A review of recent banking reforms in China

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Introduction

Banking reforms have played an important role in China's overall effort to transform a centrally planned economy into a market-based economy since 1978. Although the banking sector has undergone remarkable changes over the period, deep-seated structural problems of asset quality, capital adequacy and profitability continue to pose a challenge to the sector. During the last year, China has ostensibly accelerated reform of the banking sector. Focus has been given to addressing the cumulated non-performing loans (NPLs) – both bad loans inherited from the past and new loans that will deteriorate to become classified loans.

The purpose of this paper is to review the adequacy of recent measures and continued challenges to banking sector reform. The first section of this paper discusses the size and formation of NPLs. Section 2 describes recent reform measures. Section 3 outlines the challenges facing China's banking system. Section 4 argues that despite the weakness of the banking system, there are mitigating factors which prevent the system from generating a full-blown crisis similar to that seen elsewhere in Asia.

This paper focuses mainly on the four state-owned banks – Agricultural Bank of China, Industrial and Commercial Bank of China, Bank of China and Construction Bank of China – which account for 71% of loans and 62% of deposits in China's commercial banking system.

Size and origin of non-performing loans

The credit rating of Chinese banks is amongst the lowest in Asia (Table 1). The People's Bank of China (PBC) estimates that at end-1997, around 20–25% of *total* bank loans, or about RMB 1,500 billion (US$ 180 billion), were non-performing, equivalent to just under 20%

Table 1
Credit rating of the four state-owned banks

	Bank deposits		Long-term debt (senior)	Financial strength
	Long-term	Short-term		
Agricultural Bank of China	Baa2	P-3	Baa2	E
Construction Bank of China	Baa2	P-3	Baa2	E
Industrial and Commercial Bank of China	Baa2	P-3	Baa2	E
Bank of China	Baa2	P-3	Baa1	E+
China (foreign currency)	Baa2	P-3	A3	–

Source: Moody's Investors Service.

of GDP. Of the total NPLs, about 6–7%,[1] or RMB 400 billion (US$ 50 billion), were deemed irrecoverable. Bank analysts believe that the level would be significantly higher if international accounting norms were applied.

The exact amount of NPLs in the books of the *state-owned banks* is far from transparent. Based on 20% non-performing loans as disclosed by the PBC, NPLs in the books of the state-owned banks amounted to RMB 1,186 billion (US$ 143 billion) at end-1997. This was equivalent to 15.6% of GDP, matching the 15% official estimate of NPLs in Japan's banking sector.

The NPL problem has a stock and a flow dimension. The stock problem arises from the bad loans undertaken in the past and the flow problem refers to future loans to enterprises that will not be able to service them and which will thus become classified loans. The sheer size of NPLs is partly due to structural factors. Under a centrally planned economy, banks acted on behalf of the government to finance investment and working capital needs of state-owned enterprises (SOEs). SOEs, in turn, were responsible for the livelihood of their workers from cradle to grave. The IMF estimated that 37% of industrial SOEs were suffering losses as of end-1997,[2] so a large proportion of the loans extended to them might have become doubtful. Pulling the plug on SOEs would push

[1] This represents a deterioration of asset quality. The previously released figure was 4–5%.
[2] IMF Article IV Consultation, 1998.

them to bankruptcy, resulting in massive layoffs – a potentially serious social problem in a country that has only begun to build a social safety net. As a result, banks are still carrying the NPLs on their balance sheets but resolution of this issue is constrained by structural problems of the SOEs, fiscal structure and social welfare reform in China. However, as a consequence of several new measures (discussed in the next section), there will be far fewer new bad loans than previously thought.

Chinese banks shared the same symptoms of reckless credit expansion, which was common amongst banks in Asia in the 1990s. The domestic credit to GDP ratio rose from 87% in December 1995 to 105% in September 1998.[3] Moreover, as provincial governments maintained authority over bank personnel within their localities, the decision pertaining to credit allocation was influenced by local governments. Banks were made to lend generously to support ambitious projects of local governments in a race to outgrow neighbouring cities and provinces. As credits were allocated to the construction of huge commercial centres, office skyscrapers and luxury apartments for which there was no genuine demand, a significant portion of the loans turned bad and became irrecoverable.

Recent banking reform measures

Arguably, the major problem in the Chinese banking sector is the high level of NPLs and continued lending to loss-making SOEs. Until recently, banking reforms were mainly focused on introducing competition,[4] broadening the channels of financial intermediation and providing a legal framework for bank supervision. In 1995, notable developments in this respect were introduced: the promulgation of the Central Bank Law that firmly established the PBC as the sole government agent to supervise and regulate the banking sector, and the enactment of the Commercial

[3] Comparable figures were 201% for Japan, 165% for Hong Kong, 149% for Thailand, 147% for Korea, 145% for Malaysia, 111% for Singapore, 73% for the Philippines, 63% for Indonesia and 25% for India.

[4] The banking sector now comprises four large state-owned commercial banks, 13 other commercial banks, several hundred urban cooperative banks, and trust and investment companies plus 5,000 urban cooperatives and around 48,500 rural cooperatives. In addition, there are a handful of small foreign-funded and joint venture banks, hundreds of branches and representative offices of foreign banks, six finance companies and one joint venture investment bank.

Banking Law that clearly defined the scope of business for commercial banks (Annex 1).

In 1998, the government put forward a number of reform measures to deal with the issue of NPLs and to guard against financial risks in the banking sector. These included: (i) injecting equity to recapitalise the state-owned banks; (ii) compelling banks to adopt international standards of classifying NPLs; (iii) requiring banks to make loans on a commercial basis;[5] and (iv) banning local governments from influencing the lending decision of banks. Each of the measures is analysed below.

(i) Strengthening the capital base of state-owned banks

A notable measure to boost bank capital was the issuance in August 1998 of RMB 270 billion (US$ 32.5 billion) of special government bonds to recapitalise the state-owned banks. The plan was implemented in conjunction with the reduction in the deposit reserve requirement. The three steps in recapitalisation were:

- The PBC lowered the legal reserve requirement from 13% to 8%, freeing up about RMB 377 billion of bank liquidity.[6] (The PBC recalled part of its loans to the state-owned banks to offset the inflationary impact of this reduction in the reserve requirements.[7]);
- The state-owned banks used the additional liquidity to purchase bonds issued by the Ministry of Finance (MoF); and
- The MoF injected the entire proceeds into the state-owned banks to strengthen their equity capital.

In essence, the process is equivalent to two swap transactions resulting in the doubling of the capital of the state-owned banks: (i) an

[5] Three policy banks – State Development Bank of China, Agricultural Development Bank of China and Export-Import Bank of China – have been created to lessen the need for politically related lending by the state-owned banks.

[6] Roughly RMB 270 billion from the state-owned banks and RMB 107 billion from other financial institutions.

[7] The recapitalisation would have a mild inflationary impact on the economy because the reduction in the reserve requirement ratio applies not only to the state-owned banks but also other commercial banks and depository institutions such as rural and urban cooperatives. The central bank cannot offset this part of the increase in liquidity by recalling loans to these institutions. As of June 1998, total credits extended by The PBC to these institutions were RMB 14 billion compared with extra liquidity of RMB 107 billion that could be freed up. This extra liquidity was equivalent to 11.6% of new credits granted by the banking sector in 1997. Given the current deflationary environment in China, a modest inflationary impact could well be consistent with the present monetary policy stance in China.

asset swap of bonds for reserve deposits between the state-owned banks and the MoF; and (ii) a liability swap of equity for central bank borrowing between the state-owned banks and the PBC.

The recapitalisation plan raised the capital of the state-owned banks to RMB 478 billion from RMB 208 billion. After the capital injection, the size of the aggregate balance sheet of the state-owned banks remained unchanged. The balance sheet of the central bank contracted but this was offset by a similar expansion in the balance sheet of the MoF. Annex 2 gives details of the recapitalisation plan, including balance sheet adjustments of the PBC and the state-owned banks. The PBC has indicated that the recapitalisation plan would bring the average capital adequacy ratio of the state-owned banks to 8%, although published information does not provide enough details to assess the improvement in the capital adequacy ratio of the state-owned banks based on BIS standards. The consolidated balance sheets of the state-owned banks before and after recapitalisation are shown in Tables 2a and 2b.

The recapitalisation plan not only strengthened the capital of the state-owned banks but also has positive implications for their future income streams. *First*, the state-owned banks will benefit from the yields arising from investment in the bonds. This amounts to RMB 19.4 billion a year before additional dividend payments to the MoF because of the government's increase in equity holdings. *Second*, in paying off some central bank credits, the state-owned banks will also reduce their interest costs. Assuming the central bank credits withdrawn equal the amount of extra liquidity released, the interest costs saved roughly equal the difference between the interest received on reserves and the interest paid on central bank credits.[8] Such interest differential, which averages about 2% p.a., could translate into RMB 4–5 billion a year. The two together would amount to RMB 23–24 billion a year, almost as much as the estimated RMB 27 billion aggregate profits of the state-owned banks in 1997.

In addition to measures to replenish banks' capital, the government is in the process of establishing asset management companies to repackage and sell on the problem loans of the state-owned banks. In April, China

[8] Interest earned on reserves deposited at The PBC is 3.51%. Depending on maturity, interest paid for central bank credits is around 5.22% to 5.67%.

Table 2a

Aggregate balance sheet of the state-owned banks as of June 1998

Before recapitalisation

Assets (RMB billion)		Liabilities (RMB billion)	
Foreign assets	481	Foreign liabilities	377
Reserve assets	**1,189**	Liabilities vis-à-vis non-financial sectors	5,447
Central bank claims	69	Liabilities vis-à-vis central bank	**1,308**
Domestic claims on other sectors	5,800	Paid-in capital	**208**
		Other	199
Total assets	7,539	Total liabilities	7,539

Source: PBC Quarterly Statistical Bulletin.

Table 2b

Illustrated balance sheet of the state-owned banks as of June 1998

After recapitalisation

Assets (RMB billion)		Liabilities (RMB billion)	
Foreign assets	481	Foreign liabilities	377
Reserve assets (1,189–270)	**919**	Liabilities vis-à-vis non-financial sectors	5,447
Central bank claims	69	Liabilities vis-à-vis central bank (1,308–270)	**1,038**
New government bonds	**270**	Paid-in capital (208+270)	**478**
Domestic claims on other sectors	5,800	Other	199
Total assets	7,539	Total liabilities	7,539

Construction Bank's Shinda took over RMB 200 billion of the bank's bad loans. It is thought that separate companies would help keep track of the history of the bad loans and increase the recovery rate. For the bad assets of closed or merged small and medium-sized banks and credit

Table 3

Treatment of bad assets

		Separate management: No	Separate management: Yes
Central ownership	No	Normal treatment of NPLs	Chinese SOBs Swedish banks State Bank of South Australia Mellon Bank (US)
	Yes	Mexico	Chinese small and medium-sized depository institutions Danaharta (Malaysia) KAMCO (Korea) RTC (US)

cooperatives, a centralised asset management company modelled on the US Resolution Trust Corporation is to be established.

In some ways, this resembles the Swedish model of separating the management of bad debts from originating banks while decentralising the ownership of bad assets. Table 3 shows the treatment of bad assets by selected countries. This separation of good assets from bad ones will help banks clean up their balance sheets, leaving a viable and healthy banking sector able to undertake new business.

(ii) Recognition of non-performing loans and loan loss provisions

China has taken an important step towards the recognition of NPLs by introducing a "new", risk-based, loan classification system. The system follows the international standard of dividing NPLs into four categories: special mention, substandard, doubtful and loss.[9] A trial run began in the Guangdong province in 1998 before the system's nationwide launch this year.

[9] According to international practice, loans overdue for three months are considered as non-performing.

Table 4

Summary of provisioning policy in Asia

Loan category	Singapore	Thailand	Korea	Indonesia	Philippines
General provision	Up to 3% of total gross loans and investment portfolio	0.25% of total loans	0.5% on normal loans	0.5% on current loans	Up to 2% of total gross loans
Special mention	–	–	1%	–	–
Special provisions					
Substandard loans	10% at MAS's special request	15%	20%	10%	25%
Doubtful loans	50%	100%	75%	50%	50%
Loss loans	100%	100%	100%	100%	100%

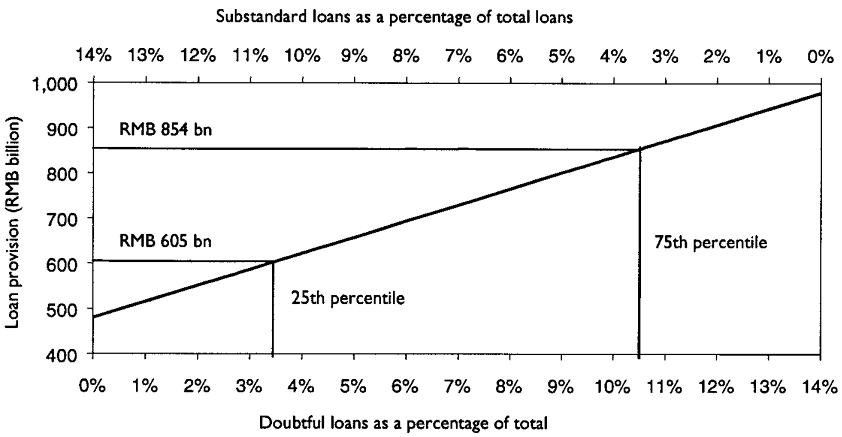
The "old" system loosely classified loans as overdue (loans overdue up to three months), doubtful (loans overdue for more than three months but less than 24 months) and bad (loans overdue for more than 24 months). Under the system, undue loans could still be classified as "performing" even when an enterprise ceased operation due to financial difficulties. No provisions were required to be made against the undue loans. This lack of provisioning explained the bulk of China's persistent NPL problem.

Implementing a risk-based loan classification system to replace the one based on the overdue period is an advance in capital risk management. Banks will need to make provision against a loan according to the category it is in. The regulators are better placed to monitor the asset quality of banks.

In the past, Chinese banks had only limited discretion when it came to loan provisioning. It was only recently that the MoF allowed the state-owned banks to carry out more aggressive provisioning against

Chart 1

Amount of provision for classified loans



NPLs.[10] In recent years, the state-owned banks have been allowed to make special provisions to write off loans arising from bankruptcy and enterprise mergers.

The amount of bad debt charge allowed was small – RMB 24 billion in 1996, RMB 30 billion in 1997 and RMB 50 billion in 1998. It is projected to rise to RMB 60–70 billion in 1999–2000. So far, no announcement has been made by the central authorities on any new provisioning requirements that go with the new classification system. Table 4 shows the provisioning policy in Asia.

To gauge the level of provisions for the state-owned banks against their classified loans, a sensitivity test was conducted based on the median provisions obtained from Asian economies (see Chart 1 and Annex 3 for assumptions used in the test).

The results showed that the required amount of provision was RMB 480–979 billion as of end-1997. Taking the 25th and 75th percentiles, a reasonable amount would be RMB 600–850 billion, roughly 1.3–1.8 times the entire amount of the post-injection aggregate paid-in equity

[10] Starting from 1993, commercial banks were required to make bad loan provisions of 0.6% of outstanding loans at the beginning of the corresponding year. Thereafter, the ratio was allowed to rise by 0.1% every year until it reached 1%.

capital of the state-owned banks. The state-owned banks would probably need such amounts of additional fund injection to recapitalise in order to maintain an 8% capital adequacy ratio. This analysis shows that additional financial resources are necessary. As the owner of the state-owned banks, the government is likely to be the provider of the additional capital.

(iii) Abolition of the credit plan

Another major reform measure to resolve the flow problem was the abolition of the credit plan. Until end-1997, credit allocation in China was based on a mandatory quota system under which the PBC set the *lower* limit on new loans to be made annually and their allocation to specific sectors. Under the system, banks were often asked to allocate credits to support the operations of loss-making SOEs. Effective from 1 January 1998, the PBC replaced the credit plan system (for both working capital loans and fixed investment loans) with an indicative, non-binding, target. The authorities have emphasised time and again that the indicative target only serves as a reference for commercial banks to plan their business. In 1998, the loan target for the state-owned banks was RMB 1,000 billion, up 25% from the 1997 credit plan.

Since the abolition, banks have been free to lend according to commercial considerations, provided that their total lending is in line with asset/liability ratios and monetary policy targets of the PBC. As loans are now granted based on the repayment ability of borrowers, loss-making SOEs will find it more difficult to obtain bank credits. By contrast, non-state firms and foreign-invested enterprises with high creditworthiness engaging in productive investment will find it easier to borrow from banks. With more efficient allocation of credits, the risk of loans turning bad will be reduced.

Some bank analysts are concerned that the amount of discretionary loanable funds might not increase by much even after the removal of the credit quota.[11] They have argued that even though policy lending is taken up by the three policy banks, the state-owned banks are still required to buy bonds issued by the State Development Bank, the largest policy

[11] See *The Chinese Financial System Update*, an unpublished World Bank discussion paper by Edgardo Barandiaran, May 1998.

bank. Moreover, a significant portion of funds may still be required to refinance outstanding SOE loans.

A crucial aspect is how effectively the new measure could facilitate the operations of the state-owned banks on a commercial basis. When the Commercial Banking Law was enacted in 1995, commercial banks, including the state-owned banks, were required to manage their loan portfolios by asset/liability ratios. The state-owned banks had already shifted to a more prudent lending attitude before the abolition of the credit quota.[12] In 1997, only 80% of the credit quota was fulfilled as banks were cautious and unwilling to lend to loss-making SOEs, indicating that they have made prudent lending decisions. Banks are competing to lend to good companies, and toll road and other profitable infrastructure projects, as well as investing in government bonds to improve their asset portfolios.

(iv) Independence of the PBC

The reorganisation of the PBC will strengthen and depoliticise the banking supervision and examination process. Under the plan, the 31 provincial offices of the PBC were combined into nine regional headquarters overseeing several provinces. The objective is to create a more streamlined structure similar to the US Federal Reserve. After the restructuring, senior bank managers will be appointed by the PBC, instead of the local governments. The change will deter/prevent local governments from encouraging banks to finance their favoured projects, many of which are over-ambitious and not profitable.

Challenges to banking reforms

There are five challenges to banking reforms in China. *First, the adequacy of capital injection*. The RMB 270 billion capital injection in 1998 is not likely to be sufficient to recapitalise the banks and, moreover, an even greater shortfall will open up if China does not contain the flow problem

[12] Following a revaluation of state-owned assets undertaken by the State Asset Management Agency in 1995, the state-owned banks were required to lower the proportion of NPLs in their loan portfolios. The amount of additional bad loans made by credit officers and bank managers became an indicator of their performance.

of NPLs properly. The experience of transition economies in eastern and central Europe has shown that prematurely injecting capital without solving the flow problem of non-performing loans could easily lead to a moral hazard problem and additional capital injections could be required. For example, the Hungarian government had to recapitalise the country's state banks four times between 1991 and 1994 as little had been done to tackle the flow problem before mid-1994.[13] Recent literature on bank restructuring agrees almost unanimously that the stock problem could be dealt with more effectively if it were among the last steps in enterprise and financial reforms.[14] In this connection, it should be noted that China has in parallel begun to tackle the flow problem of NPLs.

Second, slower economic growth. Bank restructuring is deflationary. As seen in Asia, Japan and elsewhere, high levels of NPLs invariably hold back economic growth as and when bank restructuring proceeds, lending behaviour turns cautious and losses get recognised and absorbed. Bank restructuring at a time when growth is slowing down is even more deflationary.[15] Thus, while the PBC instructed the state-owned banks to extend loans based on repayment ability, it also urged them to meet the 1998 loan target of RMB 1,000 billion to boost growth. There is therefore the concern that, should Chinese banks ease the lending criteria to finance investment projects in order to sustain growth, banking reform would suffer a setback.

Third, the SOE reform. Whether dealing with the stock or the flow problem of NPLs, the ultimate obstacle is posed by the SOEs. While banks have more discretion in making loan decisions, they can only limit their exposures to unprofitable SOEs in a gradual manner. However, the authorities have indicated their clear intention to resolve the SOE problem in three years. Banking reform could, hopefully, be accomplished within this timetable.

Fourth, the banking culture. Once recapitalisation has commenced, the operational performance of banks must be improved to minimise NPLs.

[13] See *Debt as a Control Device in Transition Economies: Examples from Hungary and Poland*, World Bank Research Paper 1480, June 1995.

[14] See *Restructuring Distressed Banks in Transitional Economies*, Paper for the Federal Reserve Bank of Chicago, July 1997, by Michael Borish and Fernando Montes-Negret, and *Lessons from Systemic Bank Restructuring*, Economic Issues No. 14, by Claudia Dziobek and Ceyla Pararbasioglu, IMF, April 1998.

[15] Reports of pullbacks by foreign banks, in particular Japanese banks, would exacerbate the credit crunch caused by more cautious lending by domestic banks.

In this respect, the project evaluation skills of bank staff need to be beefed up to cope with the change in lending policies.

Fifth, the regulatory and legal framework. Shortcomings in supervisory, regulatory, legal and accounting frameworks should be addressed and those frameworks brought up to international standards. But the educational process required to develop a proper credit culture and to implement the best practices will take considerable time.

Crisis vulnerability not high

Despite the many weaknesses in China's banking system, the chance of an imminent crisis similar to those seen in Thailand or Indonesia is not great. According to data from the BIS, claims on Chinese residents of BIS reporting bank countries shrank by US$ 3.3 billion in the second quarter 1998 and US$ 6.3 billion in the third quarter 1998, for a total of US$ 9.1 billion in January-September.[16] Of this, US$ 7.4 billion was against banks in China, suggesting that Chinese banks might have been losing access to the international banking market. However, there are mitigating factors and strengths in China's banking system. China's foreign exchange reserves, at US$ 145 billion at end-1998, were more than twice the liabilities of banks in China of US$ 64.6 billion at end-September 1998. Moreover, externally, China is not a fully open economy, with renminbi convertibility on the capital account not yet possible. This will minimise contagion risks caused by external shocks. Also, there are a number of positive factors that help cushion against any banking crisis generated domestically.

First, China's NPL problem is essentially a domestic problem rather than an external one, the latter being generally more pressing. *Second*, the public has strong confidence in the banking system. The state-owned banks, which account for 70% of total deposits, are regarded as too big to fail.[17] In addition, PBC funding support is significant and deemed to be stable (Table 5). *Third*, China has a high saving rate of over 40% of GDP but limited investment vehicles. Households and enterprises place most of their funds as deposits in the banking sector. *Fourth*, banks are generally fairly liquid, with steady growth in deposits and a loan-to-deposit ratio of slightly over 80%. All these factors reduce the risk of deposit runs and illiquidity-induced bank failures.

[16] *BIS Quarterly Review*, March 1999.

[17] The public will find it hard to imagine the government not guaranteeing deposits of the state-owned banks when it did so even for smaller commercial banks such as the now defunct Hainan Development Bank.

Table 5

Central bank liquidity support to the banking sector

In billions of RMB

	December 1996	December 1997
(1) Borrowings from central bank	1,421	1,400
(2) Total customer deposits	6,172	7,531
(1)/(2) (%)	23	19

Source: China Economic Information Centre.

Conclusion

Important progress was made in 1998 in reforming China's state-owned banks. However, the recapitalisation plan may not be sufficient to restore the financial health of the state-owned banks, and additional resources – of two to three times the RMB 270 billion capital injection – are required to clear the cumulated bad and doubtful loans. The introduction of the new loan classification system is a good start to solving the flow aspect of NPLs, although the loan-provisioning policy is not yet widely implemented. Banks have begun to reduce lending to inefficient enterprises or financially unsound projects and the removal of the credit quota system is a step in the right direction. However, success will depend on the capability of bankers to make loan decisions without concern about possible political influence. The solution to the flow problem may also be constrained by a need to generate growth to ensure social stability.

China quickened the pace of reform in 1998 and seems to be aware of two lessons that can be drawn from the Asian financial crisis. The first lesson is that a sound banking system is crucial for an economy to withstand external shocks. The second lesson from the Japanese banking saga is that delay only allows NPLs to grow and erode bank capital. Chinese leaders have shown their commitment to reform, nonetheless a long and painful period of banking and SOE reform is inevitable.

Annex 1
Establishment of a prudential framework

Several measures have been taken in recent years to establish a strong prudential framework that encompasses all types of banking and non-bank financial institutions. They are:

- *Legal framework*. The promulgation of the Central Bank Law in 1995 firmly establishes the PBC as the sole government agent to supervise and regulate the banking sector. This is an important step for the PBC to shift its role from compliance with economic directives to the setting of prudential norms for compliance by banking institutions. The Commercial Banking Law passed in the same year also clearly defines the scope of business for commercial banks.
- *Restructuring of the PBC*. The regulatory powers of the PBC would be further strengthened with the proposed restructuring of the PBC's branch network. The new structure is modelled on the Federal Reserve System of the US, establishing nine cross-province regional offices to replace the existing provincial branch network. The main responsibility of these regional offices is to supervise and regulate the operations of banks and non-bank financial institutions. The new structure helps minimise local interference as these regional offices report directly to PBC headquarters. Local interference has been a main reason for the extension of policy loans for the so-called "mayor's project".
- *Consolidation*. The closure of Guangdong International Trust and Investment Corporation on 6 October 1998 was the boldest in a series of moves on insolvent financial institutions. Thus far, the authorities have been cracking down on illegal financing, futures trading and foreign exchange transactions; shutting down the weakest financial institutions, especially the problematic international trust and investment corporations (ITICs) and securities companies; and consolidating credit cooperatives and smaller ITICs so as to better regulate them.

The authorities announced that some 5,000 urban cooperatives would be consolidated into a smaller number of credit cooperative banks under city or municipal government. So far, more than 100 urban cooperative bank licences have been granted. The move is aimed at

strengthening the regulatory regime for these institutions. There is also a plan to consolidate the nearly 50,000 rural credit cooperatives along the same lines.

Annex 2
State-owned commercial bank recapitalisation plan

This technical annex gives a detailed explanation of the balance sheet adjustments of the PBC and the state-owned banks under the RMB 270 billion recapitalisation plan.

Starting positions. The initial balance sheet positions are simplified as follows:

- The PBC has international reserves and credits to banks and government on its asset side, and currency, excess reserves, required reserves and capital on its liability side; and
- The state-owned banks have required reserves, excess reserves and customer credits on the asset side, and customer deposits, central bank credits and capital on the liability side.

All the figures used in this annex follow as far as possible those published in the PBC Quarterly Statistical Bulletin, but are rounded to the nearest hundreds of billions for computational convenience.

Central bank (RMB billion)				Four state-owned banks (RMB billion)			
Assets		Liabilities		Assets		Liabilities	
International reserves	1,300	Currency in circulation	1,000	**Required reserves**	**550**	Customer deposits	5,450
Credits to banks	1,350	**Excess reserves**	**800**	**Excess reserves**	**650**	Central bank credits	1,300
Credits to government	150	**Required reserves**	**800**	Customer credits	5,650	Capital	200
Other	250	Government deposits	150	Other	700	Other	600
		Other & capital	300				
Total	3,050	Total	3,050	Total	7,550	Total	7,550

Step 1. The PBC lowered the statutory reserve requirement, freeing up about RMB 270 billion of liquidity from the state-owned banks. Therefore, banks maintained only a reserve account with the PBC. The state-owned banks put their excess reserves into their reserve accounts with the PBC.

Central bank (RMB billion)				Four state-owned banks (RMB billion)			
Assets		Liabilities		Assets		Liabilities	
International reserves	1,300	Currency in circulation	1,000	**Reserves (650+550)**	**1,200**	Customer deposits	5,450
Credits to banks	1,350	**Reserves (800+800)**	**1,600**	Customer credits	5,650	Central bank credits	1,300
Credits to government	150	Government deposits	150	Other	700	Capital	200
Other	250	Other & capital	300			Other	600
Total	3,050	Total	3,050	Total	7,550	Total	7,550

Step 2. The MoF issued RMB 270 billion of bonds and deposited the proceeds in its account with the PBC. The state-owned banks purchased the bonds with liquidity freed up from the lowering of the reserve requirement. As a result, the state-owned banks had RMB 270 billion in bond investments but a corresponding reduction in reserves on the asset side. The PBC's liabilities vis-à-vis the state-owned banks dropped by RMB 270 billion but its liabilities vis-à-vis the MoF increased by the same amount.

Central bank (RMB billion)				Four state-owned banks (RMB billion)			
Assets		Liabilities		Assets		Liabilities	
International reserves	1,300	Currency in circulation	1,000	**Reserves (1200–270)**	**930**	Customer deposits	5,450
Credits to banks	1,350	**Reserves (1600–270)**	**1,330**	**Bonds**	**270**	Central bank credits	1,300
Credits to government	150	**Government deposits (150+270)**	**420**	Customer credits	5,650	Capital	200
Other	250	Other & capital	300	Other	700	Other	600
Total	3,050	Total	3,050	Total	7,550	Total	7,550

Step 3. The MoF injected the bond proceeds into the state-owned banks in the form of equity capital, raising the capital of the state-owned banks to RMB 470 billion.

Central bank (RMB billion)				Four state-owned banks (RMB billion)			
Assets		**Liabilities**		**Assets**		**Liabilities**	
International reserves	1,300	Currency in circulation	1,000	**Reserves (930+270)**	**1,200**	Customer deposits	5,450
Credits to banks	1,350	**Reserves (1330+270)**	**1,600**	Bonds	270	Central bank credits	1,300
Credits to government	150	**Government deposits (420–270)**	**150**	Customer credits	5,650	**Capital (200+270)**	**470**
Other	250	Other & capital	300	Other	700	Other	600
Total	3,050	Total	3,050	Total	**7,820**	Total	**7,820**

Step 4. The PBC recalled RMB 270 billion in credits to the state-owned banks. In the end, the size of the PBC's balance sheet contracted by RMB 270 billion.

Central bank (RMB billion)				Four state-owned banks (RMB billion)			
Assets		**Liabilities**		**Assets**		**Liabilities**	
International reserves	1,300	Currency in circulation	1,000	**Reserves (1200–270)**	**930**	Customer deposits	5,450
Credits to banks (1350–270)	**1,080**	**Reserves (1600–270)**	**1,330**	Bonds	270	**Central bank credits (1300–270)**	**1,030**
Credits to government	150	Government deposits	150	Customer credits	5,650	Capital	470
Other	250	Other & capital	300	Other	700	Other	600
Total	**2,780**	Total	**2,780**	Total	**7,550**	Total	**7,550**

Annex 3
Sensitivity analysis on provisions for classified loans in the four state-owned banks

Key assumptions. The non-performing loans are estimated to be 20% of total loans extended by the state-owned banks, of which 6% are bad loans and the remaining 14% are doubtful and substandard loans.

The following provision requirements apply in the analysis: 100% for bad loans, 75% for doubtful loans and 15% for substandard loans. These are international standards and also represent the median provision requirements adopted by Singapore, Thailand, Korea, Indonesia and the Philippines after the financial crisis.

Bad loans		Doubtful loans		Substandard loans		Classified loans provision
% of total loans (A)	**Provision assump-tion as a % (B)**	**% of total loans (C)**	**Provision assump-tion as a % (D)**	**% of total loans (E)**	**Provision assump-tion as a % (F)**	**RMB billion 5,932*(A*B +C*D+E*F)**
6	100	0	75	14	15	480
6	100	1	75	13	15	516
6	100	2	75	12	15	552
6	100	3	75	11	15	587
6	100	4	75	10	15	623
6	100	5	75	9	15	658
6	100	6	75	8	15	694
6	100	7	75	7	15	730
6	100	8	75	6	15	765
6	100	9	75	5	15	801
6	100	10	75	4	15	836
6	100	11	75	3	15	872
6	100	12	75	2	15	908
6	100	13	75	1	15	943
6	100	14	75	0	15	979

Note: Total loans extended by state banks were RMB 5,932 billion as of end-1997.