Financial reforms in China and India: A comparative analysis*

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Abstract:

This paper surveys financial reforms in the world's two most populous countries where governments dominate bank ownership. This ownership creates tensions between governments' social goals and bank efficiency since bank lending decisions are not based on the creditworthiness of potential borrowers. The paper examines the costs of this tension that include inadequate access to bank finance for productive borrowers, foregone efficiencies in the debt markets and systemic risks of mis-directed lending and bank investments. The paper provides comparative estimates of the systemic risks and concludes that reforms have reduced these risks. Further reform is required as these economies become more complex since pressures for efficient financial systems will grow. India has all the parts of a modern financial system were it willing to remove social constraints while China still has to reconcile the tensions between its political goal of gradual controlled change and its official commitment to modern commercial banking and finance.

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1. Introduction

Much has been written about China's financial system as the Achilles heel in its long-term growth prospects while India's has generated enthusiasm as a source of strength. Despite recent reforms, both financial systems still have a distance to go to allocate capital efficiently as these economies become more complex and integrated into the world economy.

A common issue is the continued government ownership of their banking systems which is the highest in the world, at between 90 and 100 percent (OECD 2005:140). Banks also dominate the domestic financial systems: in 2004 banks' shares of financial assets were 72 percent (China) and 43 percent (India) compared to only 19 percent in the United States (Farrell and Lund 2006:7).[1] As this paper argues, a clear lesson from the international evidence is that over time public sector banks perform poorly by the usual market metrics: returns on equity are low, expenses high and they are dogged by non-performing loans. Governments in both countries are wrestling with the legacies of soft budget constraints introduced in an earlier era of central planning. While governments are committed to financial reforms, both impose social constraints on the pace and depth of reform.

This paper compares these financial reforms and evaluates their potential impacts on growth and development prospects. As the finance-growth literature emphasizes, domestic financial systems influence a country's economic development and growth through the roles they play, not just in the accumulation, but also in the allocation of capital.[2] As regulator, owner and customer, governments' roles matter because while their traditional goals may have been capital mobilization and its social allocation, adding social constraints to their modern day involvement as regulator and owner can undermine the efficient allocation of capital.

The paper begins with a brief literature review. The third section summarizes the evolution of the two financial systems as well as the broader institutional frameworks. Prudential supervision is necessary to promote an efficient financial system, but it is not sufficient. Institutions such as the legal system, ownership and corporate governance, and market monitoring are significant factors in the incentive structures in which managers operate. The fourth section examines problems in the performance of the banking sectors and the fifth discusses prospects for achieving greater efficiency in the overall financial systems. The final section discusses the implications of these findings and suggests alternative policies that governments should consider to increase the positive effects of financial development on economic growth prospects.

The paper concludes that India's financial system has all the moving parts required to become a modern financial system, but it continues to be held back by the inertia of state ownership and past regulatory and social practices. Banks' allocation of capital is

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[1] Corporate debt accounted for 35 percent and equity for 34 percent of total financial assets in the United States that year.

[2] See for example, Levine (1997); Allen and Gale (2001); Beck (2006).

improving, as evidenced by declines in non-performing advances (NPAs)[3], but government involvement in both directed lending and asset allocation continues to create distortions. The efficiency of China's banking system as measured by non-performing loans (NPLs) has improved as a result of recapitalization and reforms since 1998 but high levels of state ownership and evidence of persistent government influence on bank lending practices as well as the absence of efficient capital market alternatives imply that the huge volume of national savings is still not being allocated efficiently either.

In addressing these challenges, India has the advantage of a well-established institutional framework. The command economy made room for markets; the legal framework enforces property rights; corporate governance and monitoring through capital market institutions all exist, whereas China has to create these institutions from the ground up. If it chose to do so the Indian government could, by deregulation and legal means, accelerate reforms and competition in the banking system and further develop the capital market. China's dramatic economic growth and poverty reduction demonstrates what can be achieved by market liberalization and openness despite an underdeveloped financial system. A modern banking sector and a corporate bond market are becoming more important as the economy becomes more complex, but social constraints could mean that this goal is still some distance away.

2. Government ownership of banks: a brief literature review

Historically, governments have frequently owned banks and used them as vehicles to finance industrial development. The underlying rationale was that market failures exist in developing economies because private banks respond only to private returns and fail to finance socially desirable projects or borrowers (usually small borrowers and sometimes very large projects). Gerschenkron (1962) was one of the first to make the case that in a weak institutional environment, private banks are unable to overcome deficiencies in information and contracting. During the 1950-60 period of "takeoff theories" of economic growth and development, government ownership was also seen as a convenient way to appropriate capital and direct credit. Lewis (1950) advocated government ownership of banks to develop strategic industries as superior to direct public ownership of those industries. More recently Caprio and Honohan (2001) note that governments often take ownership positions following banking crises in the belief that private banks are crisis-prone.

Today, state-owned banks dominate the banking sectors in a majority of developing countries despite international evidence that countries with a large state bank presence have slower financial and economic development than countries that do not (Hanson 2004). For example, cross-country empirical studies by La Porta et al (2002) have found that state ownership of banks in a country in 1970 was associated with less financial development and lower growth and productivity through time. These effects were more pronounced in lower-income countries. The effects of increased private ownership of banks were also found to be statistically significant and economically meaningful. Caprio

[3] India uses the term NPA (non performing advances) while the term is NPL (non performing loans) in China.

and Honohan (2001) observe that countries with better institutional development might expect more positive results from government ownership in that better official and market oversight of such banks could be expected.

These findings accord with an alternative view that government-owned banks serve the social, political (and economic) interests of politicians more than they serve social welfare objectives and are often vehicles to divert resources to political purposes such as funding pet projects that generate votes or other forms of support for politicians (Sapienza 2002).

3. Financial structures in historical perspective

For much of the post-war period, China and India were among the world's poorer developing countries, faced with rapid population growth and large numbers of people engaged in subsistence agriculture. Yet today, China has the world's highest savings rate, at 43 percent of GDP and its investment-GDP ratio is around 45 and 50 percent (IMF 2005). India's savings rate and investment-GDP ratio are around 30 percent (IMF 2006).

In the late 1940s a key challenge for both governments when they took power was to mobilize domestic savings and channel them into industrial development; government intervention was the means to that end. China's planners abolished private property and institutions after the 1949 revolution and the state took over the entire financial system. Since the late 1970s, recreating financial markets and market-based institutions has been a work in progress.

India's leaders chose a mixed economy after independence in 1947. Markets and market institutions continued to function alongside those owned by the state, but with ever-increasing bureaucratic oversight and regulation. Capital markets were permitted to meet the needs of private entrepreneurs. Today, India's financial system, while still developing, is vibrant, diverse and the most-developed among emerging market economies.

Both countries' financial systems are bank dominated but with some interesting differences. For example, comparison of financial depth in the two countries, measured by the ratio of domestic credit to GDP, shows China's ratio (180 percent) is three times that in India's (just over 60 percent) because China's assiduous savers have no alternative to the formal banking system (OECD 2005:138). In contrast, many Indians mistrust banks and prefer to accumulate gold and real assets instead. One goal of government ownership has been to enhance confidence in formal financial institutions.

Both governments use banks to achieve social objectives that create conflicts with bank efficiency. Indian regulators are more transparent about the social outcomes being worth the price. Banks, whether public or private, must meet targets for rural access to banking services and lending to priority sectors and must allocate a required share of their investments to government bonds. The Chinese government's social priority is to ensure gradual controlled economic liberalization and sufficiently rapid economic growth to absorb millions of labor force entrants, migrants and laid off workers each year. Bank lending is still enlisted to finance much of this growth even as the banks are encouraged to become more competitive by the time of the WTO commitment to open domestic currency businesses to foreign entrants in 2007.

A little history on India's banking system

India's banking system, which dates to the eighteenth century, is a mixture of public (presidency banks), private and foreign ownership.[4] In the early twentieth century, public banks were consolidated, first in 1921 when the presidency banks amalgamated into the Imperial Bank of India; again in 1935 when public banks were consolidated into the State Bank of India whose assets even today far outweigh those of any other bank. The Reserve Bank of India (RBI) was also created that year, but did not become the bank regulator until after independence. It took control of the Imperial Bank in 1955. This hybrid system existed until 1969 when most (but not all) of the banking system was nationalized on the rationale that government-owned banks would be better instruments of economic growth (as they would be less vulnerable to connected lending), more likely to create rural branches to encourage small savers, and contribute to the needs of planned growth and equitable distribution of credit, particularly to small scale industry and farmers.

Targets set by government for branches in un-banked locations around the country led to rapid expansion of the sector and centralization of a majority of deposits in the public sector banks (PSBs). Despite entry restrictions and branch licensing requirements, private banks grew rapidly up to 1980 when a final round of nationalization left only 10 percent of total branches in private and foreign hands. Private banks tended to be small and geographically focused. By 1990-91 PSBs accounted for 90 percent of deposits and advances. The nationalized banks retained their corporate structures but substituted government for private directors. Specialized state-owned intermediaries promote the social objectives of finance, such as the National Bank for Rural Development (NABARD), the Small Industries Development Bank of India (SIDBI) and various state finance corporations (Patel 2004).

The 1991 balance of payments crisis was a catalyst for the liberalization of ownership and regulation. RBI reforms ostensibly aimed to make the banking system more resilient to market shocks and to replace its hands-on approach to banking oversight with arm's length regulation (something that still over-shadows the banking system). PSBs were permitted to access capital markets for up to 49 percent of their equity. In 1994 six "new private" banks were launched by government-owned financial institutions and three foreign banks entered the market. Two of the private banks, HDFC and ICICI, have since grown quickly and are noted for sophisticated management and technology and strong customer focus.[5] Limited foreign entry was also permitted.[6] Today India has 285

[4] This section draws on Banerjee, Cole and Duflo (2004) and Sarkar, Sarkar and Bhaumik (1998).
[5] ICICI was founded as a state development bank in 1955; it formed a commercial banking subsidiary in 1994 which merged with the parent in 2002 as a single publicly-listed company. HDFC Bank was also created in 1994 by a state-owned mortgage company.

scheduled commercial banks, also known as SCBs (Table 1).Indian firms have access to international markets and retail investors are permitted to invest in foreign companies subject to certain conditions.

Some history on China's banking system

In contrast, after the 1949 revolution China's central bank, the People's Bank of China (PBOC), was a mono-bank. It was responsible for conducting monetary policy and was the sole entity collecting savings at branches throughout the country and allocating them to budgetary priorities. In 1984, PBOC deposit and lending functions were turned over to four state-owned policy banks whose loans supplied the country's thousands of state-owned enterprises (SOEs) with their working capital requirements. Initially SOE losses were financed with public bonds. As the losses mounted, the central government moved in the mid-1990s to reduce the resource drain by forcing the SOEs to finance their needs with bank loans.

Bank reforms also began in earnest in 1995 when institutions and regulations were changed to transform them into commercial banks. Prudential norms for lending were introduced and regulatory standards tightened. Three policy banks were created to carry on policy lending functions and PBOC created regional heads supposedly with sufficient seniority to force bank lending on creditworthiness criteria.

China's domestic banking system now consists of a large number of institutions almost all of which are owned by various levels of government. The Big Four state-owned commercial banks dominate the system, accounting for more than half of banking assets, thousands of branches and hundreds of thousands of employees located throughout the country (Table 1). Smaller but more numerous banking institutions are also government owned but are geographically concentrated.

3.1 Financial oversight

Supervisory structures in China are still quite new and therefore evolving, while India's are well-established, even entrenched.

In India, RBI carries out a number of roles: central bank, bank regulator, manager of the public debt and majority owner of the State Bank of India, a commercial bank. Several government agencies (comptroller and auditor general, Central Vigilance Commission (CVC) and Central Bureau of Investigation) also audit bank lending. Students of India's banking system highlight pervasive government involvement – beyond what might be justified to prevent systemic risk – that creates disincentives for efficient capital allocation.[7] India's stock exchanges are the responsibility of the Securities and Exchange Board of India (SEBI) and the insurance sector is regulated since 2000 by the Insurance Regulatory and Development Authority (IRDA) which protects premium holders and

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[6] For example, ING bought 20 percent of Vysya Bank and Chase Capital acquired 15 percent of HDFC Bank (Madgavkar et al 2001).

[7] See, for example, Battacharya and Patel (2003); Patel (2004); and Banerjee et al (2003).

ensure orderly growth of the industry.

China's financial institutions are regulated by the China Banking Regulatory Commission (CBRC), the China Securities Regulatory Commission (CSRC) and the China Insurance Regulatory Commission. Each institution was created in the past few years. The PBOC shares responsibility for oversight and the rationale for the division of labor responsibilities and authority among them remain somewhat unclear.[8] The CBRC is responsible for oversight of retail and wholesale banks but not investment banks which, along with securities houses are the responsibility of the CSRC. The PBOC is responsible for the safety and soundness of the financial system. The decisions of each agency are subject to approval by the State Council which reflects the political concerns of the party leadership.

3.2 Capital markets

Direct finance through equity and debt markets provides a wider range of debt maturities and lower-cost capital to businesses, more choice for savers and an essential mode for funding pension programs. India's capital markets are much better developed than China's and play a more significant role in the economy.

India has two stock exchanges: the Bombay Stock Exchange (BSE) established in 1875 and the National Stock Exchange established in the 1990s. Both now have electronic trading platforms with 9400 participants (of which less than 30 are foreigners) and 9600 listed companies (a significant number of which are rarely traded); 70 percent of BSE market capitalization is accounted for by private firms and joint ventures (Farrell and Lund 2005). India also has futures markets and a venture capital market that consists of 34 foreign and 68 domestic firms. In the past decade, capitalization of India's stock markets has increased nearly 3 times while debt market capitalization has increased by six times. Both life insurance and non-life insurance premiums per capita have shown remarkable growth (Table 2). Pension funds are now permitted to invest 5 percent of new inflows in shares and 10 percent in equity-linked mutual funds. The corporate bond market remains under-developed, however, accounting for only one percent of total financial assets. Growth of the market is stagnant due to restrictive regulations.

China's capital markets are among the smallest in the world. Banks supply most debt finance. Equity market capitalization, excluding government-owned shares, is only 17 percent of GDP compared to a 60 percent average in other emerging markets (Farrell and Lund 2006). By end 2005 corporate bond financing still accounted for only 13 percent of GDP which made it one of the least developed bond markets in Asia, far behind Korea, Malaysia and Thailand (Asian Development Bank 2006). China's corporate bond market is a work-in-progress for several reasons. Issuers, for example, face numerous regulatory restrictions; bankruptcy laws have only recently been adopted; default procedures are not yet based on market principles; investors lack the transparency afforded by a credit rating system, modern accounting standards and transparency by issuers; market discipline has

[8] The single regulatory model typified by the Financial Supervisory Agency in the UK has been studied; a regulatory merger is a future possibility.

not been established and investor education is insufficient (Zhou 2005). There are two stock exchanges, established in 1990, in Shenzhen and Shanghai.[9] The exchanges initially provided two classes of shares: local investors using domestic currency were permitted to invest in A shares; foreign investors using foreign currency in B shares. The segregation of local investors was dropped in 2001. Most of the available listings are those of the public shares of China's largest SOEs. Continued government ownership stakes in these companies has caused market liquidity problems and hampered the development of efficient capital market institutions.[10]

Further capital market development is clearly needed in both countries. China has the larger task of developing the institutions and instruments of direct finance by creating appropriate institutional and regulatory frameworks that facilitate the working of market forces and promote market discipline. India's capital markets also have their weaknesses, particularly in the underdeveloped corporate bond market which lacks liquidity and price transparency. Corrective measures are needed to consolidate government debt (which accounted for 22 percent of total financial assets in 2003), and allow dealers more flexibility in the use of short-selling, interest rate futures, the development of repos in corporate bonds and derivatives (Farrell and Lund 2005).

4. Banking systems: are performance problems being fixed?

Since the 1980s both governments have moved in different ways to reform and modernize the banking sectors but social objectives have retained their importance. China has retained near-universal government ownership at the same time that the central government has tightened prudential standards and oversight and modernized the incentive structures for bank managers. India also has tightened prudential standards and oversight but permitted more diversification of ownership.

The relationship between the state-owned banks and enterprises differs in the two countries. In China, governments initially owned both the banks and the capital-intensive industrial SOEs who were their major borrowers. As indicated earlier, since the mid-1990s SOEs have been forced to obtain their financing from banks rather than from public revenues. As the SOEs were restructured a key government priority was to maintain sufficiently rapid economic growth to absorb these layoffs and banks provide much of the financing. India's banks, in contrast, have not been used to fund the SOEs directly; the SOEs are financed by the public treasury. In turn, RBI directs the banks to invest a proportion of their assets in public sector bonds.

Enterprise ownership is becoming less transparent in China as corporate entities evolve into a mix of state and non-state forms.[11] Bank managers "take the heat" for the bad loans

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[9] The Shanghai Stock Exchange was founded in the middle of the nineteenth century, but ceased operations in 1941.

[10] The Hong Kong Stock Exchange is also a significant equity market for Chinese entities but it operates quite separately from the domestic exchanges.

[11] For example, reported corporate entities in bank annual reports include state, collective and shareholding forms of ownership as well as private, foreign and "other".

to loss-making firms. In contrast, Indian banks' bad loans are concentrated in government-mandated priority sectors. The "cost" of SOE losses is more transparent to the taxpayer who sees large budget deficits. Little is known about the quality of the projects that are subsidized or funded by government revenues; the implicit assumption is that government will not default on the large stocks of its bonds in banks' portfolios. But the impact of these large bond portfolios falls on individual and corporate borrowers; as interest rates fell in recent years, bond prices rose attracting banks to the potential profits from those investments and crowding out lending and private investment (Farrell and Lund 2005).

4.1 Indian reforms have improved bank efficiency

India's banking reforms in the early 1990s re-introduced market forces into the sector and permitted ownership diversification. More than 15 years after the crisis, however, PSBs still account for 74 percent of total bank loans and 75 percent of banking assets. Even so, measured on NPAs, India's bank efficiency has improved. At the end of 2005 NPAs were 4.9 percent of total advances (Table 3), down from nearly 13 percent at the end of 2000. Since 2002 legislation has been passed that creates a framework to speed up the liquidation of defaulted loans. Creditor rights have been strengthened. Lenders are allowed to settle with borrowers out of court and to sell blocks of bad loans to investors. However, NPAs are highly concentrated in the PSBs whose lending is still directed to priority sectors which since 1996 have accounted for between 40 and 50 percent of PSB NPAs (RBI website). Commercial banks are required to have a heavy presence in the rural areas, and indeed 71 percent of their branches are located there; these produce 33 percent of their deposits and account for 21 percent of their total loans (Patel 2004). On the positive side, small and medium-sized private companies account for 45 percent of all corporate loans and generate 23 percent of bank revenues (Farrell and Lund 2005).

The relationship between ownership and bank efficiency is a subject of considerable enquiry and debate in India. Several macro studies using aggregate data generally confirm the superior efficiency of non-state-owned banks, while the findings from micro studies of specific banks clearly reinforce the findings. Among the macro studies, Sarkar, Sarkar and Bhaumik (1998), SSB, found only weak differences in ownership effects between private over public sector banks with little evidence of a differential in operating efficiency. A later study of cost efficiency found private banks superior to PSBs, but the impact of deregulation in the early 1990s showed no significant differences between the two groups (Kumbhakar and Sarkar 2003). Further, the time trend in cost efficiency shows both groups making progress. But SSB found that public sector banks show evidence of moral hazard, taking less care in managing risk than private or foreign banks.

An indepth study of a single PSB concludes that India's financial system under-lends and many potentially profitable firms are denied access to credit. Relative to investment in government bonds, priority lending can be quite risky. Loan officers fear being exposed to charges of corruption if loans go bad; they also lack expertise to evaluate potential profitability of such customers (Banerjee, Cole and Duflo 2003). Another analysis evaluates the role of bank ownership in under-lending and finds that private banks are "no less responsive" to government-mandated lending priorities than the public banks, with the exception of agricultural lending. A further comparison of public and private banks as intermediaries shows the former are less aggressive than private banks as lenders, attractors of deposits and in setting up new branches. Again, one of the reasons for the difference seems to be the risks perceived by loan officers in public banks of being investigated for corruption if loans go bad (Banerjee, Cole and Duflo 2004).

The cost to the Indian taxpayer of recapitalizing weak Indian banks has declined since 1991. By the end of 1993 Rs. 97 billion had been injected; this total had cumulated by the end of 2002 to Rs. 225 billion (Patel 2004), or roughly 10 percent of 2002-03 nominal GDP, an estimate that does not include a number of indirect bailouts to financial institutions through such measures as temporary tax exemptions for troubled institutions and other government guarantees.

In sum, India's banking system is heavily and conservatively regulated for two reasons: to ensure access in a country that is still rural and to prevent systemic problems. It operates much like a narrow banking system: banks take deposits but channel a significant proportion of their investments into low risk government bonds. In 2005 government securities still accounted for 31 percent of bank assets and corporate loans for around 50 percent (IMF 2006b). The other priority of creating access for small and rural savers creates distortions and inefficiencies. Government guarantees the returns on small savings accounts and on public provident funds, practices designed to attract savings but that also channel them to government uses. RBI continues to require that 25 percent of net bank credit is channeled to priority sectors, with 18 percent for agriculture and 10 percent to "weaker sections" (Patel 2004), thereby distorting lending decisions, undermining banks' efforts to improve their efficiency, and crowding out riskier but more productive non-priority private borrowers. Managers' attention is also diverted to such activities as lobbying to expand "priority" to include potentially profitable customers rather than to improving their own efficiency.

4.2 China's banks: improving but weaknesses persist

China's challenge differs from that in India in that it is transforming government owned banks that were initially policy banks, lending according to government priorities, into normal commercial banks that make commercial lending decisions. Since 1998 China has followed a three-step strategy designed to introduce market-based incentive structures into the four largest state owned commercial banks (SOCBs). The first step was to inject capital in 1998, 2004 and 2005 to strengthen the capital bases of the banks to meet BIS standards. Since 1999, the banks have both written off NPLs and transferred them to four state-owned asset management companies (AMCs) which issued government-guaranteed bonds in return. The second step was to attract strategic foreign investors willing to purchase equity stakes in the banks (restricted to 20 percent for any single investor and 25 percent total), to contribute directors to the boards and assign foreign managers to the banks. The third step was to offer small amounts of equity to institutional and other investors through IPOs on the Hong Kong and Shanghai Stock Exchanges. The purpose of this step was primarily to force bank managers to increase the transparency of their reporting and to expose them to market evaluations by bank analysts.[12]

These steps, near completion in three of the four SOCBs at the end of 2006, have cleared their balance sheets of legacy bad loans dating back to pre-1980 liberalization days and generated optimism that the banks have put their problems behind them. NPL ratios for three of the largest banks had declined to single digit levels in 2005 (Table 4). Estimates of the cost of removing the bad loans vary, depending on assumptions, but the government has found the necessary funds, from the treasury and foreign exchange reserves, to meet these costs.

Going forward, the central issue is whether China's misdirected lending (mainly to SOEs) will persist. Will further injections of public funds be necessary or are the banks on the desired road to efficiency and profitability? There are reasons to argue that bank incentive structures are still inadequate and that there will be another bailout.

First, evidence persists of the pervasiveness of government influence and government's concern to maintain sufficiently rapid economic growth to ensure sufficient job creation to maintain social stability. Economic growth is being driven primarily by rapid rates of investment which grew at unsustainable rates of 34 percent in 2004, 16 percent in 2005 and continues into 2006. The banks' mainstay borrowers are firms, many of them government-owned or -controlled. By the large banks' own published financial statements corporate customers still account for between 70 and 80 percent of their loans.[13] Brandt and Zhou (forthcoming) find that the state sector, defined to include shareholding companies in which governments have significant ownership shares, absorbed between a half and two-thirds of new bank lending in the 1998-2003 period.

Second, in 2005, roughly 40 percent of the industrial SOEs were losing money and current data indicate the losses at government-controlled firms continue to mount.[14] While the largest SOEs are reporting burgeoning profits and financing new investments themselves, revenues and profits are concentrated among the large: in 2005 the ten largest accounted for over 53 percent of total revenues and the 165 central SOEs for more than 70 percent of SOE profits.[15] Yet China still has 120,000 SOEs. The implication is that banks' exposures are likely to be greater to the tens of thousands government owned or controlled firms whose profits appear to be much less certain.

Third, the government's approach to unsustainable growth is to try to slow it by administrative guidance to the banks on the sectoral allocation of loans; but such guidance is a very blunt instrument that distorts credit decisions by restricting credit by sector rather than by risk and productivity indicators of borrowers and projects. For example, a productive and profitable borrower in a restricted sector will be denied credit

[12] Dobson and Kashyap (forthcoming) make a conservative estimate at 10.8 percent of 2005 GDP for the big four banks, while Ma (2006) estimates 19.4 percent as the cost for the entire banking system.
[13] The China Construction Bank, which breaks out its loans by the legal form of borrower, reports that loans to SOEs grew by nearly 9 percent in the first six months of 2006. Another large bank reports the 10 largest borrowers; half are SOEs (see Dobson and Kashyap, forthcoming, page 9).
[14] See Dobson and Kashyap (forthcoming).
[15] See Embassy of PRC (2006).

while a less productive borrower in a permitted sector will have access – just the opposite outcome from that predicted by market forces. Small (and often innovative and entrepreneurial) borrowers, who might grow fast and create jobs, have difficulties accessing bank credit because of regulations requiring the banks to demand high levels of collateral.[16]

Micro level and anecdotal evidence adds to concerns about bank inefficiency and are not properly accounting for credit risk in pricing their loans. Podpiera (2006) analyzed the determinants of the growth rates of loans for different types of banks during the period 1997-2004. Corporate profitability of the banks' commercial customers had no effect on the growth of their loans and the large state owned banks were losing market share to other financial institutions more quickly in the provinces with more profitable customers. Data on loan pricing patterns at the banks since 2004 show that interest rates charged borrowers are very compressed around the benchmark rate, suggesting little ability or preference to price for risk.

Another reason to doubt that better credit decisions are being made relates to bank structures and governance which reflect the ambiguities of continued government ownership. Lessons from many banking crises in both developed and developing countries point to the importance of a governance framework that creates accountability by a board of directors made up largely of knowledgeable people from the private sector who are not associated with the bank as customers or suppliers and whose primary responsibility is to hire, evaluate (and fire) the CEO. The Chair has been separated from the CEO position but the involvement of Communist party officials, while declining, continues to be pervasive throughout the organizations. Bank heads are members of the Central Committee (Naughton 2003); the CEO is often also the party secretary; bank performance is discussed at party meetings.[17]

Anecdotal evidence indicates that independent (foreign) directors and senior managers installed by strategic investors 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, arrived at the office one day to discover that most employees were absent. The manager had not been informed that they were required to attend Party School that day. 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.[18]

Finally widespread evidence of attitudes among investors, depositors and customers that China's government-owned banks are "too big to fail" indicates that moral hazard is a pervasive problem. The Big Four are more subject to external monitoring than they were,

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[16] OECD (2005).

[17] It is worth noting that the pervasive role of the party does not appear in the IPO memorandums of any of the three banks that went public in 2005-06.

[18] Author's personal interviews in 2006.

but capital injections and continued government involvement in their governance undermine bank independence. Depositors believe they have blanket protection of their deposits even if the rate of return is low. Some reports indicate the central government intends to introduce deposit insurance, suggesting that the days of blanket protection maybe numbered, 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.

5. Prospects for more efficient banking systems

5.1 Addressing ownership issues

While little in this paper contradicts the negative relationship found in the literature between government ownership and bank efficiency, there is evidence that governments are serious about reducing the negative impacts. In India, the RBI has tightened loan classifications and NPA ratios have declined because of legislation that has increased the options and strengthened the hand of banks in disposing of bad loans. The Indian banking market is also becoming more competitive as the market share of private and foreign banks approaches 25 percent (Farrell and Lund 2005; Economist 2006). Public sector fiscal requirements are gradually being reined in (Table 5). China has also made progress: its banking regulator requires best practice prudential standards; three of the Big Four state owned banks have relatively clean balance sheets. But China’s booming economy since 2003 has complicated matters, as bank loans soared (reducing NPL ratios) in response to robust demand in expanding industries. Excess capacity in some industries such as steel is a growing problem; most indicators of loan growth and quality suggest large new NPLs when the economy slows to a more sustainable growth rate.

Much also remains to be done to create the institutional framework for banking and capital markets that India already has. China’s heavily directed approach to fixing up its banks is necessary, but not sufficient. A significant moral hazard problem remains for reasons discussed earlier.

5.2 Competition and bank performance

Performance comparisons are difficult, but current market and performance indicators are available for some of the largest banks in both countries (Tables 6 and 7). China’s banks are much larger than India’s on market cap, assets and loan measures. CCB, which listed on HKSE in 2005, is not China’s largest bank (rather it is the ICBC which listed in Hong Kong and Shanghai in late 2006) but its deposit share is much larger than those of the next two largest banks for which public information is available. Indian banks lead the Chinese on profitability indicators, especially India’s private bank, but Indian net interest margins are much higher.

5.3 Foreign Entry

Theoretical and empirical analysis suggests that foreign participants in domestic banking markets improve financial sector efficiency by stimulating more competition.[19] What has been each country's rationale and road map for foreign entry? Here we find that China has made more progress, using pre-commitment in the WTO accession talks concluded in 2001 to bind its banks into a five-year timetable for opening domestic currency businesses to foreign banks in 2007. India's 2005 Road Map on foreign entry is very cautious in comparison.

The philosophical approach in China is that foreign entry should be used strategically to introduce modern standards, practices and new products into the domestic market so that domestic competitors can learn. Foreign strategic partners, while restricted to 25 percent total equity stakes, are valued more for the new ideas, products, skills and technology that they are expected to contribute than for the capital they contribute. Similarly, allowing banks to offer themselves to foreign investors through IPOs on the Hong Kong Stock Exchange is primarily intended to encourage awareness and responsiveness to modern market evaluations of their profitability and efficiency.[20]

RBI's road map for foreign entry[21] laid out in its 2005 Annual Report limits foreign investors to the small number of private banks; their aggregate investment is further limited to 24 percent of a bank's equity, with a possible increase to 49 percent if a bank's board and shareholders approve. Wholly owned subsidiaries of foreign banks are accorded national treatment. But until 2009, possibilities for domestic acquisitions are limited to the private sector banks that RBI wants to see restructured. At that time permitted activities will extend to other private sector banks but stakes in such banks will be limited to 74 percent. There is no plan to reduce the government's share of the PSBs or to allow foreign stakes in those entities.

5.4 Future loan losses

Looking ahead, the big issue in China is the size of future loan losses and uncertainty about the necessity of yet more bailouts. Future loan losses are not perceived to be a problem in India, although some analysts have noted persistent regulatory forebearance and non-transparent subsidies of some troubled state-owned financial institutions (Patel 2004). But India's buoyant growth since 2003 has fueled rapid credit growth which suggests there is little room for complacency.

In China there are at least two possible triggers of future problems. One is stiffer competition from foreign entrants beginning in 2007; the other is slower growth. Foreign competition is the less likely source. Foreign banks generally view China as attractive because they see customers as being underserved and many standard products absent. They will target new products that domestic banks later learn to produce. Some customers might migrate to foreign banks but as in most other countries, domestic

[19] See Dobson and Jacquet (1998) for a review of the literature and evidence on market entry by foreign banks.
[20] Even so, this part of the modernization strategy has drawn criticism that banking assets should not be sold to foreigners and that the price on what has been sold has been too low.
[21] RBI (2005:137) Box V.2 "Road Map for Presence of Foreign Banks".

customers tend to stay with the brands they know – unless things go wrong.

The more likely trigger for problems will be slower growth. Another bailout will be required but by most calculations it would be affordable. One way to estimate future loan losses is to "age" the Special Mention loans publicly reported by three of the Big Four into loan losses in 2007 or 2008. Assuming the Special Mention loans become non-performing in 2007, an estimated RMB 1.5 trillion new bad loans would appear from lending during the current boom (around US$ 200 billion) and about 7.2 percent of 2007 GDP (Dobson and Kashyap forthcoming). Lardy (2004) examines the impact on fiscal sustainability of the implied added burden of interest obligations of AMCs to the banks and the increase in NPLs resulting from loans in the 2002-04 period. In the event of growth slowdown, what would be the impact of these liabilities on fiscal sustainability? In two alternative scenarios, that 20 percent or 40 percent of the new loans become non-performing, he finds that the debt-to-GDP ratio rises at first, but then declines through the period to 2013. In other words, fiscal sustainability is preserved during this period.

India's buoyant growth has brought a credit boom which causes similar concerns about the consequences of a future growth slowdown. Since 2004 credit has grown by 30 percent (IMF 2006b), partly because bank credit is being more widely used (financial deepening) and partly because of signs of the misdirection of credit. The sectoral breakdown of credit growth in Table 8 suggests other reasons to be concerned. Overall credit growth was nearly 28 percent, far in excess of the government's 23 percent target. The priority sectors accounted for 40 percent of this growth (IMF 2006b:57).

Often the sudden rapid growth of credit foreshadows deteriorating loan quality and indicates problems with risk management at the banks and raises questions about weaknesses in prudential standards and supervision. RBI data show that the PSBs had a higher NPA ratio in 2005 (5.4 percent) than the private banks (3.9 percent) and foreign banks (3.0 percent). The PSBs also dominate the surge in lending to priority sectors which adds to the worry. IMF (2006b) performed three stress tests to assess the vulnerability of the banking system to loan quality deterioration. In the most stringent case they assess the effect of all new loans becoming non-performing at the same NPL rate as old loans have done. The resulting bad loans have the largest impact of the three scenarios on banks' capital bases but most banks are able to maintain their capital adequacy ratios close to 9 percent and are therefore unlikely to cause systemic risk. One exception is four "old private" banks accounting for 12 percent of bank assets whose capital bases would erode to dangerous levels.

These analyses underline the costs of distortions associated with high levels of government ownership. In China, there is a widely held assumption that government will not allow severe banking problems and, if necessary, will inject public resources again. In India, the PSBs dominate the concerns about a new concentration of bad loans in the priority sectors, raising concern that they are responding to public sector economic development priorities rather than risk-based lending practices. When growth slows, the allocation of public resources to fixing the problems might be affordable, but further bailouts will only exacerbate moral hazard and continue to distort incentives. They also divert public funds from other priorities -- such as China's current 5-year Program that aims to enhance public services in rural areas and accelerate urbanization. Perhaps it will take another crisis to focus on alternative strategies for the banking sectors. These are discussed in the next section.

6. Implications for future growth prospects

What are some of the priorities for rectifying the weaknesses and improving those prospects? In this section I address each in turn, noting that in some areas, decision makers in each country could learn from experience in the other.

First, both banking systems are behaving like agents of capital accumulation rather than of innovation and technical change, the main source of sustained long-term growth. Government intervention distorts incentives and reduces bank efficiency in allocating credit to the most productive and creditworthy borrowers. The Indian government directs banks to finance social projects at the expense of non-priority borrowers; China's huge bank-dominated state owned financial system persists in lending to well known entities whether or not they are productive. China's incremental capital output ratio is 5 units of capital per unit of output; it uses 40 percent more capital to generate a unit of output than did South Korea or Japan during their high-growth periods (Farrell and Lund 2006).

Second, banks in both countries are under-lending to the agents of economic change and job creation: small, entrepreneurial entities that lack political connections, government ownership, or government contracts and guarantees. Formal finance, despite official efforts in India, reaches a small proportion of entrepreneurs – but a larger share than in China. Instead these entities must rely on retained earnings and informal finance at much higher cost of capital. Tsai (2005:127) notes: "Informal finance remains a major source of credit for (Chinese) farmers who obtain four times more credit from the curb market…. In small businesses the curb accounted for up to three-quarters of private sector financing during the first two decades of reform. In both countries, private transactions with high interest rates violate banking regulations. In practice, however, the curb market in both China and India has adapted and flourishes."

Tsai (2005) argues that "…the popularity of informal finance in rural China and rural India can be attributed to a failure of the state…to develop microfinance programs that meet local needs…. Credit officers and other officials face local pressures and incentives for credit distribution….the curb at the grassroots has a comparative advantage in knowledge about credit worthiness….In both countries, local state agents often subvert central state objectives. Despite vastly different political systems, the challenge of directing credit to poor rural dwellers remains pressing in both countries." Farrell and Lund (2006) corroborate the findings from recent interviews with Chinese SMEs.

Third, foreign participation is under-utilized in India and private ownership is under-utilized in China. Recent research has established that foreign entrants bring modern skills and products and new technologies; they require greater transparency in regulations to ensure compliance; and they fan the winds of domestic competition. Managers of

India's state owned or controlled institutions tend to pay more attention to the regulators than to making their businesses productive. The positive growth and performance of India's "new private" banks also suggests lessons to be learned.

Government insistence on continued bank ownership in both economies reflects the estimation that growth rates are adequate to support the continued "cost" of using banks to ensure continued growth and social stability in China and advancing the Indian government's objectives of access by farmers and small businesses. While it has yet to be established that both countries could have grown even faster up to this point if they had more efficient financial sectors, what is clear is that banking systems that are unable to efficiency evaluate credit and manage risk will prevail upon the public purse when growth slows, as it surely will. At current growth rates, China's economy is doubling in size every eight years; India's in 9-12 years. Both are developing complex market economies that are outgrowing their financial systems – increasingly the more productive parts of the economy will be held back. In more complex market economies the distortions of government ownership exacerbate inabilities to respond to shocks and industrial setbacks.

What changes are needed?

First, both countries could improve capital allocation in several ways. Capital markets need to be created in China and further liberalized in India. Chinese bankers acknowledge that the most realistic way to stimulate competition in the banking sector would be to create efficient capital markets that provide lower-cost speedier finance to corporations. For example, Farrell and Lund (2006) estimate that if Chinese companies could obtain 60 percent of their funding from bond markets and 40 percent from banks as companies in other countries do, they would reduce their funding costs by $14 billion a year.

Several changes in the banking systems are desirable, beginning with the upgrading of skills and information systems. China's largest state owned banks need to be freed from the heavy influence that some provincial governments still bring to bear on their operations and loan collections. This will require better risk management techniques (an essential part of which is better management information systems), greater independence of boards of directors and more accountability of management to boards. These changes are more likely to occur as competition intensifies. Consideration should also be given to increasing competition among banks by allowing private banks and larger ownership shares for foreign banks. Liberalizing the rules on local private investment would also increase market monitoring.[22]

India could also improve capital allocation by phasing out guidance on the banks' allocation of credit and investment. Capital is being diverted to the public sector at the expense of more productive non-priority borrowers. Increased competition for the banks from a better developed corporate bond market would also stimulate more efficiency but much regulatory over-burden would have to be removed. More competition for capital

[22] Recent listings by Bank of China and Industrial and Commercial Bank of China on both the Hong Kong and Shanghai Stock Exchanges are moves in this direction.

would raise interest rates and the cost of servicing the public debt. In turn, governments and public enterprises would have to reduce their dependence on bond finance by cutting their fiscal deficits.

Modernization of the financial system does not imply abandoning the priority sectors. Alternative financial instruments and institutions are now available: narrow banks protect small depositors by investing only in low-risk, low-return instruments such as government bonds; dedicated policy banks and micro-lending institutions can be staffed by knowledgeable and motivated loan officers that target the priority sectors.[23]

Second, each country has experimented with changes from which the other can learn. India could learn from China's approach to foreign ownership which recognizes the value of learning from strategic foreign investors; they are permitted to acquire up to 25 percent of a bank's equity. The Road Map schedule should be accelerated and extended for both private banks and PSBs. For its part, China could learn from the growth and performance of India's "new private" banks and experiment with privatization.

Third, China should remove the rules that saddle SME borrowers with heavy collateral requirements. These rules are motivated by the realization that most banks still lack the skills to evaluate high risk borrowers. Lending rates have been deregulated allowing banks to price for risk, but there is little evidence that they do so because of their weak analytical systems and relationships with their weak borrowers.

Fourth, greater clarity is needed about the future role of China's largest state owned banks. If government influence and majority ownership continues, serious consideration should be given to changing the banks' structures to segregate risk on the lending side or to align lending mandates with the inadequate incentives and capacity of these banks to evaluate credit risk accurately. There are at least two ways to segregate risk. One would be to divide the banks into "good" and "bad" banks, with the bad assets and deadbeat customers moved into the bad banks and the good banks freed to operate strictly on market criteria. Another alternative is to sever the SOE customers and create a government agency that finances those that governments wish to retain.[24] Government bonds to support such an agency would have to be attractive to the banks on market – not political – criteria. Any further bank borrowing by SOEs would have to be on commercial criteria.

Fifth, both countries should consider regulatory changes that are more in line with modernizing the banks. In China, the introduction of more private investors into the state-owned banks, experiments with private banks and the introduction of capital market instruments such as subordinated debt would encourage market monitoring of the banks. Best practice deposit insurance would also create incentives for monitoring by depositors. India's deposit insurance system, however, is not a model as it is considered to be overly liberal and contribute to, rather than reduce, moral hazard (Patel 2004).

[23] See Bannerjee, Cole and Duflo 2004 for such arguments.
[24] Goodfriend and Prasad 2006.

India should create an independent bank regulator whose main goal is bank soundness and efficiency. RBI's multiple roles tend to confuse objectives and the involvement of the CVC in audit oversight is like putting a policeman in charge. An independent bank regulator concerned with bank efficiency and soundness would likely push for reforms that modernize oversight (best practice requires a strong proactive approach) and that free commercial banks from the traditional social constraints.

Are such alternatives receiving serious consideration?

The answer is ambiguous because of the politics of reform. Progress has been made in both countries but constraints and contradictions persist. Strong interests have vested in continued government ownership. The status quo is one in which the largest banks behave more like utilities than efficient financial institutions. If governments accorded more priority to financial efficiency, steady changes would be needed to reduce government ownership and moral hazard, upgrade skills and systems and increase the independence of bank managers and boards of directors. This could happen sooner in India if political resistance could be overcome.

7. Conclusions

This paper has identified shortcomings in the two countries' financial reforms. Government-owned banks continue to misallocate capital; corporate bond markets are still underdeveloped. The impact on debt markets and on potential bank efficiency increases vulnerability to future growth downturns and the possibility of further bailouts. But reforms have been sufficient that the risks of systemic banking crises have declined. Yet it may take a crisis for India, which has all the components of a modern financial system, to remove the social constraints on their full development and for China to resolve more fully the tensions between the goal of gradual controlled change and continued high levels of state ownership of banks.

Table 1. Structure of the Banking Industry, China (2005) and India (2003-04)

A. The Chinese Banking Industry, 2005

(CNY billion)

	Number of institutions	**Assets (CNY)**	**Market share,%**	**Liabilities (CNY)**	**Market share,%**
All banks	34,045	374.697	100	358.070	100
Big Four commercial banks	4	196.580	52.5	187.729	52.4
Joint stock banks	12	58.125	15.5	56.044	15.7
City commercial banks	112	20.367	5.4	19.540	5.5
Other	33,917	99.625	26.6	94.757	26.5

Source: CBRC website, accessed June 2006.

Notes: 1) All banks include policy banks, state-owned commercial banks, joint stock commercial banks, city commercial banks, rural commercial banks, urban credit cooperatives, rural credit cooperatives, postal savings, foreign banks and non-bank financial institutions.

2) Big Four commercial banks include the Industrial and Commercial Bank of China (ICBC), Agricultural Bank of China (ABC), Bank of China (BOC), and the China Construction Bank (CCB).

3) Joint stock banks include Bank of Communications, CITIC Industrial Bank, Everbright Bank of China, Huaxia Bank, Guangdong Development Bank, Shenzhen Development Bank, China Merchants Bank, Shanghai Pudong Development Bank, Industrial Bank, China Minsheng banking Co. and Evergreen Bank.

4) Other consists of rural commercial banks and rural credit cooperatives, policy banks, the postal savings bureau, finance companies, trust and investment companies and financial leasing companies.

B. The Indian Banking Industry, 2005

(Rupees billion)

	Number of institutions	**Assets*(Rupees)**	**Market share, %**	**Loans*(Rupees)**	**Market share, %**
Public Sector Banks (PSBs)	27	14,714	75	8,708	74
Private banks	30	3,673	19	2,251	19
Foreign banks	33	1,363	6	752	6
Total**	285	na	100	na	100

Source: RBI

*2003-04; ** aggregate statistics commonly refer to Scheduled Commercial Banks (SCBs).

Table 2. Indicators of India's Capital Markets

Indicator	1994-95	2005-06
Capital Market capitalization (USD millions)	138,732	531,088
Debt Market (capitalization USD millions)	50,392	339,590
Life Insurance (premiums per capita)	1.56	548
Non Life Insurance (Premium per capita)	5.6	43

Source: Bajpai (2006)

Table 3. NPAs in Indian banks, 2000-05

(Rupees billion)

	NPAs	Total Advances	NPAs / Total Advances,%
2000	608	4758	12.8
2001	640	5587	11.4
2002	710	6809	10.4
2003	703	7765	9.1
2004	649	9020	7.2
2005	575	11712	4.9

Source: RBI. "Statistical Tables Relating to Banks of India", Table 7.1 "Bank Group-wise Classification of Loan Assets of SCBs, 2000-05". Accessed at www.rbi.org.in.

Table 4. Reported NPLs in China's Big Four banks, 2000 and 2005

(RMB billions; NPL% = % total loans)

	Loans (2000)	NPL%		Loans (2005)	NPL%
Agricultural Bank of China (ABC)	1484.3	na	ABC	2829.3	26.2
China Construction Bank (CCB)	1386.4	28.1	CCB	2458.4	3.8
Industrial and Commercial Bank of China (ICBC)	2413.6	34.4	ICBC	3289.6	4.7
Bank of China (BOC)*	1505.8	27.2	BOC	1800.1	5.5
Total	6,790.1	28.6**		10377.4	10.5
Loans/GDP		76.0			55.9

- * reported for domestic loans only;   **loans and NPLs for only 3 reporting banks

Notes:

- Loan growth (% change from previous year): 2001=8.9%; 2002=14.6%;2003=11.0%; 2004 = 9.1% and 2005= 1.1%
- The ratio of NPLs is based on the BIS five-category loan classifications

Sources: Bank annual reports; BOC 2006 IPO Memorandum; CEIC data

Table 5. Fiscal Balance, China and India (2001-05), percent of GDP

China	**2001**	**2002**	**2003**	**2004**	**2005**
Overall budget balance	-3.1	-3.4	-2.8	-1.7	-2.1
India	**2001/02**	**2002/03**	**2003/04**	**2004/05**	**2005/06**
Central gov. balance	-6.4	-6.0	-5.1	-4.3	-4.3
General gov balance	-10.1	-9.7	-9.0	-7.4	-7.7

Sources: IMF (2005); IMF (2006).

Table 6. Market indicators, Chinese and India banks, 2004-2005 (US$ million)

	Market cap.	**Total assets**	**Loans**	**Deposits**	**Shareholders' equity**	**Deposit market share,%**
China (2005)						
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
India (2004)						
State Bank of India (SBI)	10,770	100,302	44,138	80,054	5,250	21.5
HDFC Bank	5,271	11,217	5,576	7,929	986	2.1
Punjab National Bank	3,259	27,534	13,176	22,501	1,712	6.0

Source: Ramos et al (2006)

Table 7. Indicators of Bank Performance, China and India, 2005

	Net interest margin, %	**Price – earning ratio**	**Net profit (% average assets)**	**ROA,%**	**ROE, %**
China (2005)	**2.8**	**18.96**	**0.6**	**0.6**	**15.3**
Bank of Communications	2.7	22.6	0.7	0.7	13.3
CCB	2.9	13.8	1.1	1.1	19.0
China Merchants Bank	3.0	21.0	0.6	0.6	17.2
India (2005)	**2.1**	**11.1**	**1.5**	**1.6**	**17.1**
State Bank of India	3.2	11.2	0.9	1.0	16.1
HDFC Bank	4.4	25.6	1.5	1.4	18.1
Punjab National Bank	3.6	9.0	1.2	1.2	17.7
Hong Kong	**2.4**	**13.9**	**1.2**	**na**	**13.7**

Source: Ramos et al (2006)

Table 8. Credit growth by sector, 2003-04 and 2004-05

(yoy, percentage change)

Sector	**2003-04**	**2004-05**
Priority sectors	24.7	31.0
Agriculture	23.2	35.2
Small-scale industry	9.0	15.6
Others	38.3	37.0
Industry (medium and large)	5.1	17.4
Petroleum	-16.8	19.2
Infrastructure	41.6	52.3
Autos	-5.8	20.9
Cement	-11.5	7.4
Housing	42.1	44.6
Nonbank financial companies	18.9	10.8
Wholesale trade	10.1	36.0
Export credit	17.2	14.3
Gross (nonfood) bank credit	17.5	27.9

Source: IMF 2006b, Table V3.

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