Investment driven credit in the Peoples’ Republic of China

Jo Michell
Department of Economics
SOAS, University of London

August 2009

Abstract
This paper examines the processes of money and credit creation in the contemporary People’s Republic of China, and the regulation of these processes by the Chinese authorities. The approach taken by the authorities in China is examined in the context of the institutional framework that has resulted from the transition from central planning to a market-based system.

It is argued that the current approach of targeting base money, in conjunction with administrative controls on credit, will become less effective as the level of financial development in China increases, weakening money multiplier relationships. The implementation of monetary policy based on liberal interest rate policy faces obstacles from the high level of liquidity in the private sector. This has arisen as a consequence of high levels of investment and exports, and increasingly represents a form of endogenous credit creation. The declining ability of the authorities to control the level of private credit in the economy is exacerbated by the recent current account surpluses which have given rise to large increases in foreign exchange reserves.

The paper also presents an analysis of the Chinese flow of funds accounts, with reference to the stock-flow consistent modelling systems of Godley and Lavoie. It is argued that the structure of financial systems, and the form taken by flows through these systems, are vital elements in the understanding of monetary and credit relationships in a disequilibrium analysis.

1 Introduction

The way in which monetary policy is implemented in China is a subject of increasing significance. China’s growing economic power and deepening integration into the international economic and monetary systems mean that policy decisions made by the People’s Bank of China now have global implications. International monetary flows have resulted in China’s foreign exchange reserves exceeding the $2 trillion mark, and reflect the depth of the imbalances in the period preceding the current global economic crisis. An understanding of the conduct of monetary policy in China, and of the relationship between monetary
INTRODUCTION

Factors and the dynamics of savings and investment, is therefore an important element in the analysis of the crisis, as well as being of wider value for the insights that it gives into the role of monetary policy in developing and transition economies.

One factor which has been regularly highlighted in discussion of the international imbalances that led up to the current crisis is the excess of saving over investment in the Chinese economy, leading to high levels of capital outflow. The stylised facts around the international flow of funds are well known: very large twin-deficits run by the US, with around half of the US balance of payments deficit accounted for by the Chinese surplus. The high savings rate of the Chinese, and other developing economies is contrasted with the excessive consumption of American and other Western consumers. This was the central point in Bernanke’s famous speech in which he attributed growing imbalances in the world economy to a “global savings glut” (Bernanke, 2005).

This excessive saving, as well as being, in part, a response to the Asian crisis of 1997, is often attributed to a high propensity to save on the part of households, combined with a lack of alternative financial assets. Various justifications are offered for this behaviour: a lack of social safety nets following the dismantling of central planning, cultural factors, and so on.

While the propensity to save of Chinese households is undoubtedly high—for a number of reasons—to regard it as the prime factor in China’s high rate of aggregate saving overlooks the effects of the high level of investment and, increasingly, saving (in the form of retained profits) in the firm sector. As is argued by Chick in her well-known Stages of Banking framework, with the development and deepening of the banking system, credit expansion in the form of money creation by private sector banks becomes an increasingly demand-led process. This gives rise to the potential for planned, and actual savings to diverge as the use of borrowed deposits by firms results in a higher proportion of income being diverted to investment than households wish to save. This has effects on both the total level of income in the economy, and the distribution of that income between households and firms.

This paper describes the evolution of the financial system in China during the period of transition from central planning to a more market-based system. It is shown that the prerequisites for an endogenous, demand-led monetary system were put in place over this period. Following this, a discussion is presented on the current operating procedures followed by the People’s Bank of China in implementing monetary policy. It is argued that the emphasis on quantitative mechanisms for regulating the monetary system are in part a result of the transition from a planned system under which the “Cash Plan” was formulated based on a Fisherian quantity theoretic approach. This emphasis on quantitative measures has been reinforced by the high rate of foreign exchange inflows. The paper then presents some supporting results from the flow of funds data that are published by the Chinese Bureau of Statistics.
2 Transition

Under the system of economic planning that was in place in China from the beginning of Communist rule in 1948, until 1978 when central controls began to be dismantled, there existed two distinct monetary circuits: a credit circuit and a cash circuit. All investment and purchases of inventory by firms were undertaken through the transfer of credit money. Fixed capital investment was financed by transfers directly from the state budget in the form of non-repayable grants, allocated in accordance with the physical plan for production and investment laid down by the State Council. Working capital requirements were paid for by transfer between the accounts of corporations: upon receipt of a delivery of capital goods, the balance of the account of the firm receiving the goods would be debited for an amount calculated using the administratively-set price for the goods, and a corresponding credit would be applied to the account of the producing firm. There was therefore no circulation of currency in the productive sector of the economy. All payments took the form of accounting operations: adjustments to the balance sheets of transacting parties. The remainder of the economy operated on the basis of transactions conducted using cash payments. These transactions consisted of payments of wages, household purchases of consumption goods, payment of taxes and personal savings.

These two forms of money were not freely convertible—although mechanisms existed through which conversion would occur. Administrative control of the two circuits was assumed through the application of three plans: the “Cash Plan”, the “Credit Plan” and the “State Budget”. These were formulated in the following manner: first, physical quantities for fixed capital investment and the production of consumption goods would be decided by the State Council. Budget allocations for firms would then be decided through an iterative process whereby details of the target quantities for production and investment would be provided to local branches of the central bank. These branches would then submit proposed budgets to the central authorities who would compile final targets for the quantities of credit and cash required to fulfil the physical plan (Girardin, 1997).

This system was similar in form to the approach taken by the Soviet Union and other socialist countries such as Poland, with the key feature being the separation of money for consumption and money for investment. Under a system of this type, the characteristics and functions of money and credit are quite different to those observed in a market economy with a developed banking system. The productive sector effectively operates as a “pure credit” economy with all transactions taking place as balance sheet transfers. Credit money therefore performs no role as a store of value or means of transaction but operates solely as the numéraire. Under such conditions, with money operating as a pure unit of account, “notions such as market-determined interest rates, liquidity preference, cost of funds, collateral, and credit-worthiness” cease to hold any relevance (Dow et al., 2008).

The limited convertibility between the two forms of money reduces the active status of

---

1 For example, firms often exceeded their quotas for the employment of workers, requiring an additional cash allocation, which in turn would require increased allowances from the state budget to accommodate the additional expenditure.
cash. In a bank-based capitalist economy, cash forms one component of ‘high-powered money’: those liabilities of the state to which all other forms of money and credit are eventual claims. With the connection to productive investment severed, and with prices and wages fixed by the government, cash plays a passive role in facilitating the purchase of consumption goods, as well as providing households with a means of saving.

The Cash Plan of the Chinese system was formulated with the intention of controlling inflation through the maintenance of a fixed relationship between the quantity of currency in circulation and some measure of sales of goods to households. The approach taken was therefore implicitly based on the quantity theory of money in the formulation presented by Fisher (Guo, 2002; Tam, 1995b). This approach was, to a large extent, retained after 1978 when the mono-bank system began to be dismantled and China started the process of transition to commercial banking and the use of indirect instruments of monetary policy.

During the process of transition, the barrier between the two monetary circuits was removed. The requirement for corporations to perform all transactions using credit money was dropped, allowing for the use of cash within the productive sector of the economy. The initial result of this was the expansion of the cash circuit of the economy into the enterprise sector, resulting in an increasingly “monetised” economic system. With the expansion of the use of circulating currency, cash ceases to act as a passive “ration card” for the household sector, and instead begins to function as a component of the monetary base. This was formally acknowledged in 1986 when the State Council officially adopted monetary aggregates as the intermediate targets of monetary policy with the dual objectives of maintaining stability of the currency and the promotion of economic development as final targets.

The transition to a market-based system was marked by serious problems in controlling credit expansion. Credit and monetary growth invariably exceeded the quantitative targets set for them in the Credit Plan, giving rise to two periods of strongly expansionary credit growth accompanied by high inflation—see Figure 1. These were followed by painful deflations as the government implemented austerity measures in an attempt to rein in inflation. These measures were implemented through a combination of tight monetary conditions, and through direct administrative measures. It is likely that, without recourse to what is referred to in the West as ‘moral suasion’, the authorities would have been unable to bring credit expansion back under control during these episodes.

3 Banking sector reforms

A well-known framework for the analysis of banking system development was developed by Prof. Chick (1986), in which an emphasis is placed on the importance of the specific institutional and historical circumstances under which banking and financial development occurs. This ‘Stages of Banking’ approach outlines a number of sequential stages in the development of the banking system. The transition from the use of cash to the use of bank liabilities as a method of payment is central to the model. Chick describes how the gradual
increase in acceptance of bank liabilities as a transactions mechanism occurs as an outcome of increasing public confidence in the banking system.

Confidence is further strengthened by the development of mechanisms for inter-bank lending of short-term liquidity. Chick describes a process of transition from an initially segmented system in which no mechanism exists for the reallocation of liquidity between surplus and deficit units, resulting in only limited acceptability of the deposits of each bank as a means of payment. With the introduction of inter-bank lending, confidence grows, and deposits become more widely acceptable as a transactions mechanism. With the eventual development of a system in which liquidity is provided on a systemic basis by the central bank, commercial banks take on not only the role of depository institutions and facilitators of payments, but also the ability to issue new money through the creation of deposits backed by newly issued loans.

Once confidence in the banking system has been instilled in the population, and the banking habit is established, deposits begin to perform the role previously held exclusively by cash: that of a means of making payment. It is at this point that the outcome described by Hayek becomes possible: the potential exists for planned savings and investment to diverge, due an elastic supply of bank credit. In a bank-based monetary economy, savings and investment will not automatically form an equilibrium relationship. This is the result that lies behind Keynes’ (Keynes, 1936) famous reversal of the causality in the savings-investment nexus. The potential for monetary creation to allow for investment to precede savings is strengthened with the subsequent stages of banking system development: the emergence of inter-bank lending mechanisms, and the adoption of full responsibility of
the role of lender-of-last-resort by the central bank.

Dow et al. (2008), present an analysis of the transition from the mono-bank system in the countries of the former Soviet Union, using Chick’s ‘Stages of Banking’ as a frame of reference. They show that the breakup of the mono-bank system in these countries was initially accompanied by a sharp increase in the use of cash, demonstrated by an increase in the cash-deposits ratio and a corresponding decrease in the deposits-GDP ratio. It is argued that the breakdown of confidence in the banking system that accompanied the transition was in large part a result of the speed of reforms. According to Dow et al., the policies implemented during the reforms in the FSU countries were formulated without consideration of Chick’s insight that, historically, the increase in confidence in the banking system that allows for the eventual use of deposits as a means of payment has taken place as a gradual process.

In contrast, the transition to a market-based system was of a piecemeal nature in China. Nonetheless, measures of cash usage increased significantly in the years following the introduction of market reforms to the banking system. However, unlike the experience of the FSU countries, the cash-deposit ratio did not increase to anywhere near the same extent, suggesting that confidence in the banking system did not suffer to the same degree as in the FSU. The increasing level of monetisation of the economy was reflected in high rates of growth of both base money and broader monetary aggregates. The increase in the money supply that occurred in the period after the initial reforms was not at first accompanied by high rates of inflation. In fact, over this period, rates of monetary growth were higher than the sum of inflation and GDP growth (Girardin, 1997). Even with the onset of austerity measures in the late 1980s to combat rising inflation, the rate of increase of M2 remained above 25%, even as inflation was brought back down under 5%.

Under central planning, all banks operate effectively as branches of the central bank, and serve primarily as cashiers for the mono-bank system. Starting in 1978, a series of reforms were enacted, with the intention of devolving responsibility for lending and deposit-taking from the central bank to newly created state-owned commercial banks. These reforms took place alongside the introduction of the ‘dual-track’ pricing system, which allowed firms to begin selling, on the free market, anything produced after fulfilling their planned quota. The intention of the reforms was to create a two-tier banking system, consisting of commercial banks capable of making autonomous lending decisions based on independent evaluations of the credit-worthiness of borrowers and the viability of investment projects, with the central bank taking a position closer to that found in more advanced market based systems.

In 1983 four specialised state-owned commercial banks (SOCBs) were created, with each given responsibility for the provision of credit to enterprises in a specific sector of the economy. This was intended to leave the PBC with the role of credit provision to cover the

---

2 Sachs & Woo (1997) argue that the gradualist approach taken in China would not have been possible in the former Soviet Union countries, due to differences in economic structure at the time of transition

3 This dual track system continued until around 1990, when the government began to allow prices to be fully market determined. (Mu, 2007)
shortfall between deposits and loans, and to cover short-term and seasonal needs. Initially, however, the four new state-owned commercial banks continued to operate essentially as arms of the People’s Bank. All deposits were initially required to be surrendered to the PBC, while credit would be allocated to the banking system according to the Credit Plan. In 1985, reforms were introduced allowing the SOCBs to lend based on the level of deposits held, and to allow the lending of excess reserves directly between banks. (Jinglian, 1995, pp. 86–87)

In practice these institutions found it impossible to restrain the growth of credit in the economy, and in particular to control the credit extended to the large inefficient state-owned enterprises that were the backbone of the Chinese economy. Thus, by the mid-1990s, the balance sheets of the four state-owned banks were saddled with very high levels of non-performing loans.

During the transition period the PBC relied strongly on the use of “window guidance” as a means of credit control. This was possible due to the close relationships between the PBC and the state commercial banks that existed as a legacy of the mono-bank system. Nonetheless, the use of indirect instruments took on increasing importance over this period. A large number of different instruments were used during this period—Xie (2004, p. 19) lists 14 monetary policy instruments that have been introduced since 1983. Some have since been abandoned, either temporarily or permanently, while the use of others has been retained.

The re-discounting of commercial bills was introduced by the PBC in 1986, in response to problems caused by the mechanism by which banks were used to collect trade debts. The clearing system in operation at the time was configured in such a way that banks were responsible for the collection of outstanding debts once delivery for goods had been made. The result of this was that banks would often end up bailing out the creditor in situations where the company receiving goods was unable to pay. (Holz, 1992, pp 82–83) The introduction of re-discounting by the PBC, and the legitimisation of the discounting of commercial bills by banks was introduced as a way of allowing the banking system to accommodate overdue trade credit, and prevent the “chain reaction” breakdowns in production that can occur with enterprise defaults.

The tentative first steps towards a unified system of decentralised inter-bank liquidity management took place while the Credit Plan was still operational. An informal system of inter-bank lending had been in operation since the 1980s but the system was thrown into disorder and progress on reforms halted by the inflationary episodes experienced in the late 80s and early 90s when inter-bank lending was increasingly used for illegitimate purposes. Girardin (1997) argues that the system of inter-bank lending acted as a mechanism for side-stepping regional credit ceilings. Although the inter-bank system was intended as a way for banks to cover short-term liquidity needs, banks with excess reserves used

\[4\text{Similar problems occurred under the period of central planning in Poland under a system of automatic crediting whereby firms would send their invoices directly to banks rather than counterpart firms. These invoices would be paid automatically, regardless of whether the purchasing firm had available credit. (Podolsky, 1973)}\]
inter-bank lending to fund investment in other regions, thus breaching the limits set in the Credit Plan. The type of lending that was taking place was visible from the maturity of loans: in principle, the maximum allowable maturity of loans was 7 days. In fact, in 1988 around 70% of loans between banks were of maturities of over one month. The problems continued into the early 90s during which time the inter-bank market was also used as a source of long-term funds for speculative investment in real-estate (Guo, 2002; Duo, 2002).

With the inflationary bouts of 1988 and 1993 under control, and the formal adoption of market socialism by the State Council in 1993, a new wave of reforms were initiated. This led to the creation in 1994 of three ‘policy banks’ (Wei, 1999), which were to take over the role of issuing state-directed credit to SOEs, with the intention of facilitating a more commercial approach to lending by the four state-owned commercial banks. A programme of recapitalisation was initiated, with non-performing loans gradually transferred to the balance sheets of newly established asset-management corporations. This programme has been highly successful, with NPLs falling from 30% in 2001 to 6% in 2007. The majority of the remaining NPLs remain on the books of the Agricultural Bank of China, the last of the four state-owned commercial banks to undergo the recapitalisation programme.

In 1996, the inter-bank system was unified from a collection of segmented regional institutions into a national system based on electronic trading of reserves Green (2005), and base money was explicitly specified as the operational target of monetary policy. In 1998 the Credit Plan was switched from being, at least in theory, a binding constraint on firms, to being “indicative” in form, in effect taking the form of a target for broad monetary aggregates.

4 Monetary policy implementation details

Having outlined the steps taken during the transition to a market-based banking system, we turn now to the details of the current operating procedures used by the PBC. Following Toporowski (2007) and Bindseil (2004), a useful framework for the analysis of monetary policy implementation can be obtained by the division of the central bank balance sheet into two sections: monetary policy operations and autonomous factors. Table 1 summarises the main items in these two categories.

The first category, Monetary policy operations, includes the following: Both outright and “repo” open market operations, standing facilities, and reserve requirements. As Toporowski (2007) observes, this comprises that part of the central bank balance sheet that “summarises those monetary operations that are currently thought to be of significance among the major central banks whose practices inform contemporary monetary theory”. Under the recent “New Consensus” view on monetary policy implementation, a convergence of opinion has

5McKinnon (McKinnon & Schnabl, 2009) argues that the failure to control credit during this period was due to the fact that China’s exchange rate was floating against the dollar. Once the currency was pegged to the dollar in 1997, the nominal anchor provided by the dollar provided the credibility that was required to rein in inflation.
occurred between academics and central bankers. With the advent of the New Keynesian monetary models marking a return (or, as was argued in the previous chapter, a partial return) to a Wicksellian approach of focusing on the deviation of the money rate of interest from the equilibrium natural rate, academic theory has finally accepted the argument of central bankers that control of short-term interest rates, rather than monetary aggregates, is the primary task of the central bank.

The “New Consensus” view holds that the optimal approach to the implementation of monetary policy is through the use of a “channel” system of standing facilities (Bindseil, 2004; Woodford, 2003). Under a system of this type, the central bank provides both deposit and loan facilities to eligible financial institutions at fixed rates of interest. Unlike the current discount window at the Fed, the use of these facilities should not carry any negative connotations about an institution’s balance sheet, and should be freely available when backed by valid collateral such as government securities. By making daily adjustments to the net liquidity of the banking system through open market operations, the central bank can accommodate short-term fluctuations in money demand, while maintaining the level of clearing balances at close to a net position of zero.\(^6\) The market for overnight money should then clear at a position close to the half-way point between the deposit and loan rates, allowing for very close control over short-term rates.

This shift in the academic view implies a diminished role for open market operations, when compared to the previous monetarist approach. In that view, open market operations were seen as the primary method for regulating the level of credit in the economy, through direct operations on the monetary base that would, via stable multiplier relationships, result in proportionate changes in broader aggregates. While the shift in emphasis towards control of short-term rates is to be welcomed, as argued by Toporowski (2007), in the case of developing and newly-industrialising countries, or those countries that operate currency board arrangements, intervention in the currency markets is often inevitable if the central bank is to avoid fluctuations in exchange rates feeding through into changes in the domestic price level. Given China’s policy of maintaining a fixed, or closely controlled crawling rate of exchange against the dollar, an emphasis on balance-sheet operations is central to the PBC’s implementation of monetary policy. The foreign exchange inflows resulting from China’s current account surplus, along with high levels of FDI, have resulted in massive intervention in the foreign exchange markets by the PBC and large-scale sterilisation operations.

---

\(^6\)Godley & Lavoie (2007) make the distinction between asset-based and overdraft financial systems. Godley & Lavoie argue that most textbooks describe asset-based systems, characterised by large holdings of government securities by the banking sector, whereas most economies operate as overdraft-based systems such that the banking systems remain in structural deficit towards the central bank. With the advent of liability management techniques in the last couple of decades, Anglo-Saxon economies have moved closer to the overdraft-based model. (p. 374)
4 MONETARY POLICY IMPLEMENTATION DETAILS

Monetary policy operations

<table>
<thead>
<tr>
<th>Liquidity-injecting standing facilities</th>
<th>Liquidity-absorbing standing facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidity-injecting outright OMO</td>
<td>Liquidity-absorbing outright OMO</td>
</tr>
<tr>
<td>Liquidity-injecting repo OMO</td>
<td>Liquidity-absorbing repo OMO</td>
</tr>
<tr>
<td>Required reserves</td>
<td>Required reserves</td>
</tr>
</tbody>
</table>

Autonomous Factors

<table>
<thead>
<tr>
<th>FX reserves</th>
<th>Government deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excess reserves</td>
<td>Banknotes in circulation</td>
</tr>
</tbody>
</table>

Table 1: Central bank balance sheet (Toporowski, 2007; Bindseil, 2004)

4.1 Monetary policy operations

The PBC provides both liquidity-absorbing and liquidity-injecting standing facilities. A re-discounting facility has been maintained since its introduction for the purposes of financing trade credit, as described in the previous section. The rate at which the PBC discounts bills was reformed in 1998, in order to link the rate at which the PBC discounts bills to the official PBC policy rate. Previous to the reform, the rate at which the PBC would re-discount bills was set with reference to the prevailing rates in the inter-bank market, rather than with a view to influencing those rates. There was thus no direct connection between money market rates and the official PBC policy rate.

On the liquidity-absorbing side of the balance sheet, the PBC provides a remunerated deposit facility for the excess reserves of commercial banks. This facility was combined with the required reserves account in 1998, with both required and excess reserves remunerated at the same rate. This remained the case until 2003 when, in response to concern about the high level of excess reserves held by the banking system, the PBC reintroduced the distinction and reduced the rate of remuneration on excess reserves from 1.62% while leaving the rate paid on required reserves unchanged at 1.89%. The rate on excess reserves was subsequently cut again in 2005 to 0.99% (Goodfriend & Prasad, 2006).

Although the provision of these two facilities does theoretically impose upper and lower bounds on the levels at which the money market can clear, in practice these rates have exerted little influence on the market. The spread between the two rates is significantly larger than the 50 basis points advocated by proponents of the New Consensus system—for example, in 2005 it was over 200 basis points. Of greater significance is the lack of activity at the re-discount facility over the last decade: the high levels of liquidity in the banking system has meant that recourse to central bank credit has been minimal, with only occasional borrowing to cover sudden increases in demand for cash at busy times of the year. Thus, instead of adjusting the liquidity of banking system such that net clearing balances are close to zero on a nightly basis, the banking system has remained structurally in credit with the PBC, with high levels of excess reserves left on deposit at the PBC. Figure 2 shows
the relationship between the PBC re-discount rate and the benchmark 7-day money market rate. It is clear that there is little correlation between the central bank and market rates. In 2004-05 money market rates actually dropped following an increase in the re-discount rate by the PBC. It is also apparent that re-discount facility is ineffective at imposing a ceiling on money-market rates during periods of high volatility, such as that seen towards the end of 2008.\(^7\) This volatility was the result of a sustained period of monetary tightening by the PBC in response to an overheating construction sector and a speculative real-estate bubble.

![Money market and deposit rates.](image)

This tightening was accomplished in part through raising the interest rates charged by banks, which are tightly controlled by the PBC, (see Figure 6), but also through successive increases in the level of required reserves. Figure 3 shows the path of the required reserve ratio set by the PBC. Following the unification of the required and excess reserve facilities in 1998, the reserve ratio set at 13%, of which 8% was legally required to be held and the remaining 5% could be used for clearing purposes. (Xie, 2004). Subsequent to this, the level of required reserves was further reduced in late 1999 to 6%, and remained at this level until late 2004. By this point foreign exchange inflows were having a significant expansionary effect on the domestic money supply, and the reserve requirement began to be employed as a means of restraining credit growth. The ratio was increased from mid-2006 to a peak

\(^7\)Xie (2004) examines PBC monetary policy between 1998 and 2002, and concludes that, over this period, standing facilities do operate in the way proposed by the New Consensus: “The interest rate on required and excess reserves marks the lower limit of the money market interest rate, while the PBC lending rate determines the upper limit of the money market rate. Central bank interest rates play important roles in monetary policy as they determine the money market interest rates.” (p. 20)
of almost 18% in 2008 when the PBC switched to a stance of monetary loosening in response to the bursting of the construction and real-estate bubble, which was followed by the global financial crisis of 2008.

The effects of this cycle of increases in the required reserve ratio is shown in Figure 4. The two dotted lines, plotted against the left axis, show the level of required reserves and the level of total reserves lodged with the PBC. The difference between these two quantities gives the level of excess reserves. The ratio of excess reserves to the total level of deposits in the banking system as a whole is shown by the solid line, plotted against the right axis. The excess reserve ratio displays a cyclical pattern, with annual spikes around the time of the new year as cash is withdrawn, leading to a drop in the level of deposits. Overall, a negative trend is displayed, with excess liquidity gradually drained from the system by the series of increases in the reserve ratio shown in Figure 3. The tightening cycle came to an end in late 2008, as can be seen by the drop in required reserves, allowing excess reserves to expand again. Referring back to Figure 2, the effect of the increases in the required reserve ratio can be seen in the increasing level of volatility of short-term interest rates as monetary policy began to “bite”. This volatility of short term rates of interest is reminiscent of what was observed in the West during the monetarist experiment of the late 70s and early 1980s. As the authorities attempted to control inflation through direct control over monetary aggregates, the outcome was “tremendous interest rate volatility that negatively impacted the business investment environment” (Palley, 2006).

![Figure 3: Required reserve ratio.](image-url)
gued by Bindseil (2004), the justification for imposing reserve requirements on the banking sector has changed over time. The view that required reserves provide a liquidity cushion to protect the banking system against over-lending or unforeseen systemic risk has largely been discarded. Reserve requirements have been dropped completely in some economies, for example the United Kingdom. The use of required reserves as a monetary policy tool for directly controlling monetary variables through changes in the aggregate liquidity of the banking sector has also fallen out of favour since around the 1970s, with current opinion based around the view that reserve requirements are primarily a mechanism for the stabilisation of short-term interest rates. Nonetheless, with the costs of foreign exchange inflows rising due to the differential between rates on PBC bills and foreign interest rates, hiking reserve requirements provided the PBC with an alternative sterilisation mechanism to the continued issuance of central bank bills.

This brings us to the the final item under monetary policy operations: open market operations. These constitute operations carried out at the discretion of the central bank with the intention of altering the aggregate level of reserves held by the banking system. As already noted, the down-grade in importance for these operations as a monetary policy tool, in the current consensus, is less straightforward when applied to “emerging market” economies.

In the case of China, the balance of payments deficit caused by the rising current account surplus implied that, in order to prevent currency accumulation and keep the supply of money in line with domestic demand, the PBC was required to reduce its stocks of government securities at the same rate as FX inflows accumulated. Open-market operations
were reintroduced by the PBC in 1998, initially as a means of injecting liquidity to cover temporary shortfalls. This was done using outright operations with the PBC purchasing treasury bonds to hold until maturity. With the onset of the structural balance of payments surplus, the PBC switched to the use of reverse repo operations in response to the increasingly high levels of liquidity in the banking system. By 2002, the outflows of government securities from the PBC were unsustainable: a shortfall in eligible government paper for OMOs led the PBC to begin issuing its own bills for the purposes of sterilising foreign exchange inflows.

The cumulative level of these sterilisation operations is shown in Figure 5. The figure shows the RMB value of the FX reserves held by the PBC as a dotted line. Below this are two shaded regions, which represent an estimate of the level of sterilisation undertaken through the issuance of PBC bills (the bottom area) and through increases in the required reserve ratio (the top area). As can be seen, the PBC as been quite successful in its attempts to neutralise the domestic monetary effects of FX inflows. The gap between the top of the shaded section and the line represents the quantity of unsterilised FX inflows, which will translate into domestic monetary expansion. However, the level of unsterilised inflows is likely to be underestimated in this diagram, as it does not include foreign exchange held on the balance sheets of private sector agents. This is being encouraged by the PBC as a way of “indirect sterilisation”: banks are required to hold some of their required reserves in foreign currency, and firms are no longer required to surrender all FX earnings, but are instead encouraged to hold some on their own balance sheets.

4.2 Autonomous factors

The remaining items on the central bank balance sheet come under the heading of autonomous factors. This section covers those items that the central bank has no immediate control over on a day-to-day basis. This comprises such items as banknotes in circulation, government deposits and foreign currency. In most advanced market economies, the most important of these items is banknotes in circulation. As these nations operate floating exchange rates, and it is the institutional arrangements of such nations that tend to influence academic discussion on the implementation of monetary policy, the effect of foreign exchange reserves on the balance sheet of the central bank tends to receive little discussion. In the case of China, however, foreign currency reserves are of far greater significance, due to the effects of the balance of payments surplus.

During the transition phase described in the previous section, China operated a dual-rate system of foreign exchange. These rates were unified in 1994, and in 1996 renminbi convertibility on current account was introduced. Since this point, the Chinese authorities have kept the value of the yuan under tight control. A fixed peg to the U.S. dollar was maintained from 1998 until 2005, when the State Council announced a switch to a “basket, band and crawl” regime. Since then, the yuan has appreciated by around 20% against...
the dollar. However, this currency peg has been maintained in the face of a continuously increasing surplus on the current account. The PBC has thus had to intervene heavily in foreign exchange markets to prevent appreciation of the yuan.

4.3 Determination of interest rates

As previously noted, the “New Consensus” views control of short-term rates of interest as the correct way for central banks to regulate the economy. Given the assumption of perfect financial markets in these models, any adjustments to the risk-free rate of return at the short end of the yield curve are immediately transmitted to all other maturities through arbitrage relations. Thus, by maintaining control of short-term rates of interest, the whole structure of longer-term rates can be shifted in response to changes in inflation.

The underdevelopment of financial markets in China, particularly in comparison to the degree of banking depth, means that this assumption is even more far-fetched than it would be for more “financialised” economies. The determination of interest rates in China at different maturities occurs through a combination of market structures, and PBC regulations.

At the longest maturities, the market is dominated by government debt. While yields are determined by the market, they are kept low by the fact that corporate debt issuance has been strongly discouraged by the authorities,\(^9\) meaning that the depth of the market for

\(^9\)The State Council’s antipathy towards corporate bond finance is seen by Huang & Zhu (2007) as partly
longer-term debt is thin, with most enterprises financed through bank credit or retained earnings. The depressing effect is been compounded by the PBC issuance of sterilisation bills: the PBC will keep rates as low as possible on these bills both to minimise the direct costs, and also to minimise upward pressure on the exchange rate.

At the short end of the curve, the overnight and 7-day rates are set in the inter-bank market. The PBC exerts very little influence over these rates, but as already noted, the high liquidity levels imply that the lending rates set by the PBC in these markets are of little direct significance.

The PBC has been similarly inactive with respect to OMO at the short end of the curve. Although it has periodically intervened in the market to drain liquidity using repo operations, it has concentrated for the most part on sterilisation operations through bill issuance at 3-month and 1-year maturities. This lack of PBC influence on money market rates is apparent when comparing the benchmark rates quoted by the PBC, and short term money market rates.

With regard to the rates of interest effective within the commercial banking system, until 2004, banks had no leeway when setting the rates on deposits and loans: all interest rates were fixed by State Council. In 2004 the ceiling on lending rates and the floor on deposit rates were removed, in theory allowing rates to be set through the market mechanism. In practice what has happened is that deposit rates have remained fixed at the ceiling level, as banks compete to attract deposits, while lending rates have begun to increase above the floor in response to high level of demand for bank credit. Figure 6 shows the benchmark 1-year loan and deposit rates set by the PBC, as well as the PBC deposit rate.

During the period of central planning, prices of goods were fixed by the State Council in such a way as to impose implicit subsidies and taxes on different sectors of the economy, in accordance with the development planning approach. By setting the prices of final goods at above market levels, and capital goods at below market levels, the authorities provided a stimulus to high levels of investment. Likewise, the imposition of a fixed structure of interest rates on the banking system essentially gives rise to transfers of value between creditors and debtors. The high spreads between lending and borrowing rates were imposed in part to protect the banking system in the wake of the recapitalisation and removal of NPLs.

4.4 PBC monetary policy implementation

From the above outline of the monetary policy tools in use by the PBC it can be seen that, although the main instruments required for the implementation of monetary policy though the steering of interest rates are in place, the monetary policy framework used by the PBC is still a long way from what Western academics and central bankers would regard as the current “state of the art” in monetary operating procedures. The restrictions imposed by the evolution of the banking system out of an era of central planning, in com-

---

informed by the historical experience of foreign borrowing during the Qing dynasty when excessive sovereign debt issuance eventually bankrupted the government.
Combination with the requirements of coping with massive current account surpluses, have led to an approach which, although unorthodox when viewed through the lens of current academic opinion, appears to have been largely effective in keeping inflation under control while allowing growth to remain at remarkably high levels for the past decade. But one can question to what extent this apparently positive outcome has been the result of the policies of the PBC and the State Council or, alternatively, a reflection of the structural characteristics of the Chinese (and international) economy over the last decade. It should be noted the central banks of the US and UK were taking credit for the “Goldilocks” economy over the same period, while presiding over increasing structural imbalances that gave rise to the most severe crisis in decades.

Although the stated targets of monetary policy in China are monetary aggregates, given the levels of excess liquidity in the banking system for the last decade—as demonstrated for example by the level of excess reserves—there has not been any point since 1993 when monetary policy has been tight enough to cause a shortfall in reserves in the banking system. This would, if the multiplier operated in the way that monetarist models predict, have caused a corresponding reduction in the growth of broader monetary aggregates. The only point at which monetary policy genuinely became “tight” in terms of restricting the liquidity available to the banking sector was during late 2008, however this policy was quickly reversed as inflationary pressure rapidly gave way to deflation. Likewise, although the primary monetary policy tool used over the past decade has been OMO, operations have almost entirely been of a defensive nature, mostly in response to foreign exchange inflows.

An alternative view would therefore be that the growth of the money supply has been
been demand-led, driven by the very high rate of investment. Increasingly, this demand for money has been accommodated by expansion of the level of reserves in the banking system arising out of unsterilised foreign exchange inflows. Studies that have examined the relationship between high-powered money and broader aggregates\textsuperscript{10} have found minimal correlation. Thus, given the rate at which financial deepening is occurring in China (Figure 7 shows the evolution of the broad money/GDP ratio since the start of the transition from central planning), control of broad money aggregates through quantitative measures is no longer a viable option.

This view is reinforced by the experience of the recent monetary stimulus. Since the authorities reversed their monetary stance in mid-2008 and began releasing liquidity into the system at a rapid rate, bank lending has picked up sharply in early 2009 as shown by the rise in M2. However, much of this lending has been used by firms to restructure balance sheets, rather than been directed to productive investment. Roubini (2009) reports that most of the 3 trillion yuan of credit growth in the first quarter of 2009 has either gone into the stock market, or been re-deposited into the banking system at longer maturities.\textsuperscript{11} The current expansion of liquidity in China may therefore turn out to be akin to Keynes’ famous analogy of “pushing on a string”. The fact that, in a break with tradition, the PBC

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{broad_money_gdp_ratio.png}
\caption{Broad money/GDP ratio.}
\end{figure}

\textsuperscript{10}E.g. Xie (2004)

\textsuperscript{11}This view was also recently aired by Wei Jianing, a senior researcher at the State Council’s Development and Research Centre who was quoted in the Shanghai Securities News: “The current model of bank lending can easily create new asset price bubbles—and has shown some signs of doing so. The credit surge is circulating within the financial sector, raising stock prices and property prices.”
did not announce a target for M2 growth at its 2008 annual conference may be a signal that the PBC recognises that the focus on quantitative mechanisms are no longer applicable.

The PBC faces a number of significant obstacles in moving towards a liberalised interest rate-based monetary policy. The high level of liquidity in both the banking sector and, increasingly on firms’ balance sheets, will dampen the effectiveness of interest rate changes in influencing firms’ investment decisions. Likewise the high level of household savings in the form of bank deposits, and a lack of access to consumer credit serve to weaken the credit channel of monetary policy.12

The weakness of Chinese financial markets further contribute to the excess liquidity in the banking system, due to the lack of alternative financial assets. Bond markets in China are underdeveloped, with outstanding bonds at the end of 2006 equivalent to around 35% of GDP. This compares to a deposit base in the banking system of around 200% of GDP. The stock market faces problems of insider trading, a low proportion of free float, and significant government ownership of listed companies. This has resulted in volatility and a high degree of speculative behaviour (referred to in China as “stir-frying” stocks). A massive stock market bubble was inflated in 2007 as households attempted to diversify their financial holdings away from low-yielding bank deposits into equity ownership. This attempted move into corporate ownership by the household sector was not accompanied by a corresponding issuance of new equity, thus the flow of money into stocks had little effect on the liquidity of the banking system, as purchases of shares were made through the transfer of bank deposits from the purchaser to the seller of stocks. The bubble came to an end in 2008 with the collapse of the stock market, although the market has risen around 65% since the start of 2009.

Households and firms are therefore faced with little choice when it comes to decisions about savings and investment. Despite low or negative real interest rates13 on savings accounts, households continue to increase their holdings of deposits. Firms, when faced with negative real returns on bank deposits, may reasonably choose to opt for increased investment in capital assets even if expected to make a loss, as long as the expected loss is lower than that taken by holding bank deposits.

12 A recent empirical investigation (Wu, 2009) of the demand for money in China concluded that a stable broad money demand function exists, with an income elasticity of less than unity, but that sensitivity to interest rates is minimal.

13 Lardy (2008) argues that the imposition of low rates of interest has constituted a form of “financial repression”, the outcome of which is a transfer of value from households to other sectors in the economy. By comparing the real rate on deposits in 2008 with that which was paid in 2002—the point at which “financial repression started”—he calculates that this “implicit tax” on households accounted for over 4% of GDP in the first quarter of 2008—more than triple the revenue generated by direct income tax. The methodology behind these calculations appears problematic to this author: a strong ceteris paribus is being made.
5 China’s flow of funds

This section of the paper presents an examination of the flow of funds data for China. Following Godley & Lavoie (2007), the analysis is undertaken with reference to a “transactions matrix”. This matrix provides a stylised representation of all of the flows—both real and financial—within the economic system.

Table 2 shows the transactions matrix for the Chinese economy. The rows of the table each represent one type of flow. The rows are divided into two sections: the top section contains real flows such as consumption and investment, with the bottom section containing financial flows arising from changes in each sector’s holdings of various financial assets. Each entry in the body of the matrix represents the magnitude of particular type of flow, valued at constant prices. Sources of funds are shown as positive entries, and uses of funds by negative entries.

The matrix follows the Godley and Lavoie methodology of requiring that all outflows from a sector are exactly balanced by inflows from other sectors, and that all liabilities issued by a particular sector are held elsewhere in the system as assets. Adhering to this system means that, in a closed economic system, all columns and rows must sum to zero. The system thus represents a cohesive, consistent, whole: everything produced is either consumed or invested. Any imbalance between the real inflows and outflows of any sector must be exactly offset by a change in the holdings of financial assets by that sector.

There is one key difference between the transactions matrix for the Chinese economy, and those presented by Godley & Lavoie (2007) is that the China matrix does not represent a complete economic system: as the model is intended to represent the Chinese economy, which operates an open current account, exports and imports are included in the matrix. This means that, without a “rest of the world” column to bring the matrix into balance overall, there will be three rows that do not sum to zero: exports, imports and net foreign exchange flows. This matrix allows for the illustration of the relationship between the flow of funds accounts, and a number of well-known national accounting identities.

As each row and column must sum to zero (apart from the already mentioned exceptions), the matrix allows us to read off a number of ex-post relationships that must be satisfied over any given period of time (the data under consideration are yearly). This is done by extracting the contents of rows or columns from the matrix, and converting them into equalities.

As a first example, and recalling that all productive activity is assumed to occur in the firm sector, if we extract the real flows in the firm’s current account column, it can be seen that the first six entries are equivalent to the standard national income identity:

\[ C + G + I + (X - M) = Y \]  \hspace{1cm} (1)

Next, turning to the sub-total row for the net financial balance of each sector, this can be written as follows.

\[ (S_H - I_H) + (S_G - I_G) + (S_F - I_F) = (X - M) \]  \hspace{1cm} (2)
Collecting together savings and investment terms to give aggregate saving and investment:

\[ S - I = X - M \]  

(3)

Assuming a balanced trade account, this simply leaves us with the very familiar Keynesian identity that savings must equal investment. As Godley & Lavoie (2007) observe: “This is the closest mainstream economists will get from financial issues. What happens to these savings, how they arise, what is their composition, how they link up the surplus sectors to the deficit sectors, is usually not discussed or modelled.”

They go on to point out that, by substituting \((G - T)\) for \(S_F\) in Equation 2 and rearranging, we can derive Kalecki’s (1971, pp. 82–3) famous equation equating profits to the sum of investment, the government deficit and net exports, minus household savings:

\[ S_F = I + (X - M) + (G - T) - S_H \]  

(4)

As noted before, the transactions matrix in itself implies no causal structure, and without imposing further assumptions as to the way in which different elements interact, simply provides a set of accounting relationships that must be fulfilled for the system to retain consistency. An example of how these accounting identities can be converted in causal relationships is provided by Equation 4. As argued by (Toporowski, 2008a), this ex-post identity implies a causal relationship. Assuming that firms are unable to directly alter the trade balance, government surplus or household savings, there then remains a positive relationship between the rate of investment and retained profits (firms’ savings). Of these two variables, the only one that firms may influence directly is the rate of investment. The causation then runs from investment undertaken by firms to the level of retained profits. An increase in investment by firms should, ceteris paribus, lead to an increase in retained profits and vice versa, whilst any increase in household savings will require an equivalent offsetting rise in investment if the profitability of firms is not to be reduced.

Viewed from the point of view of the Kalecki-Steindl causal relationship, the positive trade balance \((X > F)\) serves to reduce the degree to which household savings decrease the level of retained profits of firms: any reduction in the current account surplus due to reduced export demand will serve to reduce the profitability of firms. A government fiscal surplus \((G < T)\) will likewise act to reduce firm profitability, as government “saving” constitutes a drain on the flows that would otherwise accrue as firms’ retained earnings. However, given that the fiscal surplus in China is transferred to firms in the form of capital transfers, it essentially becomes a component of the retained earnings of firms.\(^{14}\)

Turning now to the flow of funds data for China\(^{15}\), Figure 8 shows the levels of total savings and investment for the decade 1995–2005, along with the balance of trade. The first thing to note is that investment in China in the period since central controls were dismantled has been high, and since around 1993 has been exceptionally high. Total investment in

---

\(^{14}\)(Kregel, 2008) argues that foreign lending has acted as a substitute for fiscal deficits in China by maintaining aggregate demand in the export sector.

\(^{15}\)The data for the discussion in the following section are shown in Tables 3 and 4.
<table>
<thead>
<tr>
<th></th>
<th>Households</th>
<th>Government</th>
<th>Firms (cur)</th>
<th>Firms (cap)</th>
<th>Banks</th>
<th>Central Bank</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>$-C$</td>
<td>$+C$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Govt Expenditure</td>
<td>$-G$</td>
<td>$+G$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Investment</td>
<td>$-I_H$</td>
<td>$-I_G$</td>
<td>$+I$</td>
<td>$-I_F$</td>
<td></td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Exports</td>
<td></td>
<td>$+X$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$+X$</td>
</tr>
<tr>
<td>Imports</td>
<td></td>
<td>$-M$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$-M$</td>
</tr>
<tr>
<td>GDP</td>
<td></td>
<td>$[Y]$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wages</td>
<td>$+W$</td>
<td>$-W$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Profits</td>
<td></td>
<td>$-S_F$</td>
<td>$+S_F$</td>
<td></td>
<td></td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Taxation</td>
<td>$-T$</td>
<td>$+T$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Net fin. balance</td>
<td>$[S_H - I_H]$</td>
<td>$[S_G - I_G]$</td>
<td>$[X - M]$</td>
<td>$[S_F - I_F]$</td>
<td>$0$</td>
<td>$0$</td>
<td>$[X - M]$</td>
</tr>
<tr>
<td>Change in bills</td>
<td></td>
<td>$+\Delta B$</td>
<td>$-\Delta B_b$</td>
<td>$-\Delta B_{cb}$</td>
<td>$0$</td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Change in deposits</td>
<td>$-\Delta D_h$</td>
<td>$-\Delta D_f$</td>
<td>$+\Delta D_b$</td>
<td></td>
<td></td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Change in loans</td>
<td></td>
<td>$+\Delta L$</td>
<td>$-\Delta L$</td>
<td></td>
<td></td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Change in cash</td>
<td>$-\Delta H_h$</td>
<td></td>
<td>$-\Delta H_b$</td>
<td>$+\Delta H$</td>
<td></td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Change in FX</td>
<td></td>
<td></td>
<td></td>
<td>$-\Delta F X$</td>
<td>$-\Delta F X$</td>
<td></td>
<td>$0$</td>
</tr>
<tr>
<td>Total</td>
<td>$0$</td>
<td>$0$</td>
<td>$0$</td>
<td>$0$</td>
<td>$0$</td>
<td>$0$</td>
<td>$0$</td>
</tr>
</tbody>
</table>

Table 2: Transactions matrix. Source: adapted from Godley & Lavoie (2007, p. 33, 172).
China has been above 35% of GDP for the whole period, and over 40% for much of it. This exceeds even the levels observed in China’s neighbouring countries in East Asia during the period of high growth in the region. (Lardy, 2006)

![Figure 8: Total savings and investment](source)

Over the same period, despite the fact that investment has been very high, it has been exceeded by total savings by an increasing margin—with the counterpart of this margin accounted for by the rising surplus on the current account, as Equation 3 shows must be the case.

Figure 9 shows how this saving is distributed within the economy by dis-aggregating saving by sector. All three sectors show positive saving, with firms and households accounting for the bulk of total saving. The figures for government saving, of around 5% of GDP, are noteworthy as they appear to contradict the official figures for the fiscal position of the government which record a small fiscal deficit over the same period. This appears to be explained by the fact that the figure for government saving is gross of capital transfers to firms. When the figures are altered to include these capital transfers, the government position is slightly negative, in line with the official statistics on the fiscal position.

If we now consider the net financial position of each sector, referring back to Equation 2, we may rearrange it as follows:

\[
(S_F - I_F) = (X - M) + (G - T) - (S_H - I_H)
\]

In the simple case of a country in external balance and with no government surplus or deficit, this simply says that any excess of investment over saving in the enterprise sector must be offset by a corresponding excess of saving over investment in the household.
sector. Alternatively, the equation demonstrates that in an economy in which the net financial position of the private sector is in balance—saving equals investment—any balance of trade deficit must imply an equal fiscal deficit, and vice versa for the case of a surplus: the so-called “twin-deficit” hypothesis. Again the direction of causation in this equation is not specified without further assumptions. The usual mainstream interpretation of this identity is that government deficits cause budget deficits. This view is rejected by Godley and Lavoie who emphasise the opposite interpretation: trade deficits cause budget deficits.

Given that China operates a large trade surplus, and that the government fiscal position is slightly negative, this equation implies that—given that the household sector is in surplus ($S_H > I_H$)—the firm sector must be in deficit, and that the magnitude of this deficit will be less than that of the surplus run by the household sector, with the difference in magnitude equal to the sum of the trade surplus and the government deficit. That this is indeed the case is demonstrated by Figure 10, which shows the net financial position of each of the three sectors in China.

The net financial position of the enterprise sector is negative—investment exceeds retained profits. The counterpart to this deficit occurs in the household sector where saving exceeds investment. The inter-sectoral flow of funds in China is thus characterised by significant transfers of capital from households to enterprises, mediated largely through bank deposits and loans.

The fact that the enterprise sector is running a deficit in aggregate does not, however, reflect a low level of profitability—as can be seen from Figure 9. Chinese firms, in the aggregate, are highly profitable, and margins have increased over the decade under dis-
SOEs as a whole have returned to profitability after a long period of posting losses. This high level of profitability, combined with the fact that firms in China tend to pay out a very low proportion of earnings as dividends, gives rise to a level of saving in the enterprise sector that is unusually high in comparison with other countries.

It is argued by (Kuijs, 2005) that it is this, in conjunction with high government saving, that results in China’s high level of overall saving, rather than savings behaviour by the household sector. He claims that, in comparison to the household saving rates of China’s East Asian neighbours during the period of high growth, the Chinese rate of 25%-35% of income is not unusually high. Rather, the low aggregate level of consumption (or equivalently the high level of saving) is explained by the fact that the household share of total income is unusually low.

Figure 11 shows the share of national income for each of the three sectors of the Chinese economy. The figures used to generate this chart have been adjusted so that capital transfers between the government and firms is captured: the capital transfer sum has been accounted for.

16 According to the official flow of funds data, saving of the enterprise sector—retained profits—reached as high as 20% of GDP. However, other authors such as (Lardy, 2006), also using official NBS data put the figure at around 10%

17 It was these losses that resulted in the non-performing loans that caused serious problems for the Chinese banking system, required large-scale recapitalisation.

18 SOEs paid no dividends at all between 1995 and 2007

19 Which accrue to the enterprise sector in the form of capital transfers

20 This claim caused vigorous debate, see Shan (2006) and Hofman & Kuijs (2006)

21 See Table 4
deducted from government income and added to the income of the firm sector. The chart shows that household income as a share of national income fell from 67% in 1995 to 58% in 2004 before increasing again to 60% in 2005. The counterpart to this is shown in the upward trend of the share of income for the government and firm sectors.

![Figure 11: Income by sector](image)

Although saving in the enterprise sector is positive, implying net profitability in the aggregate, there is significant difference between the performance of the private sector and that of the state-owned sector, with around 35% of the state-owned sector still operating at a loss, despite the state-owned sector having returned to profit as a whole. Given that the private enterprise sector is significantly more profitable than the state-owned sector, it is likely that high private-sector profits are being used, in part, to finance production by the less efficient state-owned sector, with intermediation occurring mostly through the state-controlled banking system. Large SOEs are still able to gain access to bank credit with much greater ease than smaller private enterprises.

Figure 12 shows the figures for the changes in the stocks of loans and deposits of the enterprise sector. The two series thus represent the evolution of the entries $\Delta L$ and $\Delta D$ from the transactions matrix in Table 2. These two series can be used to calculate the ratio of gross bank lending to net bank lending, shown in Figure 13\textsuperscript{22}. A rise in this ratio implies an increasing proportion of newly extended bank loans are not being lost to the banking system: either firms that are taking out loans are leaving the newly created deposits in the

\textsuperscript{22}It is not clear what accounts for the very large jump in loans extended in 2004, but a similar jump can be seen in the charts showing the level of retained profits and the net financial position of each sector.
banking system or, as seems more likely, a greater proportion of this money is returning to
the banking system in the form of re-deposited retained earnings.

One final feature of the Chinese flow of funds accounts that will be considered here is
the level of investment that occurs from retained earnings. Although the enterprise sector
runs a deficit, the high profitability of the sector implies that a significant proportion of
investment—up to 50%—is financed out of retained earnings. Different theories have been
put forward to account for this, for example Aziz & Cui (2007) argue that a large section
of Chinese firms have trouble gaining access to bank credit and are thus forced into the
use of retained earnings. Aziz & Cui (2007) see the lack of availability of bank credit as
a drag on the level of employment, with underdeveloped banking and therefore a lack of
available credit preventing the enterprise sector from absorbing as much labour as would
be possible otherwise. Others such as (Lardy, 2006) view this in part as a reflection of
the lack of alternative assets available to firms for investment. The underdevelopment of
securities markets, combined with the low rates of interest paid on deposits (which have
been negative in real terms at some points), leads firms to invest in fixed assets even if they
expect the returns to be higher than those available on alternative forms of saving, even if
returns are expected to be negative.23

The Chinese government does not publish differentiated statistics for the three main
sub-sectors of the enterprise sector of the economy, namely private firms, state owned en-

23It is argued by Toporowski (2008b) that a transition from bank financing of deficit firms to internal financ-
ing is a standard feature of financialised capitalism, as firms are able to over-capitalise once direct access to
capital markets is gained.
terprises and collectives. It is therefore difficult to determine with certainty the dynamics of credit flows within the enterprise sector. (Lin & Schramm, 2006) attempt to discern this information by using statistics from different sources, and provide a range of possible saving-investment balances for each of the three sectors based on a range of assumptions about the data used. The results obtained are problematic however, as all the scenarios predict that the enterprise sector has operated in a surplus over the period in question, contradicting the official flow of funds statistics. More work therefore needs to be done in order to disentangle the flow of funds within the enterprise sector.

6 Conclusion and future outlook

The recent period of high growth and moderate inflation in China has been primarily driven by aggregate investment demand from enterprises, particularly the export sector. The banking system has reached a stage of development where the level of reserves are largely determined by the volume of loans issued. Increasing liquidity caused by foreign exchange inflows serves to further expand the capacity of the banking system for lending. High levels of exports and investment are required to maintain the profitability of the enterprise sector, given the high level of household savings. Until the recent crisis, and despite an increasing tendency towards investment out of retained earnings, high demand for investment funds resulted in strong growth of broad monetary aggregates.

Attempts by the authorities to control monetary expansion through quantitative mea-
sures will decrease in effectiveness with the development and deepening of the financial system. The experience of more financially advanced economies shows that with a developed banking sector, the money multiplier relationship breaks down. This experience led to a shift in the way monetary policy is implemented in Western economies towards control using short-term interest rates. This is not currently viable in China, due to the fragility of the banking system, an underdeveloped financial system and the problems caused by maintaining capital controls and a pegged exchange rate.

The recent investment boom ended in 2008 as a bubble in the construction sector burst, following attempts to tighten monetary conditions by the authorities with steady increases in required reserves to around 18% of deposits in 2008. The collapse of investment in the construction industry was followed by the collapse of demands for exports caused by the global downturn arising out of the US financial crisis of 2007-2009.

The authorities reversed their monetary stance in mid-2008 and began releasing liquidity into the system at a rapid rate. Although lending has picked up sharply in early 2009 as shown by the rise in M2, much of this lending has been used by firms to restructure balance sheets, rather than been directed to productive investment. Much of the liquidity that has been made available since the crisis has been held used to purchase financial assets, with the stock market up by 60% since the start of the year. Serious concerns exist about over-capacity with respect to real investment that has been undertaken.

To conclude, significant risks to the Chinese economy exist in the possibility that aggregate investment demand will not remain at levels high enough to maintain the profitability of the private sector, shifting the Chinese economy to a growth path below the levels experienced for the last decade.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Households</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>66.8</td>
<td>69.3</td>
<td>68.1</td>
<td>68.1</td>
<td>67.1</td>
<td>64.8</td>
<td>63.8</td>
<td>65.2</td>
<td>62.7</td>
<td>57.8</td>
<td>59.4</td>
</tr>
<tr>
<td>Consumption</td>
<td>46.8</td>
<td>48.0</td>
<td>47.4</td>
<td>47.8</td>
<td>48.6</td>
<td>48.3</td>
<td>47.6</td>
<td>46.5</td>
<td>44.6</td>
<td>39.5</td>
<td>38.3</td>
</tr>
<tr>
<td>Saving</td>
<td>20.0</td>
<td>21.3</td>
<td>20.8</td>
<td>20.4</td>
<td>18.5</td>
<td>16.5</td>
<td>16.2</td>
<td>18.6</td>
<td>18.1</td>
<td>18.3</td>
<td>21.2</td>
</tr>
<tr>
<td>Investment</td>
<td>5.3</td>
<td>6.3</td>
<td>6.1</td>
<td>5.7</td>
<td>5.7</td>
<td>5.5</td>
<td>5.8</td>
<td>5.9</td>
<td>6.5</td>
<td>8.4</td>
<td>9.3</td>
</tr>
<tr>
<td>Balance</td>
<td>14.7</td>
<td>15.0</td>
<td>14.7</td>
<td>14.7</td>
<td>12.9</td>
<td>11.0</td>
<td>10.4</td>
<td>12.8</td>
<td>11.6</td>
<td>9.9</td>
<td>11.8</td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>16.5</td>
<td>17.1</td>
<td>17.5</td>
<td>17.5</td>
<td>18.6</td>
<td>19.5</td>
<td>21.1</td>
<td>20.5</td>
<td>21.8</td>
<td>20.4</td>
<td>20.5</td>
</tr>
<tr>
<td>Consumption</td>
<td>11.6</td>
<td>11.7</td>
<td>11.9</td>
<td>12.3</td>
<td>12.8</td>
<td>13.2</td>
<td>13.5</td>
<td>13.3</td>
<td>12.5</td>
<td>14.4</td>
<td>14.3</td>
</tr>
<tr>
<td>Saving</td>
<td>4.9</td>
<td>5.4</td>
<td>5.6</td>
<td>5.3</td>
<td>5.8</td>
<td>6.4</td>
<td>7.6</td>
<td>7.2</td>
<td>9.3</td>
<td>6.0</td>
<td>6.3</td>
</tr>
<tr>
<td>Investment</td>
<td>2.8</td>
<td>2.8</td>
<td>3.2</td>
<td>3.5</td>
<td>3.5</td>
<td>3.6</td>
<td>3.8</td>
<td>4.1</td>
<td>5.7</td>
<td>5.1</td>
<td>5.1</td>
</tr>
<tr>
<td>Balance</td>
<td>2.1</td>
<td>2.7</td>
<td>2.5</td>
<td>1.7</td>
<td>2.3</td>
<td>2.8</td>
<td>3.8</td>
<td>3.1</td>
<td>3.6</td>
<td>0.9</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Enterprises</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saving</td>
<td>16.0</td>
<td>12.7</td>
<td>14.0</td>
<td>13.8</td>
<td>13.8</td>
<td>15.1</td>
<td>14.8</td>
<td>13.3</td>
<td>13.2</td>
<td>20.9</td>
<td>19.3</td>
</tr>
<tr>
<td>Investment</td>
<td>33.0</td>
<td>30.8</td>
<td>29.1</td>
<td>28.7</td>
<td>28.6</td>
<td>27.3</td>
<td>29.1</td>
<td>30.1</td>
<td>31.2</td>
<td>29.3</td>
<td>28.9</td>
</tr>
<tr>
<td><strong>Net Exports</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.7</td>
<td>2.2</td>
<td>3.9</td>
<td>3.9</td>
<td>2.8</td>
<td>2.5</td>
<td>2.3</td>
<td>2.7</td>
<td>2.3</td>
<td>2.5</td>
<td>5.5</td>
<td></td>
</tr>
</tbody>
</table>
## Table 4: Total Saving and Investment, 1995-2005

All figures percentages of GDP. Source: National Bureau of Statistics, China (1997–2008); author’s calculation.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Saving</td>
<td>41.6</td>
<td>40.3</td>
<td>40.8</td>
<td>40.0</td>
<td>38.6</td>
<td>38.5</td>
<td>38.9</td>
<td>40.2</td>
<td>42.9</td>
<td>46.1</td>
<td>47.5</td>
</tr>
<tr>
<td>Total Consumption</td>
<td>58.4</td>
<td>59.7</td>
<td>59.2</td>
<td>60.0</td>
<td>61.4</td>
<td>61.5</td>
<td>61.1</td>
<td>59.8</td>
<td>57.1</td>
<td>53.9</td>
<td>52.5</td>
</tr>
<tr>
<td>Total Investment</td>
<td>41.4</td>
<td>40.1</td>
<td>38.7</td>
<td>38.2</td>
<td>37.9</td>
<td>36.6</td>
<td>38.8</td>
<td>40.3</td>
<td>43.6</td>
<td>42.8</td>
<td>43.3</td>
</tr>
<tr>
<td>Household Saving Ratio</td>
<td>30.0</td>
<td>30.8</td>
<td>30.5</td>
<td>29.9</td>
<td>27.6</td>
<td>25.5</td>
<td>25.4</td>
<td>28.6</td>
<td>28.9</td>
<td>31.6</td>
<td>35.6</td>
</tr>
</tbody>
</table>
References


REFERENCES


