Monetary policy implementation in China

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1. Introduction

China's rising prominence in the world economy has meant that the efficacy of its macroeconomic management has taken on considerable importance, not just from a domestic perspective but also from broader regional and international perspectives. In this paper, we review the functioning of one of the key tools of macroeconomic management – monetary policy. Although China's government deficit and public debt to GDP ratios are quite low by international standards, the existence of large contingent fiscal liabilities implies that there may be less room for maneuver on fiscal policy. Thus, monetary policy has a particularly important role to play in buffering the economy from domestic and external shocks.

We begin, in Section II, by reviewing developments in the exchange rate and capital control regimes. Although China has had a de facto fixed exchange rate regime for about a decade now, the existence of capital controls has meant that there is still some room for monetary policy manoeuvre, but this room tends to be rather limited in practice. Indeed, in recent years, controlling credit and investment growth has become especially complicated due to the large inflows of speculative capital that have been testing the exchange rate peg to the US dollar (and, since July 2005, the tightly managed peg to a currency basket that looks to all intents and purposes like a continued peg to the dollar).

Having an independent monetary policy is obviously desirable for this policy tool to be effective. But a move towards greater exchange rate flexibility is not the solution by itself. Indeed, enhancing the effectiveness of the monetary transmission mechanism poses difficult challenges independent of the constraints related to the exchange rate regime. Principal among these is the reform of the financial system, since that is the conduit through which monetary policy has an influence on economic activity. Indeed, financial sector reform is one of the most important and challenging tasks facing Chinese policymakers. In Section 3, we review the current state of the financial system, with particular emphasis on the banking system, which still dominates China's financial landscape.

We then review the People's Bank of China's (PBC) approach to the implementation of monetary policy. Given the weaknesses in the monetary transmission mechanism, the authorities have relied on a variety of direct and indirect instruments. In Section 4, we discuss these instruments, problems in using them and their relative effectiveness.

In Section 5, we discuss the direction in which, in our view, the monetary policy framework should be developed. We argue that there may be merit to using a low inflation objective as the nominal anchor. Our view is that making low inflation the main objective of monetary policy is the most reliable way to enable the PBC to stabilise domestic inflation and

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employment against macroeconomic shocks. An inflation objective would provide a firm and credible nominal anchor that would contribute to overall macroeconomic stability, which in turn would provide the basis for sustained employment growth and help safeguard financial stability.

This framework could accommodate a continued role for the monitoring and management of a monetary aggregate (and credit) by the PBC, thereby allowing for continuity in the operational approach to monetary policy. However, our view is that money would not constitute a good stand-alone nominal anchor for an economy that is undergoing major structural changes and financial innovations. We should also emphasise that we are not necessarily advocating a full-fledged inflation targeting regime, although this could serve as a useful long-term goal.

There are of course a number of institutional reforms that will be required before this framework can be put in place. We discuss some of the basic reforms that we think are essential, and may be adequate, to putting in place this alternative nominal anchor in the next few years. Exchange rate flexibility is a basic and essential requirement for the operation of independent monetary policy. However, while full modernisation of the banking system will no doubt take a long time, a more modest set of reforms that would make the banks robust to interest rate fluctuations would be adequate to enable the PBC to credibly commit to a low inflation objective as a nominal anchor.

2. The exchange rate regime and capital controls

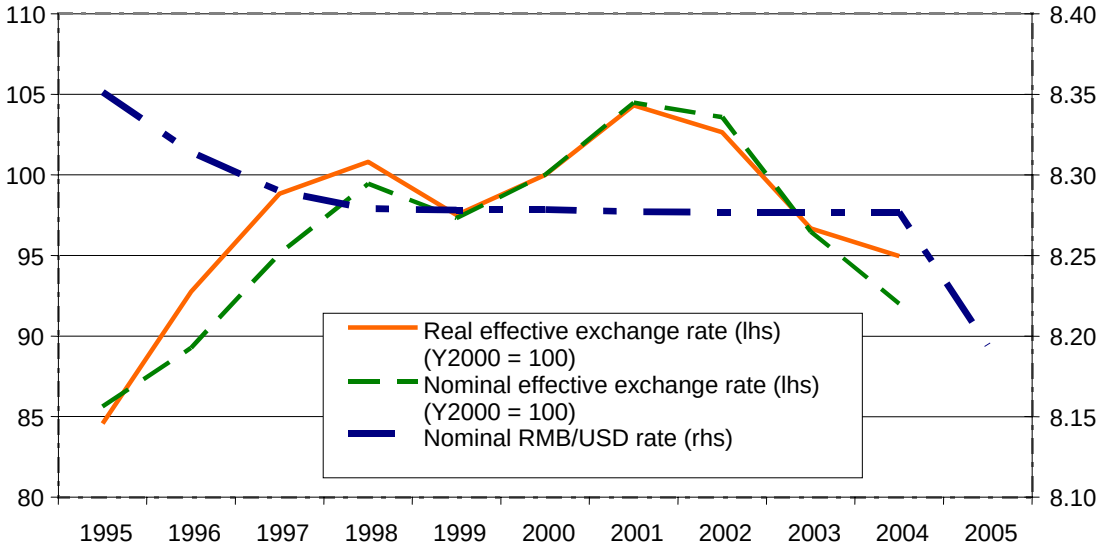
China had a dual exchange rate regime in the early 1990s. The exchange rate regime was unified in 1994 and, since 1995, the renminbi has been maintained at a fixed parity relative to the US dollar. This regime was in principle classified as a managed float since a narrow fluctuation band around the US dollar was permitted. In practice, however, the renminbi has been maintained at an essentially fixed level relative to the US dollar since the mid-1990s (Figure 1, top panel). Fluctuations in the real and nominal effective exchange rates of the renminbi have tended to be driven by fluctuations in the exchange rate of the US dollar relative to other major currencies.

On 21 July 2005, the renminbi was revalued by 2.1% relative to the US dollar, and the government announced that its value would henceforth be set with reference to a basket of currencies, although neither the currency composition of the basket nor the basket weights have been publicly disclosed.[2] The new regime also allows for fluctuations of up to 0.3% around the reference rate. In principle, this could mean that the exchange rate is allowed to drift up (or down) by 0.3% each day, which could amount to a significant appreciation (or depreciation) over a period of time. In practice, however, the renminbi has barely moved against the dollar since July 2005 (Figure 1, lower panel); its lack of movement is also not consistent with variations that may have been expected based on various plausible assumptions about the currency composition of the reference basket. Thus, the regime still qualifies as a de facto fixed exchange rate.

[2] The authorities have indicated which currencies are included in the basket but not the weights attached to each of them.

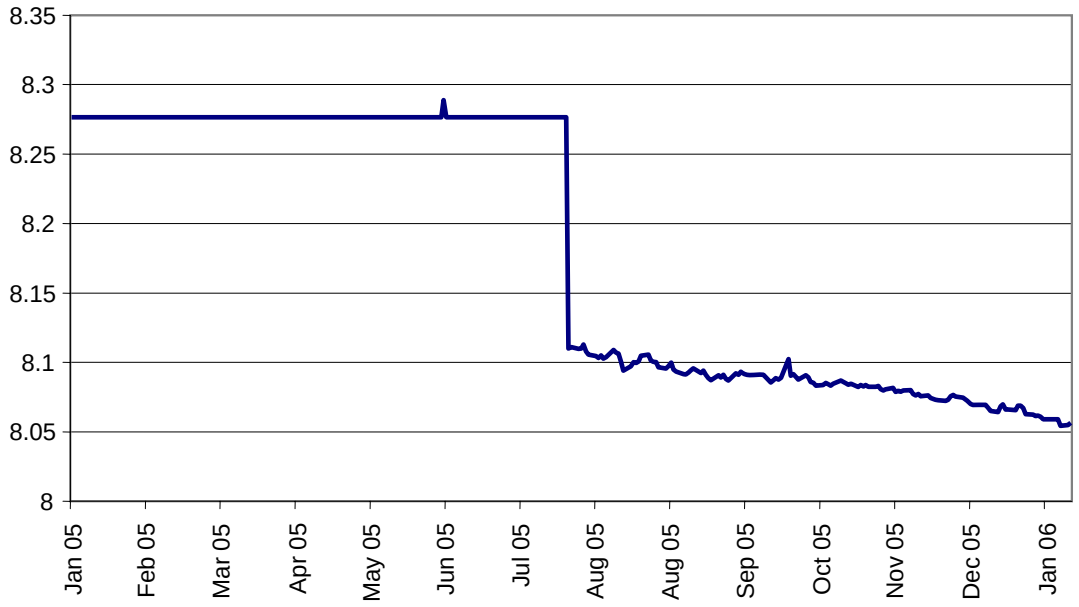
Figure 1

Exchange rates



Source: IMF, *International Financial Statistics*.

Daily RMB/USD rates



Source: Thomson Datastream.

Given the nature of the regime and a number of institutional constraints, the foreign exchange markets have remained relatively thin and underdeveloped. The number of participants in the foreign exchange market, the China Foreign Exchange Trading System (CFETS), was limited to a handful including some of the state commercial banks (SCBs). In fact, these banks acted as clearing agents for many of the trades that they settled directly without the transactions ever reaching the CFETS. In 2004, trading volume on the CFETS was only about $210 billion (as a reference point, this amounts to less than 20% of the value of China's external trade in that year). But this setup also made the mechanics of tightly

managing the exchange rate easier for the PBC since it could correct any deviations from the central parity relatively quickly and easily.

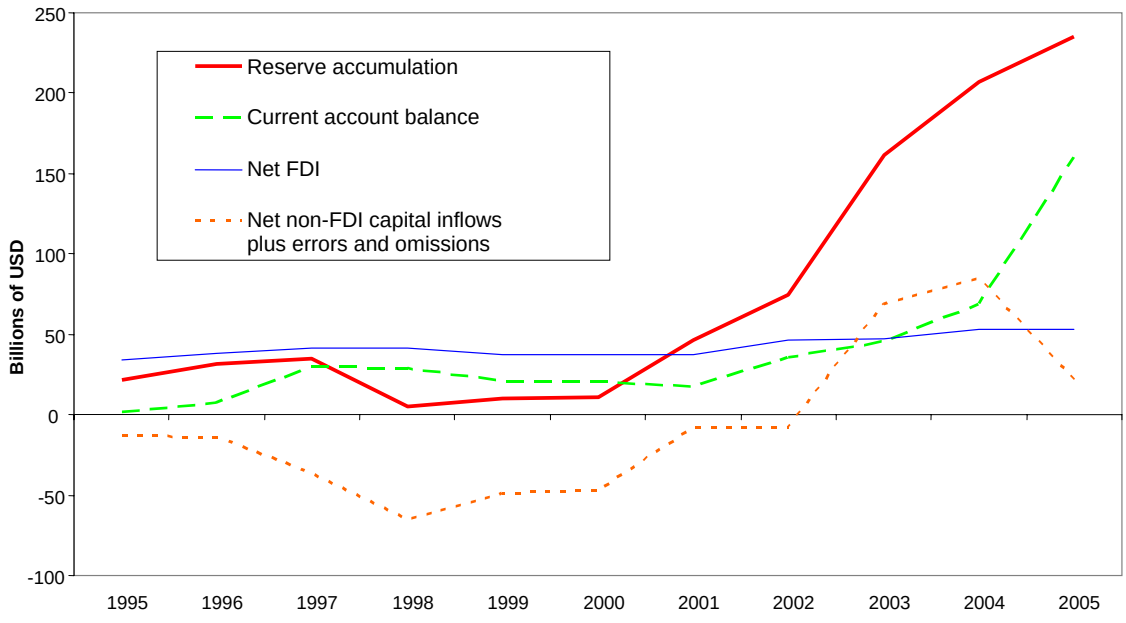
More recently, the government has taken a number of measures to improve the operations of the CFETS and increase the volume of trading. This includes permitting more financial firms to participate in the CFETS, giving the interbank market a greater role in determining the central parity rate and encouraging the development of new financial instruments for hedging foreign exchange risk.

The ability of the government to maintain a stable exchange rate is in part linked to the maintenance of capital controls. While China has actively encouraged inflows of foreign direct investment (FDI) over the last decade and a half, it has kept other parts of the capital account – both for inflows and outflows – relatively closed (see Prasad and Wei (2005)). Overseas borrowing by domestic corporates and financial firms has been actively discouraged, resulting in China's external debt amounting to only about 25% of GDP, while portfolio equity flows have been restricted in both directions.

Nevertheless, the capital account has become de facto more open over time. One indication of this phenomenon is the big role played in recent years by net errors and omissions – the category in the balance of payments that captures unrecorded capital flows (that could take place via current account as well as capital account transactions). As shown in Figure 2, the surge in the pace of reserve accumulation over the period 2001-04 is closely related to the substantial change in non-FDI capital flows, which largely reflect changes in the errors and omissions category. In 2005, however, the continued surge in reserve accumulation appears to have been driven by a surge in the current account balance, with the trade surplus itself rising to over $100 billion.

Figure 2

Components of reserve accumulation



Notes: The figures for foreign exchange reserves include the amounts used for bank recapitalisations: $45 billion in December 2003, $15 billion in April 2005, and $5 billion in September 2005, as well as a $6 billion fx swap that PBC conducted with domestic banks in November 2005.

Sources: CEIC; authors' calculations.

The increasing de facto openness of the capital account means that the independence of China's monetary policy, which is already quite limited because of the fixed exchange rate regime, is being eroded further. This has important implications for the conduct of monetary policy, which we return to later.

3. The financial system

In this section, we present a broad overview of the current state of monetary, banking, and financial markets in China. Virtually all of the formal sector financial intermediation in China takes place through the state-owned banking system, with the total deposit base amounting to about 200% of GDP.[3] Equity and bond markets remain rather underdeveloped, although the authorities are actively trying to change this concentrated structure of the financial system by promoting the restructuring and development of equity and bond markets.

In recent years, bank financing has accounted for more than four fifths of total funding provided through the formal financial sector. Stock market capitalisation amounts to only about 30% of GDP. With only a small number of enterprises permitted to list and about two thirds of shares in listed enterprises held by the state and not traded, the stock market does not play a major role in intermediating household saving into corporate investment. Efforts to reduce the overhang of non-trades shares have depressed stock price indexes, which have declined since 2000, notwithstanding the strong performance of the economy. The bond market is small and dominated by treasury and financial bonds, with corporate bonds barely on the radar screen. Thus, the banking system is crucial to the monetary policy transmission mechanism, even more so in China than in other countries that may have more balanced financial market development.

The Chinese banking system is dominated by four large SCBs, which together account for more than half of the total assets of all banking institutions.[4] The joint stock commercial banks (JSCBs) have expanded the size of their balance sheets quite rapidly in recent years and now account for about 15% of total banking system assets. There are 12 JSCBs, including the Bank of Communications, which recently did an IPO. The 89 city commercial banks account for about 5% of banking system assets. Then there are three policy banks that have explicit directed lending mandates – China Development Bank, Export-Import Bank of China and Agricultural Development Bank of China. The banking system is rounded out by a number of other smaller banks including rural credit cooperatives, urban credit cooperatives, trust and investment companies and finance companies.

Recent reform efforts have been largely focused on the SCBs (steps to reform the credit cooperatives are also under way). The shareholding reform of the four SCBs was initiated in September 2003. Carve-outs of non-performing loans (NPLs) from the banks to asset management companies, recapitalisations using foreign exchange reserves, and other reform efforts have led to substantial improvements in the capital strength, asset quality and operating results of these banks. Bank of China (BOC) and China Construction Bank (CCB) now have NPL ratios below 5% (as a ratio to total loans in each of these banks) and capital adequacy ratios of over 8%, with adequate provisioning for loan losses based on the five-tier classification of loans. Industrial and Commercial Bank of China (ICBC) is also close to achieving this capital adequacy threshold.

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[3] For a description of China's informal financial system, see Allen, Qian and Qian (2005).

[4] See Barnett (2004) for a fuller description of China's banking system.

China has also sought to actively involve foreign strategic investors in the bank restructuring process and views these investors as important agents for promoting governance reforms in the state banks (for a discussion and assessment of this strategy, see Hope and Hu (2005)). Nevertheless, the government has made it clear that it has no plans to privatise or otherwise cede control of any of the domestic banks in the foreseeable future.

Interbank markets are crucial for the effective implementation of monetary policy. China has already put in place some of the institutional arrangements necessary for the PBC to effectively manage aggregate bank reserves in the short run. It has created a deep, liquid market in PBC bills through which the central bank can manage aggregate bank reserves effectively with open market operations. There is also an active repo market that the PBC uses to manage the supply of reserves on a day-to-day basis. The infrastructure for borrowing or lending reserves among banks in the interbank market on the basis of repos or on an uncollateralised basis at the CHIBOR rate is well established. The level of interbank rates is determined flexibly to clear the market for borrowing and lending reserves, and the spread between the rates varies with such things as the nature of collateral backing the loan. This positive assessment of the functioning of interbank markets must, however, be balanced against some major weaknesses that still persist – including the relative thinness and illiquidity of interbank markets, the fact that major players may have excessive market power, and the potential that non-bank participants have to destabilise the market.

4. Monetary policy implementation – instruments and constraints

The primary instruments of monetary policy used by the PBC include open market operations, the rediscount rate and reserve requirements. These are complemented by instructive credit plans, credit policy and "window guidance", indicating the important role still played by non-market approaches in the implementation of monetary policy. Thus, the PBC uses a mix of indirect market instruments and more direct methods to control the volume and composition of credit flows (see Xie and Lou (2001) and Yi (2001) for more details).

Xie (2004) notes that the traditional approach has been to use monetary base as the operational target and money supply as the intermediate target. More recently, the PBC has been using growth rates of both money and bank lending as explicit intermediate targets. The relationship of these aggregates to real activity has not necessarily stayed stable over time. Furthermore, with the growth rate of M2 consistently being a few percentage points higher than nominal GDP growth over the last few years, there has been a trend decline in velocity, complicating things further. Yet, given their easy observability, targets for growth of these two aggregates have become an important device for the PBC to signal its monetary policy intentions and its assessments of growth and inflation prospects.

Base deposit and lending rates of the state banks have traditionally been set by the PBC, but only with prior approval of the State Council. On 1 January 2004, the PBC increased the flexibility in the lending rate to 0.9-1.7 times the base rate for commercial banks and urban credit cooperatives and 0.9-2.0 times the base rate for rural credit cooperatives. Financial institutions were also given the freedom to determine lending rates for individual borrowers based on their risk profiles and other characteristics, rather than being constrained by guidelines on pricing loans related solely to size and ownership structure of borrowers. On 29 October 2004, the ceiling on lending rates was scrapped altogether (except for urban and rural credit cooperatives).[5]

[5] See Dunaway and Prasad (2004) for an assessment of the potential benefits of this policy shift.

Reserve requirements have recently been used quite extensively as a monetary policy instrument. The required reserve ratio (required reserves expressed as a ratio to a bank's deposits) was reduced from 13% during 1988-98 to 6% in 1999, in part to allow banks to better manage their funds. This ratio was raised to 7% in 2003 and further to 7.5% in 2004, as part of a series of measures intended to control lending growth amidst concerns about the rapid pace of overall credit growth and potential overheating in the economy.

In addition to changes in reserve requirements, differentiated reserve requirements were introduced in April 2004. This affected second-tier banks, including the joint stock commercial banks that had accounted for a significant part of the surge in lending growth in 2003. Those banks in this category that did not meet certain standards in terms of the quality of their loan portfolios and capital adequacy were subjected to a reserve requirement of 8%, half a percentage point higher than the standard required reserve ratio. Rural and urban credit cooperatives were exempt from this higher reserve requirement.

Notwithstanding the apparently wide range of instruments available to the PBC, there are three major factors that have complicated the implementation of monetary policy in China. These include the exchange rate regime, institutional weaknesses in the financial and corporate sectors, and the large stocks of excess reserves that banks maintain at the PBC. We discuss these in turn.

4.1 The exchange rate regime

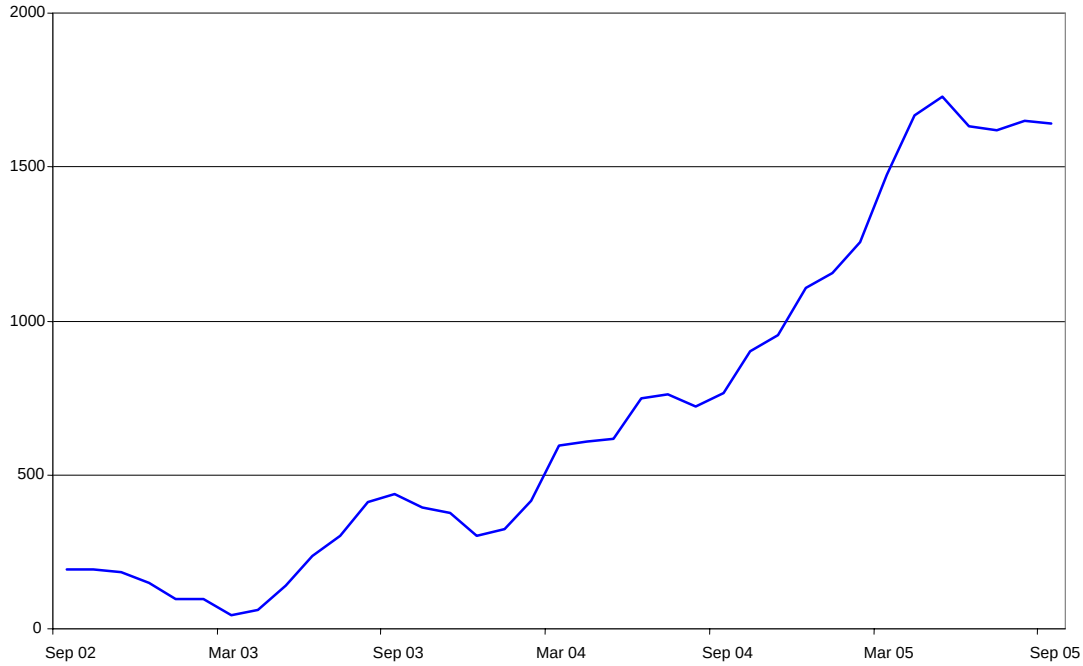
This rigidity of the exchange rate has constrained monetary policy independence by making it difficult for the PBC to use interest rates as a monetary policy instrument to meet domestic policy objectives. The complications created by a fixed exchange rate have been most evident in the remarkably rapid build-up of international reserves since 2001, when the renminbi began to come under appreciation pressures. Gross international reserves stood at 819 billion US dollars at end-2005 (excluding the amounts used for bank recapitalisations in 2003 and 2005). As noted earlier, the spike in the pace of reserve accumulation during 2001-04 is largely attributable to a surge in speculative capital inflows (through both official and unofficial channels), although a rapid expansion in the trade surplus (to over $100 billion) seems to have become a more important factor during 2005.

Until 2002, government bonds had been used as the primary instrument for sterilisation of foreign inflows. Some conversion to central bank (CB) bills took place in late 2002, when the stock of government bonds available for repo transactions had shrunk to very low levels. The first full-fledged auction of new CB bills took place in May 2003. CB bills have now become the primary instrument for sterilisation of capital inflows and, with the surge in inflows, the stock of outstanding CB bills has increased rapidly (Figure 3).

Figure 3

Stocks of central bank bills

In billions of RMB



Source: PBC reports.

The fraction of reserves sterilised by the central bank has varied over the last few years, and it is not even straightforward to assess exactly how much sterilisation has taken place.[6] By and large, the PBC seems to have had little trouble soaking up liquidity using CB bills. While a few analysts have taken the low levels of sterilisation as signalling, at least in some periods, potential problems in sterilisation operations, this is far from obvious. The rate of credit growth has, after all, come down significantly relative to the very high levels observed in 2003-04. Furthermore, the interest rate on CB bills remains quite low. At the end of 2005, the yield on three-month and one-year PBC bills was below 2%, more than two percentage points below comparable US Treasury rates.

Given the success that the PBC has had in sterilising foreign exchange inflows and containing inflation to date, is there any reason to question the sustainability of the current policy regime in which the tightly managed exchange rate serves as the nominal anchor for monetary policy? We believe there are significant costs and risks to maintaining the current regime, especially if it requires continued sterilisation of capital inflows on a massive scale.

First, consider the issue of sustainability. The current configuration of domestic and foreign interest rates implies that the PBC actually "makes money" from its acquisition of dollar assets, implying that the traditional quasi-fiscal costs of sterilisation are apparently nonexistent. However, the PBC's investment in dollar assets involves exchange rate risk (if

[6] Stephen Green has estimated that, in 2004, the PBC sterilised about half of total net foreign exchange inflows.

the RMB were to appreciate against the dollar) as well as interest rate risk (if the industrial country yield curve, which determines returns on China's reserve holdings, were to shift up further). The PBC's assumption of these risks onto its balance sheet in effect exposes the Chinese taxpayers to substantial fiscal losses if things go wrong.

There is another important (but hidden) cost of defending the tightly managed exchange rate system separate from the risks associated with potential capital losses due to movements in the exchange rate or shifts in industrial country interest rates. Controls on capital outflows and domestic financial repression are required to help maintain at low levels the rate of interest paid on central bank bills. To maintain bank profits, the government must then mandate low interest rates on deposits. Thus, the cost of these distortions is ultimately borne by depositors in the banking system – which includes most households, given the lack of alternative investment opportunities – in the form of very low real rates of return on their deposits (Prasad and Ranjan (2005)).

However, incomplete sterilisation is costly in terms of macroeconomic adjustment, too. If capital inflows are significant, and especially if they are expected to persist, banks would be likely to react to the relaxation of reserve positions and the expected persistent fall in interbank rates by significantly increasing loan growth. Moral suasion would only be temporarily effective in deterring the expansion of loans in this case. In the absence of any expected response of the PBC, inflation expectations would rise, nominal interest rates would reflect an increased inflation premium, and more capital would eventually be attracted into the country by the prospect of higher RMB yields and the likelihood of an eventual appreciation of the RMB. In short, incomplete sterilisation is costly because it risks creating an inflation scare and a recession when followed by the inevitable tightening of monetary policy to restore exchange rate stability and credibility for low inflation.

Somewhat paradoxically, another equally valid concern is that credit growth may be leading to excess capacity and eventual deflationary pressures in the future. The recent investment boom is occurring not so much as a consequence of monetary policy, however, but because the government has implicitly encouraged bank funding of high investment to substitute for the low Chinese consumption in aggregate demand. Of course, the saving rate may be unusually high in China because the public is nervous about the sustainability of stable growth due to the monetary policy and banking sector problems that are the focus of our paper.

The main point is that a continuation of monetary policy geared to maintaining a tightly managed foreign exchange rate as the nominal anchor carries substantial risks. This policy option comes, with major risks in terms of deadweight costs associated with excess/ inefficient investment (see Goldstein and Lardy (2004)), fiscal costs to Chinese taxpayers, or an inflation scare followed by a recession. In different circumstances, the tightly managed foreign exchange rate could precipitate the risk of a deflationary recession.

4.2 Institutional weaknesses in the financial system

The Chinese state-owned banking system had laboured under the legacy of directed lending until the late 1990s. Progress has been made since then in terms of improving the commercial orientation of some of the key parts of the banking sector, and significant strides have been made in improving banking supervision and regulation. But Chinese banks are still far from being robust commercially driven financial entities.

Notwithstanding the termination of the official policy of directed lending to state enterprises, the imperative of allowing for unviable state enterprises to continue their operations has continued to sap the banks, which are implicitly forced to continue financing the operation of these enterprises. And the lack of alternative investment opportunities for households and alternative sources of financing for firms has meant that the banking sector has had less incentive to improve its performance.

Thus, an important priority is to transform the banking system from an arm of off-budget fiscal policy using captive savings of households that support transfers to state enterprises into a banking system that can direct credit to its most valued uses given correct interest rate signals. This means that ultimately banks must compete for funds freely in deposit, managed liability and interbank markets against other credit opportunities made available to households and firms. This is a necessary condition for pricing loans efficiently.

Of course, other necessary conditions must be met for banks to provide efficient intermediation – management/owners must have their own capital at risk with the freedom to direct credit to borrowers of their choice without pressure or incentive to make loans favoured by government. And banks must have systems in place to evaluate creditworthiness and to price loans appropriately. Finally, a reasonably competitive banking system is necessary so that packages of loan rates and covenants follow closely the risk-adjusted cost of making loans.

Putting in place the components of a modern banking system as described above is not only difficult, but could entail considerable risks during the transition. This is especially so when one recognises that the transition must be supervised and regulated with great care to preserve the public's confidence in the banks and guard against moral hazard problems associated with the explicit or implicit insurance of bank deposits by the government. Moreover, even if all of the above conditions were met, the consequences of the legacy of directed lending would further complicate the transition.

One additional point worth mentioning is that state enterprises that do make profits are generally not required to pay dividends to the state, so they can use retained earnings to finance requirements for working capital and new investments, making them less sensitive to interest rate changes. Furthermore, it is interesting to note that the liberalisation of lending rates has not resulted in substantially more lending going to the private sector. In part, this is because the incentive structure is such that lending to state enterprises is still seen by bank managers and loan officers as safer, especially from a reputational perspective. Ultimately, more basic reforms will be required to get the incentives right, and it will then be essential to provide appropriate supervisory and regulatory frameworks to avoid moral hazard and agency problems.

4.3 Excess reserves

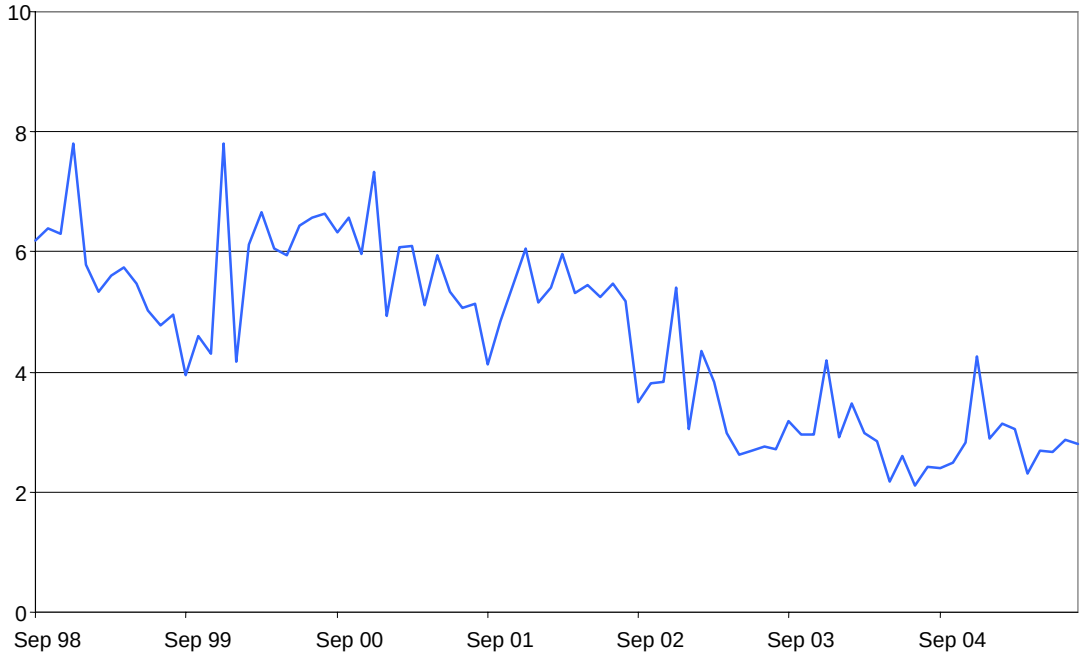
A major complication in using the reserve requirement ratio as an instrument of monetary policy is that the state banks, especially the SCBs, have tended to maintain substantial amounts of excess reserves at the PBC. Some of these excess reserves are believed to be held for interbank settlement and liquidity management purposes, but it is difficult to discern how large the banks' perceived need for excess reserves for this purpose is. The PBC clearly has a concern that a significant amount of excess reserves makes the banks less sensitive to changes in its policy interest rates in the interbank market, thereby reducing the effectiveness of another of its instruments. Indeed, the existence of substantial excess reserves makes policy instruments such as the rediscount rate and reserve requirements not only less effective but also less predictable in their outcomes.

These concerns led the PBC to reduce the rate of remuneration on excess reserves to 1.62% in December 2003 and further to 0.99% in April 2005 (compared to the unchanged rate on required reserves of 1.89%). With these cuts in the rate of remuneration and at the encouragement of the PBC, the amount of excess reserves maintained by banks (as a ratio to total deposits in the banking system) has declined from 7.3% at the end of 2000 to about 3% at end-2005 (Figure 4). Although lower than in the past, this level of excess reserves complicates the use of indirect instruments of monetary policy.

Figure 4

Excess reserves ratio

As a percentage of total deposits in the banking system



Sources: CEIC; authors' calculations.

How can all of these complications be dealt with in setting up an effective monetary policy framework that can respond flexibly to shocks? We now turn to our view of what nominal anchor would serve China best and how these complications could be handled in making the transition to a new nominal anchor.

5. An alternative nominal anchor[7]

Our view is that making low inflation the main objective of monetary policy is the most reliable way to enable the PBC to stabilise domestic inflation and employment against macroeconomic shocks. It is by providing a firm and credible nominal anchor that the PBC can best contribute to overall macroeconomic stability, which would provide the basis for sustained employment growth and help safeguard financial stability.

An inflation objective has the virtues of flexibility and easy communicability. It can also accommodate fluctuations in productivity growth and changing relationships between monetary or credit aggregates and inflation, all of which are relevant considerations for a developing economy. This framework could accommodate a continued role for the monitoring and management of a monetary aggregate (and credit) by the PBC, thereby allowing for continuity in the operational approach to monetary policy. However, our view is

[7] We plan to develop in greater detail in future work the arguments outlined in this section.

that money would not constitute a good standalone nominal anchor since the rate of money growth consistent with a stable level of inflation is likely to be highly variable. We are also not advocating a full-fledged inflation targeting regime in the foreseeable future since there may be various technical and institutional constraints that would hinder its effective operation.

What would it take to put in place a low inflation objective as an effective nominal anchor? Exchange rate flexibility is of course a prerequisite for an independent monetary policy regime. It will also be necessary to put in place banking reforms to facilitate the effective transmission of monetary policy and to enable the banking system to endure the fluctuations in interest rates necessary to stabilise inflation. Finally, effective communications on the part of the PBC will play an important role in the effective operation of monetary policy under the new nominal anchor.

Even though the modernisation of the banking system will take years to complete, a relatively minimal set of banking reforms essential for the transmission of monetary policy could be accomplished in a much shorter period. We believe that China could put in place a basic set of financial sector reforms and regulations that would enable the adoption of an inflation objective as a nominal anchor. These reforms would help give the PBC unconditional control of the monetary base and aggregate bank reserves. Reforms and regulations would also be needed to ensure that banks could withstand the financial stresses resulting from fluctuations in interest rates that may be required from time to time to sustain price stability. We believe that this minimal set of reforms could be put in place in the next few years and would be adequate for instituting a low inflation objective.

China has already taken a number of steps to modernise its banking system, but much remains to be done. The question is how much more modernisation is needed to support independent monetary policy. China has already created some of the institutional flexibility necessary for the PBC to transmit monetary policy actions effectively to aggregate demand – through a liquid bank reserves market, and with fully flexible, competitively determined interbank interest rates. China has allowed deposit and lending rates to be more responsive to the interbank rate; although there continues to be a ceiling on deposit rates and a floor on lending rates. A relaxation of these remaining rate restrictions would help complete the monetary policy transmission mechanism. We believe that it only remains for the PBC to be willing and able to exploit the monetary transmission mechanism to move short-term interest rates in a wide range to target inflation effectively. In particular, it is not necessary to fully modernise China's banking system before moving to independent monetary policy. It is necessary, however, to make the banking and exchange rate system robust to interest rate fluctuations.

One of the main priorities towards this end is that Chinese banking authorities must complete the removal of NPLs from Chinese banks in order to fortify the banking system against flexible interest rate policy. Those banks that are relatively more encumbered by a legacy of NPLs than others would be at a competitive disadvantage in offering interest on deposits, especially if the PBC was required to raise short-term interest rates to stabilise inflation, thereby putting weaker banks in financial distress. The prospect of such financial distress would threaten the entire banking system and could make the PBC reluctant to raise interest rates to fight inflation.

NPLs must, however, be removed in a way that avoids moral hazard problems, ie, that gives the management of recapitalised banks the incentive to manage banks prudently. It is critically important that the removal of NPLs is accompanied by improved bank supervision and regulation. Furthermore, the government must obviate the potential problem of new lending likely to end up as NPLs since, even if explicitly directed lending is forbidden, incentives may be skewed toward implicitly directed lending if bank managers perceive political pressure to lend to the state sector, or for that matter, to favoured sectors or projects elsewhere in the economy. Bank supervisors and regulators must give managers protection against such political pressures. Recapitalised banks should be free of directed lending so

that owners and managers are given strong incentives to manage their banks prudently on commercial considerations. To facilitate these reforms, the government should undertake any future transfers to state-owned enterprises outside the banking system.

Even if these reforms were put in place, it would take a long time for Chinese banks to modernise, ie, to learn to price loans efficiently according to risk, and to design and monitor loan covenants efficiently. Nevertheless, we believe that Chinese monetary policy can be effectively transmitted even through a banking system that may not be fully efficient, as long as the banking system is financially robust against interest rate fluctuations and Chinese exchange rate policy does not inhibit monetary policy actions.

We noted in Section 4 that the level of excess reserves maintained by banks at the PBC is high and variable. Moreover, Chinese banks are said to react to changes in aggregate reserve supply by absorbing or releasing excess reserves to some degree, short-circuiting somewhat the PBC's leverage to influence pressure on reserve positions. Wouldn't such behaviour greatly hinder the adoption of independent monetary policy in China? We think not.

The relative insensitivity of Chinese banks to incremental changes in PBC-managed pressure on reserve positions is to be expected given the fact that banks know that the PBC has little leeway with which to pursue independent monetary policy when the foreign exchange rate has to be tightly managed. The banks are thus understandably reluctant to respond much to an incremental tightening or easing of reserve pressures by the PBC because they doubt there can be much follow-through. In the absence of the managed foreign exchange constraint, the PBC could overcome such complications with more aggressive, sustained open market operations that credibly moved interbank rates in a wider range.

In any case, two reforms could be used to stabilise and reduce excess reserve demand. First, the PBC should in general refrain from discretionary reserve requirement adjustments because these induce volatility in excess reserve demand as banks prepare for and try to anticipate changes in reserve requirements. Second, the PBC should encourage banks to economise on excess reserves by discontinuing the payment of interest on them. To the extent that the banking system chooses to reduce excess reserves, the PBC should be prepared to soak them up by selling PBC bills.

It may take time for excess reserve demand in China to fall to minimums held by banks in those countries with the most modern banking systems and more efficient payment settlement mechanisms. Nevertheless, as the Chinese financial system develops, we would expect the precautionary demand for excess reserves to decline as it has elsewhere, thereby improving the transmission of monetary policy.

An effective communication strategy, to convey clearly to the market the PBC's monetary policy intentions, would be an important element of a new monetary policy framework. The PBC must also have comprehensive, reliable and timely statistics on money, banking, financial markets and the macroeconomy in China to guide independent monetary policy.

6. Concluding thoughts

An independent and effective monetary policy is essential for effective macroeconomic management in China. The Chinese economy is becoming increasingly developed and market-oriented, necessitating a shift from inflexible direct methods of allocating credit and implementing monetary policy, to flexible indirect methods using a liberalised banking system and the management of bank reserves by the central bank.

Although China has a de facto fixed exchange rate, the existence of capital controls – even though they may not be fully effective – implies that there is some room for monetary policy

independence. But the financial repression and capital controls needed to maintain positive cash flow in the banks has affected bank efficiency and has other serious costs. Indeed, the maintenance of a tightly managed foreign exchange rate as the nominal anchor for monetary policy has subjected the PBC to having to deal with enormous capital inflows in recent years that threaten to overwhelm its control of aggregate bank reserves.

In this paper, we have provided a description of China's financial and banking systems, monetary policy operations and exchange rate regime. We have also tried to make the case for replacing the current exchange rate regime with a low inflation objective as the nominal anchor. This would, in our view, be the best way to enable the PBC to stabilise domestic inflation and employment against macroeconomic shocks. This framework could accommodate a continued role for the monitoring and management of a monetary aggregate (and credit) by the PBC, thereby allowing for continuity in the operational approach to monetary policy. However, our view is that money would not constitute a good stand-alone nominal anchor. We are also not advocating a full-fledged inflation targeting regime since the requirements for that regime are much greater and may not be realistic over the next few years.

A robust and efficient financial sector would greatly improve the effectiveness of monetary policy transmission. The full modernisation of China's banking system is of course a distant goal. But we have argued that a relatively modest set of reforms, principally to make the banking system robust to large interest rate fluctuations, would be sufficient to put in place this alternative nominal anchor. Along with the current favourable domestic circumstances – high growth and low inflation – this strengthens the case for moving to a new nominal anchor relatively soon.

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