Sector

China's banking sector is dominated by large state-owned banks, namely, the "Big Four" banks of ICBC, BOC, PCBC, and ABC. The dominance of the Big Four banks also implies that the degree of competition within the banking sector has been low. For example, Demirgüç-Kunt and Levine (2001) compare the five-bank concentration (share of the assets of the five largest banks in total banking assets), and find that China's concentration ratio of 91% at the end of 1997 (and for much of 1990s) is one of the highest in the world. However, China's concentration ratio has been falling sharply since 1997 with the entrance of many non-state banks and intermediaries.

The most significant problem for China's banking sector, and for the entire financial system in recent years, had been the amount of NPLs within state-owned banks, and in particular, among the Big Four banks. Reducing the amount of NPLs to normal levels was the most important task for China's financial system. We mainly rely on official sources for our analysis on NPLs, but we also speculate based on data from non-government sources, including case studies from particular regions or banks. Some of this data and speculations paint a much gloomier picture of the NPLs and China's state-owned banks than the official data suggests.

Comparing NPLs and Reducing NPLs in China

In Panel A of Table 3-A, we compare NPLs in China, the U.S., and other major Asian economies during 1998-2008 based on official figures. NPLs are measured by their size (in US$ billion) and as a percentage of GDPs in the same year (shown in brackets). Notice that the official information on China's NPLs first became available in 1998, but the figures in 1998 and 1999 in Table 3-A probably significantly under-estimate the actual size of NPLs; this also explains the jump in the size of China's NPLs from 1999 to 2000. China's NPLs are the highest in the group from 2000 to 2007, and as high as 20% to 22.5% of GDP (in 2000 and 2001). The cross-country comparison includes the period during which Asian countries recovered from the 1997 financial crisis (e.g., the size of NPLs in South Korea exceeded 12% of GDP in 1999 but it was reduced to below 3% two years later), and the period during which the Japanese banking system was disturbed by the prolonged NPL problem (the size of Japan's NPLs is the second largest of the group throughout the period). However, the level of NPLs (over GDP) in China has shown a clear downward trend since the peak in 2000-2001, with the total amount of NPLs also falling during 2004-2008. In fact, with the banking sector in most developed countries struggling with the ongoing global financial crisis, China's banking sector has done quite well, with its total NPLs in 2008 ($80.6 billion) only one fourth of that of the U.S. and the ratio of NPLs over GDP falling below that of the US as well.

Insert Table 3-A here.

As bad as some of the NPL numbers in Panel A of Table 3-A appear, they may still significantly underestimate the amount of NPLs within China's banking system according to some critics. First, the official figures on outstanding NPLs (cumulated within all commercial banks in China) do not include the bad loans that have been transferred from banks to four state-owned asset management companies (AMCs)—with the purpose of liquidating these bad loans. For example, if we add the NPLs held by the four AMCs (book value of RMB 866 billion, or $125.5 billion, shown in the last row of Table 3-B) in the first quarter of 2006 to the mix of NPLs shown in Panel A of Table 3-A, the total amount of China's NPLs would increase by two-thirds. Second, the classification of NPLs has been problematic in China. The Basle Committee for Bank Supervision classifies a loan as "doubtful" or bad when any *interest* payment is overdue by 180 days or more (in the U.S. it is 90 days); whereas in China, this step has not typically been taken until the *principal* payment is delayed beyond the loan maturity date or an extended due date, and in many cases, until the borrower has declared bankruptcy and/or has gone through liquidation. Qiu et al. (2000) estimate that the ratio of loan interest paid to *state-owned* banks over loan interest owed is on average less than 50% in 1999, suggesting that the actual ratio of NPLs over total loans made can be higher than

50% in 1999. This piece of evidence, along with others, suggests that the amount of NPLs (and as percentage of GDP) could be twice as large as the official figures reported in Panel A of Table 3-A.[8]

Since a large fraction of the NPLs among state-owned banks, and in particular, the Big Four banks, resulted from poor lending decisions made for SOEs, some of which were due to political or other non-economic reasons, in our view the government should bear the burden of reducing the NPLs. This view of essentially treating NPLs as a fiscal problem implies that the ultimate source of eliminating NPLs lies in China's overall economic growth.[9] As long as the economy maintains its strong growth momentum so that tax receipts also increase, the government can always assume the remainder (and new) of the NPLs without significantly affecting the economy. In this regard, Panel B of Table 3-A compares total outstanding government debt, and Panel C presents a comparison of the ratio of (NPLs + Government Debt)/GDP across countries, with the sum of NPLs and government debt indicating total burden of the government. Depending on data availability, total government debt is either measured by the sum of all types of domestic and foreign debt (the U.S., Japan, and India), or by the level of outstanding government bonds (all other countries) in a given year.

Unlike the severity of its NPL problem, the Chinese government does not carry a large amount of debt, with total outstanding government bonds growing from only 9% of GDP in 1998 to around 16% of GDP in 2008. By contrast, countries such as the U.S. and India have a large amount of government debt. Japan is the only country in the group that has large amount of NPLs *and* government debt for most of the period. When we combine the results from Panels A and B and compare total government burden in Panel C, we use two sets of ratios for U.S. and Japan: in addition to using total outstanding government debt, we use ratios (in the brackets) based on the sum of *net* government debt and NPLs, where net government debt is the difference between government borrowing (a 'stock' measure) and government lending (also a stock measure); not surprisingly, these ratios are much lower than using the gross figures.

From Panel C, China's total government burden is in the middle of the pack: the ratios of total government burden over GDP (using the official NPL figures) are significantly lower than those in Japan, the U.S., and India, are comparable with those of Taiwan and Korea, and are higher than Indonesia only. In recent years, even if we double the size of the official NPL figures, China's total government burden would not increase much as the total amount of NPLs is small relative to the size

[8] Consistent with this view, Lardy (1998) argues that, if using international standards on bad loans, the existing NPLs within China's state-owned banks as of the mid-1990s would make these banks' total net worth negative, so that the entire network of state banks would be insolvent.

[9] See, for example, Perkins and Rawski (2008) for a review and projections on the prospects of long-run economic growth and statistics in China.

of GDPs. Based on these crude comparisons, going forward it seems that the NPLs should not be an arduous burden for the Chinese government (or the banking sector), while the same cannot be said for Japan and the U.S. Caution is needed for this conclusion: first, new NPLs in China may grow much faster than other countries as the government's recently massive economic stimulus plan had led to a significant increase in new loans made during 2009; and second, China's currently small government debt may experience a sharp increase in the near future given the need for higher fiscal spending in areas such as pension plans and other social welfare programs.

Recognizing the importance of and its responsibility in reducing NPLs in the Big Four banks, the Chinese government has injected large amount of foreign currency reserves (mostly in the form of US dollars, T-bills, Euros and Yen) into these banks to improve their balance sheets in preparation for going public. This process began at the end of 2003, with the establishment of the Central Huijin Investment Company, through which the PBOC injected US$45 billion of reserves into the BOC and PCBC, while ICBC (the largest commercial bank in China and one of the largest in the world in terms of assets) received US$15 billion during the first half of 2005. All three banks have since become publicly listed and traded in either the HKSE and/or the SHSE.

However, the injection plan will not prevent new NPLs from originating in the banking system. In fact, it may create perverse "too big to fail" incentives for state-owned banks, in that if these banks believe that there will be a 'bailout' whenever they run into future financial distress, they have an incentive to take on risky, negative-NPV projects surfaces. This moral hazard problem can thwart the government's efforts in keeping the NPLs in check, while similar problems occurred during and after the government bailout of the S&L crisis in the U.S. in 1980s (e.g., Kane 1989, 2003) and are among the most important factors that cause the ongoing financial crisis. Hence, it is important for the government to credibly commit that the injection plan is a one-time measure to boost the capital adequacy of these banks, and that there will be no (similar) bailout plans in the future, especially after they become listed companies.

Another important measure taken by the Chinese government to reduce the NPLs is the establishment of four state-owned AMCs. As discussed earlier, the goal of the AMCs is to assume the NPLs (and offering debt-for-equity swaps to the banks) accumulated in each of the Big Four banks and liquidate them. The liquidation process includes asset sales, tranching, securitization, and resale of loans to investors.[10] Table 3-B shows that *cash* recovery on the bad loans processed by the

[10] The sale of tranches of securitized NPLs to foreign investors began in 2002. The deal was struck between Huarong , one of the four AMCs, and a consortium of U.S. investment banks led by Morgan Stanley (and including Lehman Brothers and Salomon Smith Barney) and was approved by the government in early 2003 (*Financial Times,* 05/2003).

AMCs ranges from 6.9% to 35% between 2001 and 2006 (first quarter), while the asset recovery rates are slightly higher. A critical issue that affects the effectiveness of the liquidation process is the relationship among AMCs, banks, and distressed or bankrupt firms. Since both the AMCs and the banks are state-owned, it is not likely that the AMCs would force the banks to cut off (credit) ties with defaulted borrowers (SOEs or former SOEs) as a privately owned bank would do. Thus, as the old NPLs are liquidated, new NPLs from the same borrowers continue to surface.

To summarize, NPLs have been considerably reduced in recent years. If the economy can maintain its current pace of growth, the government can always write off a large fraction of the rest (and newly accumulated) of the NPLs to avert any serious problems for China. Again, caution is in place for this optimistic outlook. One can argue that NPLs are bigger than the official statistics suggest to begin with, and that a substantial amount of new NPLs will continue to arise within state-owned banks. If the growth of the economy significantly slows down, while the accumulation of NPLs continues, the banking sector problems could lead to a financial crisis. This could spill over into other sectors of the economy and cause a slowdown in growth or a recession.

Insert Tables 3-B and 4-A here.

Improving the Efficiency of State-owned Banks

As discussed above, the size of NPLs in the banking sector critically depends on the efficiency of banks. We briefly discuss measures that have been taken to improve the efficiency of state-owned banks. First, state-owned banks have diversified and improved their loan structure by increasing consumer-related loans while being more active in risk management and monitoring of loans made to SOEs. For example, the ratio of consumer lending to total loans outstanding made from all banks increased from 1% in 1998 to 12% in 2008; by the third quarter of 2009, RMB 4.99 trillion (or $730.4 billion) of outstanding bank loans was extended to consumers. The size of housing mortgages, now the largest component (87% as in the third quarter of 2009) of consumer credit, grew more than 200 times between 1997 and 2008, reaching a total of RMB 4.35 trillion ($637.2 billion). One problem with the massive expansion of consumer credit is that China lacks a national consumer-credit database to spot overstretching debtors, although a pilot system linking seven cities was set up in late 2004. The deficiency in the knowledge and training of credit risk and diligence of loan officers from state-owned banks is another significant factor in credit expansion, which can lead to high default rates and a large amount of new NPLs if the growth of the economy and personal income slows down. Accompanying the rapidly expanding automobile industry, the other fast growing category of individual-based loans is automobile loans, most of which are made by state-owned

banks. The total balance of all China's individual auto loans rocketed from RMB 400 million ($50 million) in 1998 to RMB 200 billion ($25 billion) at the end of 2003, and as much as 30% of all auto sales were financed by loans during this period (*Financial Times*, 05/25/2005). The growth in both auto sales and loans slowed down significantly since 2004 in part due to the high default rates. In 2008, outstanding auto loans decreased to RMB 158.3 billion ($23 billion). Only 8% of the auto sales were financed by loans during that year. Shanghai and Beijing have the largest number of car sales and loans. As many as 50% of debtors defaulted on their car loans in these cities. There are examples in which loan applications were approved based solely on applicants' description of their personal income without any auditing (*Barron's*, 12/06/2004). However, the slowdown of the auto loan market was temporary and it quickly resumed its fast pace of growth, in part due to the tremendous potential of the market. In aggregate auto loans amount to 10%-20% of the total amount spent on autos. Most loans mature in three to five years.[11]

Second, the ongoing privatization process, including the listing of state-owned banks, is also an important channel for enhancing efficiency. As state ownerships stakes shrink, these banks can focus more on for-profit goals, and, with more non-state owners entering the mix corporate governance to ensure profit-maximizing should also be strengthened. Panel A of Table 4-A presents the performance of IPOs of three of the Big Four banks (ABC remains in the State Sector) and that of the Bank of Communications (BComm). The most notable case is the IPO of ICBC. Simultaneously carried out in the HKSE and SHSE on October 27, 2006, ICBC raised over US$20 billion, making it the largest IPO (up to that date) in the world. The first day (and first week cumulative) return, measured by the net percentage return of the closing price on the first (fifth) trading day over offer price, was almost 15%, suggesting high demand for ICBC's H shares among (foreign) investors. In terms of ownership structure, the state, through various agencies, is by far the largest shareholder, with only 22% of the market cap is 'free float' or tradable. The largest foreign shareholder is Goldman Sachs with its 5.8% ownership stake negotiated before the IPO. While the IPOs of the other three large state-owned have not grabbed as much attention, they are also successful in terms of total proceeds raised, and they have all attracted significant foreign ownership at the IPO date.[12] In fact, as shown in Panel B of Table 4-A, four of the largest banks in the world, measured in market capitalization as of March 2009, are Chinese banks, with ICBC leading the chart. In terms of (book) assets, ICBC is the seventeenth largest bank in the world (Panel C); however, given the accounting

[11] A few foreign lenders (e.g., GM and Ford) were approved to enter China's auto loan market by forming joint ventures with Chinese automakers (*Financial Times*, 05/27/2005).
[12] Allen, Qian and Zhao (2008) provide more information on the IPO process of ICBC and other large Chinese banks.

problems of evaluating troubled assets related to subprime loans, it is possible that ICBC's assets, with virtually no exposure to the U.S. housing markets, could be one of the largest and of highest quality in the world. Finally, Moody's ratings on these publicly listed banks (on both deposits and loans) range from A to Baa (highest rating is Aaa); while S&P rates these banks' outstanding bonds between A and BBB (highest rating is AAA).

An important issue with the privatization process is the government's dual role as regulator and as majority owner. These potentially conflicting roles can diminish the effectiveness in each of the two roles that the government intends to carry out. In Section IV below, we argue that the ongoing process of floating non-tradable government shares in many listed companies should also be applied to the privatization process of many state-owned banks/institutions. Only after these banks are (majority) owned by non-government entities and individuals can they unconditionally implement all profit- and efficiency-enhancing measures. However, in light of what occurred in the developed countries, where excessive risk-taking and poor risk management and governance in a few large institutions essentially brought down the entire financial system, we argue that the current ownership structure of the *largest* Chinese banks, in which the government retains the majority control, is a good strategy to monitor and regulate these large institutions and prevent banking and financial crisis.

Third, reforming the organization structure and providing more incentives to employees can also improve efficiency. Under the old regime, the decision process of making loans is a centralized decision by a group of senior employees, and loan officers are not held (individually) responsible for non-performing loans. Facing pressure from competitors (including foreign banks) after China joined the WTO, many state-owned banks began to implement new policies for making loans and monitoring borrowers in 2002. These new policies put more emphasis and responsibilities on individuals in charge of different steps of making loans and monitoring borrowers, even though important decisions such as the approval of loan contracts remain in the hands of a group of senior employees. Using proprietary data from a large state-owned bank, Qian, Strahan and Yang (2009) find that bank branches put more weight on their private information (*internal* credit rating of borrowers) than on publicly available information (e.g., leverage and ROA) in determining both the pricing (interest rate) and nonpricing terms (loan size and maturity) of loan contracts *after* the reform. They also find that for more opaque borrowers (proxied by longer distance to bank branch) private information is less important as such information is more costly to obtain and less reliable. These results indicate that after the reform state-owned banks behave more like profit-maximizing banks.

One problem that hinders banks' efforts in improving efficiency is poor and inconsistent

enforcement of bankruptcy laws and creditor protection. China's first bankruptcy law, passed in 1986, governed only SOEs and had little impact in practice. The new bankruptcy law, enacted in August 2006 and became effective on June 1, 2007, applies to all enterprises except partnerships and sole proprietorships. In many aspects the new law resembles bankruptcy laws in developed countries. For example, it introduces the bankruptcy administrator, who manages the assets of the debtor after the court has accepted the bankruptcy filing. Moreover, the law states that these administrators should be independent professionals, such as those working for law or accounting firms. Despite all the legal procedures specified by the law, enforcement of the law remains weak and inconsistent. Many distressed and insolvent firms are kept afloat, and almost all the listed firms that file bankruptcy end up with restructure plans and these firms are rarely delisted.[13]

A number of reasons can explain the weak enforcement of the bankruptcy law. There are regulations and circulars issued by the central government applicable to SOE bankruptcies *de facto* in priority over the Law. A good example is Doctrine #10 of the State Council, which governs the bankruptcy process of SOEs in 111 pilot cities. This doctrine requires approval from secured/senior creditors (e.g., banks) before an enterprise can go through bankruptcy proceedings. In reality, however, the bankruptcy court also requires the consent of local government (Fan et al, 2008). Since the local government is usually responsible for the settlement of workers displaced by the bankrupt firms, it is in their best interest to halt the bankruptcy filing until a satisfactory settlement plan is reached. As a result, mergers and acquisitions with other firms are preferred to bankruptcy (e.g., Kam et al., 2008), and many bankruptcies cases are postponed or avoided. In fact, when in distress, both the SOEs and local government give the greatest priority to employees; local government favors SOEs over banks since SOEs provide more employment opportunities. Furthermore, banks are often reluctant to push for bankruptcy since most of the distressed debt would be written off; the recovery rate for most bank loans is less than 10% (*World Bank*, 2001). Taking the defaulted firm to court to recover loans or seize the firm's assets is a lengthy process and the chances of winning are slim; as a result, only a small number of lawsuits involving bankrupt firms reach the courts.[14]

As the most senior creditors (secured debt), banks' willingness to lend depends on their bargaining power and ability to seize collateralized assets upon default, and hence ineffective creditor

[13] According to the National Development and Reform Commission, 67,000 small and mid-sized enterprises were shut down in the first half of 2008. Only 2,955 bankruptcy cases were filed from nationwide for the whole year of 2008. When a listed firm is in distress ("ST" flag), typically other (nonlisted) firms will invest/restructure in the firm to avoid delisting, since the 'shell' of the distressed firm is valuable given the difficult and costly process of IPOs.

[14] According to surveys, 90% of CEOs of the surveyed SOEs believe that bankruptcy is actually a feasible channel to evade bank debts (Garnaut, Song and Yao, 2004). To mitigate the problem, in 2002 the Supreme People's Court ruled that the courts would not process bankruptcy cases if the main intention were to escape debts.

protection not only increases potential losses from bad loans, it also reduces banks' incentive to investigate and monitor borrowers.[15] The favorable treatments SOEs enjoy during distress adversely change their incentives in investment and corporate governance, these effects can also spill over into banks' decisions to lend to non-state firms and reduce the credit access of these firms. In our view, it is important to come up with *consistent* regulation guidelines in dealing with distress and bankruptcy by different types of firms, and the government should commit to leave the decision process to professionals and courts. On the other hand, we discuss below that informal dispute resolution mechanisms outside the legal system based on reputation and relationships has been an effective substitute for Chinese firms and investors.

III.3 Growth of Non-state Financial Intermediaries

The development of both non-state banks and other (state and non-state) financial institutions is crucial for China to have a stable and functioning banking system in the future. In addition to boosting the overall efficiency of the banking system, these financial institutions provide funding to support the growth of the Hybrid Sector.

First, we examine and compare China's insurance market to other Asian economies (South Korea, Taiwan, and Singapore). In terms of the ratio of total assets managed by insurance companies over GDP (Figure 2-C), China's insurance market is significantly smaller than that of other economies. At the end of 2008 total assets managed are only about 10% of GDP, while this ratio for the other three economies is over 30%. It is clear that the insurance industry is also significantly undersized compared to China's banking industry, and property insurance is particularly underdeveloped due to the fact that the private real estate market was only recently established (in the past most housing was allocated by employers or the government). Despite the fast growth of insurance coverage and premium income, only 4% of the total population was covered by life insurance, the insurance premium was only 3.2% of GDP in 2008, standing far behind than the global average of over 7% (the per capita annual premium is about RMB 800 in 2008); coverage ratios for property insurance are even lower (according to the reports by KPMG). The encouraging news is that coverage ratios have been growing steadily at an average annual rate of 6% between 1998 and 2005 (*XinHua News*). In 2008 the insurance industry in China grew at the fastest pace since 2002 and recorded an annual growth of over 39%.

[15] With a large sample of syndicated loans around the globe, Qian and Strahan (2007) show that strong creditor protection (in borrower countries) enhances loan availability as lenders are more willing to provide credit on favorable terms (e.g., longer maturities and lower interest rates).

Insert Tables 4-B and 4-C, and Figure 2-C here.

Table 4-B provides a (partial) breakdown of the different types of banks. During the period of 2001-2008, although the largest four or five banks (the fifth largest bank is Bank of Communications, also state owned) dominate in every aspect of the banking sector, the role of other banks in the entire banking sector cannot be ignored. As of 2008, other banks (including foreign banks) and credit cooperatives' total assets compose over 60% of the largest five banks (the actual fraction is likely to be higher due to incomplete information on all types of deposit-taking institutions); similar comparisons can be made for total deposits and outstanding loans. In addition, these banks and institutions appear to have less NPLs than the largest state-owned banks.[16] Table 4-C provides evidence on the growth of non-bank intermediaries. Overall, the growth of these non-bank intermediaries has been impressive since the late 1990s. Among them, "other commercial banks" (many of them are state-owned), RCCs, and TICs hold the largest amount of assets; the size of foreign banks and mutual funds (not listed in the table) is minuscule, and these are likely to be the focus of development in the near future.[17] Finally, our coverage of non-bank financial institutions excludes various forms of informal financial intermediaries, some of which are deemed illegal but overall provide important financing to firms in the Hybrid Sector.

IV. Financial Markets

In this section, we examine China's financial markets, including both the stock and real estate markets, and the recent addition of venture capital and private equity markets as well as asset management industries. We also compare, at the aggregate level, how firms raise funds in China and in other emerging economies through external markets in order to determine if China's experience in terms of a firm's fundraising is unique. We then briefly review publicly traded companies' financing and investment decisions. Finally, we discuss how to further develop financial markets as well as improve corporate governance and the performance of listed firms.

IV.1 Overview of Stock Markets

After the inception of China's domestic stock exchanges, the SHSE and SZSE, in 1990, they initially grew quickly. The high growth rates continued in most of the 1990s, and the market reached

[16] With a sample of both state- and non-state owned banks, Berger et al. (2006) show that the addition of foreign ownership stakes into banks' ownership structure is associated with significant improvement of bank efficiency.
[17] Postal savings (deposit-taking institutions affiliated with local post offices) is another form of non-bank intermediation that is not reported in Table 4-B due to lack of time series data. However, at the end of 2008, total deposits within the postal savings system exceeded RMB 2079 billion, or 9.5% of all deposits in China.

a peak by the end of 2000. As shown in Figure 3, the momentum of the market, indicated by the SSE Index, then reversed during the next five years as it went through a major correction with half of the market capitalization lost. Most of the losses were recovered by the end of 2006, and the market has reached new heights during 2007. However, following a string of negative news worldwide (culminated with the subprime loans-lead global crisis) and domestically (including high levels of inflation) the market lost three quarters of its value by the end of 2008. During the first half of 2009, with the impact of the massive stimulus package and rebounding from a trough, China's stock market has bounced back and recovered about one third of the losses in 2008. Figure 3 compares the performance of some of the major stock exchanges around the world, as measured by the 'buy-and-hold' return in the period December 1992 and November 2009 (gross return at November 2009 with $1 invested in each of the valued-weighted stock indexes at the end of 1992). We plot both the nominal returns and inflation-adjusted real returns. Over this period, the performance of the value-weighted SHSE index (the calculation for the SZSE is very similar) is slightly below that of SENSEX (India) and better than that of S&P (U.S.), FTSE (London) and the Nikkei Index, which is the worst among the group.

Insert Figure 3 and Table 5-A here.

As Table 5-A indicated, at the end of 2008, the SHSE is ranked the sixth largest market in the world in term of market capitalization, while the SZSE is ranked twenty-first. China's total market capitalization (SHSE and SZSE) is around $1.78 trillion (excluding Hong Kong), the fourth largest country in the world behind the U.S., Japan, and the U.K.; the Hong Kong Stock Exchange (HKSE), where selected firms from Mainland China have been listed and traded, is ranked the seventh largest in the world. Needless to say, the Chinese financial markets will play an increasingly more important role in world financial markets. Also from Table 5-A, "Concentration" is the fraction of total turnover of an exchange within a year coming from the turnover of the companies with the largest market cap (top 5%), and SZSE (71.3%) is in line with that of other large exchanges, indicating that trading is concentrated among large-cap stocks. "Turnover velocity" is the (annual) total turnover for all the listed expressed as a percentage of the total market capitalization, and the figure for SZSE is among the highest among the largest exchanges, suggesting that there is a large amount of speculative trading especially among small- and medium-cap stocks (as these are more easily manipulated than large cap stocks) in the Chinese markets.

There are two other markets established to complement the two main exchanges. First, a fully electronically operated market ("*Er Ban Shi Chang*" or "Second-tier Market," similar to the

NASDAQ) for Small and Medium Enterprises (SMEs) was opened in June 2004. It was designed to lower the entry barriers for SME firms, especially newly established firms in the high-tech industries. By the end of February 2007, there are 119 firms listed in this market. Second, a "third-tier market" ("*San Ban Shi Chang,*" or "Third-tier Market,") was established to deal primarily with de-listing firms and other over-the-Counter (OTC) transactions. Since 2001, some publicly listed firms on both SHSE and SZSE that do not meet the listing standards have been delisted and the trading of their shares shifted to this market. On October 23, 2009, China launched a Nasdaq-style Growth Enterprises Market (GEM, or "*Chuang Ye Ban*") with 28 companies, most of which are from hi-tech, electronic and pharmaceutical industries. The main purpose of GEM is to provide financing for small and medium sized, and private enterprises. The first batch of 10 firms seeking to list on the GEM drew a combined RMB 784 billion in subscriptions in September 2009. The second and third batches had 18 firms, including Huayi Brothers Media, China's largest privately owned film company (*Shanghai Daily*). As for now no index is available for the GEM but the most of the stocks have been outperforming the main exchanges. There are also 191 companies whose applications for getting listed on GEM are under the review by CSRC.

There is abundant evidence showing that China's stock markets are not efficient in that prices and investors' behavior are not necessarily driven by fundamental values of listed firms. For example, Morck et al. (2000) find that stock prices are more 'synchronous" (stock prices move up and down together) in emerging countries including China than in developed countries. They attribute this phenomenon to poor minority investor protection and imperfect regulation of markets in emerging markets. In addition, there have been numerous lawsuits against insider trading and manipulation (see, e.g., AQQ (2008), for more details). In many cases, unlike Enron and other well known companies in developed markets stricken by corporate scandals, managers and other insiders from the Chinese companies did not use any sophisticated accounting and finance maneuvers to hide their losses (even by China's standards). These cases reveal that the inefficiencies in the Chinese stock markets can be (partially) attributed to poor and ineffective regulation. We discuss below how to improve regulation and other measures to increase market efficiency.

IV.2 Overview of Bond Markets

Table 5-B provides information on China's bond markets. The government bond market had an annual growth rate of 23.3% during the period 1990-2008 in terms of newly issued bonds, while

total outstanding bonds reached RMB 4,976.8 billion (or $721.3 billion) at the end of 2008.[18] The second largest component of the bond market is called "policy financial bonds" (total outstanding amount RMB 3,668.6 billion (or $531.7 billion) at the end of 2008. These bonds are issued by "policy banks," which operate under the supervision of the Ministry of Finance, and the proceeds of bond issuance are invested in government run projects and industries such as infrastructure construction (similar to municipal bonds in the U.S.). Compared to government-issued bonds, the size of the corporate bond market is small: In terms of the amount of outstanding bonds at the end of 2006, the corporate bond market is less than one-tenth of the size of the government bond market. However, the growth of the corporate bond market has picked up pace in the past few years and this trend is likely to continue in the near future.

Insert Table 5-B here.

The under-development of the bond market, especially the corporate bond market, relative to the stock market, is common among Asian countries. AQQ (2008) compares different components (bank loans to private sectors or the Hybrid Sector of China; stock market capitalization; public/government and private/corporate bond markets) of the financial markets around the world at the end of 2003. Compared to Europe and the U.S., they find that the size of both the government (public) and corporate (private) bond markets is smaller in Asia excluding Japan; even in Japan, the size of the corporate bond market is much smaller compared with its government bond market. They also find that the size of all four components of China's financial markets are small relative to that of other regions and countries, including bank loans made to the Hybrid Sector (private sector) in China (other countries). Moreover, the most under-developed component of China's financial markets is the corporate bond market (labeled "private" bond market).

There are a number of reasons for the underdevelopment in bond markets in China and other parts of Asia (see, e.g., Herring and Chatusripitak 2000). Lack of sound accounting/auditing system and high-quality bond-rating agencies is an important factor. Given low creditor protection and court inefficiency (in China and most other emerging economies) the recovery rates for bondholders during default are low, which in turn leads to underinvestment in the market (by domestic and foreign investors). Lack of a well constructed yield curve is another important factor in China, given the

[18] During most of the period 1988-2007 Moody's rated China's government bonds (foreign currency) A2 or A3 (lower than Aa3 and A1 but higher than Baa1; highest rating is Aaa) with a "positive" or "stable" outlook, while the rating on bank deposits (foreign currency ceilings) was Baa, at or above the 'investment' grade. On July 26, 2007, Moody's raised the rating on China's government bonds to A1 from A2 and kept it unchanged up to now. It also upgraded the long-term deposit and debt ratings from A2 to A for 7 Chinese banks. These ratings are better or comparable than Moody's ratings on government bonds from most emerging economies.

small size of the publicly traded Treasury bond market and lack of historical prices. The situation is improving however, the terms of China's treasury bonds ranges from one month to 30 years now. In December 2009, China's first 50-year government bond made its trading debut simultaneously in the interbank market and the stock exchange bond market, extending the bond yield curve even further. The deficiencies in the term structure of interest rates hamper the development of derivatives markets that enable firms and investors to manage risk, as well as the effectiveness of the government's macroeconomic policies. Therefore, it is important that China develop its bond markets in the near future along with its legal system and related institutions.

IV.3 Evidence on the Listed Sector

In this section, we briefly examine publicly listed and traded companies in China. It is worthwhile to first clarify whether firms from the Hybrid Sector can become listed and publicly traded. Regulations and laws (the 1986 trial version of the bankruptcy law and the 1999 version of the Company Law) never prohibit the listing of Hybrid Sector firms; and selected firms from the Hybrid Sector enter the Listed Sector through an IPO or acquiring a listed firm from the inception of SHSE and SZSE. However, the accessibility of equity markets for these firms has been much lower than for former SOEs in practice due to the enforcement of the listing standards and process. As a result, AQQ (2005) find that 80% of their sample of more than 1,100 listed firms are converted from former SOEs. In recent years, the government has attempted to change the composition of listed firms by relaxing regulations toward Hybrid Sector firms, including the establishment of GEM.

Until the recent share reform, listed firms in China issued both tradable and nontradable shares (Table 6-A). The nontradable shares were either held by the government or by other state-owned legal entities (i.e., other listed or non-listed firms or organizations). Table 6-B show that, as of September 2009, for the first time nontradable shares constituted less than half of all shares (48%, column 2) and most of these shares were held by the state, while the majority of tradable shares were A shares. Among the tradable shares, Classes A and B shares are listed and traded in either the SHSE or SZSE, while Class A (B) shares are issued to and traded by Chinese investors (foreign investors including those from Taiwan and Hong Kong and QFIIs). While the two share classes issued by the same firm are identical in terms of shareholder rights (e.g., voting and dividend), B shares were traded at a significant discount relative to A shares and are traded less frequently than A shares.[19]

[19] Explanations of the B share discount include: 1) Foreign investors face higher information asymmetry than domestic investors, 2) lower B share prices compensation for the lack of liquidity (due to low trading volume), and 3) the A share

The "B share discount" has been reduced significantly since the CSRC allowed Chinese citizens to trade B shares (with foreign currency accounts) in 2001. In addition, Class H shares, issued by selected "Red Chip" Chinese companies, are listed and traded on the HKSE. Finally, there are N shares and S shares for firms listed in the U.S. and Singapore but operate in China (we omit discussions on these shares since they are not listed on the domestic exchanges). After the share reforms discussed below in Section IV.6, government shares became G shares and are tradable.

Insert Tables 6-A and 6-B here.

We next describe standard corporate governance mechanisms in the Listed Sector. First, according to the (2005) Company Law, listed firms in China have a two-tier board structure: the Board of Directors (five to nineteen members) and the Board of Supervisors (at least three members), with supervisors ranking above directors. The main duty of the Board of Supervisors is to monitor firms' operations as well as top managers and directors; it consists of representatives of shareholders and employees, with the rest either officials chosen from government branches or executives from the parent companies; directors and top managers of the firms cannot hold positions as supervisors. The Board of Directors serves similar duties as their counterparts in the U.S., including appointing and firing CEOs. According to the "one-share, one-vote" scheme adopted by firms in the Listed Sector, shareholders including the state and legal person shareholders (that typically own the majority of shares) appoint the board members. Specifically, the Chairman (one person) and Vice Chairman (one or two) of the Board are elected by all directors (majority votes); at the approval of the Board, the CEO and other top managers can become members of the Board. The CSRC requires at least one third (a minimum of two people) of the Board to be independent.

Since the Law does not specify that every member of the Board must be elected by shareholders during general shareholder meetings, in practice some directors are nominated and appointed by the firms' parent companies and the nomination process is usually kept secret, in particular for former SOEs. Since not all members of either board are elected by shareholders, a major problem with the board structure is the appointment of and contracting with the CEOs. Fan et al. (2007) find that almost one-third of their sample of 625 listed companies' CEOs are either current or former government bureaucrats; the performance of these firms is significantly worse than other firms without politically connected CEOs. Based on firm-level compensation data (available since 1998 due to disclosure requirements), Fung et al. (2003) and Kato and Long (2004) find that no listed firms grant stock options to CEOs or board members. Recent evidence shows that stock options are

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premium reflects a speculative bubble component among domestic investors. See, e.g., Chan, Menkveld, and Yang (2007) and Mei, Scheinkman, and Xiong (2003) for more details.

still mainly offered to managers and highly skilled professionals. Among overseas listed SOEs, barriers to exercising stock options have been overcome, and some senior executives have been granted stock options (e.g., former chairman of CNOOC, Wei, Liucheng, and Bank of China-Hong Kong former chairman Liu, Mingkang) and received substantial rewards (*Caijing Magazine*, 2008). However, the cash-based compensation level for CEOs is still much lower than their counterparts in developed countries, and the consumption of perks, such as company cars, is prevalent.

Second, the existing ownership structure, characterized by the large amount of non-tradable shares including cross-holdings of shares among listed companies and institutions, makes it difficult for value-increasing M&As. According to the *China Mergers and Acquisitions Yearbook* (2006), there are 1,396 M&A's involving listed firms in 2005 totaling US$40 billion, a small fraction of the total market capitalization. In many deals, a Hybrid Sector firm (non-listed) acquires a listed firm that is converted from an SOE, but the large amount of non-tradable shares held by the state remain intact after the transaction.[20] Such an acquisition can be the means through which low quality, non-listed companies bypass listing standards and access financial markets (e.g., Du et al. 2008).

Third, an important factor contributing to the occurrence of corporate scandals is the lack of institutional investors (including non-depository financial intermediaries) as they are a very recent addition to the set of financial institutions in China. Professional investors would perhaps not be so easily taken in by simple deceptions. Another factor is that the enforcement of laws is questionable due to the lack of legal professionals and institutions.

Fourth, as discussed above, the government plays the dual roles of regulator and blockholder for many listed firms, including banks and financial services companies. The main role of the CSRC (counterpart of the SEC in the U.S.) is to monitor and regulate stock exchanges and listed companies. The government exercises its shareholder control rights in listed firms through the Bureau of National Assets Management, which holds large fractions of nontradable shares, or other SOEs (with their holdings of nontradable shares). However, since the top officials of the Bureau are government officials, it is doubtful that they will pursue their fiduciary role as control shareholders diligently. Based on a sample of 625 firms with 28% of the CEOs being ex- or current government bureaucrats, Fan et al. (2004) finds that the three-year post-IPO average stock returns of the sample underperform the market by 20%, and the underperformance of firms with such politically-connected CEOs

[20] If we include the cross-border M&As and transactions between parent companies and subsidiaries, the total amount increases to US $47 billion in 2000, $14 billion in 2001, $29 billion in 2002, and $24 billion in the first three quarters of 2003. 68% of all M&A deals (66% in terms of dollar deal amount) are initiated by Hybrid Sector firms, while former SOEs and foreign firms initiate 29% and 3% of the rest, respectively (27% and 7% in deal amount). M&As are most active in coastal regions, and in industries such as machinery, information technology, retail, and gas and oil.

exceeds those without politically-connected CEOs by almost 30%. Firms with politically-connected CEOs are also more likely to appoint other bureaucrats but not personnel with relevant professional to boards of directors.

Overall, internal and external governance for the Listed Sector is weak, and further development of governance mechanisms is one of the main objectives for this sector going forward. In Section IV.7 below we provide some general suggestions.

IV.4 Real Estate Market

Like other economic sectors, China's real estate market has long been operating under the 'dual tracks' of both central planning and market-oriented systems. Prior to 1998, government control was dominant with the market only playing a secondary role, and mortgages were not designated for retail customers and households. Chinese citizens working for the government and government owned companies and organizations could purchase properties at prices significantly below market prices, with the subsidies coming from their employers. The reform policies introduced in 1998 aimed to end the distribution of properties by employers and establish new housing finance and market systems. Provinces and autonomous regions have established programs to sell properties (e.g., apartments in urban areas) to individuals instead of allocating residency as part of the employment benefits.

Since 1998 the residential housing reform and the development of individual mortgages, along with rising household income and demand for quality housing, had stimulated the fast growth of the real estate market. Figure 4-A shows the total real estate investments and their funding sources over time. Total investment increased from 321 billion RMB in 1996, or 12% of the national fixed assets investments, to 3.1 trillion RMB in 2008 and 17% of the national fixed assets investment. Most of the investment funds have come from domestic sources. China's continuing economic growth especially in private sectors, urbanization and industrialization, limited land supply, increasing foreign direct investments and institutional investments, will further enhance the liquidity and long-term prospects of China's real estate assets.

As the real estate sector gains more weight in the economy, its impact on other industries, especially financial and banking industries, has also increased considerably. Bank loans are the most important source of real estate financing. With the expansion of the real estate market, banks and other financial institutions lent more to keep up with the demand for financing; when the fast expansion could not be sustained by economic growth and household income, inflated demand led to

hikes in property prices and a real estate bubble surfaced. The government has been taking aggressive fiscal measures to control property prices; since 2004, it has issued new policies in order to suppress speculative activities. Another policy measure to control the growth of the real estate market is through the PBOC's required reserve deposit ratio.

Insert Figures 4-A, 4-B, 4-C, and 4-D here.

There are two real estate indices in China tracking the stock performance of top real estate *developers* which are listed on SHSE and SZSE, with the initial recording on April 30th, 1993 for the SHSE and July 2nd, 2001 for the SZSE.[21] Figure 4-B shows the trends of these indexes. Based on the trend of the Shanghai Index, we can observe the effects of a few fiscal tightening policies, one in the mid 1996 prior to the Asia Financial Crisis, and another one in the late 2006. The fiscal tightening in late 2006 was much more dramatic due to the fast pace of real estate growth in the previous few years. This coincided with the appreciation of the RMB in August 2005. However, these previous ups and downs in the performance of developers fail to measure up to the rise and fall of the market since the second half of 2006. Both indexes, especially the Shanghai index, shot up in 2007 to levels much past highs, which (in part) led to fiscal tightening by the PBOC (in 2008), only to fall almost all the way back to 2006 levels during the second half of 2008, as a result of the global crisis. However, these indexes have bounced back considerably during the first half of 2009, in part responding to China's economic stimulus plan, but also as a result of large amount of speculative capital (domestic and foreign) flowing into the market.

Figure 4-C plots property price indexes for the whole country and for major cities. Not surprisingly, the trends in these indexes correlate with those in Figure 4-B (performance of developers). The national property price index has been increasing until early 2008, before taking a down turn in 2009 due to the global financial crisis. Breaking the index into residential and non-residential buildings gives us a similar picture. City level data, on the other hand, show much more volatility. For example, southern city Shenzhen showed a steady increase in housing price up to 2008, then took a nosedive in late 2008.

Despite the significant rise of residential property price, the overall price trend in mainland appears to be in line with the pace of China's economic growth by some measures. According to the PBOC, the property price to income ratio is the price per unit squared meter multiplied by the area of a property sold and then divided by an urban family's average annual disposable income (the average

[21] The real estate developers listed on SHSE/SZSE are not necessarily headquartered in the local area. For example, Poly Real Estate Group Company Limited, China's second-largest developer by market value, is headquartered in Guangzhou and listed on SHSE.

household income equals annual income per person multiplied by average number of persons per family). Data on the price-income ratios shows that the ratio has remained stable since 1998, ranging between 6.2 – 6.9 (for more details, see Cao (2008)). However, the recent rise (in 2009) in housing prices should be closely watched by regulators. Figure 4-D demonstrates that at the national level, though the total floor space sold decreased for the first time in 2008, the floor space under construction kept increasing. This mismatch of the supply and demand may cause future down turns in the real estate markets. There is some evidence that speculative foreign capital flowing (the "hot money") into China is partially responsible for the accelerated rise in real estate markets, while increases in real disposable income do not appear to be as important a factor (e.g., Chu and Sing, 2004; Guo and Huang, 2009).

Given the rising status of the Chinese economy and its currency, coupled with the weakening of US economy (and other developed countries), the dollar and near-zero interest rates in most developed countries, it is reasonable to assume that the inflow of 'hot money' into China's real estate markets (and other sectors) will not slow in the foreseeable future. In Section VI below we examine how this inflow and subsequent outflow can create bubbles in the markets and then the bursting of the bubble can spread to other sectors of the economy.

IV.5 Private Equity/Venture Capital and the Funding of New Industries

Allen and Gale (1999, 2000a) have suggested that stock market-based economies, such as the U.K. in the 19th century and the U.S. in the 20th century, have been more successful in developing *new* industries than intermediary-based economies such as Germany and Japan. They argue that markets are better than banks for funding new industries, because evaluation of these industries based on experience is difficult, and there is wide diversity of opinion. Stock market-based economies such as the U.S. and U.K. also tend to have well-developed systems for the acquisition and distribution of information, so the cost of information to investors is low. Markets then work well because investors can gather information at low costs and those that anticipate high profits can provide the finance to the firms operating in the new industries.

An important part of this process is the private equity/venture capital sector (see, e.g., Kortum and Lerner 2000). Venture capitalists are able to raise large amounts of funds in the U.S. because of the prospect that successful firms will be able to undertake an IPO. With data from 21 countries, Jeng and Wells (2000) find that venture capital is less important in other countries, while the existence of an active IPO market is the critical determinant of the importance of venture capital in a

country. This is consistent with the finding of Black and Gilson (1998) in a comparison of the U.S. and Germany, that the primary reason venture capital is relatively successful in the U.S. is the active IPO market that exists there.

The reason that China should develop active venture capital and private equity markets is to provide financing for new industries. What is unusual about China (perhaps along with India) is that it currently has the ability to develop both traditional industries, such as manufacturing, and in the near future new, high-tech industries, such as aerospace, computer software, semiconductors, and bio-genetics. This is different from the experience of South Korea and Taiwan in the 1970s and that of most other emerging economies in the 1990s, as all these other countries focused on developing manufacturing industries first. In terms of developing traditional industries (e.g., Korea and Taiwan in the 1970s), China has already followed suit in first introducing advanced (relative to domestic companies) but not the most advanced technologies from developed countries; and "nationalizing" these technologies within designated companies before moving toward the more advanced technologies. Allen and Gale (1999, 2000a) argue that banks are better than financial markets for funding mature industries because there is wide agreement on how they should be managed, so the delegation of the investment decision to a bank works well. This delegation process, and the economies of scale in information acquisition through delegation, makes bank-based systems more efficient in terms of financing the growth in these industries. Therefore, the banking system can contribute more in supporting the growth and development of these industries than markets.

IV.6 Asset Management Industries

The mutual fund industry in China has gone through three stages of development. The first stage is between 1992, when China's first fund (*LiuBo*) was established, and 1997, when the first version of the mutual fund regulation was drafted and passed by the CSRC. The *LiuBo* Fund was a close-end fund with NAV RMB100 million RMB ($12.5 million) and began to trade at the SHSE in 1993. While the industry experienced fast growth in the few years after 1992, lack of regulation and problems associated with fund trading hampered the further development of the industry. The first open-end fund was established in September, 2001 (*Hua An Chuangxin*), following the announcement of the proposal for open-end fund investment by the CSRC, a milestone for China's mutual fund industry.

Figure 5 shows the development of the mutual fund industry in China. With only a handful of funds in 1998, China had sixty-five fund companies managing 551 different funds up to November

2009. The total fund value increased from 11 billion RMB (or $1.3 Billion) in 1998 to about RMB 2.26 trillion (or $328 billion) in November 2009 (this figure was much higher in the second half of 2007 before the market went down). In 2001, the NAV of all funds is about 0.8% of GDP and 1.19% of total national savings; these figures rose to 6.16% of GDP and 8.58% of total savings in 2008. The growth of open-end funds contributed to most of the growth in the industry. As of November 2009, 520 funds are open-ended and 31 are close-ended, with 96% of the total fund value managed by open-end funds**.** The most popular investment style is actively managed (domestic) equity, with only a few index funds and ETFs (exchange traded funds).

Insert Figure 5 here.

Many mutual fund companies are owned by securities and other financial services companies. Like their counterparts in the U.S., management fee is the major source of income for fund companies, accounting for about 80% of total income. Administration fees account for 9% of total income, and the rest of the income comes from investment and other incomes. More than half of the fund managers have a master-level or higher academic degree, and the majority of them are 36 to 45 years old. Investment capital from institutional investors is about the same as that from individual investors in 2005, but in 2006 individual investors account for 70% of the total mutual fund investment. Among the 23 newly launched funds in the first half of 2009, individual investors account for 75.8%.

The first fund managed by a qualified foreign institutional investor (QFII) was set up in 2002. The State Administration of Foreign Exchange (SAFE) is the government agent that regulates the QFII funds. The QFII Act allows foreign investors to invest in Chinese securities, with the intention of introducing sophisticated foreign investors to the Chinese market with the hope that their presence would improve market efficiency. In addition, with the exercise of their shareholder rights, their presence can also help improve corporate governance of the Listed Sector. However, the original QFII rules imposed restrictions on foreign investors, such as a capital lock-up period of one to three years limiting capital withdrawal (and leaving China) and other operating restrictions. In August 2006, CSRC revised QFII rules to promote more participation from foreign investors. Under the new rules, there has been a significant increase in applications from foreign investors for QFII quotas.

Most of the first group of QFII applicants were securities companies and investment banks, with other financial services companies such as insurance companies and pension fund companies also on the list. By the end of July 2006, China had approved a total of $7.495 billion foreign investment capital (quota) from 45 QFIIs, or three quarters of the then ceiling of $10 billion capital

inflow through QFIIs. In December 2007, the investment quota/ceiling tripled, from $10 billion to $30 billion. In September 2009, draft rules were issued by SAFE to increase the upward limit of investment for an individual QFII institute to $1 billion from the previous $800 million. Some analysts believe that the move to increase the QFII quota was also intended to prepare for the large amount of floating of non-tradable shares. If the holders of the newly floated shares rush to sell, QFII funds might be an important stabilizing source of the market. As of August 2009, there are a total 86 of QFIIs operating in China.

The approval of qualified domestic institutional investors (QDII) to invest in overseas markets came after QFII, in July 2006. The QDII funds invest in stocks, bonds, real estate investment trusts and other mainstream financial products in markets such as New York, London, Tokyo and Hong Kong. Similarly to the QFII scheme, it is a transitional arrangement that provides limited opportunities for domestic investors to access foreign markets at a stage in which a country/territory's currency is not freely convertible and capital flows are restricted. As of early 2008, ten fund companies have obtained the approval to launch QDII; five QDII funds have been launched by January 2008. By May 2008, QDIIs had received investment quotas of $55.95 billion, with an actual outflow of $28.71 billion. Given the recent turmoil in the global financial markets including the impact of the subprime loans crisis, the performance of the QDII funds has been less than stellar.

Going forward, the probable continuing appreciation of the RMB against major international currencies including the dollar is a major concern for QDII investors. China's asset management industry is expected to continue their growth in the near future. In the U.S., mutual funds became the largest financial intermediary in financial markets in 1999, holding 29% of all financial assets. By contrast, mutual funds in China only hold around 3.3% of all financial assets as at the end of 2008**.** The further growth of the economy and continuing reform of the pension system will generate both demand and supply of capital for the industry. If the trend of opening up domestic markets to foreign investors continues, there will be greater inflow of QFIIs.

IV.7 Further Development of Financial Markets

As we have documented, the financial markets in China do not currently play nearly as important a role as banks. Going forward, if China wishes to develop high-technology industries as discussed in Section IV.5 then it is important that it improves its financial markets. In addition, if it is to enlarge risk management possibilities for its financial institutions and firms it needs to develop new financial products and markets. Finally, if there is to be an alternative to banks for raising large

amounts of capital, then China needs deep and efficient markets.

In recent years the performance of the stock markets has been volatile. This is somewhat surprising given the robust performance of the real economy. We attribute this (relatively) poor performance to a number of factors including the following:

(i) Limited self-regulation and formal regulation.

(ii) The large overhang of shares owned by government entities.

(iii) The lack of listed firms originating in the Hybrid Sector.

(iv) The lack of trained professionals.

(v) The lack of institutional investors.

(vi) Limited financial markets and products.

It is important that these weaknesses be overcome. However, some of these are problems that must be tackled over the long run. They cannot be solved in a few years. We discuss each in turn.

Improve Regulations

There are two ways in which markets are regulated in practice and each has advantages and disadvantages: First, market forces and self-regulation, and second, government regulation.

A good example of regulation through market forces and self-regulation is provided by the capital markets in the UK in the nineteenth and early twentieth century (Michie, 1987). The role of government regulation and intervention was minimal. Despite this the markets did extremely well and London became the financial capital of the world. Many firms and countries from all over the world raised large amounts of funds. Reputation and trust were an important factor in the smooth operation of these markets. For example, in an important paper Franks et al. (2003) compare the early twentieth century capital markets with those in the mid-twentieth century. Despite extensive changes in the laws protecting minority shareholders there was very little change in the ways in which the market operated. The authors attribute this to the importance of trust.

We argue below that China's Hybrid sector is another example of a situation where market forces are effective. Formal regulation and legal protections do not play much role and yet financing and governance mechanisms are quite effective. In this case, as we shall see, it appears that competition as well as reputation and trust work well.

In contrast, the examples of fraud and other problems of manipulation and the inefficiency of markets pointed to in Section IV.1 suggest that in China's formal financial markets these alternative mechanisms do not work well. Although such mechanisms may develop in the long run as in the nineteenth and early twentieth century U.K., it seems that in the short run at least it is likely to require

formal government regulation of the type developed in the U.S. in the 1930s and subsequently as a response to the stock market collapse that started in 1929 and the Great Depression. There is evidence from many countries that this type of formal regulation is effective. For example, based on a study of securities laws with the focus on the public issuance of new equity in 49 countries (China is not included) LLS (2006) find that disclosure and liability rules help to promote stock market development.

Sale of Government Shares in Listed Firms

One of the major problems Chinese stock markets have faced in recent years has been caused by the large amount of shares in listed companies owned by the government and government entities shown in Table 6-B. The Chinese government attempted sales of state shares of selected firms in 1999 and 2001, but halted the process both times after share prices plunged and investors grew panicky about the value of the entire market. This overhang created great uncertainty about the quantity of shares that would come onto the market going forward. This uncertainty was probably in part responsible for the stagnation of share prices between 2002-2005 despite the very high levels of growth in the economy.

In 2005 the government announced a new plan of "fully floating" state shares. Under the new plan, the remaining state shares among listed firms are converted to "G" shares. The CSRC outlines the format for compensating existing shareholders and also imposes lockups and restrictions on the amount of G shares that can be sold immediately after they become tradable. More specifically, the new plan stipulates that G shares are not to be traded or transferred within 12 months after the implementation of the share structure reform. Shareholders owning more than 5% of the original non-tradable shares can only trade less than 5% of the total shares outstanding within one year and less than 10% within 2 years. These restrictions of G share sales are intended to reduce the downward pressure on the stock price, maintain market stability and protect the interests of public investors. The details of the "fully floating plan" for a firm, including the number of G shares to be granted to each Class A shareholder and the time window (e.g., one to three years) of G shares become fully floating, must be approved by two thirds of Class A shareholders of the firm.

Three remarks for the reform are in order. First, the government's commitment to the plan is superior to a series of partially unanticipated trials that are subject to termination if a significantly negative market reaction is observed. Second, while under the current plan the full floating of all G shares may only take a few years (if this is what the majority of shareholders of all firms desire) and hence may trigger some volatility, the plan does compensate Class A shareholders for the negative

price impact and allow them to decide on the timing of the floating. Third, there is some uncertainty as to whether firms will sell at the same time or not. If they do sell simultaneously then there may be a lack of overall liquidity and this may induce volatility in the markets. The recent run of bearish markets in China can be in part attributed to the significant increase in supply of shares of many listed firms. Share reforms began with a pilot program with only four companies participating in April 2005. By the end of 2006, 96% of all the listed companies have completed share reforms; by the end of 2007, there were only a few companies that have not reached an agreement with their shareholders on the terms of the reform.[22] As documented in Table 6-B above, as of September 2009, for the first time tradable shares account for more than half of the stock market, suggesting that the floating of nontradable shares is progressing.

Encourage Listing of Firms from the Hybrid Sector

One of the major problems of the stock exchanges is that most of the firms listed are former SOEs. Relatively few are firms from the more dynamic Hybrid Sector. A high priority for reform for the markets is changing of listing requirements to make it advantageous for dynamic and successful companies to become listed on the exchanges. Again, the establishment of the recently opened GEM market should help in this regard.

Train More Professionals

This is the most important factor in terms of improving the enforcement of laws and contracts. First, an independent and efficient judicial system requires a sufficient supply of qualified legal professionals. The Ministry of Justice of China states that there are 114,000 lawyers and 11,691 law firms as of 2005, while Orts (2001) estimates that there are 150,000 lawyers in China, roughly the same number of licensed attorneys as in the state of California. Two hundred and six out of China's 2,000 counties still do not have lawyers. Lawyers represent only 10% to 25% of all clients in civil and business cases, and even in criminal prosecutions, lawyers represent defendants in only half of the cases. Among the approximately five million business enterprises in China, only 4% of them currently have regular legal advisers. Moreover, only one-fifth of all lawyers in China have law degrees, and even a lower fraction of judges have formally studied law at a university or college. As mentioned before, a similar situation exists for auditors and accounting professionals.

Encourage the Development of Institutional Investors

[22] Huang et al. (2008) document that share reform increases turnovers, especially for firms with low liquidity prior to the reform, and reduces speculative trading. Although share prices drop significantly on the day of share supply increases, shareholder wealth increases by 15% overall. Beltratti1 and Bortolotti (2006) document 8% abnormal return around date of share reform announcement. Liao and Liu (2008) show that market reactions to share reforms are positively associated with the quality of the listed firms (as measured by firm disclosure), providing evidence of improved market efficiency.

In most developed stock markets institutional investors, such as insurance companies, pension funds, mutual funds, and hedge funds, play an important role. They employ well-trained professionals who are able to evaluate companies well. This causes markets to have a higher degree of efficiency than if they are dominated by individual investors. In addition, there can be advantages in terms of corporate governance if institutional investors actively participate in the monitoring of firms' managers and are directly involved in firms' decision-making process as blockholders of stocks. For example, in the U.S., pension funds such as CALPERS have become the symbol of shareholder activism that strengthens corporate governance, while in Japan and Germany, financial intermediaries serve similar purposes. For China, an effective way to improve the efficiency of China's stock markets as well as corporate governance of listed firms is to encourage further development of domestic financial intermediaries that can act as institutional investors. With their large-scale capital and expertise in all relevant areas of business, financial intermediaries can provide a level of stability and professionalism that is sorely lacking in China's financial markets.

Currently institutional investors such as insurance companies, mutual funds and pension funds are relatively small in terms of assets held given their early stage in the development. However, they are expanding dramatically. For example, the sum of all mutual funds' net assets values reached RMB 2.26 trillion (or $328 billion)) at the end of 2007. One way to further encourage the development of such intermediaries is to give tax advantages to various types of products such as life insurance and pension related savings and investments.

Develop More Financial Products and Markets

Another issue is to develop more financial products so that investors can form diversified portfolios with more than just stocks. First, corporate bond markets should be developed, along with better enforcement of bankruptcy laws and bond rating agencies. Second, more derivative securities such as forwards, futures, and options on commodities (already in place and trading) as well as on other securities should be introduced to the market, so that investors and firms have more tools for risk management. Third, insurance companies should expand their coverage and offer more products in property and auto insurance as well as life and medical insurance, while other financial services companies should develop the market for asset-backed securities.

V. The Non-standard Financial Sector and Evidence on Hybrid Sector Firms

In this section we study how the non-standard financial sector supports firms in the Hybrid Sector to raise funds and to grow from start-ups to successful industry leaders. We also examine the

alternative governance mechanisms employed by investors and firms that can substitute for formal corporate governance mechanisms. Due to data limitations, much of this evidence is by necessity anecdotal or by survey.[23]

We first compare the Hybrid Sector with the State and Listed Sectors to highlight the importance of its status in the entire economy in Section V.1. Second, we consider survey evidence in Section V.2. Finally, Section V.3 provides discussions and comparisons of alternative financing channels and governance mechanisms that support the growth of the Hybrid Sector versus formal financing channels (through banks and markets) and governance mechanisms (laws and courts).

V.1 Comparison of Hybrid Sector vs. State and Listed Sectors

Figure 6-A compares the level and growth of *industrial output* produced in the State and Listed Sectors combined vs. that of the Hybrid Sector from 1990 to 2007. The output from the Hybrid Sector has been steadily increasing during this period and exceeded that of the other two sectors in 1998. The total output in 2007 is $3,020 billion for the Hybrid Sector, while it is around $1,706 billion in the State and Listed Sectors combined.[24] The Hybrid Sector grew at an annual rate of over 14% between 1990 and 2004, while the State and Listed Sectors combined grew at around 5% during the same period.[25] In addition, the growth rates for investment in fixed assets of these sectors are comparable (*China Statistics Yearbooks*; and AQQ (2005)), which implies that the Hybrid Sector is more productive than the State and Listed Sectors. In fact, with large samples of firms (from sources) with various ownership structures, Liu (2007) and Dollar and Wei (2007) both find that the returns to capital is much higher in non-state sectors than the State Sector, and that a capital reallocation from state to private sectors will generate more growth in the economy. Fan et al. (2006) and Li et al. (2007) find that state-owned firms in China have a much easier access to the debt market and accordingly higher leverage than non-state firms. One reason for the differences is that due to government protection (for economic and social/political reasons) the costs for bankruptcy and financial distress are much lower for state-owned firms. These firms also have easier access to bank loans, especially credit extended by state-owned banks.

[23] All firms including Hybrid Sector firms must disclose accounting and financial information to the local Bureau of Commerce and Industry, and most of the reports are audited. However, these data are then aggregated into the Statistical Yearbook without any firm-level publications.

[24] Due to data limitations, our calculations may underestimate the output of the State and Listed Sectors. We use the output produced by SOEs and listed firms in which the state has at least a 50% ownership stake as the total output for these sectors, but this calculation excludes output from listed firms that are *not* majority owned by the state; the output for the Hybrid Sector is the difference between the total output and the total for the other two sectors.

[25] There is an ongoing process of privatizing SOEs. Potentially this may bias the growth rate of the Hybrid Sector higher, as there are firms shifting from the State Sector to the Hybrid Sector. However, the overwhelming majority of SOEs are transformed into the Listed Sector (the main channel through which SOEs were partially privatized prior to 2004), thus this process is unlikely to change the validity of the results above.

All of the above facts make the growth of the Hybrid Sector even more impressive. Not surprisingly, there has been a fundamental change among the State, Listed, and Hybrid Sectors in terms of their contribution to the entire economy: the State Sector contributed more than two thirds of China's GDP in 1980, but in 2004 it contributed less than one-third of the GDP; in 1980, (non-agricultural) privately owned firms, a type of Hybrid Sector firm, were negligible, but in 2001 they contributed 33% of GDP after growing at an average rate of 20% during this period (*China Statistical Yearbook*, 1998-2002). The above trend of the Hybrid Sector replacing the State Sector will continue in the near future.

Insert Figures 6-A and 6-B here.

Figure 6-B presents the number and growth of non-agricultural employees in the three sectors. The Hybrid Sector is a much more important source for employment opportunities than the State and Listed Sectors. Over the period from 1990 to 2008, the Hybrid Sector employs an average of over 70% of all non-agricultural workers; the TVEs (part of the Hybrid Sector) have been the most important employers providing (non-agricultural) jobs for residents in the rural areas, while (non-agricultural) privately owned firms employ more than 40% of the workforce in the urban areas. Moreover, the number of employees working in the Hybrid Sector has been growing at 1.5% over this period, while the labor force in the State and Listed Sectors has been shrinking.[26] These patterns are particularly important for China, given its vast population and potential problem of unemployment.

V.2 Survey Evidence

Much of the information concerning the Hybrid Sector comes from surveys. We focus on evidence in AQQ (2005a) and Cull and Xu (2005). The most important findings of these surveys regarding financing channels are the following. First, during the startup stage, funds from founders' family and friends are an important source of financing. Banks can also play an important role. Second, internal financing, in the form of retained earnings, is also important. During their growth period financing from private credit agencies (PCAs), instead of banks, as well as trade credits are important channels for firms in AQQ's sample. As documented by Tsai (2002), PCAs take on many forms, from shareholding cooperative enterprises run by professional money brokers, lenders and middlemen, to credit associations operated by a group of entrepreneurs (raising money from group

[26] Our calculations of the total number of workers employed by the Hybrid Sector actually underestimate the actual work force in the sector, because the Statistics Yearbooks do not provide employment data for all types of firms (by ownership structure) in the Hybrid Sector.

members and from outsiders to fund firms; *zijin huzushe*), from pawnshops to underground private money houses.

As far as corporate governance is concerned, when asked about what type of losses concern them the most if the firm failed, every firm's founders/executives (100%) included in the AQQ study said reputation loss is a major concern, while only 60% of them said economic losses are of major concern. Competition also appears to be an important factor ensuring firms are well run.

Cull and Xu (2005) find that firms in most regions and cities rely on courts to resolve less than 10% of business-related disputes (the highest percentage is 20%), with a higher reliance on courts in coastal and more developed areas. One reason that firms go to courts to resolve a dispute is because the courts are authoritative so that the dispute will be resolved even though the resolution may not be fair (e.g., Clarke et al. 2008).

V.3 Discussion on How the Non-standard Financial Sector Works

In this subsection we first discuss mechanisms within the non-standard financial sector in supporting the growth of the Hybrid Sector. We then compare these alternative institutions that operate outside the legal system with the law and legal institutions that have been widely regarded as the basis for conducting finance and commerce. There are two important aspects to alternative financing channels in the Hybrid Sector. The first is the way in which investment is financed. The second is corporate governance. We consider each in turn.

Once a firm is established and doing well, internal finance can provide the funds necessary for growth. AQQ (2005a) find that about 60 percent of the funds raised by the Hybrid Sector are generated internally. Of course, internal finance is fine once a firm is established but this raises the issue of how firms in the Hybrid Sector acquire their "seed" capital, perhaps the most crucial financing during a firm's life cycle. AQQ present evidence on the importance of alternative and informal channels, including funds from family and friends and loans from private (unofficial) credit agencies (see also Tsai (2002)). There is also evidence that financing through illegal channels, such as smuggling, bribery, insider trading and speculations during early stages of the development of financial markets and real estate market, and other underground or unofficial businesses also play an important role in the accumulation of seed capital. Though a controversial issue for the government, our view, based on similar episodes in the history of other developing countries, is that depending on the precise nature of the activity and as long as the purpose of money making is to invest in a legitimate company, it may be more productive for the government to provide incentives for investment rather than to expend costs discovering and punishing these activities.

Perhaps the most important corporate governance mechanism is competition in product and input markets, which has worked well in both developed and developing countries (e.g., McMillan 1995, 1997; Allen and Gale 2000b). What we see from the success of Hybrid Sector firms in WenZhou and other surveyed firms recounted in AQQ, suggest that it is only those firms that have the strongest comparative advantage in an industry (of the area) that survived and thrived. A relevant factor for competition in an industry is entry barriers for new firms, as lower entry barriers foster competition. Djankov, La Porta, Lopez-de-Silanes, and Shleifer (DLLS hereafter, 2002) examine entry barriers across 85 countries, and find that countries with heavier (lighter) regulation of entry have higher government corruption (more democratic and limited governments) and larger unofficial economies. With much lower barriers to entry compared to other countries with similar (low) per capita GDP, China is once again an "outlier" in the DLLS sample given that China is one of the least democratic countries, and such countries tend to have high barriers to entry. Survey evidence from AQQ (2005a) reveals that there exist non-standard methods to remove entry barriers in China, which can reconcile these seemingly contradictory facts.

Another important mechanism is reputation, trust, and relationships. Greif (1989, 1993) argues that certain traders' organizations in the 11th century were able to overcome problems of asymmetric information and the lack of legal and contract enforcement mechanisms, because they had developed institutions based on reputation, implicit contractual relations, and coalitions. Certain aspects of the growth of these institutions resemble what worked to promote commerce and the financial system in China prior to 1949 (e.g., Kirby (1995)) and the operation of the non-standard financial sector today (AQQ (2005a)), in terms of how firms raise funds and contract with investors and business partners. In addition, Greif (1993) and Stulz and Williamson (2003) point out the importance of cultural and religious beliefs for the development of institutions, legal origins, and investor protections.

The above factors are of particular relevance and importance to China's development of institutions. Without a dominant religion, some argue that the most important force in shaping China's social values and institutions is the set of beliefs first developed and formalized by *Kongzi* (Confucius). This set of beliefs clearly defines family and social orders, which are very different from western beliefs on how legal codes should be formulated. Using the World Values Survey conducted in the early 1990s, LLSV (1997b) find that China has one of the highest levels of social trust among a group of 40 developed and developing countries. We interpret high social trust in China as being influenced by Confucian beliefs. Throughout this chapter and AQQ (2005; 2008) we

have presented evidence that reputation and relationships make many financing channels and governance mechanisms work in China's Hybrid Sector.

There are other effective corporate governance mechanisms. First, Burkart et al. (2003) link the degree of separation of ownership and control to different legal environments, and show that *family-run* firms will emerge as the dominant form of ownership structure in countries with weak minority shareholder protections, whereas professionally managed firms are the optimal form in countries with strong protection. Survey evidence on the Hybrid Sector in AQQ and empirical results on the Listed Sector, along with evidence in Claessens et al. (2000, 2002) and ACDQQ (2008), suggests that family firms are a norm in China and other Asian countries, and these firms have performed well. Second, Allen and Gale (2000a) show that, if cooperation among different suppliers of inputs is necessary and all suppliers benefit from the firm doing well, then a good equilibrium with no external governance is possible, as internal, mutual monitoring can ensure the optimal outcome. AQQ (2005a) and ACDQQ (2008) present evidence on the importance of trade credits as a form of financing for firms in the Hybrid Sector. Cooperation and mutual monitoring can ensure payments (as long as funds are available) among business partners despite the lack of external monitoring and contract enforcement. The importance of trade credits is also found in other emerging economies (e.g., ACDQQ (2008) on India) as well as in developed countries (Burkart et el. (2007) on the U.S.).

It is worth mentioning how entrepreneurs and investors alleviate and overcome problems associated with government corruption. According to proponents of institutional development (e.g., Rajan and Zingales 2003b; Acemoglu and Johnson 2005), poor institutions, weak government and powerful elites should severely hinder China's long-run economic growth. However, our evidence shows that corruption has not prevented a high rate of growth for China's firms, in particular, firms in the Hybrid Sector, where legal protection is perhaps weaker and problems of corruption worse compared to firms in the State and Listed sectors. A potentially effective solution for corruption is competition among local governments/bureaucrats from different regions within the same country. Entrepreneurs can move from region to region to find the most supportive government officials for their private firms, which in turn motivates officials to lend "helping hands" rather than "grabbing hands" in the provision of public goods or services (e.g., granting of licenses to start-up firms), or else there will be an outflow of profitable private businesses from the region (Allen and Qian 2007). This remedy should be typically available in a large country with diverse regions like China.

To summarize, the extraordinary economic performance of China in recent decades, especially that of the Hybrid Sector, raises questions about the conventional wisdom of using the

legal system as the basis of commerce. Most observers would characterize the economic performance in China and India as 'successful *despite* the lack of western-style institutions,' and the failure to adopt western institutions will be one of the main factors to halt the long-run economic growth. By contrast, Allen and Qian (2008) argue that China's economy has been successful *because of* this lack of western-style institutions – in that conducting business outside the legal system in fast-growing economies such as China can actually be superior to using the law as the basis for finance and commerce. Focusing on dispute resolution and contract enforcement mechanisms based on the law and courts vs. alternative mechanisms operating outside the legal system, Allen and Qian (2008) argue that despite many well-known advantages, there are disadvantages in using legal institutions. First, recent research on political economy factors, and in particular, work by Rajan and Zingales (2003a,b) shows that rent-seeking behaviors by vested interest groups can turn legal institutions into barriers to changes. These problems are expected to be more severe in developing countries and the costs of building good institutions can be enormous.[27] One way to solve this problem is *not* to use the law as the basis for commerce but instead to use alternative mechanisms *outside* the legal system. Evidence presented in this chapter and other related work on China and other emerging economies (e.g., ACDQQ (2008) on India) suggests that these alternative mechanisms can be quite effective.

Second, in democracies there can be a lengthy political process before significant changes can be approved (by the majority of the population and/or legislature), and the people in charge of revising the law (e.g., politicians and judges) may lack the expertise of business transactions and have limited capacity (time and effort) to examine the proposed changes.[28] In the context of a fast-growing economy with frequent changes such as China, Allen and Qian show that there is an additional advantage of using alternative institutions because this type of system can adapt and change much more quickly than when the law is used. In particular, competition can ensure the most efficient mechanism prevails and this process does not require persuading the legislature and the

[27] A frequently talked about and controversial topic is intellectual property rights including patents and copyrights. The practice of enforcing intellectual property rights by courts is much more vigilant and prevalent in developed countries than in developing countries such as China. An extensive literature in economics has found mixed evidence on the relationship between patent/copyright protection and the pace of innovations. While exclusive property rights provide strong incentives for innovations and do lead to more innovations in a few industries such as chemicals and pharmaceuticals, excessive protection deters competition, which is another important factor in spurring innovations.

[28] A good example is the U.S. payment system. At the beginning of the 21st Century the U.S. had a 19th Century system: Checks had to be physically transported from where they were deposited to a central operations center, then to the clearer and then back to the banks they were drawn on. Despite repeated calls for changes from the banks and businesses, the U.S Congress did not act on this simple yet costly problem, until September 11, 2001. After the terrorist attack all commercial flights in the were grounded for several days, completely halting the check clearing process. The Check Clearing for the 21st Century Act was signed in October 2003, allowing electronic images to be a substitute for the original checks, and thus the clearing process is no longer dependent on the mail and transportation system.

electorate to revise the law when circumstances change.

To conclude, we argue that while legal institutions along with formal financing channels are an important part of developed economies' institutions, alternative mechanisms and financing channels play a much more prominent role in emerging economies, and can be superior to legal mechanisms in supporting business transactions in certain industries or entire economies. Therefore, our main policy implication is that in emerging economies alternative dispute resolution and contract enforcement mechanisms should be encouraged and developed alongside the development of legal and other formal institutions. The coexistence of and competition between alternative and legal mechanisms can also exert positive impact on the development of legal institutions, so that they are less likely to be captured by interest groups and become more efficient in adapting to changes.

VI. Financial Crises

Financial crises often accompany the development of a financial system. Conventional wisdom says that financial crises are bad. Often they are very bad, as they disrupt production and lower social welfare as in the Great Depression in the U.S. Hoggarth et al. (2002) carefully measure the costs of a wide range of recent financial crises and find that these costs are on average roughly 15-20 percent of GDP. It is these large costs that make policymakers so averse to financial crises.

It is important to point out, however, that financial crises may be welfare improving for an economy. One possible example is the late nineteenth century U.S., which experienced many crises but at the same time had a high long run growth rate. In fact, Ranciere et al. (2003) report an empirical observation that countries which have experienced occasional crises have grown on average faster than countries without crises. They develop an endogenous growth model and show theoretically that an economy may be able to attain higher growth when firms are encouraged by a limited bailout policy to take more credit risk in the form of currency mismatch, even though the country may experience occasional crises (see Allen and Oura (2004) for a review of the growth and crises literature, Allen and Gale (2004a) who show that crises can be optimal and Allen and Gale (2007) for a review of the crises literature).

In this section, we consider financial crises in China. Given China's current situation with limited currency mismatches any crisis that occurs is likely to be a classic banking, currency or twin crisis. It is perhaps more likely to be of the damaging type that disrupts the economy and social stability than of the more benign type that aids growth. The desirability of preventing crises thus needs to be taken into account when considering reforms of China's financial system. First, we

examine how China can prevent traditional financial crises, including a banking sector crisis and a stock market or real estate crisis/crash. We then discuss how China should be better prepared for new types of financial crises, such as the "twin crises" (simultaneous foreign exchange and banking/stock market crises) that occurred in many Asian economies in the late 1990s.

VI.1 Banking Crises and Market Crashes

Among traditional financial crises, banking panics, arising from the banks' lack of liquid assets to meet total withdrawal demands (anticipated and unanticipated), were often particularly disruptive. Over time one of the most important roles of central banks came to be the elimination of banking panics and the maintenance of financial stability. To a large degree central banks in different countries performed well in this regard in the period following the Second World War. However, in recent years, banking crises are often preceded by abnormal price rises ("bubbles") in the real estate or stock markets. At some point the bubble bursts and assets markets collapse. In many cases banks and other intermediaries are overexposed to the equity and real estate markets, and following the collapse of asset markets a banking crisis ensues. Allen and Gale (2000c) provide a theory of bubbles and crises based on the existence of an agency problem. Many investors in real estate and stock markets obtain their investment funds from external sources. If the providers of the funds are unable to observe the characteristics of the investment, and because of the investors' limited liability, there is a classic risk-shifting problem (Jensen and Meckling 1976). Risk shifting increases the return to risky assets and causes investors to bid up asset prices above their fundamental values. A crucial determinant for asset prices is the amount of credit that is provided for speculative investment. Financial liberalization, by expanding the volume of credit, can interact with the agency problem and lead to a bubble in asset prices.

As discussed above in Section III, if NPLs continue to accumulate and/or if growth slows significantly then there may be a banking crisis in China. This may involve withdrawal of funds from banks. However, given the government's strong position regarding the low level of debt (Table 3-A), it should be feasible for the government to prevent this situation from getting out of control. Since the real estate markets in Shanghai and Shenzhen (largest volume and most developed) and other major cities have already experienced bubbles and crashes (see *China Industry Report*, http://www.cei.gov.cn, http://house.focus.cn and Cao (2008) for more details), it is quite possible that similar episodes in the future could cause a banking crisis that will be more damaging to the real economy. With booming real estate markets, there will be more speculative money poured into properties with a large amount coming from banks. The agency problem in real estate lending and

investment mentioned above worsens this problem. If the real estate market falls significantly within a short period of time, defaults on bank loans could be large enough to trigger a banking panic and crisis. The size of the stock market during the first decade of its existence was small relative to the banking sector and the overall economy, and hence a crash in the market could hardly put a dent in the real economy. However, the given the quick growth of the stock market (as shown in Table 5-A) and the fact large and small investors may borrow (from banks) to finance their investment, especially during a bubble period, a future market crash will have much more serious consequences. Overall, a banking crisis triggered by crashes in the stock and/or real estate markets represents the most serious risk of a financial crisis in China.

VI.2 Capital Account Liberalization, Sterilization, Twin Crises and Contagion

After the collapse of the Bretton Woods system in early 1970s, a new breed of financial crisis emerged. Lindgren, Garcia, and Saal (1996) found that three quarters of the IMF's member countries suffered some form of banking crisis between 1980 and 1996, and their study did not include the subsequent Asian financial crisis in 1997. In many of these crises, banking panics in the traditional sense were avoided either by central bank intervention or by explicit or implicit government guarantees. But as Kaminsky and Reinhart (1999) find, the advent of financial liberalization in many economies in the 1980s, in which free capital in- and out-flows and the entrance and competition from foreign investors and financial institutions follow in the home country, has often led to "twin" banking and currency crises. A common precursor to these crises was financial liberalization and significant credit expansion and subsequent stock market crashes and banking crises. In emerging markets this is often then accompanied by an exchange rate crisis as governments choose between lowering interest rates to ease the banking crises or raising them to defend the home currency. Finally, a significant fall in output occurs and the economies enter recessions.

Liberalization of the Capital Account and Financial Sector

Capital account liberation can attract more foreign capital, but large scale and sudden capital flows and foreign speculation significantly increase the likelihood of a twin crisis. The first key question is, when and to what extent should a country open its capital account and financial sector to foreign capital and foreign financial institutions? With a model of endogenous financial intermediation, Alessandria and Qian (2005) demonstrate that an efficient financial sector prior to liberalization is neither necessary nor sufficient for a successful financial liberalization. Applying these ideas to China, even though the overall efficiency of China's banking sector (especially state-

owned banks) is still low compared to international standards, banks can have a stronger incentive to limit the moral hazard concerning borrowers' choices of investment projects through monitoring and designing of loan contracts (e.g., adjusting interest rates and/or maturities) following a capital account liberalization. Therefore, the efficiency of the banking sector improves and the liberalization can generate a large welfare increase, since it leads to both a larger scale of investment *and* a better composition of investment projects. This is more likely to occur with low interest rates in international markets (so that cost of capital for domestic banks is also low). A financial sector liberalization, which allows foreign financial institutions to enter China's lending markets, can further improve welfare as more competition provides stronger incentives for all banks to further discourage moral hazard in investment. As long as the adverse selection problem (entrance of borrowers with negative-NPV projects in the markets; can become worse with more competition in the banking sector) is not severe, financial sector liberalization will further improve welfare. Overall, we conclude that a liberalization of the capital account is likely to be beneficial for China as long as the (post-liberalization) cost of capital for Chinese banks does not rise sharply.

Sterilization of Foreign Currency Reserves

China has experienced a large increase in its foreign exchange reserves since 2001, due to a continuous inflow of capital and the commitment to maintain a fixed rate against the US dollar initially and then a crawling peg exchange rate regime after 2005. Figure 7-A plots monthly foreign reserves as shown on the balance sheet of PBOC; a clear trend emerges as the reserves increase rapidly since 2003.[29] On the balance of payment side, the current account surplus grows from $37 billion in 1997 to $426.1 billion in 2008; net export grows from 2.5% of GDP in 2004 to 8% of GDP in 2008. The capital account was mostly positive during the period 1995 to 2008, implying a net capital inflow. The current account surplus has come mainly from the trade surplus, while the capital account surplus mainly comes from FDI. It has been long recognized that a large stock of foreign reserves has both pros and cons. Abundant foreign reserves enable a country to maintain a stable exchange rate and to meet its foreign debt obligations. It can also be used to cushion the sudden shocks on a country's current and capital account. However, an increase in foreign exchange reserves leads to an accumulation of foreign assets, a component of the money base. Thus an increase in foreign reserves, *ceteris paribus,* causes monetary expansion and puts inflationary pressures on the economy, resulting in an appreciation of the real exchange rate. This experience is not unique for China. Many East Asian countries have experienced similar problems induced by

[29] The PBOC has made uses of its foreign reserves other than investing in low risk assets such as long term government bonds. As discussed above, some foreign reserves were used to recapitalize the large state owned financial institutions.

large private capital inflows starting in the late 1980s.

To offset the expansionary effect of the increasing foreign reserves, the central bank can sterilize the foreign assets by taking opposite actions with domestic assets, or implement other contractionary monetary policies. In China's case, the major sterilization tools are open market operations (OMO) and raising required reserve ratios. Those two methods affect the liability side of the central bank's balance sheet in a similar way. Generally the cost of sterilization using required reserves is lower than open market operations, since the central bank pays minimal interests on required and excess reserves. OMOs in China mainly include central bank bill issuance and short term repurchases operations (repos, usually within 91 days). Since February 2003, the central bank has engaged in two or more OMOs each week. The total PBOC bond outstanding as percentage of foreign reserves has been increasing consistently from 2000 to 2008, implying an increasing trend in sterilization.[30]

Moreover, China has been gradually raising the required reserve ratios since the third quarter of 2003, corresponding to an increase in foreign reserves inflows. The required reserve ratio was raised from 6% to 17.5% in June 2008. Since Chinese commercial banks tend to maintain a high excess reserve ratio due to a lack of alternative investment channels, the PBOC has decreased the interest rate on excess reserves from 1.62% in 2003 to 0.72% in 2008 to discourage the holding of excess reserves. To make sterilization effective, China also has to impose capital controls. As the famous "trilemmar" implicates, with a fixed exchange rate and free capital flows, the sterilization process will be immediately offset by further capital inflows. Though it has been documented that capital controls in China are somewhat porous (Prasad and Wei (2005)), it is still widely believed that China has successfully sterilized at least some of its rising foreign reserves (e.g., Prasad and Goodfriend (2006), Ouyang, Rajan and Willett (2007), He. at el.(2005)). Moreover, due to a combination of rapid increases in foreign reserves and low interest rates on domestic bonds, the PBOC's income from foreign reserve investment is likely to exceed the sterilization cost stemming from central bank bill issuance and high required reserve ratios, enabling China to carry out sterilization to a large extent. Nevertheless, possible appreciation of RMB may have a profound negative impact on the PBOC's income from foreign reserves in domestic currency terms.

Currency Crisis and Banking Crisis (A Twin Crisis)

[30] There are also non-market tools such as transferring the deposits from the commercial banking system to the central bank. In recent years, PBC also started making foreign exchange swaps with big commercial banks as a tool of controlling liquidity.

A currency crisis that may trigger a banking crisis is a possibility. The rapid increase in foreign exchange reserves in recent years suggests there is a lot of speculative money in China in anticipation of an RMB revaluation. If there is a significant future revaluation or if after some time it becomes clear there will not be one then much of this money may be withdrawn. What happens then will depend on how the government and central bank respond. If they allow the currency to float so they do not use up the exchange reserves then any falls in the value of the RMB may occur quickly and this may limit further outflows. If they try to limit the exchange rate movement then there may be a classic currency crisis. This is in turn may trigger a banking crisis if there are large withdrawals from banks as a result. Quickly adopting a full float and avoiding a twin crisis would be preferable.[31]

Financial Contagion

Another phenomenon that has been important in many recent crises (e.g., the 1997 Asian crisis) is that financial crises are contagious. A small shock that initially affects only a particular region or sector can spread by contagion within the banking system or asset markets to the rest of the financial sector, then to the entire economy and possibly other economies. Contagion can occur in a number of ways. In the Chinese context where financial markets are relatively unimportant it is most likely they will occur either from contractually interconnected financial institutions or large asset price movements that cause spillovers to financial institutions.

Allen and Gale (2000d) focus on the channel of contagion that arises from the overlapping claims that different regions or sectors of the banking system have on one another through interbank markets. When one region suffers a banking crisis, the other regions suffer a loss because their claims on the troubled region fall in value. If this spillover effect is strong enough, it can cause a crisis in the adjacent regions, and a contagion can occur which brings down the entire financial system. Allen and Gale (2004b) show how large price falls can come about as a result of forced liquidations when there is a limited supply of liquidity in the market. Cifuentes et al. (2005) show that contagion is likely to be particularly severe when these two factors interact.

Insert Table 7 here.

Given China's current financial system, what is the likelihood of financial contagion caused by contractual interlinkages as in the interbank market or because of a meltdown in asset prices if there are forced sales? China's interbank market grew very quickly since its inception in 1981; in

[31] Chang and Velasco (2001) develop a model of twin crises based on the Diamond and Dybvig (1983) model of bank runs. Money enters agents' utility function, and the central bank controls the ratio of currency to consumption. In some regimes, there exists both a "good" equilibrium in which early (late) consumers receive the proceeds from short-term (long-term) assets, and a "bad" equilibrium in which everybody believes a crisis will occur and these beliefs are self-fulfilling. If the bad equilibrium occurs, there is a twin crisis.

fact, the growth of this market was so fast, with the participation of many unregulated financial institutions and with large amount of flows of funds through this market to fixed asset investment, that it exacerbated high inflation in the late 1980s. Since then the government and PBOC increased their regulation by limiting participation of non-bank financial institutions and by imposing restrictions on interest rate movements. In 1996 a nation-wide, uniform system of interbank markets was set up. It contains two connected levels: the primary network, which includes the largest PBOC branches, large commercial banks, and a few large non-bank financial institutions, and the secondary network that includes many banks and non-bank institutions and their local branches (see *China Interbank Market Annual Reports* for more details). Table 7 documents the growth of the interbank market during 2001-2006: while the trading volume of long maturity contracts (20 days or longer) is low, the volume of short-term contracts (overnight and week-long) has been high (reaching RMB 1 trillion to 2 trillion, or $125 billion to $250 billion). Therefore, the increasing interlinkages can potentially create a contagion should a crisis develops in one area or sector.

With regard to a meltdown of asset prices, this can happen because of a limited supply of liquidity if there is a rapid liquidation of assets. It seems unlikely that this can occur and cause a serious problem in China's securities markets. A more serious threat is real estate markets if there are bankruptcies and forced selling. This could potentially interact with bank interlinkages and cause a systemic problem. As mentioned above, a crash in real estate and/or stock markets is very likely the cause of a financial crisis in China.

VII. Summary and Concluding Remarks

One of the most frequently asked questions about China's financial system is whether it will stimulate or hamper its economic growth. Our answer to this question, based on examining the history and current status of the financial system and comparing them to those of other countries, is in four parts. First, the large banking sector dominated by state-owned banks has played a much more important role in funding the growth of many types of firms than financial markets. While the problem of NPLs has been under control in recent years, continuing the improvement of the efficiency of major banks toward international standards remains a top priority. Second, the stock market has been growing fast since 1990, but has played a relatively limited role in supporting the growth of the economy. However, with rapid growth that will be sustained in the near future the role of the financial markets in the economy will become increasingly more important. In our view,

further development of China's stock market and other financial markets is the most important task in the long-term.

If we can summarize that the role of the banking sector and financial markets has been that they have done enough *not* to slow down the growth of the economy, our third conclusion is that alternative financing channels have had great success in supporting the growth of the Hybrid Sector, which contributes most of the economic growth compared to the State and Listed Sectors. The non-standard financial sector relies on alternative financing channels including internal finance, and on alternative governance mechanisms, such as those based on trust, reputation and relationships, and competition to support the growth of the Hybrid Sector. It is possible that these alternative institutions are superior to western-style legal institutions in supporting a fast-growing economy as is the case in China. Going forward, we believe that these alternative financing channels and governance mechanisms should be encouraged rather than replaced. They should be allowed to co-exist with the banks and markets and continue to fuel the growth of the Hybrid Sector.

We conclude by pointing out the most significant challenge for improving China's financial system: Economic stability is crucial for the continuing development of the Chinese economy, and the stability of the financial system relates to economic stability in three dimensions. The continuing effort to reduce NPLs and improve efficiency is important in avoiding a banking crisis, while the effort to improve the regulatory environment surrounding the financial markets (including governance and accounting standards) can certainly help prevent a crash/crisis in the stock and/or real estate market. If China further opens the capital account, there will be a large inflow of foreign capital, but large scale capital flows and speculations also bring the risk of a twin crisis (foreign exchange and banking/stock market crisis), which severely damaged emerging economies in Asia in 1997. In order to guard against such a crisis, policies toward improving the financial system must be made along with supportive fiscal and trade policies.

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Table 1 Comparing financial systems: Banks and Markets in 2005

This table compares various aspects of financial markets and banking sector of the Indian financial system with those of other emerging countries and LLSV country groups (sorted by legal origins). All the measures are taken from Levine (2002) or calculated from the World Bank Financial Database using the definitions in Levine (2002). We use 2005 figures for all countries.

	Size of Banks and Markets				**Structure Indices: Markets vs. banks****				**Financial Development***** (banking and market sectors)		
Measures	Bank credit/ GDP	Bank Over -head cost/ Bank assets	Value traded /GDP	Market cap. /GDP	Structure Activity	Structure Size	Structure Efficiency	Structure Regulatory	Finance Activity	Finance Size	Finance Efficiency
Panel A China and LLSV Country Groups											
China	**0.31[a]**	**0.01**	**0.26**	**0.32**	**-0.16**	**0.03**	**-5.87**	**16**	**-2.51**	**-2.31**	**3.19**
English origin*	0.66	0.04	1.53	1.31	0.87	0.76	-3.05	2.26	-0.21	-0.14	3.71
French origin*	0.77	0.04	0.60	0.66	-0.43	-0.05	-4.02	8.50	-1.45	-1.08	2.50
German origin*	1.06	0.02	1.05	0.82	-0.16	-0.37	-4.01	9.65	-0.08	-0.27	3.90
Nordic origin*	1.05	0.02	0.99	0.85	-0.07	-0.20	-3.86	7.74	-0.08	-0.21	3.71
Sample Ave.	0.78	0.03	1.17	1.02	0.28	0.28	-3.55	8.53	-0.50	-0.50	3.48
Panel B Other Large Emerging Markets (EMs)											
Argentina (F)	0.10	0.08	0.09	0.30	-0.12	1.07	-4.95	7	-4.70	-3.51	0.13
Brazil (F)	0.29	0.08	0.19	0.51	-0.40	0.56	-4.20	10	-2.88	-1.91	0.93
Egypt (F)	0.45	0.02	0.28	0.66	-0.45	0.39	-5.13	13	-2.06	-1.22	2.61
India (E)	0.37	0.02	0.56	0.60	0.43	0.49	-4.44	10	-1.57	-1.51	3.30
Indonesia (F)	0.22	0.03	0.15	0.27	-0.40	0.22	-5.48	Na	-3.45	-2.83	1.63
Korea (G)	Na	0.02	1.53	0.73	Na	Na	-3.73	Na	Na	Na	4.57
Malaysia (E)	1.03	0.01	0.38	1.44	-0.99	0.33	-5.22	10	-0.93	0.39	3.30
Mexico (F)	0.15	Na	0.07	0.27	-0.75	0.61	Na	12	-4.60	-3.24	Na
Pakistan (E)	0.27	0.02	1.27	0.34	1.56	0.24	-3.58	10	-1.08	-2.40	4.06
Peru (F)	0.18	0.07	0.03	0.36	-1.93	0.70	-6.35	8	-5.39	-2.75	-0.98
Philippines (F)	0.26	0.06	0.07	0.35	-1.32	0.29	-5.51	7	-3.98	-2.37	0.21
S. Africa (E)	0.80	0.05	0.84	2.14	0.04	0.98	-3.12	8	-0.40	0.54	2.76
Sri Lanka (E)	0.30	0.04	0.05	0.20	-1.81	-0.40	-6.22	7	-4.24	-2.82	0.16
Taiwan (G)	Na	0.02	1.79	1.35	Na	Na	-3.62	12	Na	Na	4.78
Thailand (E)	0.73	0.02	0.51	0.68	-0.37	-0.07	-4.72	9	-0.99	-0.70	3.36
Turkey (F)	0.21	0.06	0.55	0.36	0.96	0.52	-3.40	12	-2.14	-2.57	2.21
Ave. for EMs	0.32	0.04	0.62	0.65	-0.32	0.53	-4.19	7.97	-3.00	-2.15	2.55

Notes: * = the numerical results for countries of each legal origin group is calculated based on a value- (GDP of each country) weighted approach;

**: Structure indices measure whether a country's financial system is market- or bank-dominated; the higher the measure, the more the system is dominated by markets. Specifically, "structure activity" is equal to log(value traded/bank credit) and measures size of bank credit relative to trading volume of markets; "structure size" is equal to log(market cap/bank credit) and measures the size of markets relative to banks; "structure efficiency" is equal to log(market cap ratio×overhead cost ratio) and measures the relative efficiency of markets vs. banks; finally, "structure regulatory" is the sum of the four categories in regulatory restriction, or the degree to which commercial banks are allowed to engage in security, firm operation, insurance, and real estate: 1- unrestricted; 2-permit to conduct through subsidiary; 3-full range not permitted in subsidiaries; and 4-strictly prohibited.

***: Financial development variables measure the entire financial system (banking and market sectors combined), and the higher the measure, the larger or more efficient the financial system is. Specifically, "finance activity" is equal to log (total value traded ratio×private credit ratio), "finance size" is equal to log (market cap ratio×bank private credit ratio), and "finance efficiency" is equal to log (total value traded ratio/bank overhead cost).

Table 2-A Comparisons of Total Savings and Deposits (in US$ billions)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
China												
Demand deposits[a]	288	320	391	465	533	647	777	899	1030	1265	1671	1931
Savings deposits[b]	527	606	674	722	820	961	1143	1445	1748	2069	2363	3187
Time deposits[c]	81	100	114	136	171	199	253	307	410	676	878	1205
Time & Savings Dep/GDP	62%	68%	73%	72%	75%	80%	85%	91%	95%	101%	92%	100%
Japan												
Demand deposits[a]	1518	1793	2259	2073	1838	2567	3523	3795	3541	3523	3683	4560
Time, savings & foreign currency deposits	6866	7921	8997	8059	5351	5383	5416	5448	4642	4536	4778	6160
Time & Savings Dep/GDP	173%	181%	185%	184%	142%	131%	118%	114%	109%	106%	106%	110%
South Korea												
Demand deposits[a]	11	18	22	23	27	36	38	46	54	67	66	50
Time, savings & foreign currency deposits	99	185	251	289	315	383	410	467	485	546	543	471
Time & Savings Dep/GDP	34%	46%	54%	61%	64%	63%	64%	58%	57%	56%	52%	58%
India												
Demand deposits[a]	24	24	28	31	32	35	44	60	71	89	114	96
Time, savings & foreign currency deposits	125	140	161	175	198	235	277	333	368	460	647	653
Time & Savings Dep/GDP	32%	34%	36%	39%	42%	46%	46%	46%	46%	49%	54%	59%

Source: IMF and CEIC database
Notes: [a]: Demand deposits, balance of the accounts can be withdrawn on demand of customers (e.g., check-writing); [b]: Savings deposits, interest-bearing accounts that can be withdraw but cannot use as Money (e.g., no checking writing); [c]: Time deposits, savings accounts or CD with a fixed term.

Table 2-B Breakdown of Bank Loans (end-of-year figures in RMB billions)

Year	Total Loans	Short-term Loans	Industrial Loans	Commercial Loans	Infrastructure Construction Loans	Agricultural Loans	Loans to TVEs	Privately Owned Firms	Joint Ventures & Cooperative Firms
1994	3,997.60	2,694.87	994.83	1,050.98	61.72	114.39	200.24	15.59	79.23
1995	5,054.41	3,337.20	1,177.47	1,283.71	79.93	154.48	251.49	19.62	99.91
1996	6,115.66	4,021.00	1,421.33	1,533.26	97.38	191.91	282.19	27.98	134.63
1997	7,491.41	5,541.83	1,652.66	1,835.66	159.11	331.46	503.58	38.67	189.10
1998	8,652.41	6,061.32	1,782.15	1,975.24	162.87	444.42	558.00	47.16	248.75
1999	9,373.43	6,388.76	1,794.89	1,989.09	147.69	479.24	616.13	57.91	298.58
2000	9,937.11	6,574.81	1,701.93	1,786.85	161.71	488.90	606.08	65.46	304.98
2001	11,231.47	6,732.72	1,863.67	1,856.34	209.96	571.15	641.30	91.80	326.35
2002	13,129.39	7,424.79	2,019.05	1,797.31	274.80	688.46	681.23	105.88	269.74
2003	15,899.62	8,366.12	2,275.60	1,799.44	300.21	841.14	766.16	146.16	256.94
2004	17,819.78	8,684.06	2,389.66	1,707.41	278.01	984.31	806.92	208.16	219.84
2005	19,469.04	8,744.92	2,251.67	1,644.76	298.37	1,152.99	790.18	218.08	197.53
2006	22,534,72	9,853.44	2,865.4	1,667.15	361.26	1,320.82	622.20	266.76	183.27
2007	26,169.09	11,447.79	3,362.33	1,783.33	374.19	1,542.93	711.26	350.77	206.91
2008	30,339.46	12,518.17	3,614.29	1,773.22	368.46	1,762.88	745.43	422.38	227.08

Source: Statistical Yearbooks of China, CEIC database (1985 – 2009).

Table 3-A A Comparison of Non-performing Loans (NPLs) and Government Debt

This table compares total outstanding NPLs within the banking system, government debt, and the ratio of (NPLs + Government Debt)/GDP among China, the U.S., and other major Asian countries for the period 1997-2006. Panel A presents the size of the NPLs, as measured by US$ billion and as the percentage of GDPs in the same year. NPLs in the U.S. measure the outstanding "delinquency loan"; NPLs in Japan measure the "risk management loans" (or loans disclosed under the Financial Reconstructed Law and/or loans subject to self-assessment). In Panel B, outstanding government debt is measured at the end of each year; for the U.S. and Japan, total government debt includes domestic and foreign debt. In Panel C, the ratios for China include using the official NPL numbers and using doubled official NPLs (i.e., the ratios in the brackets are (doubled NPLs + government debt)/GDP); the ratios in the brackets for the U.S. and Japan are (net government debt + NPLs)/GDP, where net government debt is the difference between government borrowing (stock measure) and government lending (flow measure). All figures are converted into U.S. dollars using the average exchange rate within the observation year.

Year	China	U.S.	Japan	Korea	India	Indonesia	Taiwan
Panel A: Size of NPLs: In US$ billion and as percentage of GDPs in the same year (in brackets)							
	--	66.9 (0.8%)	217.4 (5.1%)	16.2 (3.1%)	--	0.2 (0.1%)	19.6 (6.5%)
1998	20.5 (2.0%)	71.3 (0.8%)	489.7 (12.7%)	23.2 (6.7%)	12.7 (3.1%)	5.5 (5.2%)	21.8 (7.9%)
1999	105.1 (9.7%)	72.2 (0.8%)	547.6 (12.6%)	54.4 (12.2%)	14.0 (3.2%)	3.2 (3.8%)	27.2 (9.1%)
2000	269.3 (22.5%)	90.1 (0.9%)	515.4 (11.1%)	35.5 (6.9%)	12.9 (2.8%)	6.3 (2.7%)	33.2 (10.3%)
2001	265.3 (20.0%)	108.4 (1.1%)	640.1 (15.6%)	12.2 (2.5%)	13.2 (2.8%)	4.3 (1.7%)	37.9 (13.0%)
2002	188.4 (13.0%)	107.8 (1.0%)	552.5 (14.1%)	9.9 (1.8%)	14.8 (3.0%)	3.3 (2.0%)	30.7 (10.4%)
2003	181.2 (11.0%)	95.9 (1.0%)	480.1 (11.3%)	11.7 (1.9%)	14.6 (2.5%)	4.7 (1.5%)	23.1 (7.7%)
2004	207.4 (10.7%)	81.3 (0.9%)	334.8 (7.3%)	10.0 (1.5%)	14.4 (2.2%)	3.8 (2.1%)	26.4 (5.1%)
2005	164.2 (7.3%)	84.6 (0.7%)	183.3 (4.0%)	7.6 (1.0%)	13.4 (1.7%)	6.0 (1.5%)	11.2 (3.2%)
2006	157.4 (5.9%)	103.8 (0.8%)	157.8 (3.6%)	8.2 (0.9%)	11.2 (1.3%)	5.2 (1.4%)	11.3 3.1%
2007	166.8 (5.1%)	168.1 (1.2%)	148.6 (3.4%)	8.3 (0.8%)	13.6 (1.2%)	4.5 (1.0%)	10.0 2.6%
2008	80.6 (1.9%)	328.7 (2.3%)	--	13.0 (1.4%)	15.4 (1.3%)	4.3 (0.8%)	9.0 2.3%

	Panel B: Outstanding Government Debt ($ billion)						
	Outstanding Government Bond	Total Government Debt	Total Government Debt	Outstanding Treasury Bonds	Total Public Debt	Outstanding Government Bond	Outstanding Government Bond
1997	66.5	5,802.8	4,254.0	5.3	--		
1998	93.8	5,788.8	4,858.0	14.4	178.4		
1999	127.3	5,822.7	6,053.1	28.5	260.2	34.1	46.5
2000	165.1	5,612.7	6,209.8	32.7	232.4	45.1	45.5
2001	188.6	5,734.4	6,036.0	39.8	225.4	43.5	58.7
2002	233.5	6,169.4	6,321.3	45.2	250.2	42.1	77.7
2003	273.0	6,789.7	6,852.9	67.9	259.7	48.0	75.7
2004	311.3	7,335.6	7,446.6	107.0	299.6	44.7	85.2
2005	350.0	7,809.5	8,299.5	165.5	347.1	39.9	86.7
2006	364.6	8,451.4	7,587.1	216.7	375.2	45.7	85.8
2007	599.8	8,950.7	7,707.7	245.0	472.0	51.8	94.5
2008	701.6	9,985.8	8,966.2	217.8	496.4	52.8	90.4

	Panel C: (NPLs + Outstanding Government Debt)/GDP						
1997	--	0.71 (0.54)	1.05 (0.40)	0.04	--	--	--
1998	0.11	0.67 (0.50)	1.39 (0.63)	0.11	0.46	--	--
1999	0.21	0.64 (0.45)	1.51 (0.64)	0.19	0.62	0.24	0.25
2000	0.36	0.58 (0.40)	1.45 (0.65)	0.13	0.53	0.31	0.24
2001	0.34	0.58 (0.39)	1.63 (0.83)	0.11	0.50	0.30	0.33
2002	0.29	0.60 (0.42)	1.76 (0.90)	0.10	0.54	0.23	0.37
2003	0.28	0.63 (0.45)	1.73 (0.86)	0.13	0.48	0.22	0.33

2004	0.27	0.63	(0.46)	1.70	(0.81)	0.17	0.47	0.19	0.32
2005	0.23	0.63	(0.47)	1.86	(0.84)	0.22	0.47	0.16	0.27
2006	0.20	0.65	(0.44)	1.78	(0.88)	0.24	0.44	0.14	0.26
2007	0.23	0.66	(0.45)	1.79	(0.89)	0.24	0.44	0.13	0.27
2008	0.18	0.72	(0.50)		--	0.25	0.42	0.11	0.25

Sources: Statistical Bureau of China, the People's Bank of China, Chinese Banking Regulatory Commission; Board of Governors of the Federal Reserve Bank, Statistical Abstracts of the U.S., the Statistical Bureau of Japan; Ministry of Finance, Korea, the Bank of Korea, Korean Statistical Information System; IMF, World Bank; Bank Indonesia; Ministry of Finance, India; National Statistical Bureau of Taiwan, Bloomberg, Chinabond, and Taiwan financial supervisory commission.

Table 3-B Liquidation of NPLs by Four Asset Management Companies (RMB billion)

This table presents results on the liquidation of NPLs by four state-owned asset management companies in China during the period 2001 to the 1st quarter of 2006. These asset management companies were set up to specifically deal with NPLs accumulated in the 'Big Four' state-owned banks.

	Book value of Assets (Accumulated)	Assets Recovered	Cash Recovered	Asset Recovery Rate (%)	Cash Recovery Rate (%)
			2001		
Hua Rong	23.21	12.54	7.55	54.0	32.5
Great Wall	53.11	6.30	3.69	11.9	6.9
Oriental	18.29	8.51	4.42	46.5	24.2
Xin Da	29.90	22.50	10.49	75.3	35.1
Total	124.51	49.86	26.15	40.0	21.0
			2002		
Hua Rong	32.04	11.43	10.20	35.7	31.8
Great Wall	45.48	7.94	5.47	17.5	12.0
Oriental	22.10	10.60	5.57	47.9	25.2
Xin Da	33.10	17.46	10.51	52.7	31.8
Total	132.73	47.43	31.75	35.7	23.9
			2004		
	Accumulated Disposal	Cash Recovered	Disposal Ratio (%)	Asset Recovery Ratio (%)	Cash Recovery Ratio (%)
Hua Rong	209.54	41.34	59.77	25.29	19.73
Great Wall	209.91	21.57	61.91	14.43	10.27
Oriental	104.55	23.29	41.42	29.50	22.27
Xin Da	151.06	50.81	48.90	38.29	33.64
Total	675.06	137.00	53.96	25.48	20.29
			2005		
Hua Rong	243.38	54.39	69.17	26.92	22.35
Great Wall	263.39	27.35	77.88	12.90	10.39
Oriental	131.76	32.01	52.08	28.73	24.30
Xin Da	201.21	62.84	63.82	34.30	31.23
Total	839.75	176.60	66.74	24.58	21.03
			2006 (Q1)		
Hua Rong	246.80	54.66	70.11	26.50	22.15
Great Wall	270.78	27.83	80.11	12.70	10.28
Oriental	141.99	32.81	56.13	27.16	23.11
Xin Da	206.77	65.26	64.69	34.46	31.56
Total	866.34	180.56	68.61	24.20	20.84

Notes: 1. Accumulated Disposal refers to the accumulated amount of cash and non-cash assets recovered as well as loss incurred by the end of the reporting period.

2. Disposal Ratio = Accumulated Disposal / Total NPLs purchased .

3. Asset Recovery Ratio = Total Assets Recovered / Accumulated Disposal.

4. Cash Recovery Ratio = Cash Recovered / Accumulated Disposal.

Source: Almanac of China's Finance and Banking 2002-2005, and the reports of China Banking Regulatory Commission 2004-2009.

Table 4-A Chinese Banks' IPOs and Comparison with Other Banks

Panel A presents information on the IPOs of three of the Big Four banks and that of Bank of Communications (BComm). ICBC went IPO in both the HKSE (HK dollar) and SHSE (RMB), while PCBC and BComm only listed shares on the HKSE. First day (first week) return is percentage return of closing price of first day (fifth trading day) over offer price. Foreign ownership indicates size of ownership stakes of foreign institutions and investors at the date of IPOs. Panel B lists the largest 10 banks in the world in terms of market capitalization, and Panel C lists the largest 20 banks in terms of (book) assets.

Panel A Performance of Chinese Banks' IPOs

	ICBC		**BOC**		**PCBC**	**BComm**
	HKSE (HK$)	SHSE (RMB)	HKSE (HK$)	SHSE (RMB)	HKSE (HK$)	HKSE (HK$)
IPO Date	10/27/2006	10/27/2006	6/01/2006	7/05/2006	10/27/2005	6/23/2005
Offer Price (per share)	3.07	3.12	2.95	3.08	2.35	2.5
IPO Proceeds (amount)	124.95B	46.64B	82.86B	20.00B	59.94B	14.64B
1st Day Return	14.66%	5.13%	14.41%	22.73%	0.00%	13.00%
1st Week Return	16.94%	4.81%	19.49%	19.16%	-1.06%	13.00%
Foreign Ownership	7.28%	--	14.40%	--	14.39%	18.33%

Source: IPO prospectuses submitted to SHSE and HKSE; SHSE and HKSE.

Panel B Top 10 Banks Measured by Market Capitalization ($billion)

Rank	**Bank Name**	**HQ Country**	**Market Cap. $B** (Feb. 26, 2009)	**Market Cap. $B** (Dec. 31, 2008)	**Change in Market Cap**
1	ICBC	China	169.6	173.9	-2.50%
2	China Construction Bank	China	118.4	128.3	-7.70%
3	Bank of China	China	103.2	98.2	5.10%
4	HSBC	U.K.	91.4	115.2	-20.70%
5	JP Morgan Chase	U.S.	90.0	117.7	-23.60%
6	Wells Fargo	U.S.	62.6	98	-36.10%
7	Banco Santander	Spain	53.6	75	-28.60%
8	Mitsubishi UFJ Financial	Japan	52.5	70.1	-25.20%
9	Bank of Communications	China	34.6	34.6	0.10%
10	Intesa Sanpaolo	Italy	31.8	44.1	-28.00%

Source: *Financial Times*.

Panel C Top 20 Banks Measured by Total Assets (March 2009; $trillion)

Rank	**Bank Name (HQ Country)**	**HQ Country**	**Total Assets ($trillion)**
1	Royal Bank of Scotland	U.K.	3.50
2	Deutsche Bank-RG	Germany	3.07
3	Barclays PLC	U.K.	2.99
4	BNP Paribas	France	2.86

5	HSBC Holdings PLC	U.K.	2.53
6	Credit Agricole SA	France	2.31
7	JPMorgan Chase	U.S.	2.18
8	Citigroup Inc.	U.S.	1.94
9	UBS AG-REG	Switzerland	1.89
10	Mitsubishi UFJ Financial	Japan	1.83
11	Bank of America	U.S.	1.82
12	Societe Generale	France	1.69
13	Fortis	Belgium/Netherlands	1.53
14	UniCredit SpA	Italy	1.48
15	Banco Santander	Spain	1.46
16	Mizuho Financial Group	Japan	1.44
17	**ICBC**	**China**	**1.37**
18	Wells Fargo & CO.	U.S.	1.31
19	Credit Suisse-REG	Switzerland	1.10
20	Sumitomo Mitsui Banking Corp.	Japan	1.05

Source: Bloomberg (based on latest filings), March 12, 2009.

Table 4-B State-owned and Private Banks in China (RMB billion)

Types of Banks	Total Assets	Total Deposits	Outstanding Loans	Profit[1]	NPL rate (%)
		2009 (Q2)			
Big Five Banks		28,292.9	18,912.1		1.99
Other Commercial Banks		13,904.3	9,149.3		
1) Joint Equity		9,973.8	6,527.2		1.03
2) City Commercial Banks		3,930.4	2,622.2		1.7
Foreign Banks		537.1	657.3		1.03
Urban Credit Cooperatives		50.3			
Rural Credit Cooperatives		4,600.9	4,448.6		
		2008			
Big Five Banks	31,836.0	23,696.1	15,029.3	354.2	2.8
Other Commercial Banks	12,941.2	11,072.2	7,162.4		
1) Joint Equity	8,809.2	7,801.8	5,054.5	84.1	1.3
2) City Commercial Banks	4,132.0	3,270.4	2,107.9	40.8	2.3
Foreign Banks	1,344.8	533.5	762.1	11.9	0.8
Urban Credit Cooperatives	80.4	76.2		0.62	
Rural Credit Cooperatives	5,211.3	4,173.6	3,753.2	21.9	
		2007			
Big Five Banks	28,007.0	20,067.7	13,850.9	246.6	8.05
Other Commercial Banks	10,589.9	9,023.3	5,684.4		
1) Joint Equity	7,249.4	6,432.0	4,001.9	56.4	2.15
2) City Commercial Banks	3,340.5	2,591.4	1,682.6	24.8	3.04
Foreign Banks	1,252.5	390.0	700.0	6.1	0.46
Urban Credit Cooperatives	131.2	134.1	84.7	0.77	
Rural Credit Cooperatives	4,343.4	3,534.9	3,256.1	19.3	
		2006			
Big Five Banks	24,236	18,285.1	11,426.2	197.5	9.22
Other Commercial Banks	8,038.4	7512.8	5526.6		
1) Joint Equity	5,444.6	5,396.5	4,156.9	43.4	2.81
2) City Commercial Banks	2,593.8	2,116.2	1,369.7	18.1	4.78
Foreign Banks	927.9	244.0	485.9	5.8	0.78
Urban Credit Cooperatives	183.1	157.9	100.7	1.0	
Rural Credit Cooperatives	3,450.3	3,040.2	2,747.6	18.6	

		2005			
Big Five Banks[2]	21,005.0	16,283.8	10,224.0	156.1	10.49
Other Commercial Banks	6,502.2	6,261.1	4,576.6		
1) Joint Equity	4,465.5	4,570.0	3,487.7	28.9	4.22
2) City Commercial Banks	2,036.7	16,91.2	1,088.9	12.1	7.73
Foreign Banks	715.5	179.3	363.8	3.7	1.05
Urban Credit Cooperatives	203.3	181.3	113.1	0.9	
Rural Credit Cooperatives	3,142.7	2,767.4	2,319.9	12.0	
		2004			
Big Four Banks	16,932.1	14,412.3	10,086.1	45.9	15.57
Other Commercial Banks	4,697.2	4,059.9	2,885.9	50.7	4.93
1) Joint Equity				17.6	5.01
2) City Commercial Banks	1,693.8	1,434.1	904.5	8.5	11.73
Foreign Banks	515.9	126.4	255.8	18.8	1.34
Urban Credit Cooperatives	171.5	154.9	97.9	0.4	
Rural Credit Cooperatives	3,101.3	2,734.8	1,974.8	9.65	
		2003			
Big Four Banks	16,275.1	13,071.9	9,950.1	196.5	19.74
Other Commercial Banks	3,816.8	3,286.5	2,368.2		7.92
1) Joint Equity				14.6	6.5
2) City Commercial Banks	1,465.4	1,174.7	774.4	5.4	14.94
Foreign Banks	333.1	90.7	147.6	18.1	2.87
Urban Credit Cooperatives	148.7	127.1	85.6	0.01	
Rural Credit Cooperatives	2,674.6	2,376.5	1,775.9	4.4	
		2002			
Big Four Banks	14,450.0	11,840.0	8,460.0	71.0	26.1
Other Commercial Banks	4,160.0	3,390.0	2,290.0	--	--
1) Joint Equity	2,990.0	--	--	--	9.5
2) City Commercial Banks	1,170.0	--	--	--	17.7
Foreign Banks	324.2	--	154.0	15.2	--
Urban Credit Cooperatives	119.0	101.0	66.4	--	
Rural Credit Cooperatives	--	1,987.0	1,393.0	--	--
		2001			
Big Four Banks	13,000.0	10,770.0	7,400.0	23.0	25.37
Other Commercial Banks	3,259.0	2,530.7	1,649.8	12.9	--
1) Joint Equity	2,386.0	1,849.0	1,224.0	10.5	12.94
2) City Commercial Banks	873.0	681.7	425.8	2.4	--
Foreign Banks	373.4	--	153.2	1.7	--
Urban Credit Cooperatives	128.7	107.1	72.5	2.6	--
Rural Credit Cooperatives	--	1,729.8	1,197.0	--	--

Notes: 1. It is before tax profit up to 2006, and after tax profit from 2006-2009.

2. Big four (stated owned) banks refer to Bank of China, China Construction Bank, Industrial and Commercial Bank of China, and Agricultural Bank of China. Big five banks are the Big four Banks and Bank of Communications.

Source: Almanac of China's Finance and Banking 2000-2008, CEIC data base, Quarterly Monetary Report of PBC.

Table 4-C Comparison of Assets Held by China's Non-Bank Intermediaries (RMB billion)

This table compares *total assets* held by banks and non-bank intermediaries during the period 1995-2008.

Year	State-owned Banks	RCCs	UCCs	Insurance Companies	TICs	Non-deposit Intermediaries	Other Commercial Banks	Foreign Banks
1995	5,373.3	679.10	303.92	--	458.60	48.97	536.91	42.90
1996	6,582.7	870.66	374.78	--	563.70	82.02	769.98	55.30
1997	7,914.4	1,012.20	498.94	--	636.40	100.42	948.61	75.80
1998	8,860.9	1,143.11	560.63	--	802.50	120.97	1,128.18	118.40
1999	9,970.6	1,239.24	630.15	260.4	907.50	137.08	1,376.89	191.40
2000	10,793.7	1,393.06	678.49	337.4	975.90	160.82	1,828.26	379.20
2001	11,188.2	1,610.80	780.02	459.1	1,088.30	223.67	2,255.70	341.80
2002	13,549.6	2,205.21	119.23	649.4	1,544.10	408.10	2,997.72	317.90
2003	16,275.1	2,674.62	148.72	912.3	--	495.58	3,816.80	331.10
2004	16,932.1	3,103.30	171.50	1185.4	--	--	4,697.20	515.90
2005	21,005.0	3,142.7	203.3	1529.6	--	--	6,502.2	715.5
2006	24,23.0	3,450.3	183.1	1973.1	--	--	8,038.4	927.9
2007	28,007.0	4,343.4	131.2	2900.4	--	--	10,589.9	1,252.5
2008	31,836.0	5,211.3	80.4	3341.8	--	--	12,941.2	1,344.8

Source: Aggregate Statistics from the People's Bank of China (China's Central Bank), 2000 – 2009.

Table 5-A A Comparison of the Largest Stock Markets in the World (01/01-12/31, 2008)

Rank	Stock Exchange	Total Market Cap (US$ million)	Concentration (%)	Turnover Velocity (%)
1	NYSE Euronext (US)	9,208,934.1	54.8%	240.2%
2	Tokyo SE Group	3,115,803.7	60.3%	151.2%
3	NASDAQ OMX	2,396,344.3	69.1%	1026.5%
4	NYSE Euronext (Europe)	2,101,745.9	69.3%	141.8%
5	London SE	1,868,153.0	88.8%	152.7%
6	**Shanghai SE**	**1,425,354.0**	**71.3%**	**118.2%**
7	Hong Kong Exchanges	1,328,768.5	79.5%	86.0%
8	Deutsche Börse	1,110,579.6	80.8%	264.0%
9	TSX Group	1,033,448.5	75.3%	103.8%
10	BME Spanish Exchanges	948,352.3	NA	171.4%
11	SIX Swiss Exchange	857,306.3	72.4%	121.8%
12	Australian SE	683,871.6	85.3%	113.0%
13	Bombay SE	647,204.8	77.9%	29.0%
14	National Stock Exchange India	600,281.6	74.8%	75.7%
15	BM&FBOVESPA	591,965.5	64.3%	66.7%
16	NASDAQ OMX Nordic Exchange	563,099.6	75.2%	138.0%
17	Borsa Italiana	522,087.8	68.1%	182.3%
18	Johannesburg SE	482,700.0	30.4%	63.1%
19	Korea Exchange	470,797.7	63.1%	196.3%
20	Taiwan SE Corp.	356,710.6	64.8%	145.5%
21	**Shenzhen SE**	**353,430.0**	**NA**	**235.9%**

Notes: All figures are from http//:www.world-exchanges.org, the web site of the international organization of stock exchanges. Concentration is the fraction of total turnover of an exchange within a year coming from the turnover of the companies with the largest market cap (top 5%). Turnover velocity is the total turnover of domestic stocks for the year expressed as a percentage of the total market capitalization.

Table 5-B China's Bond Markets: 1990 – 2008 (Amount in RMB billion)

This table presents the development of China's bond markets. "Policy Financial Bonds" are issued by "policy banks," which belong to the Treasury Department, and the proceeds of bond issuance are invested in government run projects and industries such as infrastructure construction (similar to municipal bonds in the U.S.)

	Treasury Bonds			Policy Financial Bonds			Corporate Bonds		
Year	Amount Issued	Redemption Amount	Balance	Amount Issued	Amounts Redemption	Balance	Amounts issued	Amounts Redemption	Balance
1990	19.72	7.62	89.03	6.44	5.01	8.49	12.4	7.73	19.54
1991	28.13	11.16	106.00	6.69	3.37	11.81	24.9	11.43	33.11
1992	46.08	23.81	128.27	5.50	3.00	14.31	68.37	19.28	82.20
1993	38.13	12.33	154.07	0.00	3.43	10.88	23.58	25.55	80.24
1994	113.76	39.19	228.64	0.00	1.35	9.53	16.18	28.20	68.21
1995	151.09	49.70	330.03	--	--	170.85	30.08	33.63	64.66
1996	184.78	78.66	436.14	105.56	25.45	250.96	26.89	31.78	59.77
1997	241.18	126.43	550.89	143.15	31.23	362.88	25.52	21.98	52.10
1998	380.88	206.09	776.57	195.02	32.04	512.11	15.00	10.53	67.69
1999	401.50	123.87	1,054.20	180.09	47.32	644.75	15.82	5.65	77.86
2000	465.70	152.50	1,367.40	164.50	70.92	738.33	8.30	0.00	86.16
2001	488.40	228.60	1,561.80	259.00	143.88	853.45	14.70	0.00	100.86
2002	593.43	226.12	1,933.60	307.50	155.57	1,005.41	32.50	0.00	133.36
2003	628.01	275.58	2,260.36	456.14	250.53	1,165.00	35.80	0.00	169.16
2004	692.39	374.99	2,577.76	414.80	177.87	1,401.93	32.70	0.00	201.86
2005	704.20	404.55	2,877.40	585.17	205.30	1,781.80	204.65	3.70	401.81
2006	888.33	620.86	3144.87	898.00	379.0	2,300.80	393.83	167.24	553.29
2007	2313.91	584.68	4874.10	1109.02	413.36	2992.68	505.85	288.09	768.33
2008	855.82	753.14	4976.78	1082.30	406.38	3668.6	843.54	327.78	1285.06
Yearly Growth	23.3%	29.1%	25.0%	32.9%	27.7%	40.1%	26.4%	23.1%	26.2%

Source: Aggregate Statistics from the People's Bank of China (China's Central Bank) 2000 – 2009 and the Statistical Yearbook of China 2000-2009.

Table 6-A Types of Common Stock Issued in China

Tradable?		Definition
No (Private block transfer possible)	**State-owned shares* (G shares after recent reform and tradable)**	Shares that are controlled by the central government during the process when firms are converted into a limited liability corporation but before listing. These shares are either managed and represented by the Bureau of National Assets Management or held by other state-owned companies, both of which also appoint firms' board members. After reforms announced in 2005 and implemented in 2006-7 state shares became G shares and are tradable.
	Entrepreneur's shares	Shares reserved for firms' founders during the same process described above; different from shares that founders can purchase and sell in the markets.
	Foreign owners	Shares owned by foreign industrial investors during the same process
	Legal entity holders	Shares sold to legal identities (such as other companies, listed or non-listed) during the same process.
	Employee shares	Shares sold to firm's employees during the same process.
Yes (Newly issued shares)	**A Shares**	Shares issued by Chinese companies that are listed and traded in the Shanghai or Shenzhen Stock Exchange; most of these shares are sold to and held by Chinese (citizen) investors.
	B Shares	Shares issued by Chinese companies that are listed and traded in the Shanghai or Shenzhen Stock Exchange; these shares are sold to and held by foreign investors; starting in 2001Chinese investors can also trade these shares.

H Shares	Shares issued by selected Chinese companies listed and traded in the Hong Kong Stock Exchange; these shares can only be traded on the HK Exchange but can be held by anyone.

*: There are sub-categories under this definition

Table 6-B Tradable vs. Non-tradable Shares for China's Listed Companies

Year	Shanghai SE: State/total shares	Non-tradable^/total shares	Tradable/total shares	A/total shares	A/Tradable shares*
1992	0.41	0.69	0.31	0.16	0.52
1993	0.49	0.72	0.28	0.16	0.57
1994	0.43	0.67	0.33	0.21	0.64
1995	0.39	0.64	0.36	0.21	0.60
1996	0.35	0.65	0.35	0.22	0.62
1997	0.32	0.65	0.35	0.23	0.66
1998	0.34	0.66	0.34	0.24	0.71
1999	0.43	0.65	0.35	0.26	0.75
2000	0.44	0.64	0.36	0.28	0.80
2001	0.50	0.64	0.36	0.29	0.80
2002	0.52	0.65	0.35	0.26	0.74
2003	0.57	0.64	0.35	0.27	0.76
2004	0.58	0.64	0.36	0.28	0.77
2005	0.57	0.62	0.38	0.30	0.78
2006	0.36	0.65	0.35	0.27	0.81
2007	0.37	0.69	0.31	0.28	0.90
2008	0.47	0.58	0.42	0.37	0.91
2009 (Sept)	0.37	0.48	0.52	0.50	0.93

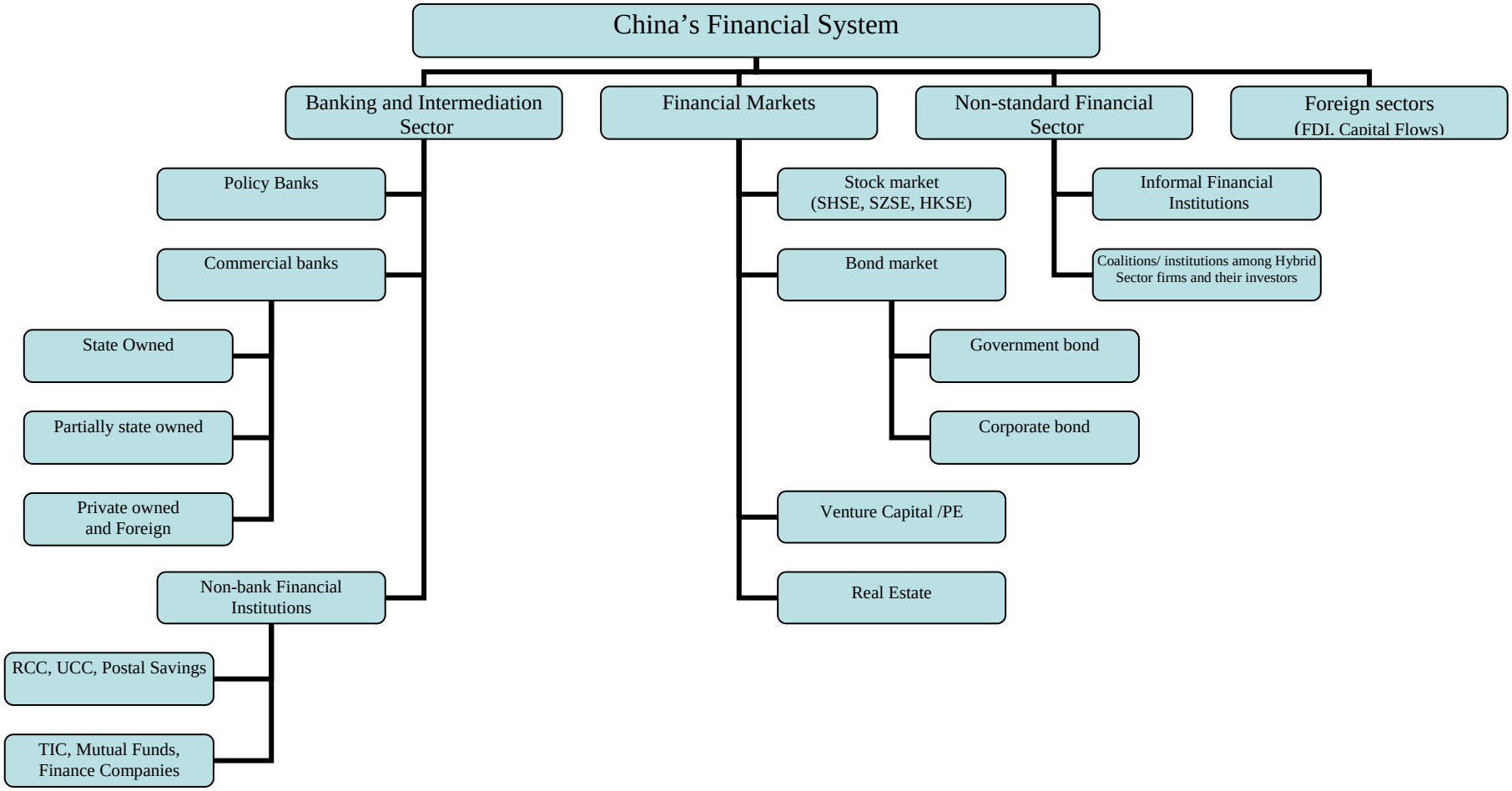
^: Non-tradable shares include "state-owned" and "shares owned by legal entities";
This column is calculated as "(Non-tradable in Shanghai SE+ Non-tradable in Shenzhen SE)/(Market cap in Shanghai SE + Market cap in Shenzhen SE)"
*: tradable shares include A, B, and H shares;
Source: China Security Regulation Committee Reports (2000-2006), CEIC database and http://www.csrc.gov.cn

Table 7 Trading Volume of National Interbank Market
(RMB billion)

Maturity	Overnight	7 days	20 days	30 days	60 days	90 days	120 days
2001	103.88	560.69	93.35	35.28	9.40	4.73	0.87
2002	201.52	852.34	100.35	29.17	10.78	4.76	11.81
2003	641.89	1,456.31	56.60	44.11	10.14	10.18	2.81
2004	283.34	1041.41	30.67	18.93	9.20	5.84	2.57
2005	223.03	896.26	60.42	29.91	7.51	14.09	1.54
2006	635.21	1290.43	38.13	19.11	12.03	5.22	1.41
2007	8030.47	2178.01	50.16	34.16	27.94	31.80	13.34
2008	10651.36	3500.47	110.71	113.55	44.52	66.61	18.50
2009 (Jan-Aug)	9659.82	1453.51	30.36	81.37	14.46	25.64	1.90

Source: The People's Bank of China (2001-2009).

Figure 1 Overview of China's Financial System



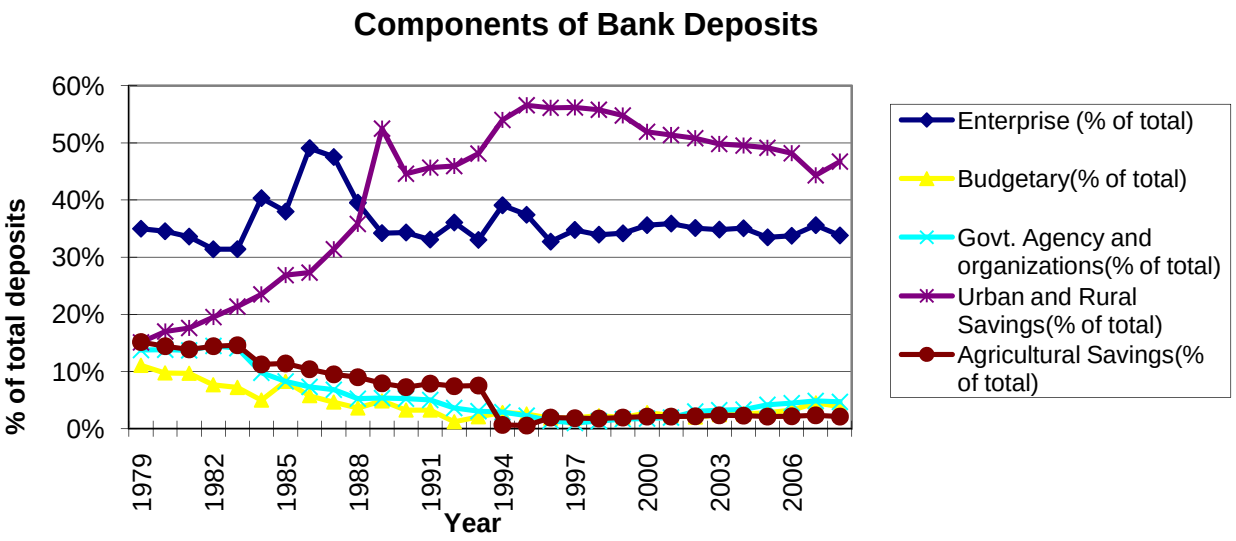


Figure 2-A Sources for Bank Deposits in China

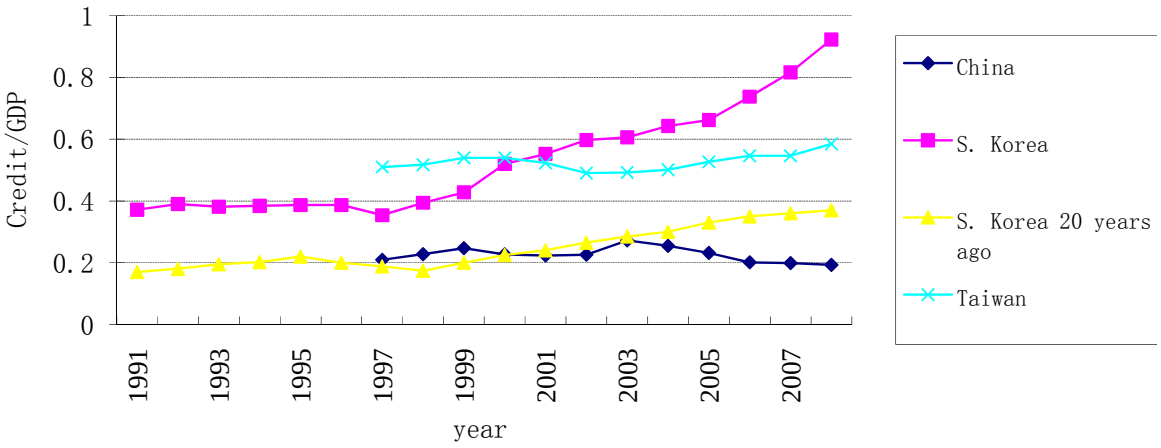


Figure 2-B Comparing Total Bank Credit extended to private/hybrid sectors

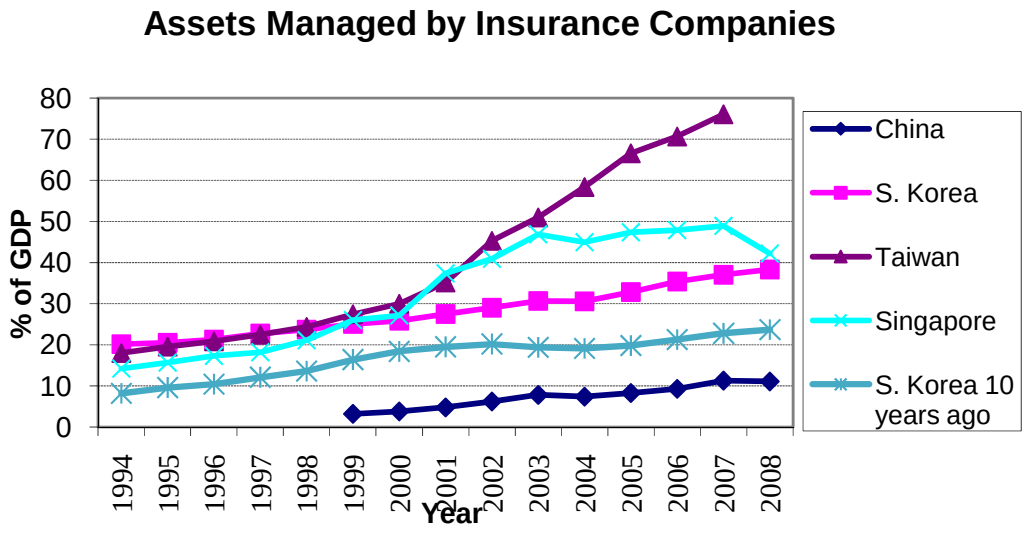
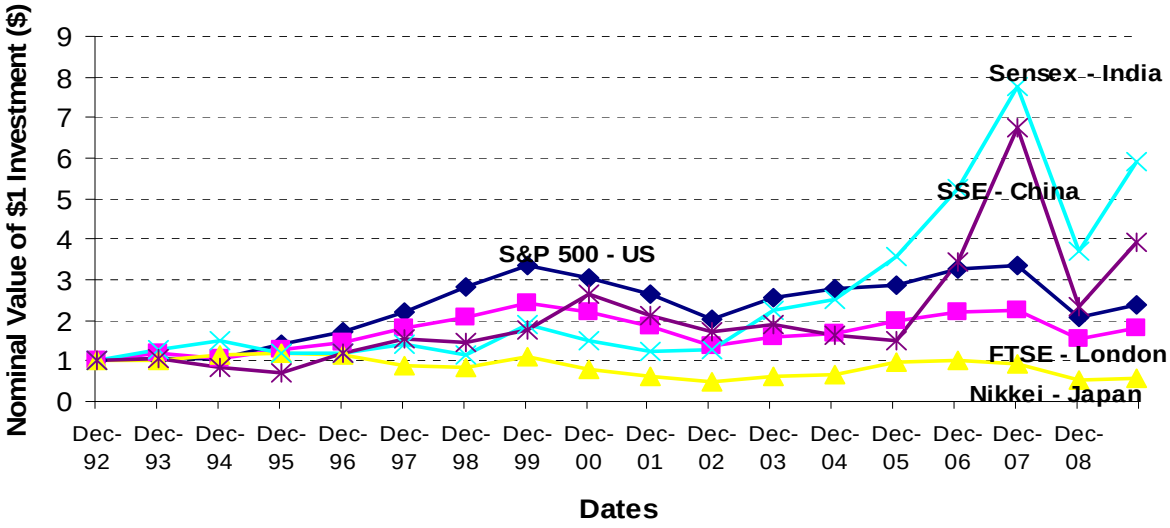


Figure 2-C A Comparison of Assets Under Management of Insurance Companies



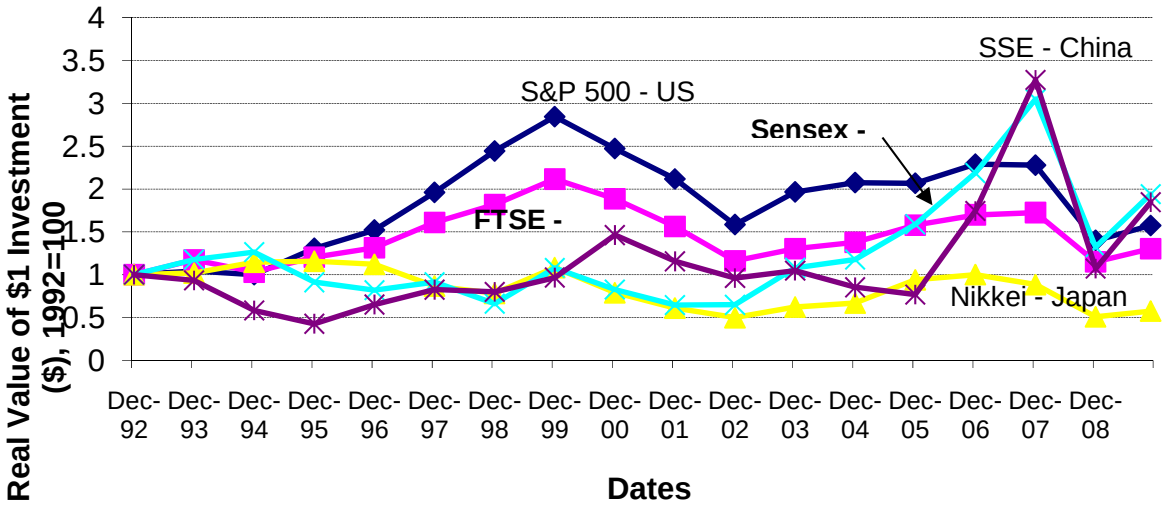


Figure 3 A Comparison of Performance of Major Stock Indexes (Buy-and-hold returns of $1 between Dec. 1992 and Nov. 2009)

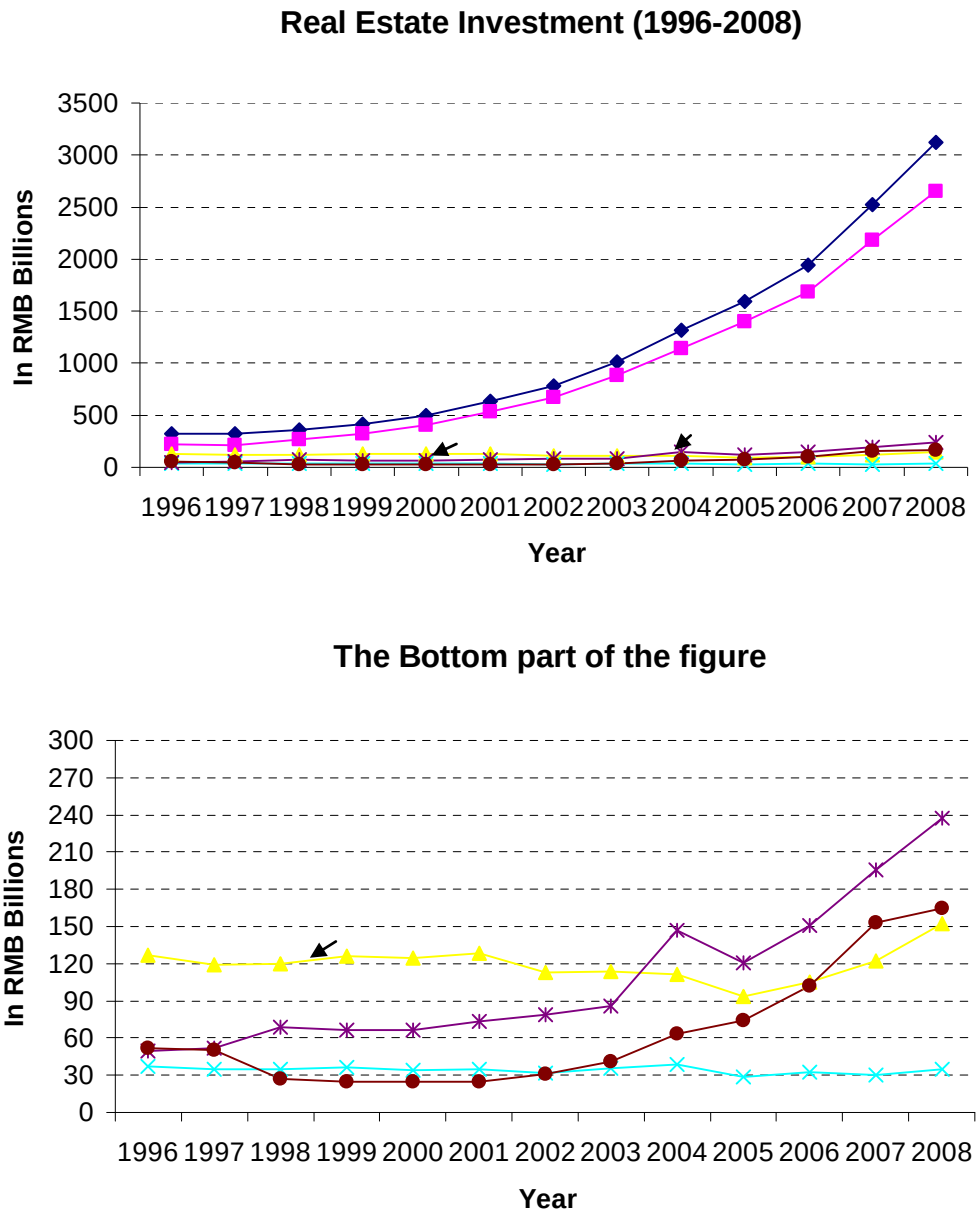


Figure 4-A Total Real Estate Investments and their Sources (1996-2008)

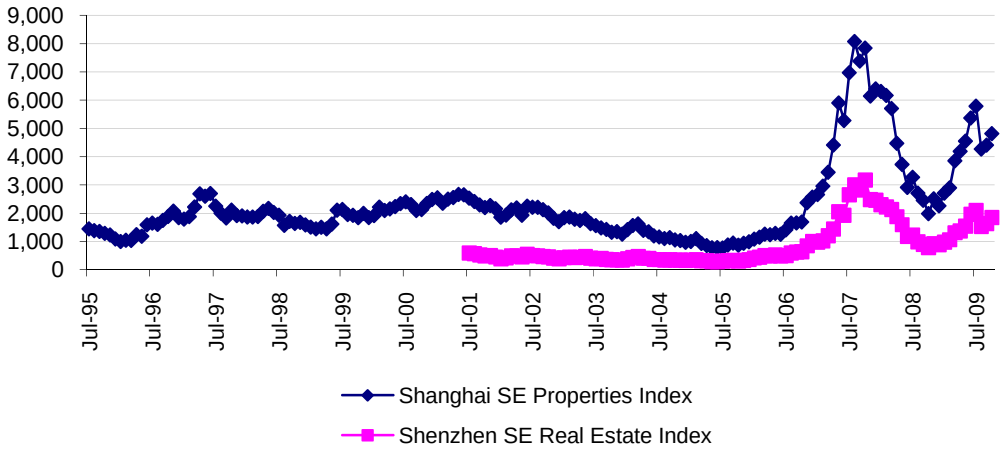


Figure 4-B Performance of Two Real Estate Indexes (Dec. 1993 to Oct. 2009)

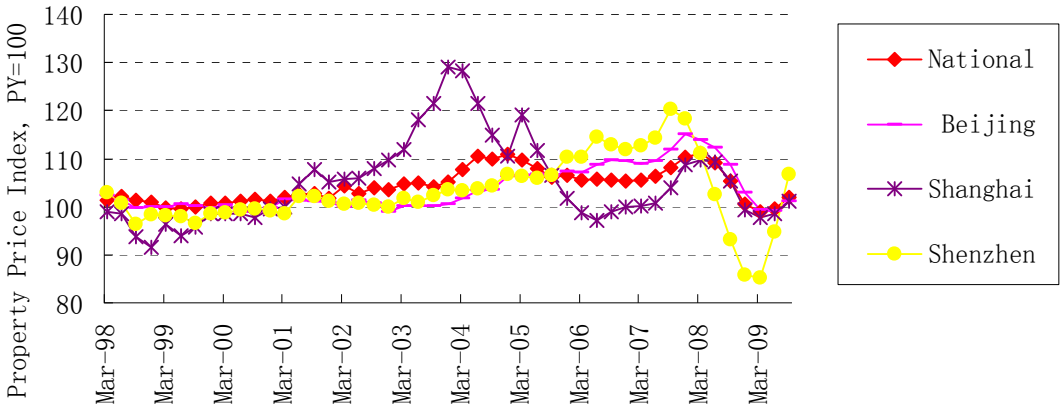


Figure 4-C Property Price Index of China and Selected Cities

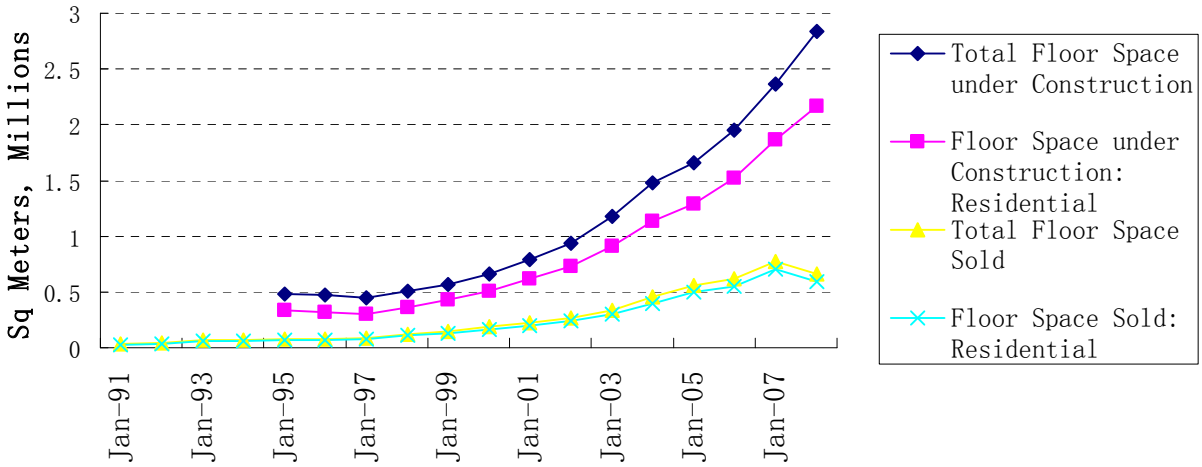


Figure 4-D Total Floor Space in China

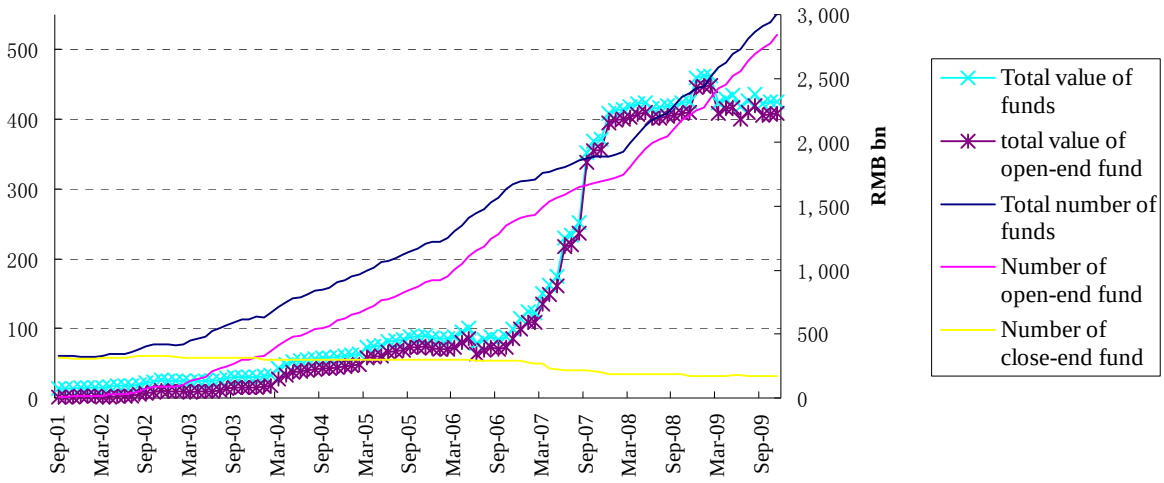


Figure 5 Growth in China's Mutual Fund Industry (1998-2009)

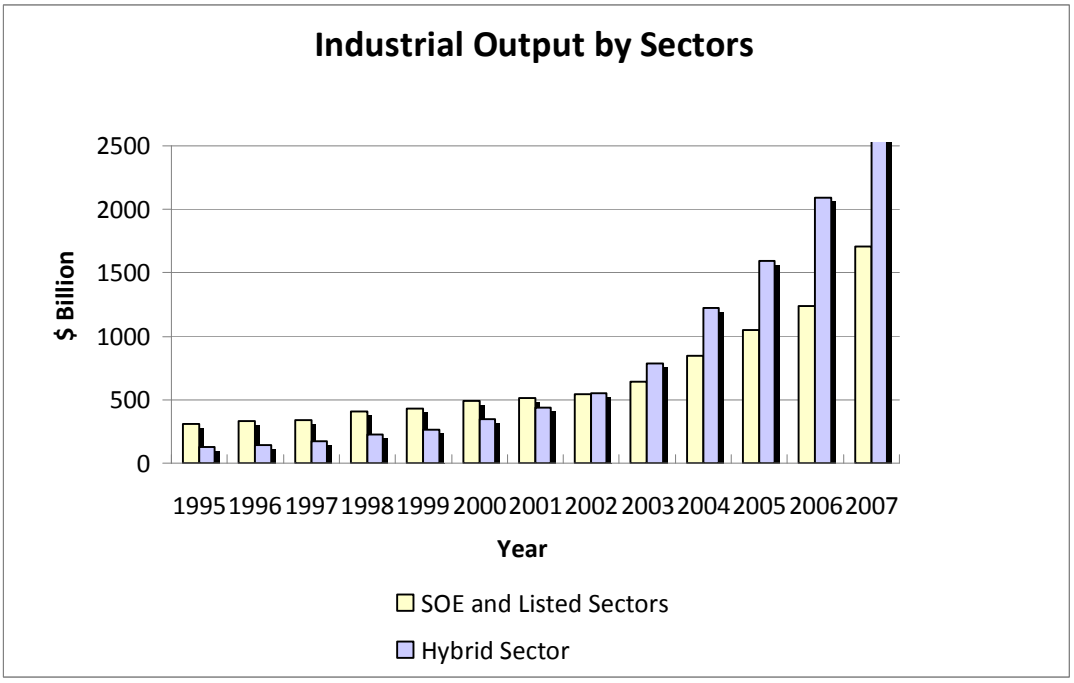


Figure 6-A Comparing the Sectors – Industrial Output

In this figure we plot total "industrial output" for State (SOEs) and Listed (publicly listed and traded firms) Sectors combined and for the Hybrid Sector (all the rest of the firms) during 1990 to 2007. Data source for this table is the Chinese Statistical Yearbook (1998 – 2008).

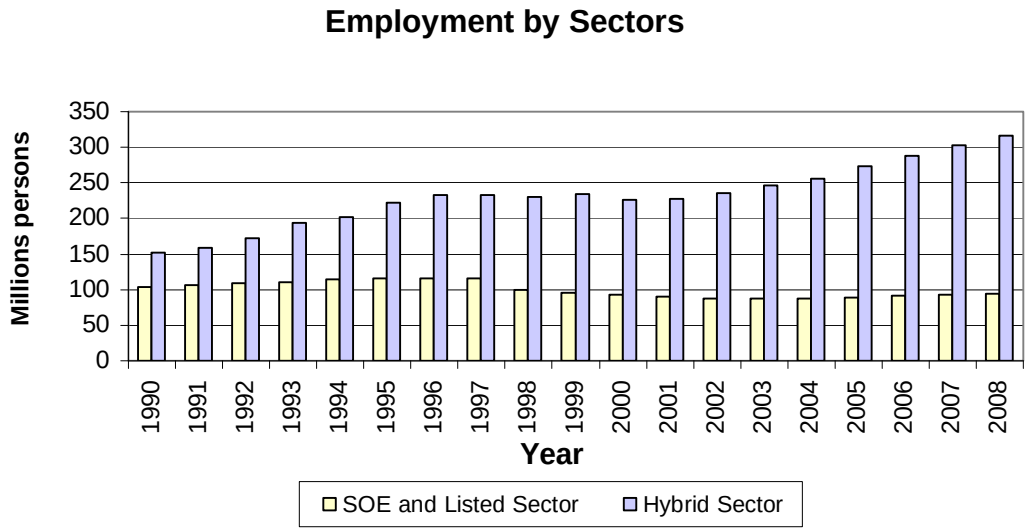


Figure 6-B Comparing the Sectors – Employment

In this figure we plot total number of workers employed by the State (SOEs) and Listed (publicly listed and traded firms) Sectors combined and by the Hybrid Sector (all the rest of the firms) during 1990 to 2008. Data source for this table is the Chinese Statistical Yearbook and CEIC database .

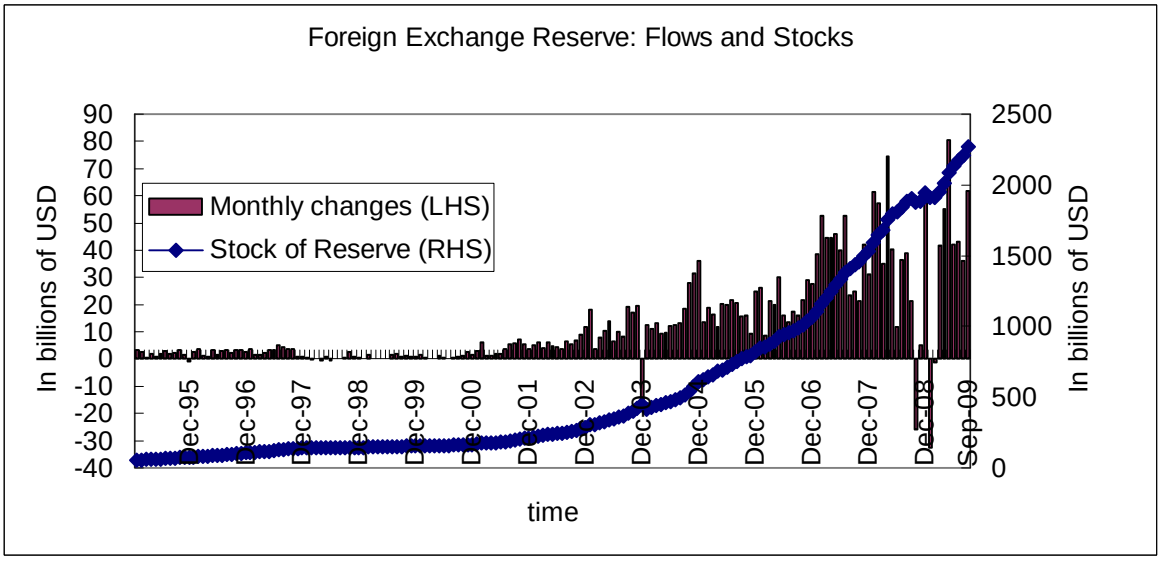


Figure 7-A China's Foreign Exchange Reserves

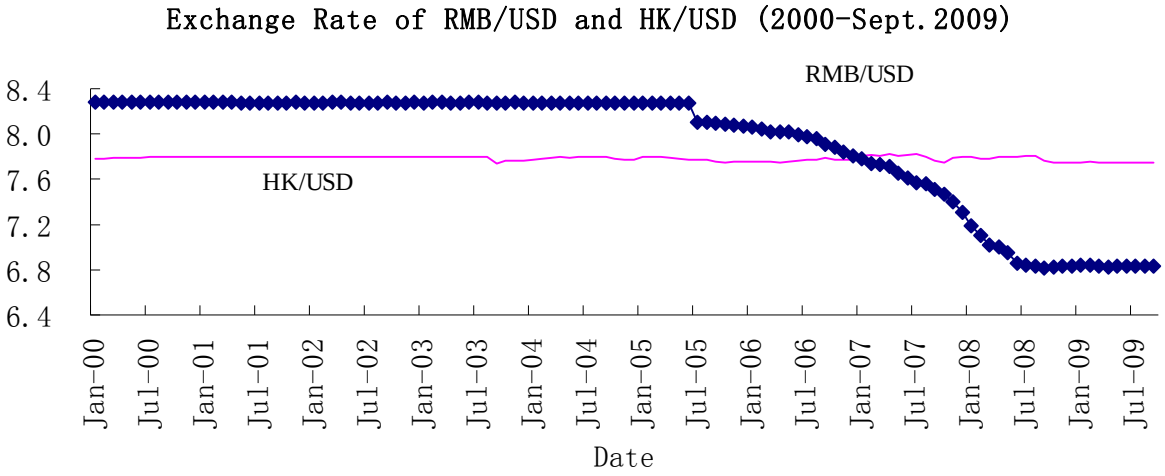


Figure 7-B Trends of Exchange Rates (US$, RMB, and HK$)