

## **The contradiction in China's gradualist banking reforms\***

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### Abstract:

China's state-owned banks historically have funded money losing enterprises to maintain employment and social stability. We survey the banking industry in China, focusing on the largest banks which are being reformed to increase their competitiveness following China's 2001 WTO commitment to open the domestic banking market by 2007. We assemble macroeconomic, microeconomic and anecdotal evidence suggesting that government influence, while less explicit than in the past, is continuing despite the reforms. Indeed, the reforms thus far do not resolve the tensions between government influence and the obligation of widely-held commercial banks to make credit decisions based on objective appraisal of borrowers' ability to repay. We conclude that when growth slows the contradiction will become fully apparent and the government will resolve it by again bailing out the banks. We describe a pair of alternative bank reform proposals that would help to reconcile the government's conflicting objectives.

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## 1. Overview and introduction

During China's two decades of economic reform, it has often been observed that the bank-dominated financial system is the economy's Achilles heel. Since 2003, China's central government has reformed the largest state owned commercial banks to improve their competitiveness before opening the banking industry to foreign competitors, mandated as part of the country's accession to the World Trade Organization (WTO). Reform of these banks has markedly improved their performance but underlying problems remain.

There are two contrasting responses to these developments. One is an optimistic appraisal: Chinese authorities can afford gradually to reform because of existing growth momentum, the small public sector debt-to-GDP ratio, the size of foreign exchange reserves, and the volume of domestic savings.<sup>1</sup> Anderson's (2006) complementary perspective notes that financial risk was substantially reduced when non-performing loans (NPLs) were removed from bank balance sheets even if those NPLs have not all been resolved. The second response is more skeptical, highlighting the depth of reforms and bank restructuring that remain. Lardy (1998) pointed out, and others have emphasized more recently, that an efficient banking system is essential to the efficient allocation of capital, the transmission of monetary policy, and it is closely tied to capital account convertibility and other economic objectives.<sup>2</sup>

The case for skepticism is based on the gradual pace of reform, particularly of government's involvement in bank ownership and decision-making. This involvement reflects a basic tradeoff between greater efficiency in state-owned institutions of which the banks are an important part, and stable employment growth and, more recently, rural-urban and regional equality.

The Chinese authorities seek sufficiently rapid economic growth and employment creation to absorb the country's surplus labor force consisting of new entrants, rural-urban migrants and those laid off from money losing state owned enterprises (SOEs). In the past two decades the banks have been enlisted to support the SOEs as well as finance infrastructure investments and export platforms through policy lending (i.e., lending based on political criteria and connections rather than creditworthiness). Addressing growing rural-urban and regional inequality is the centerpiece of the 11<sup>th</sup> Five-Year Program approved by the National People's Congress in early 2006. The Program seeks more balanced urban and rural development by improving public services in the rural areas and by increased urbanization.

We are skeptics. It is not uncommon for reforms in former command economies to be gradual in order to prevent widespread unemployment. As this paper will show, the dependence of China's SOEs on the state owned banks for their working capital means that the banks are forced to satisfy contradictory objectives: financing employment and social stability while transforming themselves into commercially viable corporate entities. Further, the Chinese government is proceeding in a way that ignores this contradiction.

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<sup>1</sup> Yusuf et al (2006) make this argument about SOE reform (which as we will show is closely linked to banking sector reform); see a similar argument for the banks in Allen et al (2005), pp.21-22.

<sup>2</sup> See, among others, Podpiera (2006), OECD (2005), and Asian Development Bank (ADB) (2006a).

The impact of continued government ownership of the banks is apparent in institutional arrangements. Just as China's high average growth rates conceal large disparities between the three large coastal urban agglomerations (around Beijing, the Yangtze River Delta and the Pearl River Delta) and the rest of the country, the banking system remains fragmented and often dominated by still-independent local branches and decision making whose objectives may differ from those of the Beijing headquarters.<sup>3</sup> We provide aggregate data and bank-level statistical evidence showing that inefficiencies persist in lending by China's largest banks.

The available evidence persuades us that government influences, intentional and unintentional, will continue to constrain bank reform with all the performance weaknesses that such influence implies. Eight years ago, Lardy (1998:140-182) described many of these weaknesses and proposed corrective measures: remove the NPLs (he suggested using a government bond-bad debt swap); impose hard budget constraints on SOE borrowers; increase competition in the banking sector including creating private banks; strengthen bank supervision and prudential regulation; liberalize interest rates reform taxes; make the central bank independent, and move all future policy lending into government-owned policy banks. While some weaknesses have been corrected, majority government ownership has not.<sup>4</sup> We do not see any signs that this cornerstone of banking policy will change for the large banks which are the focus of this paper. The contradiction between the rhetoric calling for efficient banks and the de-facto pressures on the banks to misdirect credit continue. We can see at least two alternatives that should be considered in future reforms.

The paper is organized as follows. In the next section we introduce the banking system taking the largest banks as our focus, and examine several factors that encourage optimism about the current reform strategy. In the third section, we reconsider these reforms in light of the history of financing SOEs and infrastructure investment that underlies China's policy lending. We provide a number of reasons to expect a continuation of misdirected credit and thus forecast that the transition to a modern efficient banking system is likely to take a long time. The fourth section explores the risks that lie ahead, highlighting the likely problems if China's economic growth slows. The final section examines two alternative approaches to reduce the inherent contradiction between government influence and modern efficient banks.

## **2. An Overview of China's Banking System**

China's banking system consists of a number of institutions, most of which are owned by various levels of government (Tables 1 and 2).<sup>5</sup> The Big Four state-owned commercial banks (SOCBs) dominate the system, accounting for 55 percent of bank assets. They include the Bank of China (BOC), China Construction Bank (CCB), Industrial and Commercial Bank of China (ICBC) and the Agricultural Bank of China (ABC). A fifth, much smaller but rapidly growing bank, the Bank of Communications (BoCom) is increasingly referred to as one of the Big Five.<sup>6</sup> ABC's future is uncertain because of the size of its problems (high NPLs, questionable management practices,

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<sup>3</sup> See Roach (2006) for more details.

<sup>4</sup> See Honohan (2004) for a forceful argument as to why this is the key weakness.

<sup>5</sup> China has at least one private bank, Minsheng Bank, which was set up in 1996 by the All China Federation of Industry and Commerce.

<sup>6</sup> Depending on data availability, we include BoCom in some, but not all, discussion in this section.

and the anticipated cost of a bail-out). For instance, Oxford Analytica (2006) estimates that ABC's 2005 NPLs were RMB 739 billion (more than \$90 billion), a number that is considered to be an under-estimate following auditors' findings of extensive fraudulent loans and under-reporting of NPLs.

The dominance of these institutions is a legacy of decisions to liberalize the banking system. Between 1949 and the late 1970s the People's Bank of China (PBOC) functioned as both the central bank and the only deposit taking and lending institution.<sup>7</sup> In the late 1970s the PBOC became the central bank and financial supervisor while the Big Four became state owned commercial banks with policy lending mandates. Their missions differed according to whether they were directed to specialize in lending to agriculture or the major industrial and infrastructure industries, but for all but ABC close linkages developed with the SOEs. Initially SOE losses were financed from the treasury which relied heavily on bond financing. As the fiscal deficit grew, however, the central government forced the SOEs to meet their financial requirements with bank loans.<sup>8</sup> They regarded bank debt as working capital; businesses losses and defaults were dealt with by additional borrowing.

Since 1995 the government has introduced institutional and regulatory reforms to transform them into commercial banks.<sup>9</sup> Prudential norms for lending were introduced by the PBOC and regulatory standards were tightened. Three new policy banks were created to take over the policy lending functions. PBOC created regional offices which in principle have sufficient clout to help reduce the politicization of bank lending practices. Loss-making industrial SOEs were also transformed by restructuring, selling or closing thousands of them. By 2004 the number of industrial SOEs had fallen below 32,000 and employment had dropped by 17 million people, to 20.5 million from 37.5 million in 1998.<sup>10</sup> The handling of the debts of defunct enterprises has been a contentious issue between the center and local governments, however, because of the local priority to minimize the impact on employees rather than to repay the government-owned creditors.

### *Clearing up the NPLs*

NPLs were removed from bank balance sheets in several steps seen as precursors to their modernization.<sup>11</sup> The first step was in 1998 when the government issued RMB 270 billion (US\$ 32.6 billion) in special bonds acquired by the banks themselves and which were then converted into equity, thereby doubling the capital base of the Big Four. In 1999, NPLs valued at \$168.2 billion were transferred from the banks to four newly-created asset management companies (AMCs). The latter issued bonds guaranteed by the Ministry of Finance to the banks. The next step was taken in 2004 as the banks prepared for public listings. Capital injections totaling \$45 billion were made to CCB and BOC from the central bank's foreign exchange reserves. China Daily (2006a) describes ICBC's rehabilitation in which it received a \$15 billion transfer through the same type of mechanism in 2005 and transferred \$35 billion NPLs from its balance sheet to

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<sup>7</sup> See Allen et al (2005) for a more complete history and an excellent overview of the entire financial system.

<sup>8</sup> Lardy (1998:38).

<sup>9</sup> Lardy (2004:101-02) details these reforms.

<sup>10</sup> Many government agencies are also called SOEs.

<sup>11</sup> See Ma (2006) for a detailed analysis.

an AMC. The Ministry of Finance (MOF) injected an equivalent \$15 billion as part of ICBC capital restructuring.<sup>12</sup> With these capital injections of \$60 billion from foreign exchange reserves and \$15 billion from the treasury, bank capital adequacy ratios were restored to 8 percent once the banks had written off their remaining bad loans. Ma's (2006) estimates include equity writeoffs by MOF of RMB 616 billion (US\$ 75 billion) and, since 2004, further NPL transfers worth RMB 400 billion (US\$ 50 billion) borne by PBOC. He also estimates that the equity stakes and shares purchased by foreign strategic investors (see below) involved a premium of RMB 30 billion (US\$ 3.6 billion). Finally, he argues through 2005 at least that the banks had also received some windfall profits as a result of repressed deposit financing costs.<sup>13</sup>

As is explained in the appendix, determining the exact full cost of these bailouts is difficult. But there is broad agreement that counting the first and second round of recapitalizations plus the unresolved ABC NPLs implies that the total costs to the taxpayers will be in excess of \$250 billion.<sup>14</sup> Ma's estimates, accepting his assumptions, could add a further \$189.5 billion. In other words, the costs of cleaning up the Big Four's misdirected loans through 2005 can be conservatively put at roughly 10.8 percent of 2005 GDP, and adding Ma's estimates could be as high as 19.4 percent.<sup>15</sup> Table 3 shows that these transfers cleared sufficient NPLs from three of the banks that, with the exception of ABC, NPL ratios reached single digit levels by the end of 2005.

#### *Capital stakes by strategic investors*

The second part of the strategy to reform the banks is to attract strategic foreign investors who will contribute independent foreign directors to bank governance and bring foreign management skills and new products to bank management, in order to improve bank efficiency and enhance potential returns to their investments. Foreign ownership in a single bank is limited to 19.9 percent of total equity for a single foreign investor and no more than 25 percent for all foreign investors. Larger stakes would mean the banks would be treated by the regulators as foreign banks. Table 4 shows that investments totaling \$14.8 billion were made in the Big Five in 2004-05.

#### *Initial public offerings*

The third part of the strategy is for the banks to list on foreign stock exchanges to impose market pressures on directors and managers to improve the accuracy and transparency of their reporting to international standards and to subject bank performance to market appraisals of efficiency and profitability. The Bank of Communications was the first to take this route in June 2005 when it

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<sup>12</sup> ICBC (2006), page 75.

<sup>13</sup> These transfers are estimated at RMB 350 (US\$ 43 billion) for all banks.

<sup>14</sup> We arrive at this by noting that the direct injections were \$168 billion and \$75 billion respectively. Assuming that no more than 25 percent recovery rate on these loans gives a total of \$182.2 billion. To this we add \$72 billion for the post-recovery total losses associated with the \$90 billion of ABC NPLs that have yet to be tackled.

<sup>15</sup> Ma's (2006) estimate totals \$505.875 billion or 21.8 percent of GDP for the entire banking system (including the rural credit cooperatives). He does not include any estimate for ABC. To obtain our high end estimate, we added to our \$250 billion estimate the 1998 bond issue (\$32.7 billion), the MOF equity writeoffs (\$75 billion minus MOF's \$15 billion stake in ICBC in our estimate), the PBOC carveout of NPLs in 2004-05 (\$50 billion), foreign investor premiums (\$3.8 billion) and the banks' windfall profits (\$43 billion).

raised more than \$2 billion in a Hong Kong IPO; CCB followed in October 2005 and raised \$8 billion; BOC raised \$11.2 billion in Hong Kong in June 2006 and followed this with a listing of A shares in Shanghai which raised \$2.5 billion. By the end of 2006 ICBC is expected to list in both markets as well.

Our interviews with bank managers indicate that the IPOs are having the desired effect: the questions and published reports of analysts are pressuring the management to shift away from its traditional goal of growing assets and market share towards emphasizing rates of return on assets and increased profitability. Table 5 shows basic information on the three banks with publicly traded shares as of year end 2005. It is too soon to show annual rates of change for the performance of these banks subsequent to their listing. Table 6 shows, however, that as of the end of 2005 their net profit and return on risk weighted assets was still below the Hong Kong average, although their net interest margin is higher than the Hong Kong average.

### **3. Misdirected Lending Past and Present**

This summary of recent developments in the banking system might suggest that the banking system has turned a corner and is moving along the road to modernization. While we agree that much progress has been made, we are skeptical that the existing reforms are likely to be sufficient to ensure that the result will be effective intermediation of Chinese savings. To see why this is an imperative it is necessary to review some additional history regarding enterprise financing and then to focus on distortions that remain in the financial system.

The previous NPL problems arose for two reasons. The first was that the government was committed to keeping financing flowing to provide employment to people at money-losing enterprises. Chinese SOEs were not only the main sources of employment, but also provided the social safety net. In the absence of institutions such as unemployment insurance, pensions and bankruptcy laws, reforms to SOEs were executed in ways that minimized unemployment and potential instability. “Big bang” privatization might have increased the efficiency of SOEs that survived in a more competitive environment, but at an unacceptable social cost.

The second critical decision was that these de facto unemployment payments were (after the mid-1980s) funneled through the banks. The shift to directing credit through the banking system was made to move losses off MOF’s balance sheet, not because the banks were better equipped to assess credit worthiness or monitor what was being done with the money, with perhaps little realization of the incentive effects that might accompany this shift.

The shift created at least two distortions: a moral hazard problem and a reduction of pressure from the banks on SOEs to improve their efficiency. The policy loans gutted the profitability of the banks, but the banks ultimately were not accountable for the losses. Thus, the banks had little incentive to develop skills and expertise in credit evaluation and as such were not prepared to be effective intermediaries. We return to this below when we assess their current competencies.

The SOEs faced little budget pressure and could operate under the assumption their losses would be tolerated. As noted by Kornai et al (2003) this arrangement of having weak performing state

owned banks lending to money losing state owned firms often appeared in command economies that attempted to liberalize. Steinfeld (1998) analyzes the problems associated with this in the Chinese context. He describes the inter-relationships among governments, banks and SOEs as a “nested problem”, noting that a firm might lose money but still report profits which serve as a source of tax revenue. Exacerbating and perpetuating the problem are the soft loans available from the state owned banks, which themselves were periodically bailed out when bad loans surface. “As long as the subsidization continues, local agencies can then engage in predatory taxation and managers can distort performance data, all at no cost to the actors involved. The firm is kept afloat from outside, so it simply cannot go bankrupt” (p. 46).<sup>16</sup>

Numerous cross country studies (e.g. La Porta et al, 2002) have found that in countries with government ownership of banks, the banks lend to state owned firms, financial development is impeded, growth is relatively low and productivity is depressed. China started from such a low level of GDP that these problems have so far been possible to overlook.<sup>17</sup> But Caprio and Martinez (2000) demonstrate that banking crises are more likely and the fiscal costs of these crises are higher when the government is the dominant owner of a country’s banks. The critical question regarding the long-run health of the banking system and the success of the current reforms, therefore, is whether it is likely that the burden and responsibility of policy lending will be decisively lifted from the banks.

The fact that the government has shown no signs of relinquishing majority stakes in the banks is one indication that this remains a risk. Indeed, OECD (2005, Figure 3.2) shows an international comparison in which China’s banking system still has the highest share of government ownership (almost 100 percent) in the world. The pessimistic interpretation that the government is doing this to preserve the option to direct credit is reinforced by the fact that the government has done little to promote bond market development. Instead virtually all debt financing in China is done via banks; the Asian Development Bank (2006b, p. 5) notes that corporate bond financing as of the end of 2005 stands at only 13 percent of GDP which by this metric makes it one of the least developed bond markets in Asia (far below Korea, Malaysia, and Thailand for instance).<sup>18</sup>

In the rest of this section we analyze other evidence suggesting that pressures to preserve stability via lending remains, that the recent declines in non-performing loans are likely masking some ongoing credit quality problems, and that the banks lack risk management expertise to guard against a sharp rise in loan losses. We begin with some aggregate trends and then describe microeconomic data on bank lending practices and conclude with anecdotal evidence on management and regulatory problems in the banking sector.

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<sup>16</sup> In this respect the Chinese case appears to differ from other transition economies where the bad loans were often caused by what Akerlof and Romer (1993) called “looting”. In our interviews and review of the many articles studying the NPL problems in China that we reviewed, none suggested that this mechanism was an important consideration.

<sup>17</sup> See also Allen et al (2005) who emphasize that part of China’s growth has come because it has developed many parallel channels of financing that circumvent the state owned banks.

<sup>18</sup> It should be noted that the infrastructure to support a bond market is a work-in-progress. This means issuers face numerous administrative restrictions, while investors face a number of institutional and regulatory obstacles ranging from nascent bankruptcy legislation and a credit rating system that is still being developed, to inadequate accounting and disclosure standards.

### *Aggregate indicators of misdirected bank lending*

At least three indicators suggest continued government influence on bank operations: ongoing concern about absorbing surplus labor, high rates of government and enterprise investment in part to create jobs, and ongoing SOE restructuring.

Employment creation to absorb surplus labor is a major priority. Urban job creation has managed to keep up with new entrants, migrants and layoffs from SOEs through flexible labor market policies, enterprise transformation, remarkable openness to trade and FDI and massive investment projects in manufacturing enterprises, infrastructure and real estate construction projects, particularly in the coastal provinces. Lardy (2004, p. 105) argues that the lending and investment booms of 2003 were triggered in part because “the new leadership that assumed political power in 2002 appears determined to sustain China’s rapid economic growth, and if possible to increase the pace of job creation relative to its predecessors. They were strongly supported by local government and party officials who shared these goals.”

But efforts to preserve less productive jobs outside the urban areas were so inadequate that the 11<sup>th</sup> Program aims to redress the imbalance in incomes and public services by enhanced public services in rural areas and faster urbanization; the stated aim is to create 45 million urban jobs and transfer 45 million people from the rural areas (Government of the Peoples Republic of China (2006)). Table 7 shows the divergent trends between in incomes and consumption for the urban areas relative to the rural areas.

The investment boom also stands out in the composition of spending (Figure 1).<sup>19</sup> Investment grew at clearly unsustainable rates of 34 percent in 2004 and 16 percent in 2005. This surge was accompanied by a period of robust bank lending, with loan growth in excess of 15 percent between mid-2005 and mid-2006. By the end of the second quarter 2006, banks had already extended 87.2 percent of the loans called for under the administrative guideline for the year. When the PBOC raised reserve requirements in July 2006, Zhang (2006) quoted the central bank as saying “China’s economy still faces challenges from escalating fixed asset investment and excessive lending. The reserve ratio increase is meant to help curb growth while still maintaining rapid but healthy economic expansion.” Thus, in many respects we see a replay of the dynamic highlighted by Lardy (2004) playing out again in 2006.

The aggregate implications are important: as ADB (2006a, section 2.8.3) points out, after the protracted high growth in investment the economy is now faced with declining capital productivity. Without better allocation and efficiency of capital, even higher investment ratios will be needed to ensure the capital accumulation required to create new jobs. The evidence from Hsieh and Klenow (2006) suggests that the SOEs are particularly unproductive. They compare SOE and non-SOE productivity (controlling for industry differences) and find that throughout the current decade SOE productivity was roughly 30 percent lower than their privately owned competitors. Their data stop in 2004, but there was no evidence of any catching up by the SOEs prior to that point.

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<sup>19</sup> See Blanchard and Giavazzi (2005) for a comprehensive look at the imbalances in the recent growth.



Figure 2 provides additional evidence on the role of the public enterprises in the investment boom. In the scatter plot, the x-axis shows the share of total provincial industrial output that is produced by state controlled enterprises (SOEs plus other firms in which the government is a partial owner with a controlling stake). The other variable in the graph is provincial investment in fixed assets relative to total provincial industrial output. It is clear that the provinces where the government affiliated firms dominate production are also the ones that show the highest investment relative to output.<sup>20</sup>

The other relevant aggregate phenomenon is the ongoing restructuring of industrial SOEs. Figure 3 compares the importance of the industrial SOEs to all industrial enterprises on three dimensions since 1999. The results of this effort are striking in that the number of industrial SOEs has been pruned so that by mid 2006 they account for less than 10 percent of total industrial enterprises. This pruning has been tilted, however, towards smaller firms. The share of total industrial enterprise assets residing in the industrial SOEs stands at 48 percent. This means that the remaining industrial SOEs are much larger than in the past: the assets per industrial SOE more than tripled between 1999 and mid-2006. OECD (2005, Figure 2.4) summarizes the shift that had occurred up to 2003, showing that direct and indirect state owned enterprises then accounted for 60 percent of fixed assets and 40 percent of industrial employees, but accounted for less than 20 percent of total firms and contributed only 40 percent of value added.<sup>21</sup>

Data on industrial enterprise losses are limited. The dashed line in Figure 3 shows SOE losses relative to total losses for all industrial enterprises. For most of the time since the data have been collected, the restructuring of the SOEs was working in the sense that the share of their losses was below their share of assets. But starting in 2005 that pattern has shifted. This is more clearly evident in Figure 4 that plots SOE losses relative to SOE assets. The industrial SOEs were steadily cutting their losses from 2000 through 2004, but that trend was snapped in 2005 and 2006 and is on path to be the worst year for the SOEs since the start of the decade. Anecdotal evidence, such as Xinhua Online (23 November 2005), indicates some of the reasons and sectoral impacts. For instance it reports marked drops in 2005 profits of transportation equipment makers, building materials makers, and oil processors due to higher energy costs. Steelmakers also face cost increases due to rising iron ore prices. Overall, according to CEIC, roughly 40 percent of the industrial SOEs were losing money.

One potential contradiction of our reading of the evidence that losses at government controlled firms are mounting comes from data on aggregate profits reported by SOEs. These figures have shown steady improvement since the start of the decade and have risen sharply since 2005. However, it appears that the surging profits are highly concentrated. For instance, *Caijing* magazine (China Daily 20 September 2006) reports that in 2005 the ten largest SOEs (among the total of more than 120,000 SOEs recognized by the National Bureau of Statistics) accounted for over 53 percent of the total revenues. A February 2006 statement by the Chinese embassy in

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<sup>20</sup> This finding by itself is open to a variety of interpretations that may or may not be related to policy lending. In the next section we tie the SOE presence directly to bank lending.

<sup>21</sup> Note, however, that the average contribution to value added masks large differences by sector. Public sector firms in the utility and resource-based industries account for 75 percent of value added, while in the industrial sector their contribution is only 25 percent.

Washington reported that central SOE profits in 2005 accounted for more than 70 percent of total SOE profits (Embassy of the P.R.C. in the U.S. 2006). Thus, any aggregate figures will be heavily influenced by a relatively small number of firms. While data on firm level borrowing are difficult to come by, it seems likely that these most profitable SOEs are financing themselves primarily from retained earnings rather than with bank borrowing. Instead, the banks' exposure is much greater to the typical SOE (and other partially government controlled firms) whose profits appear to be much less certain.

#### *Direct evidence on bank lending behavior since 2000*

Other than noting that aggregate bank lending has soared since 2004, we have sidestepped the role of banks in the previous discussion of macroeconomic trends because in the light of the robust economic growth it would be hard to use aggregate lending data to demonstrate convincingly that bank lending was misguided. We think instead the efficiency of the loans is better gauged using bank-level information. Three different types of bank-level data point to impending problems with recent loans.

The first, and least definitive, piece of evidence relates to the customer mix of banks. As established in the last section, China's industrial SOEs seem poised for another round of losses. The indirect evidence that we have found suggests that the Big Five are still lending to many of the clients whose loans were written off prior to bank recapitalizations. We focus on the data for BOC, BoCom and CCB since by virtue of their IPOs they have publicly available audited accounting information. CCB, BOC and BoCom data show that corporate customers still account for 74, 79 and 78 percent of their total lending, respectively, while retail customers loan shares are 19, 21 and 14 percent, respectively.<sup>22</sup> Brandt and Zhou (forthcoming, pages 35-36) note both the similarity in the sectoral composition of the SOCBs' loan portfolios and that, while they and the joint stock banks are increasingly turning to retail customers, the corporate customer shares are becoming increasingly concentrated in sectors such as housing, energy and telecoms that are targeted by government policies and which increase banks' vulnerability to sectoral shocks.

There are several hints that the corporate customers include many of the companies that previously received policy loans from the banks. The clearest hint is that for each of these banks the percentage of loans that were more than 90 days past due increased in 2005 relative to 2004.<sup>23</sup> Absent continued misdirected lending this is surprising given that the economy has been booming over this period and that each of the banks purports to have improved the quality of their borrowers. Among these banks, only CCB breaks out its loans by the legal form of the borrower. In the six months between December 2005 and June 2006, the loans to state owned enterprises grew by 8.8 percent (while total lending was up 14.5 percent). BoCom provides information on its 10 largest borrowers in its annual reports. Even as of December 31, 2005, five

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<sup>22</sup> CCB (2005) Annual Report page 178; BOC Offering Memorandum (2006), page 221; and BoCom Annual Report 2005, page 112.

<sup>23</sup> As we explain in the Appendix, NPL data are not particularly helpful in judging the contemporaneous quality of a bank's loan portfolio because judgment is involved in determining when a bank chooses to acknowledge a bad credit and because the ultimate losses that will be born by a bank are often difficult to determine.

of the top ten are identified as state owned and four of the five SOEs in 2005 had an internal credit rating of 5 (on a ten point scale), the lowest grade for a performing loan. Brandt and Zhou (forthcoming: 29) examine the structure of bank lending over the 1998-2003 period and find that the state sector defined to include shareholding companies (in which governments have significant ownership shares) continued to absorb between a half and two thirds of new bank lending. Finally, the World Bank's most recent Quarterly Update on the Chinese economy (World Bank Beijing Office, 2006, page 4) reports on the rise and fall of banks' "packaged loans" to companies owned by local governments, often for infrastructure projects. These loans increase the indebtedness of local governments who banks assume to be low risk and likely to be bailed out by the central government if things go wrong. The popularity of these loans forced the central government to issue a decree in April 2006 invalidating local government guarantees on such loans and calling on the banks to cease granting them.

We read all of this evidence as suggesting that a great deal of business as usual has continued at the SOCBs.

Several recent studies raise questions about the efficiency of the major banks' lending. Podpiera (2006) analyzes the determinants of the growth rate of loans for different types of banks by province and municipality for the 1997-2004 period. Two findings are relevant: first, the corporate profitability of the state owned commercial banks' customers has no effect on the growth of their loans; second, the SOCBs are losing market share to other financial institutions *more quickly in those provinces with the more profitable corporate customers*. Not only are the SOCBs under-servicing non-state-owned corporate borrowers like SMEs that account for a majority of China's industrial production, their existing customer base is being eroded by more efficient, smaller banks that are closer to those customers.

Provincial data confirming the bias of bank lending towards SOEs is presented in Figure 5, which updates a figure from Honohan (2004). As in Figure 2, the x-axis ranks provinces by the share of total industrial output produced by the state controlled firms. The other variable is the ratio of Big Four bank lending in each province relative to total provincial industrial output. Clearly Big Four lending is higher relative to industrial output in the provinces where the SOEs are dominant.<sup>24</sup> These data are from 2003, because of lags in the availability of the breakdown of provincial output. However, both the loan shares and the government shares of industrial production are extremely persistent; the correlation of each of these variables from year to year is above 0.99 and the cross-sectional pattern of loans through 2004 (the last year for which we have full provincial lending data) looks similar to previous years. So there is a strong presumption that the Big Four are still directing their loans to the locations inhabited by government controlled enterprises.

The suggestion that SOCB lending is governed by factors other than the profitability of the potential borrower is reinforced by the results of two survey using stratified samples on a national basis. Li et al (2005) study the impact of Communist Party membership on a variety of outcomes for a sample of over 3200 private Chinese businesses in 2002. They find that

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<sup>24</sup> In Figure 2 we had shown that these provinces were also the ones that had the most investment in fixed assets. No doubt some of that investment is being financed with retained earnings, but Figure 5 suggests that preferential lending is also likely to be important.

businesses owned by Party members are significantly more likely to get loans from government financial institutions. Bai et al (2006) study entrepreneurs' attitudes regarding the perceived difficulty of obtaining bank loans. They find that among 2800+ private entrepreneurs surveyed in 2000, businesses run by members of the Chinese People's Congress believed that access to bank credit was significantly easier than did other entrepreneurs.

Berger et al (2006) look at efficiency taking a more structural approach. They estimate a (translog) profit function that aims to gauge how close a given bank comes to producing the maximum level of profit taking input prices (costs) and output prices as given. They find that there is a clear ranking among different types of banks, with the Big 4 SOCBs being far less efficient than all other Chinese banks. For instance, the Big 4 earn about 1/4 of the profits that the most efficient bank in their sample would earn given the cost and output mix of the Big 4. Their data end in 2003, so unfortunately they do not help us gauge the effects of the most recent reforms.

Our final indicator of potential bank inefficiency comes from a study of banks' loan pricing patterns. Up until October 2004 loan pricing was tightly regulated and banks loans of different maturities priced according to the government benchmark rates for the various maturities. Since then the banks have been permitted to use their own judgment in setting lending rates, although smaller banks still face some upper limits on their loan rates (Podpiera 2006:12)). Table 8 compares the rates offered by the SOCBs relative to the government's benchmark rate since the deregulation. As expected, the table shows a break around October 2004, with many more loans being made above the benchmark. But subsequently there has been little further change in the distribution of loans. Since the benchmark rates themselves are rarely adjusted this means that range of interest rates paid by borrowers is very compressed as well; from October 2004 until March 2006, the indicative rate for loans of less than 6 months was 5.22 percent, and it was then boosted to 5.40 where it has remained, while the rate on long-term loans over the same periods were 5.85 percent and 6.12 respectively. Thus in the first quarter of 2006 this would have meant that 96 percent of all SOCB loans would have been priced at between 7.6 percent and 4.7 percent. In contrast, data from the Board of Governors of the Federal Reserve System Survey of Terms of Business Lending for May 2006 indicate that the range of interest rates on U.S. banks loans with maturities of between two and 30 days was 4.54 and 6.88 percent. The shorter maturity (and presumably much higher credit quality of U.S. borrowers) in this comparison implies that risk adjustment of their loans by Chinese banks is still inadequate. Podpiera (2006) suggests the reasons for the lack of differentiation include their size and slowness to change, low priority for differentiation when liquidity is so abundant, and reluctance to price for risk if it means imposing higher charges on their weakest customers.

Table 9 shows the dispersion of lending rates for other types of financial institutions in 2005Q4 and 2006Q1. This table shows that compression in lending is present for all the banks in China, but that the regional commercial banks and the credit cooperatives are much more likely to charge rates above the benchmark.

In summary, the evidence on bank lending behavior patterns reinforces the message of the aggregate statistics. Massive investment supported by healthy retained earnings and high loan growth leads to declining marginal productivity of capital. High loan growth is not necessarily an

indication of healthy lending practices by the banks. Rather it appears that distortions produced by policy lending persist. Specifically the Big Five banks show few signs of properly accounting for credit risk in the pricing of their loans, and they continue to have a substantial bias towards lending to state-owned and politically connected borrowers.

### *Anecdotal Evidence on Bank Management and Regulation*

In addition to the data on recent bank lending patterns, we have found much anecdotal evidence suggesting that bank credit is still being misdirected. Again, it is important to stress that these examples should be viewed against the backdrop of marked improvements in overall bank performance over the past half-decade. Most anecdotes involve distortions brought on by government interference. But we find it useful to separate the fallout into its effects on the qualifications of senior personnel, the impact on regulation, and implications for risk management.

Reports of the government meddling are widespread. As noted earlier, continued government involvement in the Big Four's governance (through government directors on their boards and party appointees among senior managers) undermines their independence. By itself this contributes moral hazard as depositors believe they have blanket protection of their deposits; investors are among the optimists who believe the government will use its resources to cover losses. Some reports indicate the government intends to introduce deposit insurance but no date has been set. Moreover, even if the formal rules change it remains to be seen whether depositors would actually be forced to bear losses should a bank fail.

Beyond any conceptual problems arising from the government domination of the banks, is the knock-on effects that it has on the quality of the bank management. Well-functioning banking systems are predicated on a governance framework that creates accountability at the very top of the organization: accountability by a board of directors made up largely of independent experienced people from the private sector who are not associated with the bank as customers or suppliers and whose primary responsibility is to ensure the CEO and the strategy for which the CEO is responsible are aligned with shareholders' interests. The Big Five (aside from ABC) have changed their ownership structures to include strategic and public investors, and while the impact on performance is beginning to be felt, the impact on governance is small for at least two reasons. First, the boards of directors are new and it takes time to function as a cohesive team. Second and more important these investors are in a minority relative to the number of government appointees. The latter, like the Chairs and CEOs, are members of the party. As Naughton (2003) notes the CEOs are members of the Central Committee. So technocrats are not running the banks. Instead bank managers are also party loyalists who may have little commercial banking expertise and have their own agenda that is likely to conflict with the principles of sound banking.

These problems can be seen at BOC and CCB boards. These boards include seven directors appointed by Central Huijin Investment Co. as the major shareholder, three from management (the bank governor and two deputy governors), 3-5 independent directors, and possibly two directors from strategic investors. Shih (2005) reports that "among the directors only four will also be member of the Communist Party Committee...(which include the chairman, governor

and two deputy governors – i.e., they will be minority (sic)”. Yet, the CEO is often also the bank’s party secretary; and bank strategy and performance is discussed at party meetings.

Our interviews with independent foreign directors and senior managers installed by strategic investors suggest that these outside experts find themselves hampered by the parallel political structures. One manager, for example, pointed out the anomaly of performance and strategic issues being discussed separately at party meetings and the board. In another example, a senior manager recruited from abroad one day found the ranks of employees in his department seriously depleted, only to be informed that they had been sent to Party School for the day. He had not been informed in advance. An independent director also summarized the revealed role of the independent director as being one of advisor to management, but management not being accountable to the Board in the increasingly formalized way that characterizes international best practice. Both the CCB and BOC (initial public) offering memorandum included extensive discussion of the risks facing the banks, but neither document included any discussion of the potential problems stemming from party interference!

The politicization also influences the regulatory process. Shih (2005) notes: “Because these institutions are either wholly or partially state-owned, they have Communist Party committees with propaganda, organization, and discipline and inspection subcommittees. In addition to reporting to the party secretary of the institution, who often serves concurrently as the chairman of the board, the discipline and inspection committee reports to the Party Disciplinary and Inspection Committee at a higher level. ....Because of the existence of a wide array of monitoring institutions, the CBRC merely controls the most technical and in some way least important aspects of financial supervision.” Shih (2005) also reports CBRC threats that top jobs will be jeopardized if NPL ratios begin to rise again. If true, such admonitions suggest the replacement of directed lending by directed management, which is likely to lead to distortions and misreporting to avoid the consequences of bad news.

Finally, the banks’ political origins continue to affect their ability to modernize the reporting and risk management systems. In interviews bank officials describe the banks as “holding companies” with separate legacy organizations for each province, each with its own information and human resource systems and power base. Consolidated information to assess a customer’s credit worthiness often does not exist. The recent loan frauds at the Agricultural Bank of China indicate both fraudulent loans and under-reporting of NPLs. Oxford Analytica (2006) summarizes ABC’s management response as substituting investment in government treasuries and the inter-bank market to reduce credit risk. Bekier et al (2005) reported: “When one bank reviewed the loan portfolio of a particular region, it found that for 60 percent of loans made, it could not identify the industry of the borrower, the type of collateral posted, or even who made the lending decision.”

Indeed, it is easier not to make new loans, as demonstrated most recently by the shift in ABC’s investment strategy. One interviewee put it well when describing the mentality of branch managers that contributes to a preference for corporate loans to industrial SOEs: “If I lend money to a SOE and it defaults I will not be blamed. But if I make a loan to a privately-owned shoe factory and it defaults, I will be blamed”. Directed management contributes to the problem; the regulator’s priority is to reduce NPLs ratios; little is said about how profitability targets

might be achieved. In addition, while employment has declined as far flung branches have been closed, our interviews with senior bank officials and analysts revealed that the Big Four face strong pressures to retain employees even though they lack the experience and skills required now that the banks are expected to operate as modern banks rather than as government departments handing out working capital.<sup>25</sup> The banks, with the assistance of CBRC and their strategic partners, have organized a major re-training effort, but unless retrained employees return to a different incentive structure in the branch, such training will have little impact on their behavior.

CCB Chairman Guo's remarks in June 2006 reinforced this point when he was reported to have told an academic forum "...that the banks were still prone to being invited in by authorities for a "cup of coffee" to discuss lending policy."<sup>26</sup> Managers we interviewed stated they are centralizing credit decisions to reduce such pressures. While the data in Figure 5 suggest that this will be extremely difficult, to the extent it is occurring the survey evidence cited earlier suggests that this may be at the expense of higher-risk little-known entrepreneurial enterprises which are emerging throughout the country but whose growth is being constrained by lack of access of funding.<sup>27</sup>

Overall, anecdotal evidence confirms the impressions left by the microeconomic and macroeconomic data that despite the progress that has accompanied the recent reforms, the banks' long term profitability is far from secure. Therefore, we next briefly review the risks associated with the continuation of the current policies that derive from the official preference for gradual and controlled change.

#### **4. The Risks that lie ahead**

The logic of the preceding analysis suggests that many of the loans granted after the 2004-05 capital injections are poised to go bad. This conclusion raises two further questions. First, can we make any informed guesses about what might trigger the recognition of the losses? Second, can we estimate anything about the size of losses? We tackle these questions in turn.

Both the 1999 and 2004/5 bailouts were motivated by WTO liberalization commitments. But macroeconomic factors also played a role in that denying problems became less tenable once growth slowed in the wake of the Asian financial crisis. This leads us to consider separately the role of foreign entry and a possible macroeconomic downturn as potential triggers.

##### *Foreign Competition*

When the domestic banking market opens to foreigners in 2007, how significant will the competitive pressures be? For two reasons it seems unlikely that this competition will force the large SOCBs to recognize any hidden NPLs.

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<sup>25</sup> ABC, for example, is reported by Oxford Analytica (2006) to have eliminated 20 thousand branches, but still has a network of 31 thousand branches.

<sup>26</sup> Xinhua Financial Network, 2006, "Chinese government interference remains a problem for the nation's banks, China Construction Bank (CCB) Chairman Guo Shuqing said". June 29.

<sup>27</sup> This point was emphasized by OECD (2005, page 149-53).

One reason is that we doubt that foreign banks will directly compete with the Big Five for much lending business. When the world's mega banks enter most new markets they tend to focus on high margin activities rather than commodity products and activities. Foreign banks generally view China as attractive because they see customers as being underserved and many standard products absent. PriceWaterhouseCoopers (PWC) (2005) surveys 35 major foreign banks operating in China. They find that the majority of the lending done by these banks is to non-Chinese customers; only two of the 35 had more than 40 percent of their loans to Chinese firms. Moreover, when asked about how they saw the market developing the banks ranked credit cards, mortgages and investment products as the product areas they see "as becoming increasingly important in the Chinese retail banking industry in the next three years." Regarding wholesale banking they identified debt capital markets, credit derivatives/structured products and risk management as the three growth areas.

These findings, echoed in our interviews, suggest that the foreign banks seem to have little interest in battling the Big Five for lending share. If this is true then almost by definition the extra competition is unlikely to have implications for NPLs.

A possible indirect mechanism would be if the foreign entry led to large deposit outflows from the domestic banks, which in turn might force the domestic banks to adjust their lending practices. We doubt this is likely. One reason is that in other countries where foreign bank entry has played out (such as Japan) there is little evidence that domestic savers quickly move their deposits to new entrants. Indeed most residents are slow to change their behavior and switch banks. Chinese savers have lacked both choice and financial experience; we expect the same pattern to be true in China. Another reason is that there is little evidence of foreign entrants planning to build (or acquire) the branch infrastructure to pursue this strategy.

If the foreign banks do focus on other products and services, then the result will be that the Big Five will lag the foreigners in providing these services and products. Is this even a cost to the Big Five? We think not. The reason they are not currently offering the products and services highlighted in the PWC survey is that they lack the expertise to do so. The foreign banks might well do the Big Five a favor by helping familiarize customers with some of these products and by creating standards; in other words the Big Five could be better off letting foreigners set up the credit derivatives market before entering, rather than trying to trail blaze.

Together these reasons suggest that opening up to foreign competition is unlikely to be a trigger for the surfacing of more NPLs.

### *Macroeconomic slowdown*

In contrast to the benign effect of additional competition, we expect the condition of the macroeconomy to be a major risk for the banks. We, along with many others who are worried about a slowdown over the next few years, point to two critical factors.

The first consideration is the unbalanced nature of recent growth. As mentioned earlier, the current expansion has been fueled by an unprecedented surge in fixed investment, funded in part



by bank loans. Weak governance is also a factor. State dominated companies have faced little pressure to pay dividends to the government, and thus can recycle retained earnings to finance more investment.<sup>28</sup> Importantly, this additional investment does not have to earn a rate of return that exceeds the cost of capital that a private sector firm might use for assessing project risk.<sup>29</sup>

This confluence is creating many pockets of excess capacity. As the ADB (2006a) notes, “steel capacity, for example, is already 120 million tons greater than demand, but capacity of an additional 70 million tons is being built. In addition, more than a quarter of the nation’s 10.3 million tons of aluminum capacity was idle in early 2006.”

Therefore, it is hardly surprising that the Bank for International Settlements (2006) in its discussion of the risks to global stability writes, “In China, the principal concern must be that misallocated capital will eventually manifest itself in falling profits, and that this will feed back on the banking system, the fiscal authorities and the prospects for growth more generally. After a long period of credit-fueled expansion, this would be the classic denouement.”

Even the highest levels of government seem to be aware of these risks. In late July, China’s top leaders took the unusual step of warning publicly that the economy is at risk of overheating (McGregor (2006)).

The second factor that concerns us is the policy response to these risks. The orthodox macroeconomic policy response would be to cut any government sponsored investment spending and raise interest rates. Subbaraman and Sheard (2006) concisely describe the actual policy mix. “China’s policymakers are implementing another round of tightening measures, but we question the approach. Most measures rely on administrative fiat: 100 bp of hikes in the bank reserve requirement ratio, tighter controls in the property market and moral suasion on local governments and banks to restrict land development and curb credit. There has been only a token 27bp interest rate hike. The government tried such administrative measures in 2004-5. They worked for a while, but ultimately failed. We see little reason that they should work this time, given that the economy has become more market-oriented.” We agree!

Government is hesitant to raise interest rates because it fears that doing so would trigger an inflow of funds and leave credit conditions no tighter. Exchange rate appreciation would partially offset this effect but that option would slow exports and, for the sectors with overcapacity, further reduce profits. For these sectors, engineering a soft landing looks difficult.

In a market based economy, the goal of profit-maximization would naturally deter continued investment in the sectors with excess capacity. Specifically, the capacity overhang would deter firms from further investing. Moreover, those that did seek bank financing would face increased borrowing rates in light of the risks. As shown earlier, loan pricing in China remains quite uniform, so credit costs are not a stabilizing factor.

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<sup>28</sup> In September 2006, there were various press reports saying that the Chinese government was reviewing legislation to require SOEs to begin paying dividends, perhaps as early as 2007. But the details, which would be critically important, were not yet available (China Daily (2006c)).

<sup>29</sup> Low bank deposit rates provide little incentive to save and as a result the managers perceive the opportunity cost of accumulating real assets to be low. This means that slowing investment momentum will be difficult.

The firms' incentives are also dulled by lack of corporate governance and the perverse incentives provided by many local governments. ADB (2006a) summarizes the situation as follows: "Local governments, which control 70 percent of fiscal spending, also contribute to the investment drive by spending on 'trophy' projects in their areas, often regardless of whether expansion is warranted on economic grounds. Incentives and rewards at local government level are often linked to physical growth targets rather than to more economic and social objectives." Through mid 2006 investment spending by local governments was up 31 percent (relative to a year earlier, People's Daily Online (2006)). Ongoing pressures to absorb surplus labor suggest that this may be difficult to cut back.

In light of all these factors we see a substantial risk that there will be a sharp slowdown at some point in the next several years. Subbaraman and Sheard (2006) estimate that there is "a 1-in-3 chance of China's GDP growth slowing to 5 percent or lower in the next three years." We turn now to the question of what that might mean for the banks.

### *Quantifying losses in the event of macroeconomic slowdown*

There are several ways to estimate the impact on bank portfolios of a slowdown. We sketch two, that both suggest that the losses could be on the same order of magnitude as the 1999 bailout.

One estimation method focuses on inferring bank losses by forecasting the effects of a macroeconomic slowdown on borrowers' performance. Standard and Poors (2006) does a static calculation of how abrupt changes in interest rates or the exchange rate would alter firms' ability to service their debt. In their calculations, rising interest rates raise the required amount of interest payments and an appreciation of the exchange rate lowers sales and earnings before interest taxes and depreciation allowances (EBITDA). For illustrative purposes they assume that if EBITDA falls below the required interest payments then the borrower defaults on the loans. Among the various scenarios they consider, one presumes a 200 basis point increase in interest rates and 25 percent appreciation. In this case, they estimate that net profits would decline by 34 percent and the new NPLs of RMB 1.7 trillion would result. The profit drop, if anything, seems modest in the event of a hard landing since this calculation ignores the dynamic effects of the interest rate spike.<sup>30</sup> Even so, the resulting NPLs would be similar in magnitude to the RMB1.4 trillion of NPLs that were moved to the AMC's in 1999. Since GDP more than doubled between 1999 and 2005, in relative terms this would be a smaller bailout.

An alternative approach is to estimate losses directly using the loan rating classifications of the banks. Table 10 shows the distribution of loans according to the BIS five category classification scheme for the Big 5. For the BOC, BoCom, ICBC, and CCB roughly 12.1 percent of their loans are in the special mention category. In principle these loans are still performing, but they have been separated out because they are at risk for becoming non-performing. It would seem reasonable, therefore, to assume that a sharp slowdown in activity could push these loans over the edge into the non-performing category; indeed, for this very reason Standard and Poors

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<sup>30</sup> Of course, as they and we recognize, forecasting the dynamics is very difficult and depending on the size of the shock there might be substantial recoveries on the loans that go into default.

routinely counts the special mention loans as impaired assets. At year end 2005, loans outstanding in the Big Five total RMB 11.140 trillion, which implies NPLs of RMB1.34 trillion.

Given the rough nature of these calculations we take some comfort in the fact that they turn up fairly similar estimates. To put them in perspective, suppose that the slowdown happens in the latter half of 2007. By that time the economy will have grown so that an NPL write off of RMB1.52 trillion (the average of the two estimates) would be about 7.2 percent of GDP.<sup>31</sup> Measured against the cumulative growth between 2004 and the time of the slowdown, this seems to be a manageable liability; essentially this would mean that about 1.8 percent ( $=7.2/4$ ) of growth each year was paid for with loans that would wind up going bad. Our sense is that although these losses would be substantial in absolute terms, they would be affordable and perhaps even an acceptable price to the government if they were viewed as the cost of maintaining stability.<sup>32</sup>

## 5. Two alternatives

The preceding discussion illustrates the costs of continuing to ignore the inherent tension between freeing the banks to make commercial decisions and continuing to steer policy loans through the banks to maintain social stability. Our estimates of the costs suggest that China can afford to continue the current policies. We find it difficult, however, to stop there. There may not be a systemic risk but there will be an opportunity cost to the public funds inevitably allocated to the bailout. With better policies, these funds could be productively used to fund the goals of the 11<sup>th</sup> Five Year Program for more balanced growth.

In considering alternatives, we start with a general principle embraced by economists: if the government is going to subsidize or tax something, then the tax or subsidy should be applied as directly as possible to activity in question. This principle holds because indirect taxes and subsidies lead to unintended distortions. In this case, moral hazard is an obvious problem. But we have also explained how leaving the banks with a dual mandate is impairing bank regulation, the quality of bank management, and the normalization of risk management and other management information systems. These distortions degrade the efficiency of intermediation in China.

Accordingly, the first, and most important, component of our alternative vision for banking reform is to move on-going policy lending to the policy banks. Doing so may or may not reduce the moral hazard, because it is possible that the policy banks may or may not face a hard budget constraint. *So under our proposal the level of continued policy lending would be a choice left up to the communist party.*

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<sup>31</sup> This assumes that GDP at the time of the recognition of the NPLs is 16 percent higher than the 2005 level. The cost to the taxpayer would be lower to the extent that there would be some recovery against the loans, although the loans will have grown too and it is likely that some of the new loans would go bad as well.

<sup>32</sup> Lardy (2004) uses a third methodology that views the interest costs on AMC obligations and any increase in banks' NPLs from the large increase in credit in the 2002-04 period as public sector liabilities that could reduce fiscal sustainability in the event of a future growth downturn. Under alternative assumptions that 20 and 40 percent of the new loans become non-performing, the debt-GDP ratio rises and then declines through the period to 2013, i.e., fiscal sustainability is maintained over this period.

The main benefits from definitively transferring the burden of policy lending to the policy banks would instead be to eliminate the other distortions involving management, regulation and reporting systems. Moreover, by consolidating the policy lending it would be easier for the central government to monitor the level of lending; the policy banks are specialized and by virtue of not having profits from other activities could not divert those profits to extend additional loans. Therefore, if a decision were made to reign in policy lending it would be more likely to succeed if policy lending is limited to the policy banks.

The two alternatives that we explore therefore mainly differ in two respects. One regards the transition by which the policy loans would be migrated away from the Big Five to the policy banks. The other difference pertains to the implicit judgment about the general quality of the existing personnel, and specifically about their ability to evaluate loan requests.

### *Good Bank/Bad Bank*

The current strategy of offloading NPLs to AMC's is a variant of the "good bank – bad bank" model used in Japan after World War II and in a variety of western banks to clean up non-performing loan portfolios following banking crises.<sup>33</sup> In this model, bad loans are isolated into a business *within* the bank according to clear principles. First, the "bad bank" is separated from the rest of the organization, and particularly from those who made the loans and formed the customer relationships. Second, an excellent business manager is given authority to make all decisions: from initial appraisal of each asset's break even point to the management decisions about writing off the credit, merging the asset with other assets, or working it out. The manager's authority should include direct access to and support of the CEO and the Board of Directors. Third, the bad bank is given stature within the organization: not only does it receive its share of senior management time, but every person in the organization is given a clear career path for the time when the bad loans have been disposed of (thus encouraging them to focus on the job at hand without worrying "what about me?"). Fourth, the managers are given leeway to undertake hands-on management, traveling if necessary to monitor progress and engage in the management of the assets. Finally, the assets in the bad bank are subject to transparent reporting and monitoring by stakeholders with respect to the magnitude of the original problem followed by regular public reports on progress in recovering or otherwise disposing of the portfolio.

The AMC route probably made sense in China in 1999 when the remarkable magnitude of the SOCBs' bad loans became apparent. The AMC's are notionally obliged to offload all NPLs by December 2006. But, as discussed in the appendix, their performance is fraught with problems and it looks highly unlikely that they will have done so. Their targets contain an inherent contradiction in incentives: they are expected to work themselves out of a job; indeed without a constant deal flow, their staff will be out of work. When there are no apparent rewards or a strategy for redeploying staff at the end of the process, the focus on the business at hand becomes blurred by questions about "what will happen to me?" Thus progress in clearing the bad loans has been slow and new ones have appeared in both the AMC's and the banks. Indeed, the AMC's are considered to be close to insolvency themselves.<sup>34</sup>

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<sup>33</sup> See Hoshi and Kashyap (2001) for a summary of the Japanese experience.

<sup>34</sup> Rodman (2005a).

Another problem for the Chinese AMCs is that they are reluctant to use public auction bids as indicators of fair market value for fear of being accused of selling state assets too cheaply; in this respect they are very similar to the various AMCs that have operated with limited success in Japan since the mid 1990s (Hoshi and Kashyap (2005)). Through 2005 China had conducted fewer than five open auctions.<sup>35</sup> Yet in Taiwan both public and private auctions have been used to dispose of \$10.6B worth in NPLs, about 60 percent of which were acquired by foreigners. While the number of privately negotiated dispositions has been large in Taiwan, the largest share of total sales has taken place by public auction.<sup>36</sup>

South Korea, in contrast to both Taiwan and China, has been much more aggressive in writing off, merging or closing more than 60 percent of the NPLs that appeared during the 1998 banking crisis. Its banking system is now considered to have successfully transited from crisis to restored health. Klingebiel (2000) studied seven other country episodes and concludes that the contrast between the Korean and Chinese experiences with asset management companies is common. In a majority of the cases she studies these vehicles did not succeed in meeting their objectives. Moreover, in the two most clearly successful examples (the Resolution Trust Corporation in the United States and the Swedish restructuring organizations) both actively disposed of their assets.<sup>37</sup>

In sum, we think the SOCBs should be restructured to segregate *within* the banks the new NPLs that have emerged since 1999, giving stature to the “bad bank” and staffing it with excellent management dedicated to resolving the NPL problems, and ensuring that these customers do not receive new loans or special consideration from the other “good” side of the original bank. The government would then have to decide whether the policy banks would step in to provide additional financing.

Under this model, the performing non-policy loans would be transferred to the good bank. This bank would have the objectives that are currently mandated for Big Five (but that we believe are unattainable given the mixed mandate that they are being asked to fulfill).<sup>38</sup> For this model to succeed it is imperative that the Big Five have enough competent personnel to operate the good bank successfully. The remaining staff would be expected to build management information systems that permit modern credit evaluation and risk management. Freed from the burden of the policy loans, the transparency of the remaining bank operations would be greatly enhanced. The unambiguous mandate for the good bank would also alleviate many of the problems mentioned in our interviews and reported by analysts and journalists; particularly for the current foreign partners and other potential partners the clarification of the mandate should make the implementation of modern management practices much easier.

We recognize that the good bank would face many hurdles, not the least of which is that the underlying personnel at this institution would still be drawn from the existing bank personnel. Honohan (2004, p. 20) briefly discusses a close variant of this proposal and notes that this type of reorganization has also “not attracted a champion in the Chinese administration.” These challenges are sufficiently formidable that we are not confident that they can be overcome. But, we do

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<sup>35</sup> Rodman (2005a).

<sup>36</sup> Rodman (2005b).

<sup>37</sup> The Swedish asset management organization, Securum, sold 98 percent of the loans it acquired within five years.

<sup>38</sup> The shareholders in the existing entity could receive pro-rata shares in both entities.

believe that a more focused good bank would have a much greater chance of achieving the objectives than the current versions of the banks.

### *Narrow Banks*

Because of our concerns about the difficulty of ever overcoming the legacy problems at the SOCBs, we consider an alternative that would separate the Big Five along deposit taking and lending, and make them into narrow banks.<sup>39</sup> This alternative would then squarely shift the burden of the continuation of the policy loans to policy banks. Given that roughly half of Big Five loans have a maturity of under one year, once a decision to proceed was made it would be possible to migrate the non-policy loans to other institutions. Smaller domestic banks and foreign institutions would take over the lending functions. Other institutions would have a strong incentive to partner with the Big Five to gather additional information on these non-policy loans to decide which ones to try to take over.

From the perspective of their depositors, the Big Five would look largely unchanged. Their extensive branch networks would be preserved and the staff working on the deposit-taking side of the business would be retained. These deposits would be intermediated in a very narrow range of assets, all of which are low risk and pay low interest. We would allow them to invest in mutual funds that might include securitized pools of loans.<sup>40</sup> The limits on the range of investment options for the banks would further increase their attractiveness as organizations for other banks and financial services companies to partner with. The experience of Japan Post (the soon to be privatized post office in Japan that also offers savings accounts) in finding partners suggests that partnerships are possible.

## **6. Conclusions**

We have presented a skeptical appraisal of China's gradualist banking reforms. Substantial progress has been made in the past few years but the tensions between banking efficiency and social stability persist and contribute to the distortions we have discussed. We are not arguing for a "big bang" or for privatization. Rather we support gradualism with more realism. The world's best commercial banks use market principles to evaluate and manage the multitude of risks they face; their credit decisions are independent of political considerations and personal connections. If the Chinese government wishes to retain majority ownership at this stage of the financial system's development, its expectation that the Big Five banks will behave like commercial banks is likely to be disappointed. These banks are likely to be inefficient low-margin, low-growth businesses that will lose market share to the smaller banks whose ownership and employment contributions are of less interest to the authorities.<sup>41</sup> When growth slows the ensuing bailout, while affordable, will be a diversion of public funds from other priorities such as the 11<sup>th</sup> Program aims to enhance public services in rural areas and accelerate urbanization. Our proposals for a "good bank" and a "bad

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<sup>39</sup> See Hanson (2004) for a broader discussion of this alternative.

<sup>40</sup> Indeed, the policy discussions around the incorporation of the China Postal Savings Bank have included reference to limiting the use of capital to such low-risk uses. See China Daily, May 24, 2006. No decision was taken at the time.

<sup>41</sup> A point made by Anderson (2006).

bank” or a narrow banking approach (which do appear in the Postal Saving Bank discussions) are alternatives that reconcile the government’s contradictory goals of efficiency and stability.

## Appendix: Interpreting China's Non Performing Loans

The statistics on bad loans in the Big Four are subject to various interpretations, hence a range of figures are quoted for any particular statistic. One overarching problem is that if a loan may not be fully repaid, it does not follow that the loan will be fully defaulted upon. For almost all purposes, the relevant figure is not simply the total loans that are due to be repaid, but instead the difference between this figure and what will be ultimately collected. For instance, this figure represents both the taxpayer exposure and the size of the capital injection that will be needed to make the banks solvent (although even more money would be required to comply with the international minimum capital requirements). As a rule, the largest estimates for bad loans presume that nothing will be collected and thus systematically over-state the ultimate losses.

This problem is compounded by the subtleties of systems used to classify loans that are at risk for not being repaid. In January 2002, the CBRC adopted the Bank for International Settlements five-category loan rating system. Besides the healthy loans, the banks also identify other loans that are at risk and hence potentially require special attention. The official guidelines suggest that the borrowers of these loans are expected to be able to service the loans currently but repayment may be adversely affected by specific factors. In practice, however, these loans can be past due for less than 90 days, but are still considered to be performing.<sup>42</sup> The banks are supposed to identify three types of loans as non-performing. These loans are separated according to whether the loans are merely substandard in quality, from those where collection is acknowledged to be doubtful, from the loans that are unrecoverable (and hence deemed lost). In principle, these distinctions are supposed to reflect the expected recovery rates, but banks have considerable discretion in the extent to which they recognize the problems and put loans into the worst two categories (doubtful and unrecoverable).

The discretion in classifying loans makes it difficult to compare these three categories across banks and leads most analysts to aggregate all three categories into a catchall NPL category. The aggregation in turn further complicates comparisons of estimates. On the one hand, even if two experts agree on a specific estimate for a bank's NPLs, the implied ultimate losses could differ if the mix of substandard, doubtful and unrecoverable loans differs. On the other hand, two different estimates for total NPLs could imply the same ultimate losses.

As mentioned in the text, the NPLs that were removed from the books were transferred to Asset Management Companies who were then charged with disposing of the loans. The bookkeeping regarding transactions are complicated and can easily lead to confusion about the ultimate recovery levels. In the 1999 transactions, four asset management companies (Cinda, Huarong, Great Wall and the Orient) took loans of \$168.2 billion off the books of the Big Four.<sup>43</sup> The AMC's acquired the loans at book value and then subsequently sold the loans, recovered the assets through workouts, or managed debt-equity swaps. Unfortunately, there is no unified public record offering details of the different transactions, so exact figures on the ultimate

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<sup>42</sup> The China Construction Bank in its prospectus, page 180, indicates that special mention loans that are loans that are much more overdue might still be classified as deserving special mention if they are fully secured by collateral or pledges.

<sup>43</sup> Wang et al (2004) report that the transferred loans were implicitly guaranteed by government and were funded as follows: MOF equity (3 percent); PBOC credit (40 percent); and AMC bond financing (57 percent).



recovery rate cannot be estimated. Available estimates suggest recovery rates of between 10 to 25 percent, with estimates centering around 20 percent.<sup>44</sup> Caparusso (2004:6) suggests that, “‘rules of thumb’ on bad debt recoveries based on AMC experience are: expect 5 percent recovery rate on Category 5 (loss), 35 percent on Category 4 (doubtful) and 60 percent on Category 3 (sub-standard).”

What is known is that the efficiency of these AMCs in dealing with legacy loans has been low. A June 2005 report by the National Audit Office (NAO) gave “details of \$8.6 billion misused by the debt-clearing agencies at the forefront of China’s banking reforms”.<sup>45</sup> The Ministry of Finance was criticized for opacity in how its funds are used. The NAO noted its findings in audits of the AMCs included such irregularities as thousands of fictional employees.

The second round of recapitalizations was done slightly differently. Initially, the PBOC used foreign exchange reserves (in the form of US Treasury Bonds) to establish a new subsidiary, the Central Huijin Company.<sup>46</sup> Huijin then used the bonds to acquire the loans from the two banks in return for an equity stake. According to Caparusso (2004) the loans this time were transferred at prices below book value, and then auctioned to the AMCs at a further discount; the transfer prices and discounts varied depending on the ratings of the loans, but a conservative estimate for the total losses on these loans would be 70 percent, with an upper bound of as much as 90 percent.

We draw two main conclusions from the experience to date. First, even under the new BIS standards for classifying loans the banks still have considerable discretion in how loans are identified. Second, because of this discretion one has to be careful in comparing different estimates for NPLs since some estimates need not correspond to the ultimate losses associated with the loans. As we explain in the text, we can nonetheless say that through 2005 it looks like the cleanup of past policy lending since 1998 has cost \$250 billion as a low-end estimate of a range that others have extended to more than \$505 billion for the entire banking system.

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<sup>44</sup> For example, CSFB (2002:9) estimates 30 percent; CSFB (2002:17) quotes S&P credit rating agency as assuming 20 percent; Rodman (2005a) estimates 20 percent in 2004.

<sup>45</sup> *Economist*. (2005)..

<sup>46</sup> The Central Huijin Company is also known as China State Administration of Foreign Exchange (SAFE) Investments. Huijin was formed in late 2003 as a holding company for the state’s stakes in the SOCBs. It was formed with the injection of PBOC foreign exchange reserves which it invested in BOC and CCB in return for major shareholdings in these two institutions. Huijin then assigned six directors to BOC and four to CCB. Its mission is described as a “visible hand” promoting SOCB reform and ensuring that stockholders obtain “competitive investment return and dividend proceeds...and...establish a sound corporate governance structure” (*Economic Observer* 2005).

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**Table 1: Structure of the Chinese Banking Industry**

	As of December 31, 2004						
	Number of Institutions	Total Assets		Deposits		Loans	
		Amount	Market Share	Amount	Market Share	Amount	Market Share
(in billions of RMB, except number of institutions and percentages)							
Big four commercial banks	4	17,859.5	54.8%	15384.1	59.5%	10,667.5	54.6%
Joint stock commercial banks	12	4,803.4	14.7	4,143.6	16.0	2,926.1	15.0
Urban commercial banks	112	1,705.6	5.2	1,414.6	5.5	903.1	4.6
Rural credit cooperatives <sup>(1)</sup> .....	32,869	3,133.2	9.6	2,784.1	10.8	1955.1	10.0
Urban credit cooperatives.....	623	178.7	0.5	158.9	0.6	284.4	1.5
Foreign-invested commercial banks...	211	582.3	1.8	149.9	0.6	284.4	1.5
Others <sup>(2)</sup> .....	149	4,369.9	13.4	1,889.6	7.0	2,681.3	13.8
<b>Total.....</b>	<b>33,980</b>	<b>32,725.9</b>	<b>100.0%</b>	<b>25,849.9</b>	<b>100.0%</b>	<b>19,528.4</b>	<b>100.0%</b>

Source: Bank of China Offering Memorandum (2006) based on CBRC and banks' annual reports.

(1) Consists of rural commercial banks and rural credit cooperatives.

(2) Consists of policy banks, the postal savings bureau, finance companies, trust and investment companies and financial leasing companies.

Note: Amounts for loans are before allowances of impairment losses.

**Table 2. Big Five assets, deposits and loans, 2005 (RMB billion)**

							Approximate number of branches <sup>(1)</sup>
	Total Assets		Total Deposits		Total Loans		
	Amount	% of total	Amount	% of total	Amount	% of total	
ICBC	6373.8	29.1%	5660.5	30.6%	3289.6	28.6%	21323
BOC	4742.8	21.7%	3703.8	20.0%	2235.0	19.4%	11910
ABC	4771.0	18.3%	4036.9	21.8%	2829.3	24.6%	31004
CCB	4585.7	20.9%	4006.0	21.7%	2458.4	21.4%	14467
BoCom	1423.4	6.5%	1095.6	5.9%	694.9	6.0%	2400
<b>Total</b>	<b>21896.8</b>	<b>100.0%</b>	<b>18502.8</b>	<b>100.0%</b>	<b>11507.2</b>	<b>100.0%</b>	<b>81104</b>
Source: CEIC, BOC, and BoCom							
Note: Amounts for loans are before allowances for impairment losses.							
(1) The source is BOC Offering Memorandum, June 2006							

**Table 3: Reported SOCB NPLs, 2000-2005 (RMB billion)**

Bank	2000		2001		2002		2003		2004		2005	
	Loan	NPL	Loan	NPL	Loan	NPL	Loan	NPL	Loan	NPL	Loan	NPL
1. ABC	1484.3	NA	1646.2	NA	1913	472.3 (24.7)	2268.4	695.5 (30.7)	2590.1	692.3 (26.7)	2829	740.4 (26.2)
2. CCB	1386.4	281 (20.27)	1505.9	291.4 (19.35)	1766.4	268.0 (15.17)	1996	193.5 (9.7)	2227.4	87.3 (3.9)	2458	94.4 (3.84)
3. ICBC	2413.6	831 (34.43)	2688.9	792 (29.45)	2957	760.9 (25.7)	3346	720.7 (21.5)	3707.7	784.7 (21.2)	3290	155.4 (4.69)
4. BOC (domestic)	1505.8	409.6 (27.2)	1585.3	436.1 (27.51)	1398	408.4 (29.2)	1750.1	324.3 (18.5)	1735.53	104.55 (6.0)	1800	102.4 (5.7)
5. Total	7452.2 (5305.8)	1521.6* (28.6)*	7426.3 (4353.1)	1519.5* (34.9)*	8034.4	1909.7 (23.8)	9360.5	1961 (20.9)	10260.7	1668.9 (16.3)	10377	1092.6 (10.5)
GDP	8934.09		9859.29		10789.76		12173.03		16028.02		18549.62	
Loans/GDP (%)	83.4%		75.3%		74.5%		76.9%		63.6%		55.9%	
Loan growth, yoy (%)			-0.3%		8.2%		16.5%		8.8%		1.9%	

Notes: \*Loans and NPLs for only 3 reporting banks

1. China Construction Bank 2003 data (based on the 2003 Annual Report) differ from the data reported in 2004 Annual Report of CCB which are the numbers above.

The ICBC 2004 data (based on the 2004 Annual Report) also differ from the data reported in the 2005 Annual report which are the numbers above.

2. NPL ratio (the ratio of non-performing loans to total bank loans, percent) appears in parentheses.

3. The ratio of non-performing loans is based on the BIS five-category loan classifications.

4. Because BOC data are for domestic loans only these figures will not match full BOC data that are more typically reported.

Source: Financial Statements in the Annual Report of each bank; BOC 2005 NPLs from Offering Memorandum (June 2006); GDP from CEIC.

**Table 4: Strategic Foreign Investments in China's Big Five Banks, 2004-05**

Target	Acquirers	Share (%)	Deal value (US\$ Billion)	Month announced
Industrial & Commercial Bank of China	Goldman Sachs Allianz American Express	10	3.8	Aug-05
Bank of China	Royal Bank of Scotland Merrill Lynch Li Ka-shing Foundation UBS	5.16 4.84 1.6	3.1 1.5 0.5	Aug-05
China Construction Bank	Bank of America Temasek	9 5.1	2.6 1.5	Jun-05
Agricultural Bank of China				
Bank of Communications	HSBC	19.9	1.81	Aug-04

Sources: Ramos, Roy, Ning Ma and Jennifer Meng. 2006. "China Banks." Hong Kong: Goldman Sachs. February 2.

**Table 5: Market indicators, Chinese banks, 2004-2005 (US\$ million)**

	Market cap.	Total assets	Loans	Deposits	Shareholders' equity	Deposit market share, %
<b>China (2005)</b>						
Bank of Communications	25,988	170,130	95,204	148,955	9,611	4.0
China Construction Bank (CCB)	86,921	554,679	305,036	482,578	35,926	13.1
China Merchants Bank	9,786	89,519	57,281	78,345	3,180	2.1

Source: Ramos et al (2006)

**Table 6: Indicators of Bank Performance, China 2005**

	Net interest margin, %	Price – earnings ratio	Net profit, %	RoRWA, %	ROE, %
<b>China (2005)</b>	2.8	15.6	0.7	1.50	15.3
Bank of Communications	2.7	na	0.8	1.67	13.3
CCB	2.9	14.9	Na	1.91	19.0
China Merchants Bank	3.0	16.4	0.7	0.98	17.2
<b>Hong Kong</b>	2.4	16.3	1.4	2.70	13.7

Source: Ramos et al (2006)



**Table 7: Comparison of Rural and Urban Per-Capita Incomes and Consumption**

Year	<u>Urban Income</u> Rural Income	<u>Urban Consumption</u> Rural Consumption
1979	2.6	2.9
1990	2.2	3.0
1998	2.9	3.4
2003	3.2	3.6

Source: Blanchard and Giavazzi (2005).

**Table 8: Distribution of Interest Rates Charged by SOCBs, Q1 2004 - Q1 2006**

Unit: %								
Period	Ratio to Benchmark	Below Benchmark	At Benchmark	Above Benchmark				
		(0.9,1]	1.0	Total	(1,1.3]	(1.3,1.5]	(1.5,2]	above 2
Q1-3 2004		24.3	40.0	35.7	31.7	3.4	0.6	N/A
Q4 2004		27.1	28.5	44.3	38.8	4.8	0.7	0.0
Q2 2005		30.6	29.5	40.0	35.6	3.7	0.6	0.1
Q4 2005		30.6	28.3	41.1	34.6	5.3	1.1	0.1
Q1 2006		28.3	31.8	39.9	36.8	2.6	0.5	0.0

Source: PBC

Note: Rows might not sum to 100 percent due to rounding

**Table 9: Distribution of Interest Rates Charged by Financial Institutions on New Loans, Q4 2005 & Q1 2006**

Unit: %

Ratio to Benchmark	Below Benchmark		At Benchmark		Above Benchmark									
	(0.9,1]		1.0		Total		(1, 1.3]		(1.3,1.5]		(1.5,2]		above 2	
	2005 Q4	2006 Q1	2005 Q4	2006 Q1	2005 Q4	2006 Q1	2005 Q4	2006 Q1	2005 Q4	2006 Q1	2005 Q4	2006 Q1	2005 Q4	2006 Q1
All financial institutions	24.29	22.96	26.47	28.2	49.29	48.84	26.87	29.78	8.27	6.4	11.37	10.24	2.73	2.41
State-owned commercial banks	30.62	28.26	28.29	31.83	41.09	39.92	34.61	36.8	5.27	2.62	1.14	0.47	0.07	0.02
Joint-stock commercial banks	33.44	30.57	31.49	34.36	35.07	35.07	33.55	34.07	1.07	0.88	0.11	0.1	0.34	0.01
Regional commercial banks	27.05	22.83	21.01	20.16	51.94	57.01	36.45	38.78	8.69	10.63	5.36	6.3	1.44	1.3
Urban and rural credit cooperatives	3.13	1.38	5.28	4.5	91.6	94.12	14.56	15.44	22.4	20.89	44.07	46.55	10.57	11.24

Source: PBC

**Table 10: Loan quality, China's Big Five Banks, December 2005**

	ABC	ICBC	CCB	Domestic BOC	BoCom	Averages Excluding ABC*
Time Period	Dec-05	Dec-05	Dec-05	Dec-05	Dec-05	
Loan Type						
Normal Loan %	NA	86.1	84.4	79.5	85.5	83.9
Special-Mention Loan %	NA	9.2	11.8	15.1	12.1	12.1
Substandard Loan %	NA	2.8	1.7	2.4	1.3	
Doubtful Loan %	NA	1.7	1.8	2.4	1	
Loss Loan %	NA	0.1	0.3	0.6	0.05	
Total NPL %	26.2	4.7	3.8	5.5	2.4	4.1
NB: Total Loans (Billion RMB)	2829	3290	2458	1800	763	11140**

Source: Loans and NPLs, see Tables 2 and 3.

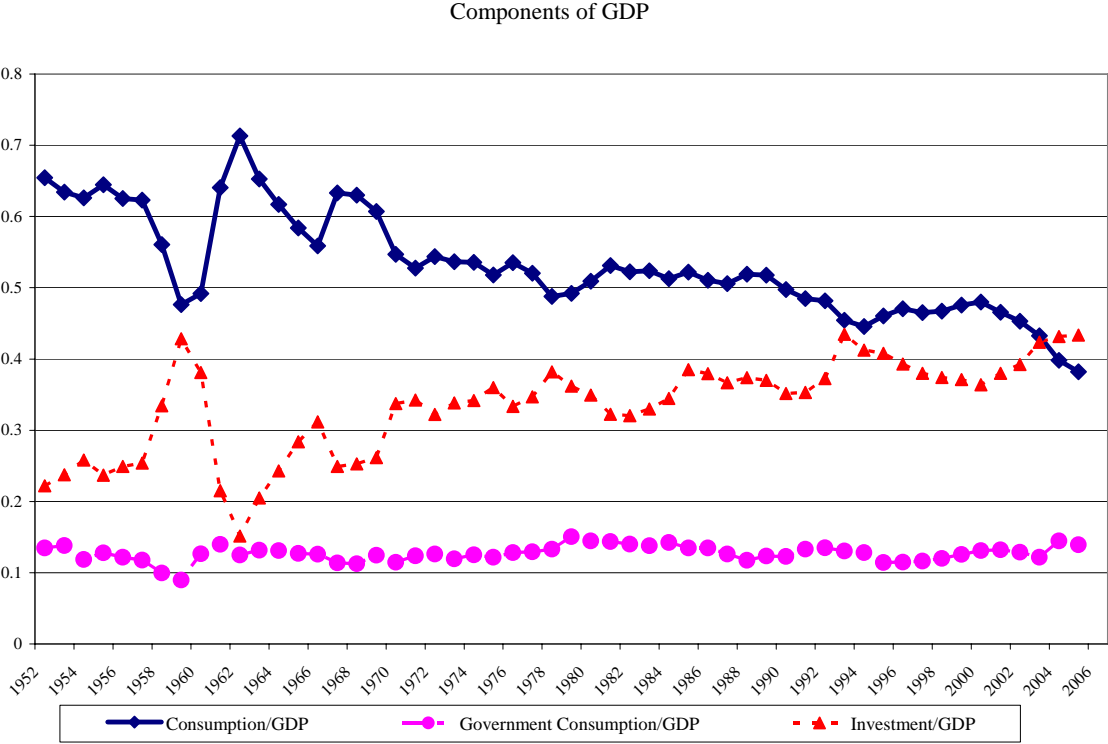
Additional loan classification data from BoCom, BOC, ICBC, and CCB 2005 annual reports.

Note that rows may not match totals due to rounding.

\*Averages are simple (NOT loan weighted averages)

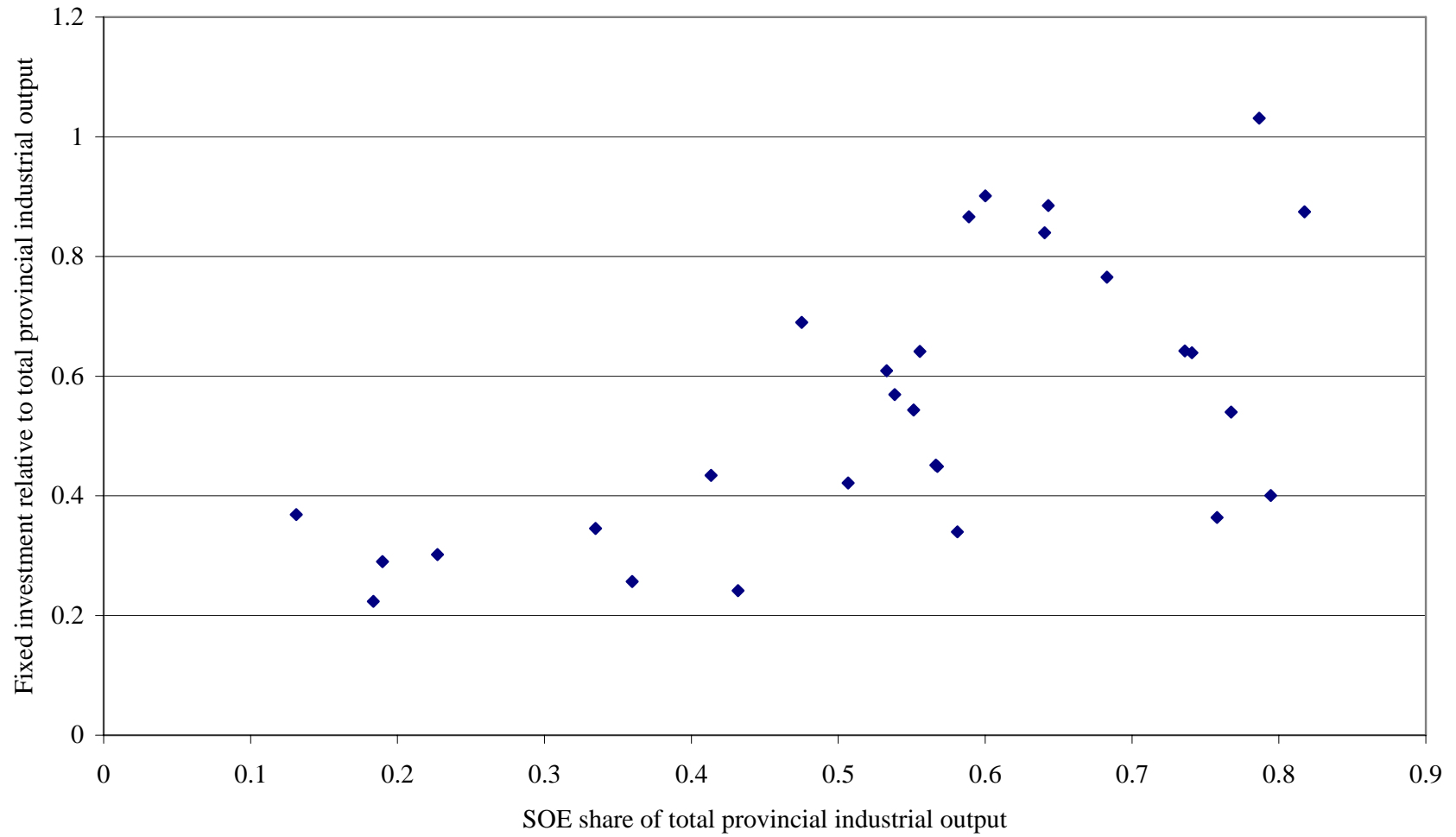
\*\* Total for all five banks (including ABC).

**Figure 1: Expenditure Shares of GDP in China**



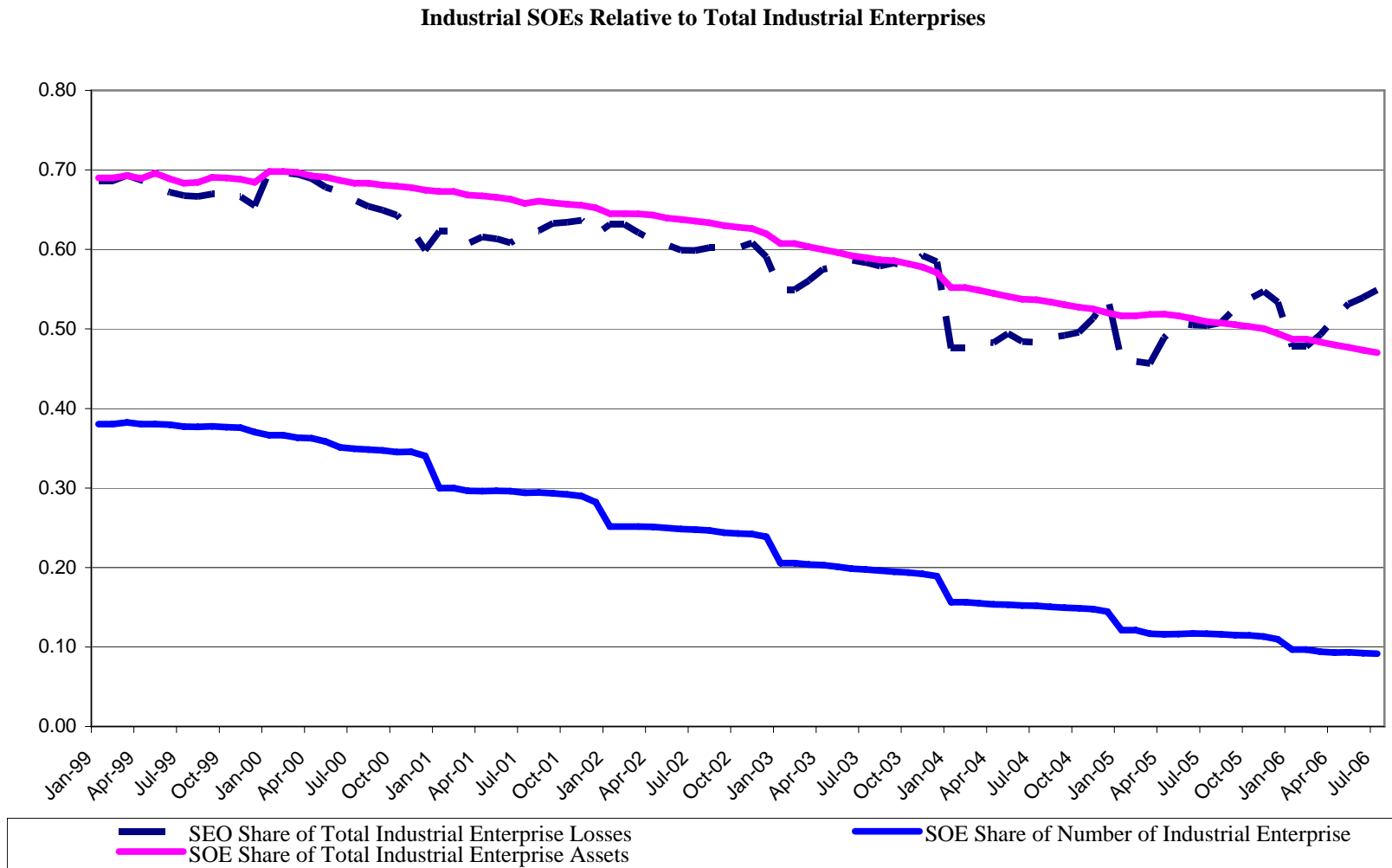
Source: CEIC

**Figure 2: Fixed investment relative to total provincial industrial output .vs. SOE share of total provincial industrial output, 2003**



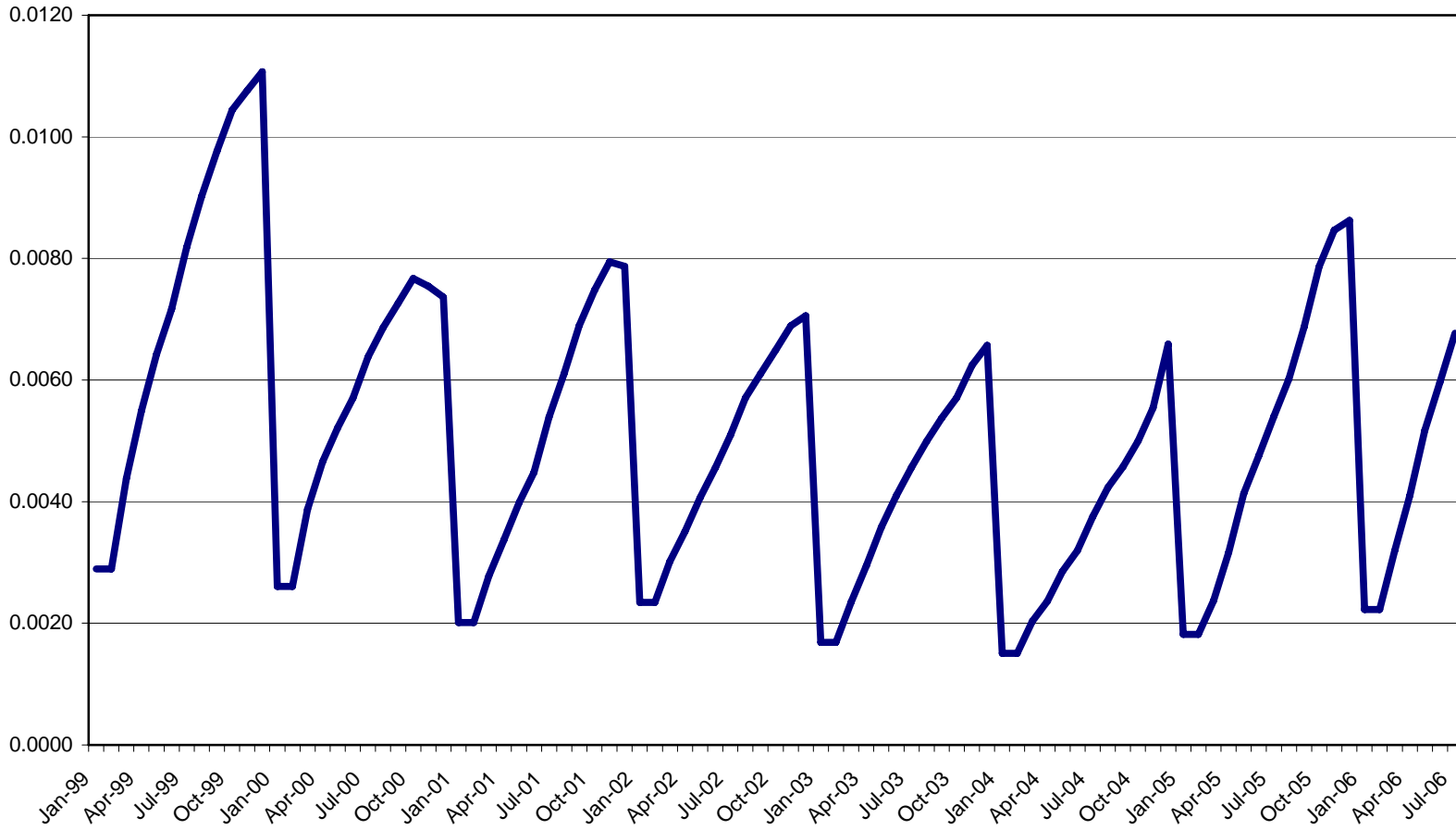
Source: CEIC

**Figure 3: Assets and Losses, Industrial SOEs, 1999-2006**



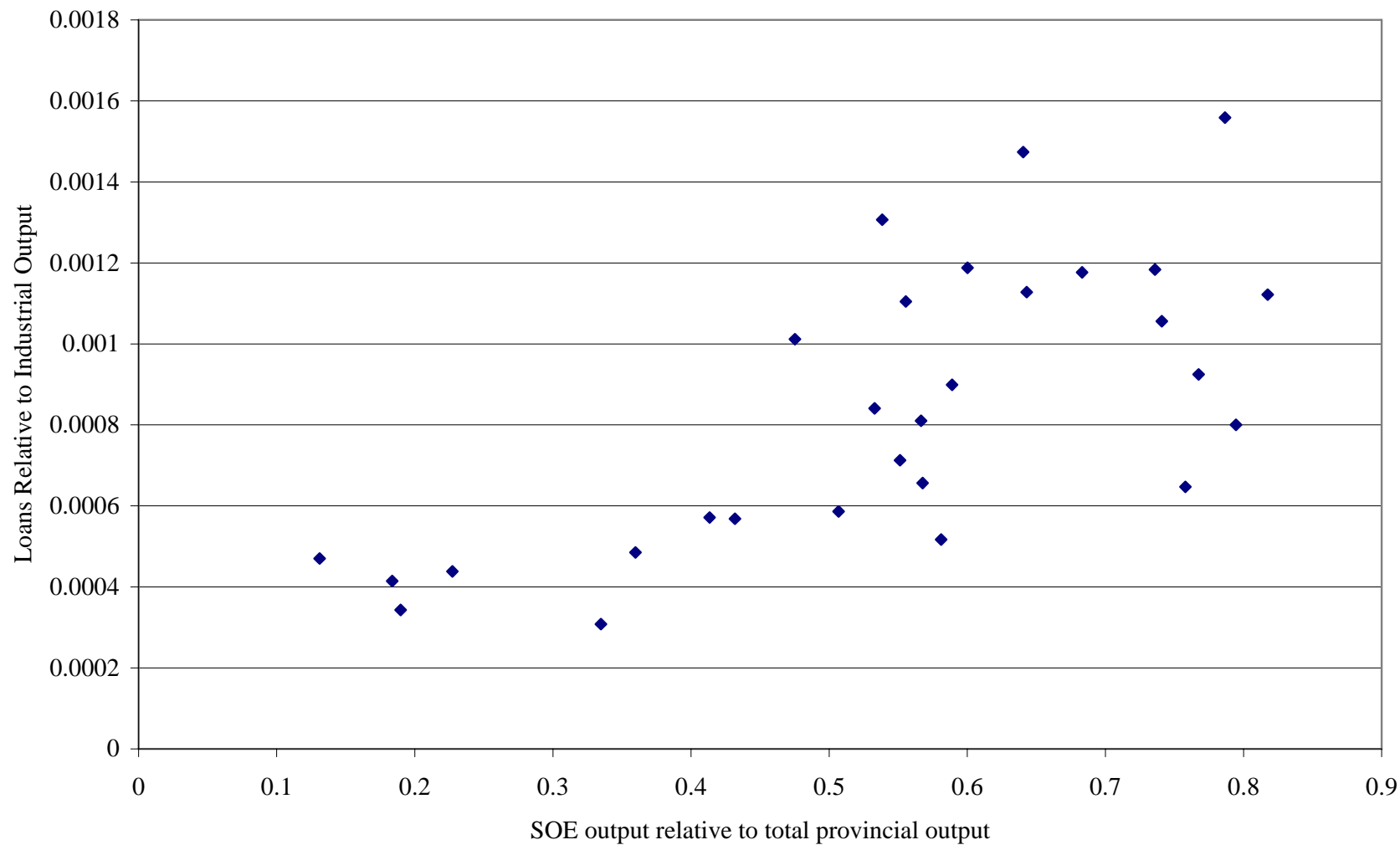
Source: CEIC

Figure 4: Industrial SOE Losses as a Fraction of Industrial SOE assets



Source: CEIC

**Figure 5: Provincial Loans Relative to Industrial Output .vs. SOE Share of Industrial Output, 2003**



Source: CEIC