

What Ails China?

A Long-Run Perspective on Growth and Inflation (or Deflation) in China

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Abstract

Since 1994, China has experienced a prolonged period of sluggish growth and declining inflation. Prices have actually declined over much of the last three and a half years. These problems are often attributed to conditions of weak aggregate demand. Not unexpectedly, the Chinese government has cut interest rates and pursued expansionary Keynesian policies, but these measures have largely failed. We argue that the key to the sluggish growth resides in the financial sector, specifically, its inability to efficiently intermediate funds to China's non-state sector. This has adversely affected investment in the non-state sector, which has been the source of much of the dynamism in the Chinese economy since reform. Our analysis suggests that the current reform strategy for China's financial sector, while important, will not solve this fundamental problem. Rather, the solution lies in the introduction of new, privately owned, locally based financial intermediaries that can provide efficient financial intermediation for the small and medium sized enterprises in the non-state sector.

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1. Introduction

Since 1994, China has experienced a prolonged period of declining inflation during which growth has also fallen sharply. Over much of the last three years prices have actually declined. The simultaneous reduction in growth and inflation has led many to attribute the macroeconomic problems China is now facing to the condition of weak aggregate demand. Not unexpectedly, the Chinese government has cut interest rates several times and has vigorously pursued an expansionary Keynesian spending policy in hopes of stimulating aggregate demand. However, these measures have had only limited effects. Prices in most sectors continue to fall, and output growth remains sluggish.¹ The persistent decline in economic activity the last several years is in stark contrast to a highly cyclical pattern of growth between 1978-1994, during which high inflation rather than deflation was the main concern of the government.

In this paper, we provide an explanation for the behavior of output growth and price level changes in China that can account for both the cyclical pattern between 1980-1994 and the secular decline in recent years. Our analysis suggests that the reason for the declining growth is not weak aggregate demand. Thus, traditional aggregate demand policies have not and will not be very helpful. Rather, we contend that the lackluster growth is a result of financial disintermediation, which has caused slower growth of investment in the non-state sector. The financial disintermediation, on the other hand, is a result of the government's financial repression policy over the last two decades and its recent effort in centralizing the financial system. For the economy to grow more rapidly, the Chinese government needs to eliminate financial repression and allow the entry of new, privately owned, locally based financial institutions.

Central to our explanation are the government's commitment to the state sector and the behavior in the financial system. Prior to 1994, the central government maintained a strong commitment to employment growth in the state sector. Severe fiscal constraints forced the central government to look to the financial sector as a source of revenue for supporting the state sector. While there was some financial decentralization,

¹ Official Chinese statistics for the period between 1998-2000 run counter to the view of sluggish growth. They report GNP increasing at robust rates of 7.5-8%. The general view among experts in and outside of China, however, is that the official data exaggerate GNP growth for these years. Actual growth may be only half suggested by official figures.

the central government continued to impose control on the financial system's credit allocation. During this period, more than 80 percent of the banking system's credits were directed to the state sector, and lending to the non-state sector can best be described as a process of *intermediation by diversion*. Because of higher average returns in the more productive non-state sector, whenever possible, state-owned banks (SOBs) diverted credits intended for the state sector to the non-state sector. While this increased output growth, it also forced the government to rely more heavily on money creation to finance the transfers to the state sector, which led to high inflation. The cyclical pattern of growth and inflation up through 1994 was the result of the government's inability to control the state banks' credit diversion in the face of financial decentralization and the periodic need to resort to recentralization and administrative control of credit allocation to reduce inflation.

The cyclical growth process, however, was inefficient and unsustainable. The government's use of the financial system to support the state sector resulted in soft budget constraints for both the SOBs and the state-owned enterprises (SOEs) and was the main reason for their deteriorating financial performance. As the productivity gap between the state and the non-state sector widened, there was a steady increase in the size of the transfers required to support SOEs. Mounting losses of the SOEs led to a rapid increase in non-performing loans in the SOBs, putting the whole financial system at risk. There is also a limit to how much revenue can be raised through money creation, and the rapidly rising inflation in 1993-94 indicated that the required transfers were pushing this limit.

It was largely because of these difficulties that beginning in 1994 we see an overall tightening in policy towards the SOBs and SOEs. The People's Bank of China (PBOC), China's central bank, centralized and significantly reduced its lending to the SOBs, and the government began an effort to commercialize the SOBs by putting them in position of assuming increasing responsibility for their losses and bad loans. The government was able to do so by reducing its long running commitment to the state sector. It privatized some small SOEs, allowed large SOEs to lay off workers, and shifted much of the costs of these layoffs to local governments. As an integral part of the overall

tightening policy, the government also lowered money supply growth rate significantly, leading to the prolonged decline in inflation.

While these measures have had a desired consequence of hardening the budget constraints of the SOBs and the SOEs, they have also had an important unintended consequence: Disintermediation in the financial system and a decline in lending to the non-state sector. This has occurred for several reasons. First, The SOBs have become highly risk averse because of their bad debt problem and their increased responsibility for their losses. Second, banks are handicapped in identifying good projects due to a lack of information and human capital. Both of these factors have contributed to a voluntary tightening of credit by the SOBs. Third, the financial system has become more centralized in recent years, making the financial institutions more biased against lending to small and medium enterprises (SMEs) in the non-state sector. Fourth, as part of its financial repression policy, the central government has clamped down on and closed many informal financial institutions such as rural credit cooperative foundations (RCFs) that were not directly under its control. This has denied the non-state sector a valuable source of financial intermediation. Since 1994, the growth of credit to the non-state sector has declined sharply. It is this decline in credit growth to the non-state sector that is largely responsible for the economy's continued decline in output growth the last several years.

There are several policy implications regarding China's financial system that we can draw from our analysis. First, relaxing constraints on the financial institutions through new infusions of funds from the PBOC, as was often done in the past, is not the solution. Second, major policy initiatives, including the re-capitalization and commercialization of the SOBs, the much-discussed entry of foreign banks with WTO, and opening the capital markets to non-state firms, while very important for large firms, will only have limited effects on overall growth prospects. Third, it will not be efficient simply to target SMEs for increased lending by existing financial institutions or by any newly established centralized financial institutions.² To solve China's economic woes in both the short and long term the government should adopt a more radical strategy of

² The monetary commission of the PBOC has recently recommended the government to establish a new state-owned bank specializing in making loans to SMEs.

reform for the financial system: allowing the entry of new, privately owned, locally based financial institutions that can provide efficient financial intermediations for the SMEs.

The rest of the paper is organized as follows. In section 2, we examine the main determinants of price level changes and output growth in China. The analysis in this section highlights the stable relationships between the money supply and inflation, and between credit allocation, non-state sector investment, and output growth. It also shows that the declining inflation and output growth is a direct result of a tightening of monetary policy and a decline in credit expansion. The impact of the Asian financial crisis on deflation is also discussed in this section. Since the behavior in the financial system is central to our analysis, we provide a brief overview of China's financial system in section 3. In section 4, we analyze the monetary and credit policy employed by the government up through 1994, paying particular attention to the role of credit diversion by the banks in the growth and inflation cycles. In section 5, we examine the major policy regime shift that dates from 1994, and its implication for money supply, financial intermediation, and growth. In section 6 we analyze the fundamental reason for the declining growth in China, financial disintermediation. Based on our analysis, we explain in section 7 why fiscal and monetary policy have been ineffective in recent years and why they are not going to be effective in the near future. Finally, in section 8 we examine the policy implications for China's financial reforms and the design of China's financial system.

2. What Determines Price Level Changes and Output Growth?

2.1 Money Supply and Inflation

China's current deflation follows in the wake of a steady decline in the rate of inflation. After peaking late in 1994, inflation fell for three years until deflation set-in beginning in 1998. Inflation is usually a monetary phenomenon, and in China this is also the case.

Over the last twenty years, there is a very strong relationship between the behavior of M0, the narrowest measure of the money supply, and the changes in the retail

price index in China.³ In Brandt and Zhu (2000), we show that the increase in M0 as a percentage of GDP predicts inflation exceedingly well for the period up through 1994. This close relationship between the inflation rate and the increase in M0 continues to hold for the period after 1994. (See Figure 1.) The declining inflation rate is a direct result of the sharp reductions in the increase in money supply since 1994.

2.2 The Asian Financial Crisis and Deflation

While tight monetary policy can account for the generally low inflation rate experienced the last several years, it cannot fully account for the *deflation* that started in 1998. Some have suggested that the deflation is a result of excess capacity. Lardy (1999), for example, argues that excess capacity has created a tendency for manufacturers to cut prices in an effort to sell their products. There is a problem, however, with this argument.⁴ Excess capacity is not a new phenomenon in China. For the last twenty years or so, inventory investment as a percentage of GDP has averaged 6.3 percent. During the period 1995-1998, inventory investment actually declined monotonically from 6.7 percent to 4.6 percent of GDP.⁵ Yet, the average inflation rate was very high in those years. So, by itself, excess capacity does not necessarily lead to price cutting behavior.

A more plausible explanation for the deflation is that it is a response to the competitive pressure created by the devaluation of several other Asian currencies. Since China effectively maintains a fixed exchange rate with the US dollar, the devaluation of the Asian currencies put downward pressure on the prices of tradable goods.⁶ Table 1 lists price indices of several major goods and services, as well as imports and exports. The price of exports fell most, averaging slightly more than 8 percent in 1998 and 1999, followed by prices of imports. It is clear that domestic goods that are most subject to international competition, such as food and household appliances, experienced the next

³ Because banks' decisions on reserves and loans are heavily influenced by the government's credit policy, which varies significantly over time, more broadly defined money such as M1 and M2 are not good measures of monetary policy.

⁴ For a criticism of the excess capacity argument in the context of Japan's deflation, see Krugman (1999).

⁵ Unless stated otherwise, all the numbers cited in this paper are from various issues of China Statistical Yearbook.

⁶ The continuing deflation in Hong Kong appears to be the result of similar forces related to the peg of the HK dollar to the US dollar.

strongest decline in prices. On the other hand, services and housing, which are internationally non-tradable, have experienced inflation, rather than deflation.

Thus, deflation may simply be a result of market adjustment of the real exchange rate in response to external shocks under a fixed exchange rate regime, which may have actually helped to dampen the impact of the Asian financial crisis on China's exports and overall growth. What, then, caused the growth slowdown? We attempt to answer this question in the next section.

2.3 Credit Allocation, Non-State Sector Investment, and Growth

The last two decades, China's non-state sector, which includes collective and private enterprises, has been the main source of output growth. In 1978, when the economic reform started, only 22 percent of industrial output was produced in the non-state sector. Since then, the non-state sector's contribution has increased steadily and by 1998 accounted for 72 percent of industrial output. Central to growth in the non-state sector, and thus overall growth, is the level of investment in the sector. Figure 2 shows the strong positive relationship between GNP growth and the growth rate of non-state sector investment. When we regress GNP growth on the growth rates of investment in the state and the non-state sectors, only the non-state sector's growth rate is significant.

Investment in the non-state sector, however, is constrained by the availability of credit. Figure 3 shows the important role bank credit and, in recent years, foreign investment plays in determining the growth of investment in the non-state sector. Over the last couple years, however, both sources of funds have declined significantly, leading to a slowdown in investment growth in the non-state sector and, therefore, slower output growth for the whole economy. Since 1994, the rate of growth of credit to the non-state sector has averaged less than 6 percent, compared to 30 percent before 1994. The rate of growth of foreign funded non-state investment also declined considerably beginning in 1994, and after averaging 66 percent for the period before 1994, has only averaged 27 percent since then.

2.4 Summary

Money supply and credit to the non-state sector have consistently been the two key factors determining price level changes and growth throughout the reform period.

The recent decline in inflation and output growth is a direct result of a tightening of money supply and a decline in credit growth, a problem that has been confounded by the Asian financial crisis. To understand China's current macroeconomic problem, then, we need to analyze how monetary policy and credit allocation by the financial institutions are determined in China. The key to this analysis is the behavior in the financial sector.

3. A Brief Overview of China's Financial System

Prior to the reforms, China had a mono-bank system in which the PBOC simply served as a cashier of the government. Household savings in the form of deposits were minimal, amounting to only about five percent of GNP, and no real intermediation went on. There were also no capital markets. Allocation of fixed investment and working capital to firms was determined administratively by the overall economic plan, and came largely in the form of grants that were financed out of fiscal revenue.

In the early 1980s, the banking system was restructured. The PBOC became the central bank, and its commercial divisions were converted into four state-owned specialized banks. Grants were gradually converted into loans that were financed by the rapid build-up in household deposits in China's financial institutions.⁷ However, the government continued a policy of financial repression. The over-riding objective of the state banking system has been to provide resources for the state sector, and the development of new financial intermediaries has been constrained. Capital markets have faced similar obstacles and been largely used to mobilize resources for fiscal purposes (through the development of a government debt market), or for financing restructuring of SOEs. In Table 2, we provide incomplete data for the years between 1987 and 1999 on the financing of the non-financial sector by source: banks, non-bank financial institutions (NBFIs), and capital markets.

Even with financial repression, over much of this period we do observe some decentralization within the state-controlled financial system. SOBs were given some discretion in their lending decisions through the use of an *indicative* credit plan. In

⁷ Since the early 1980s, China's savings rate has averaged 35 percent of national income. Approximately half of the annual savings is intermediated by China's financial institutions through the increase in deposits. By 1998, total deposits in all of China's financial institutions were 9.6 trillion, which represents 123 percent of GNP.

addition to the rural credit cooperatives (RCCs), other non-bank financial institutions (NBFIs) were also established, including the urban credit cooperatives (UCCs) and trust and investment companies (TICs). Inter-bank markets were established to facilitate the flow of funds among banks and the NBFIs. The primary motivation for these measures by the central government was to enhance the efficiency with which credit was allocated.

Since they were less bound by the credit plan, and typically had more discretion than the SOBs in making lending decisions, the NBFIs played an important role in intermediating funds to the non-state sector. However, these institutions also had serious shortcomings. On the one hand, they operated under a weakly developed and often inconsistent regulatory environment. Oversight and supervision were often minimal. On the other hand, they were often owned by the local governments or subsidiaries of the SOBs and operated under soft budget constraints. Some NBFIs even had direct financial ties to the local offices of the PBOC, the institution that was in principal supposed to monitor their behavior.⁸ This combination of a lax regulatory environment and soft budget constraints made them prone to take excessive risk in lending decisions.

China also has an informal financial sector that fell almost entirely outside of the purview of state control. Activity in this sector extended from lending by emerging rural credit foundations (RCFs), to intermediation by illegal private banks (*qianzhuang*), to a host of fund-raising schemes by firms in the state and non-state sectors alike. This activity tended to be cyclical and was most likely to surface during periods of rapid growth when there was a combination of a high demand for credit and lax state control over the financial sector. Periodically, especially during periods of economic retrenchment, efforts were made to clamp down on these kinds of activity.

The seemingly paradoxical policy of financial repression and partial financial decentralization reflects a trade-off the government faces between its commitment to support the state sector and promoting growth of the whole economy. In the next section we show how the government's choices in trading off these two factors resulted in growth and inflation cycles prior to 1994.

⁸ Based on interviews with PBOC officials and local financial institutions in Hubei in December, 1994.

4. Intermediation by Diversion and Inflation Cycles: 1978-1993⁹

Prior to 1994, China's monetary policy can be characterized as a stop-go policy: it tightened whenever inflation accelerated, but loosened again once inflation was under control. Correspondingly, growth and inflation were highly cyclical. (See Figure 4.) At the root of these dynamics were the government's commitment to the state sector and the behavior of credit allocation between the state and non-state sectors.

Ever since the economic reforms started in 1978, productivity and output growth in the state sector have been significantly lower than that in the non-state sector. Up through 1993, however, the central government maintained a strong commitment to employment in the state sector that enabled it to grow on par with that achieved in the non-state sector. Because the state sector's share of output was declining, maintaining this commitment required a steady flow of transfers to the state sector. Facing severe fiscal constraints, the central government financed the transfers mainly with cheap credit from the state banking system and money creation. To ensure that a large portion of total bank credit was directed to the state sector, the government used the credit plan as its principle instrument to control the banking system's credit allocation.

In most years, the credit plan was used as an indicative plan under which SOBs were given some discretion in lending activity to enable them to use their superior information to allocate credit more efficiently. They used this discretion, however, to divert bank resources intended for the state sector under the plan to the non-state sector, in which returns were higher. Lending to the non-state sector was also facilitated by the development of the inter-bank market and the NBFIs.

The diversion of credit to the non-state sector contributed to an increase in investment in the more productive non-state sector. As we documented in section 2, this had a positive effect on growth in the economy. This behavior, however, left the banks without the resources needed to fund the commitments for fixed and working capital investment outlined in the plan that were essential to supporting employment growth in the state sector. The gap in funding requirements was filled by lending from the PBOC to the SOBs, which contributed to money supply increases and inflation.

⁹ The analysis in this section is based on Brandt and Zhu (2000), where we document in detail the role of credit allocation by state-owned banks on growth and inflation cycles.

The threat of hyperinflation ultimately required the government to reassert full control over credit allocation in the economy. This meant eliminating any discretion of the SOBs through the implementation of the *administrative* credit plan, restricting fund flows in the inter-bank market, and tightening reins on the NBFIs. These measures were successful in eliminating any leakage out of the state banking system, and thus reduced the funding demands on the PBOC. Inflation fell with the reduction in PBOC lending. The use of the administrative plan, however, came at the cost of lower economic growth as a lower percentage of resources made their way to the more productive non-state sector, and all discretion in credit allocation was eliminated. The high costs associated with these administrative measures explain the government's delay in their implementation, and thus, the cycles.

5. Policy Regime Shift in 1994: Downsizing the State Sector

By 1994, China had experienced three episodes of high inflation. The macroeconomic problems caused by the inefficiency of the state sector steadily worsened. Our estimates (Brandt and Zhu, 2000) for the period between 1986 and 1993 suggest that as the productivity gap between the state and non-state sectors widened, there was a steady increase in the size of the transfers required to support SOEs in industry, a majority of which were financed by loans from SOBs. Since many of these loans were not being repaid, a bad debt problem developed, which put the entire financial system at risk. Estimates differ, but by 1993 total non-performing loans were as much as 25 percent of GDP (Lau and Qian, 1994).

The deterioration of the SOBs' loan portfolio put strong pressure on the central bank to use money creation to finance the transfers. There is a limit to how much revenue can be raised through money creation. As the gap between the state and the non-state sectors widened, there were signs indicating that the required transfers were nearing this limit. Symptomatic of these growing pressures, in each of the three cycles the peak inflation rate was progressively higher, pushing nearly fifty percent on an annual basis during the last of the cycles.

The recurring inflation and deteriorating performance of the state-owned enterprises and banks made the government realize that the stop-go policy was not

sustainable and that it could not maintain its support to the state sector indefinitely without running the risk of hyperinflation and a collapse of the banking system. It is against this background that the government in 1994 finally started to tackle directly the fundamental problem of the economy: Inefficiency of the state-owned enterprises and banks caused by soft budget constraints.

Several steps were taken in 1994 to harden the budget constraints. First and foremost, the government reduced its long-running commitment to support employment growth in the state sector, which was the fundamental reason for the soft budget constraints. The government started a policy of privatizing small SOEs at the county level and downsizing SOEs at the city level (Cao, et. al., 1997). Second, the PBOC centralized and reduced its loans to SOBs, which had been an important source of funds for loans to the SOEs. Third, the government began an effort to commercialize the SOBs by putting them in position of assuming increasing responsibility for their losses and bad debts.

The result of these policy changes has been impressive. After growing at roughly the same rates as the rest of the economy for the period 1979-1994, employment in the state sector started to decline significantly in 1995 (see Table 3). Between 1995 and 1999, employment in the state sector was reduced by 26.9 million, while the employment in the non-state sector increased by 50 million. The reduction of state sector employment was most pronounced in industry. During this four-year period, the industrial SOEs let go 45 percent of their workers (or 19.9 million).

The PBOC was fairly successful as well in tightening its lending to SOBs. After averaging almost 17 percent prior to 1994, the growth rate of PBOC loans to SOBs never exceeded 10 percent after 1994. Between 1996 and 1999, PBOC lending to SOBs actually declined in absolute term. This tightening of the PBOC lending is the main reason for the sharp decline in money supply growth since 1994.

Changing the behavior of the SOBs turned out to be the hardest task. However, there are signs that the government's effort to tighten the SOBs' budget constraint is finally taking effect. After averaging 21 percent for the period 1980-1997, the SOBs' credit growth rate declined to 15.4 percent in 1998 and 7.7 percent in 1999. (See Table 2.) It also appears that the SOBs have become more discriminating in their lending decisions. The percentage of SOBs working capital loans that went to the SOEs declined

from 91 percent in 1996 to below 67 percent in 1997-1998 and to only 7.8 percent in 1999. Since cheap working capital loans were a major component of government transfers to the SOEs, the sharp reduction in working capital loans to SOEs represents a significant hardening of the SOEs' budget constraint.

These policy changes have made the economy more efficient by reducing resource flows into the inefficient state sector. First, they forced the downsizing and even closing down of many money-losing SOEs formerly supported by working capital loans. Second, they reduced inefficient and often wasteful investment by SOEs. Between 1995 and 1999, the real growth rate of fixed investment by SOEs in industry averaged only 0.2 percent, compared to 11.8 percent for the period 1982-1994.

6. Financial Disintermediation

The reduction in growth of credit to the state sector does not imply that the resource flow into the non-state sector has increased. As we documented in section 2, the real growth rate of investment in the non-state sector has also declined sharply, mainly due to the reduction in growth of credit to the sector. Given the government's effort to commercialize banks, one might have expected that SOBs would lend more to the non-state sector. After all, rates of return are higher in the non-state sector, and in 1998 the central government eliminated credit quotas for the SOBs. Why has the credit to the non-state sector continued to be so tight?

There are several factors that have contributed to the current problem of financial disintermediation. First, the SOBs have become highly risk averse because of the bad debt problem and their increased responsibility for losses. Second, the banks are handicapped in identifying good projects due to a lack of information and human capital. Third, the financial system has become more centralized in recent years, making the financial institutions more biased against lending to the SMEs in the non-state sector. Fourth, the government has continued to clamp down on informal financial institutions and markets, severely limiting their role in financial intermediation. Reflecting the effect of these factors, we see a steady decline of the loan-deposit ratio for all financial institutions. Since 1995, the increase in loans by all financial institutions has only been sixty percent of the increase in deposits.

These developments are ultimately products of the financial repression policy pursued by the government. We elaborate on each of these factors below.

6.1 Bad Debt, Budget Constraint Hardening, and Bank Conservatism

The SOBs have become much more cautious in making loan decisions in recent years. Before, without having to take full responsibility for bad loans, the SOBs pursued projects with higher expected returns regardless of their risk. Since projects in the non-state sector *on average* have higher returns, SOBs had incentives to divert funds to finance investment in the non-state sector. With the recent hardening of their budget constraints, the SOBs know that bad loans are much less likely to be refinanced by new loans from the PBOC. In addition, with the increasing emphasis by the government on reducing bad loans, managers in the SOBs also know that they are more likely to be personally held responsible for making bad loans and face the possibility of dismissal. Both of these factors have made SOBs more sensitive to risk and less inclined to make loan decisions based on expected returns alone. Most enterprises in the non-state sector are small or medium sized, and like SMEs everywhere, they inherently are more risky than large firms. As a result, the SOBs have become highly risk-averse in making loans to non-state firms.

6.2 Lack of Information and Human Capital

Bank lending to the non-state sector is further hampered by the inability of SOB managers to distinguish between good and bad projects. Given that their main responsibility was to provide credits to the state sector, the SOBs have limited experience in lending to non-state firms. In addition, because of soft budget constraints, SOB managers had little incentives to gather information about non-state firms when they did lend (through diversion) to the non-state sector. Their lending to the non-state sector was mainly based on the high average returns in the sector. As a result, SOBs managers currently lack information and the ability to process information that is needed for them to make sound lending decisions. This problem is exacerbated by the lack of good accounting standards and reliable financial information on non-state firms.

6.3 Re-Centralization of the Financial System

Partly in response to the diversion problem encountered in the period prior to 1994, the government has adopted several measures the last few years that made China's financial system significantly more centralized.

First, while the central government has eliminated credit quotas for each of the four state-owned specialized banks, the lending decisions within these banks have become much more centralized. Within each of the four state-owned banks, control (decision) rights of local branches over lending behavior, e.g., extension of new loans, renewals, etc., have been cut back and increasingly consolidated in higher-level branches. In 1997, for example, the Construction Bank "allocated" more than half of the new deposits to the head office for management. In the Industrial and Commerce Bank, 93 percent of the county level branches had their loan-making rights seriously rescinded in 1997. Starting the same year, most of the new working capital loans were administered by the head office of the Industrial and Commerce Bank, most of which were directed to a few key SOEs.¹⁰ This has been further supported by the recent reforms of the inter-bank market, which have contributed to a vertical (as opposed to horizontal) flow of funds within the state banking system and cut off the access of local branches to discretionary funds for lending through this channel.¹¹ Thus, even if branch managers have information and the ability to identify good projects in their local area, they may not have the authority to lend to those projects. One of the consequences of the reforms of the inter-bank market has been a significant reduction in the size of the inter-bank market.¹²

Second, centralization is also reflected in the conversion of a large number of independent, quasi-private, largely district level urban credit cooperatives (UCCs) into a centralized, municipal-level urban credit cooperative bank (UCB). (See Sehr, 1999.) The change in ownership that accompanied this reform, notably, establishing dominant ownership by municipal governments in each UCB, has tended to centralize decision-

¹⁰ The other two SOBs report taking similar measures to centralize administration and put funds usage under the control of the head office. The Bank of Communications also reported an increase in the degree of centralized administration, with more than three-quarters of loans being in branches under the direction jurisdiction of headquarters.

¹¹ Access to the inter-bank market is limited to the head offices of the 19 major domestic banks, 35 short-term financial centers, and money brokerages run by the PBC.

¹² See Jinrong Nianjian, 1997, pg. 6.

making. In addition, this reform has required an increase in reserves held by these institutions in the PBOC, and thus reduced the discretionary funds at the local level.

Finally, in 1994 there was a clamp down on activity by trust and investment companies (TICs), which had played an important role in intermediating funds at the local level. Numerous TICs were shutdown and restrictions on the kinds of activity that they could engage in, including accessing funds through the inter-bank market, were more strictly enforced.

6.4 Severe Restrictions on Financial Institution Development

It is because formal financial institutions were largely ill-suited as intermediaries for the SMEs in the non-state sector that periodically informal financial institutions emerged to fill the gap. Examples include private banks and rural credit foundations (RCFs). A variety of innovative, but illegal fund-raising schemes were often also used. But as part of its financial repression policy, the government has constantly attempted to close down these institutions and restrict these practices, depriving the non-state firms of a valuable source of financial intermediation. In 1996, for example, the PBOC issued a directive banning all private banks.¹³ In 1999, RCFs, under pressure from the rural credit cooperatives (RCCs), were officially shut down and folded into the RCCs.¹⁴ There are also numerous reports of crackdowns on illegal fund-raising schemes.¹⁵

6.5 Growth in Capital Markets and Crowding Out

The sharp decline in the loan-deposit ratio and the declining rate of growth of bank credit are indicative of the reduction in the role of banks in China as financial intermediaries. Over the last five years, however, there has been increased activity in both the stock market as well as in the bond market. Table 2 provides data for the years between 1987 and 1999 on the financing of the non-financial sector by source: banks, non-bank financial institutions (NBFIs), the government bond market, the stock market,

¹³ See reference to the directive “Guanyu qudi siren qianzhuang de tongzhi” in *Jinrong Nianjian*, 1997, pg. 38.

¹⁴ A number of interpretations for this decision have been made, but one key factor may be the effect on the RCCs of the growing competition from the RCFs. On this point, see Park et. al. (2001) and Holz (2000).

and the enterprise bond market. Are these new sources of finance simply offsetting the decline in the role played by banks, and helping to more efficiently allocate credit to the most promising of firms? Probably not.

Much of the increase in capital market activities is directed to the state sector. Although a few larger private firms have recently been able to do IPOs, most of issue is by larger SOEs. Moreover, the central government has increasingly tapped the capital market to finance Keynesian counter-cyclical expenditure. In 1999, for example, more than a quarter of all new credit went to the government. Preliminary numbers (not reported) for 2000 suggest much the same. Although the role of bank lending and bank lending to the state sector has declined, it appears that much of this is being counteracted by mobilization of resources for the state sector in other ways. Even with the decline in bank lending to SOEs in 1999, more than sixty percent of all new credit was still effectively going to the state sector. Even if we allow for the possibility that the use of these funds is slightly more selective than earlier bank lending to the SOEs, the real concern is that these capital market activities are effectively crowding out savings that would otherwise be directed to the SME sector.

7. The Ineffectiveness of Fiscal and Monetary Policy

What can the government do to return the economy to a higher but sustainable growth regime? Based on our analysis above we explain in this section why fiscal and monetary policy have not been effective in promoting growth in recent years and why they will not be effective in near future.

7.1 Fiscal Policy

The last couple years, the central government has relied on deficit financed public investment to stimulate growth. In 1998, for example, the government ran a deficit of 92.2 billion RMB, or 9.3 percent of total government expenditure. In 1999, the deficit almost doubled to 175.9 billion RMB, or 2.1 percent of GNP.¹⁶ The impact, however, has been very limited. The Japanese government has pursued a similar policy for several

¹⁵ These crackdowns are discussed frequently in China's Financial Yearbook, and other sources. Unfortunately, not much detail is provided.

¹⁶ Tongji Zhaiyao, 2000, pg. 58.

years now, without much impact on that economy's growth either. As we argued earlier, the main reason for sluggish growth in China is not a lack of demand, but rather a lack of intermediaries that can channel savings into efficient investment projects. Fiscal policy does not help in solving this problem. Instead, it crowds out resources that can potentially be used for investment in the non-state sector.

Fiscal policy may have played a positive role in redistribution. Regional inequality has increased sharply in recent years.¹⁷ In the past, the government relied heavily on the financial system to redistribute resources across regions. With the bad debt problem and the government's effort to harden budget constraints, redistribution through the financial system becomes less appealing,¹⁸ and the government relies much more on fiscal policy as an instrument for redistribution. From a social welfare point of view, using fiscal policy to redistribute may be desirable, but its effect on the economy should not be confused: It redistributes income with little and possibly negative impact on growth.

7.2 Monetary Policy

The central government has also tried to use monetary policy to stimulate growth. Prior to 1994, this was mainly done by increasing PBOC lending to the SOBs and relaxing restrictions on credit allocation by the SOBs, which allowed intermediation by diversion. As we discussed in previous sections, while this policy helped stimulate growth it was inflationary and unsustainable. A return to such policy would undermine the government's effort in hardening the budget constraints of both the SOBs and the SOEs, contribute to further increases in bad debt, generate high inflation, and put the financial system and the whole economy at grave risk.

Given that relaxing PBOC lending is not a viable option, the government tried in recent years to use the interest rate as an instrument for its operation of monetary policy. The central government has cut interest rates several times in hope of stimulating

¹⁷ While inter-regional inequality has increased, intra-regional inequality has increased just as rapidly, so that contribution of inter-regional inequality to overall inequality has remained fairly constant. See Benjamin et. al. (2000).

¹⁸ This does not mean, however, that the government has stopped using the financial system for redistribution completely. As part of the policy of promoting development in western China, the government has encouraged banks to lend to projects that are partially financed by the central government.

investment demand, but investment remains sluggish. There are two reasons for the ineffectiveness of the interest rate policy. First, most SOEs are highly inefficient and have problems finding investment projects that provide positive returns. Even if the interest rate were zero, the SOEs would find their projects to have negative net present values. This lack of good projects and the recent hardening of budget constraints have reduced the SOEs' demand for investment significantly.¹⁹ Second, even though there are highly profitable projects in the non-state sector which would have positive net present values at a market-clearing interest rate, they are not financed by the banks because of the latter's inability to distinguish between good and bad projects. This problem is due to the SOBs' lack of information and human capital, and lowering interest rate will not help much.

8. What Kind of a Financial System Does China Need?

Our analysis shows that the main problem China is now facing is financial disintermediation: the lack of intermediaries that can direct saving to efficient investment in the non-state sector. How can China overcome this problem? Will the financial reforms that are being carried out by the government help? What kind of a financial system does China need? Drawing on the recent literature on financial system design and based on our analysis in previous sections, we provide here a discussion on the specific measures that China needs to take to transform the financial system into one that can meet China's development needs.

8.1 The Institutional Environment and The Choice of Financial System

The relationship between financial sector development and economic growth has long been debated in the literature at least since Schumpeter (1911). Recently, several authors have provided empirical evidence on the positive role of financial sector

¹⁹ Note that this is in stark contrast with their behavior in the period prior to 1994 when the SOEs demand for investment seemed insatiable. During that period, the SOEs operated under soft budget constraints. They expected that any losses they incurred as a result of bad investment would be refinanced, and their bad debt would likely be forgiven. Therefore, they were willing to undertake almost any investment projects that were financed by bank loans.

development on growth.²⁰ However, different economies have followed different paths of financial sector development with seemingly similar growth performance. For example, the US and UK have developed arm's length systems with financial markets playing a very important role. Germany and Japan, on the other hand, built relationship-based systems with financial markets playing only a minor role. Both types of financial systems have supported sustained growth in these economies. Which of these two kinds of financial systems is better for China today?

A few years ago, mainly motivated by Japan's (and Germany's, for that matter) strong economic performance in the 1970s and 1980s, the advantages of the relationship-based system over the Anglo-Saxon arm's-length system were frequently discussed. Some have also suggested that China should adopt Japan's main-bank system. (See Qian, 1994.) With Japan's prolonged recession in the 1990s and the recent Asian financial crisis, however, the weaknesses of Japan's main-bank system have been exposed, and discussions have turned to the superiority of the market based financial system in the US and UK. Why have different systems performed differently in different periods? What are the underlying conditions that determine the performance of a particular financial system? Several recent studies shed some light on these questions.

Legal System

In a market based system, investors rely on legal contracts rather than personal or institutional relationships in dealing with firms. Therefore, it is vitally important to have a well-established legal system that can provide legal protection of investors' contractual rights. Thus, most countries that have market-based financial systems are the ones with a common-law tradition, which offers greater protection for contractual rights. (See La Porta et. al., 1997.)

The legal system is also found to be a factor in determining the average size of the firms. Kumar et. al. (1999) show that countries with better protection of contractual rights, such as those with common-law tradition, tend to have more large-size firms. As we will discuss later, large firms have a comparative advantage in financing through

²⁰ See King and Levine (1993), Jayaratne and Strahan (1996), Rajan and Zingales (1998), Levine (2000), and Levine, Loayza and Beck (2000). Rajan and Zingales (1999) provide a good survey of this literature.

capital markets. Therefore, a market-based financial system is better suited for countries with a better legal system because they also tend to have larger firms.

When there is not a well-established legal system to protect contractual rights, investors have to adopt a more hands-on approach in identifying projects and monitoring firms to protect their investment. In this case, financial institutions can serve as intermediaries between investors and firms by performing information gathering and monitoring services for the investors.

Information

Both financial markets and financial intermediaries play informational roles. Financial markets help provide information about firms through price signals. Financial intermediaries, on the other hand, generate information about firms through their relationship with the firms and their monitoring effort. Both have their advantages and disadvantages.

Financial markets can aggregate information from a wide range of sources and process information by aggregating a wide range of opinions. But there is a free-rider problem: Private information gathered by an investor will be signaled to all investors through prices. Thus, individual investors have weak incentives to gather information about firms and instead rely on price signals as their source of information. So, financial markets are most effective when information is easy to obtain but difficult to process. In these situations, the free rider problem is not very important (because the cost of acquiring information is low), and markets can process information more efficiently by aggregating opinions from a large number of investors. This is why technological firms whose projects face high uncertainties tend to be financed through the equity market or venture capital market.

When information is difficult or very costly to obtain, however, the free rider problem is more serious. In this case, concentrating financing in a small number of investors or institutions and providing them with long-term business will help provide strong incentives for these investors or institutions to gather information. In these situations, financial intermediaries have advantages over decentralized markets.

Thus, countries that have good accounting standards and financial reporting and auditing systems will have lower information cost and, therefore, be better able to take advantage of capital markets. Countries with poor and unreliable financial information about firms, on the other hand, will rely more on financial intermediaries.

Firm Size

Large firms have a comparative advantage in using capital markets as their source of outside financing for at least two reasons. First, financing through capital markets involves large set up costs. So there are increasing returns to scale which favor large firms. Second, good firms without established records will suffer information dilution costs in capital markets because market investors cannot distinguish them from bad firms, and small firms are more likely to be the ones without established records. (See Diamond, 1991 and Rajan, 1992.)

On the other hand, it is the SMEs, not large firms, which rely more on outside financing. Thus, financial intermediaries are more important than capital markets in economies that rely more on SMEs for output growth.

Stage of Development

While the US financial system has been viewed as the typical market-based financial system, it is worth noting that US firms historically relied heavily on relationship-based financing.²¹ So, which financial system is good for the economy also depends on the stage of the economy's development. This is not surprising since well-functioning legal systems, good accounting standards, efficient capital markets and firms with well-established records are all functions of economic development: They are more likely to emerge at later stages of economic development.

8.2 The Financial System for China

China is at an early stage of economic development. It does not have a well-functioning legal system, financial information about firms is limited, accounting standards are weak, and non-state SMEs are the major source of economic growth. All

²¹ See Calomiris and Rammirez (1996).

these suggest that in the short to medium term financial intermediaries should play a more important role than capital markets in China's economic development. However, China's current financial system is dominated by the SOBs. Our discussion in section 6 indicates that the SOBs have not been effective as financial intermediaries. Some of the problems that inhibit effective intermediation by the SOBs, such as the bad debt problem and government intervention, may be gradually removed through re-capitalization and commercialization. Other problems, such as the lack of human capital and competition, may also be addressed through training and by allowing entry of foreign banks. It may take a very long time before these reforms can be successfully completed, but China is moving in that direction.²² However, even if the SOBs are fully re-capitalized and become truly commercial banks with the objective of maximize profits, they will still not be effective financial intermediaries for the SMEs because of their centralized-hierarchical organizational structure.

Because SMEs generally are risky and lack reliable accounting information, lending to them requires intensive effort by local branch managers to identify good firms and projects in their region. In a centralized-hierarchical organization, capital allocation decision is made by the center, and local managers face uncertainty regarding the availability of capital when they discover a good project. As a result, local managers have weak incentives to exert effort in identifying good projects.²³ Instead, they are more likely to deal with more established firms that they can easily convince the center to lend. This bias against SMEs by centralized-hierarchical financial institutions is supported by the experience of recent bank mergers in the US. Berger et. al. (1997) found that lending to small business declined after banks were merged, even though there were evidence that projects that were cut-off funding were profitable projects.

This bias against SMEs cannot be resolved by decentralizing capital allocation decisions within the hierarchically organized banks for two reasons. First, headquarters of the banks always have incentives to move capital across regions to maximize total returns and, therefore, will find it difficult to maintain a credible commitment to guaranteed capital for any particular local branch. Second, even if the headquarters can maintain a

²² See Lardy (1999), however, for an agnostic view.

²³ Our argument here draws on a recent theoretical paper by Stein (2000).

credible commitment to decentralized capital allocation decisions, it will face another commitment problem: Not bailing out bad projects financed by the local branches. In other words, the centralized ownership structure will give rise to soft budget constraints. (See Dewatripoint and Maskin, 1995).

Allowing entry of foreign banks will not solve the problem either. As we explained above, relationship banking is important in China and foreign banks have a comparative disadvantage in building up relationships with Chinese firms. It is more likely that their clients will be multinational firms and some more established Chinese firms. The majority of the SMEs in the non-state sector will not benefit much from the foreign banks.

The only way to ensure that the financial system will meet the financing needs of the SMEs in the non-state sector, then, is to establish locally based, small, single-manager financial institutions. To ensure that managers have the right incentives to exert effort to identify good SMEs for investment, they should be given the ultimate control right in allocating capital. To ensure hard budget constraints, these institutions should not be owned by a centralized organization. One way to establish such institutions is to allow the entry of private banks owned by the managers.

8.3 The Experience of Dual Financial System in Taiwan

The experience of the dual financial system in Taiwan provides a good example for China. Taiwan 30 years ago was very similar to China today. It was at an early stage of economic development, did not have a well-functioning legal system, financial information about firms was limited, accounting standards were weak, and private SMEs were the major source of growth and dynamism in the economy.

The banking system in Taiwan was also very similar to the banking system in China today²⁴. It was heavily regulated, with interest rates being controlled by the central bank of Taiwan. It was dominated by a few large state-owned banks, with very strict restrictions on entry. The formal financial system in Taiwan also discriminated heavily in

²⁴ For a discussion on Taiwan's dual financial system, see Shea (1994), and for a more detailed comparison between the formal financial systems in Taiwan and China, see Zhu (1998).

favor of state-owned firms and larger private businesses, which received disproportionate amount of their credit from the banking sector. From 1964 to 1990, credits from banks and other formal financial institutions accounted for 88% of the state-owned firms' outside financing, compared to only 60% for the private firms (Shea, 1994).

The banks in Taiwan were very conservative as well, wary of bad debts. As a result, they preferred to lend to less risky large firms. From 1976 to 1987, the percentage of total credits that went to the SMEs in Taiwan was less than 5% for the state-owned comprehensive banks, and less than 29% for the whole banking system (Lin and Peng, 1994). In contrast, SMEs were the source of 70% of employment and 55% of output.

Despite the discrimination by formal financial institutions, the SMEs were the most important sector for Taiwan's growth. This was made possible by numerous informal financial institutions and curb markets that helped intermediate savings to investment in the SMEs. They include financial installment credit companies, leasing companies, investment companies, rotating credit societies, deposits in firms, and loans against post-dated checks. Data for the period 1964-1990 show that this sector consistently supplied one quarter of the outside financing for all enterprises in Taiwan, and more than one third of the outside financing for private enterprises. Smaller firms were much more reliant on the curb market. Shea (1994) presents estimates by assets of firms and find that those with less than one million \$NT obtained about 90 percent of their credits from the informal sector, 1-10 million \$NT, 60 percent; 10-100, 45 percent; 100-1000, 25 percent; and 1000+, 10.3 percent.

The informal financial sector operated in a competitive environment with lax regulation. Unlike in China, the government in Taiwan did not try to clamp down or impose interest rate controls on the informal financial sector. The interest rates offered in the curb market were considerably higher, often by a factor of two or three, which diverted savings from the formal financial institutions and provided needed financing for SMEs. It is important to note, however, that the existence of the basically unregulated informal financial sector did not create chaos in the financial system, and that the diversion of savings from the formal financial institutions did not undermine the solvency of these banks. There were no bank runs.

The experience in Taiwan suggests that a basically unregulated informal financial sector can co-exist with a highly regulated formal financial sector and function well in serving the needs of the SMEs.

8.3 Proposal for a New Financial System

There are about 25,000 rural townships in China. And on average there are about two rural credit cooperatives (RCCs) in each township. Their existence suggests that there is a large demand for rural financial institutions. However, the RCCs are tightly regulated by the central bank and have not been able to efficiently intermediate funds to the rural SMEs. We envisage the evolution of a dual financial system with a new set of private financial institutions that are locally based and largely outside state control. The rules of the game under which these institutions will operate will differ in key respects from those that govern existing institutions. Government regulations should be minimum and should not serve as a substitute for monitoring by depositors. In particular, depositors should be made fully aware of the risks they may face by putting money into these institutions, and regulations should not give depositors any false sense of safety about their deposits.

1. ***These institutions should have some minimum capital requirement and no deposit insurance.*** The former will make these banks truly accountable for their lending behavior by putting owner's capital at risk. The absence of deposit insurance, on the other hand, will encourage information finding and monitoring by depositors. Given that it maybe difficult to verify and enforce capital requirement for these small local banks, it is important that the depositors understand clearly that their deposits are not insured and they are responsible for the risk they take when putting their money in these banks. This will induce depositors to choose banks carefully and monitoring the banks closely. On the other hand, with no deposit insurance the banks would also have incentives to voluntarily to reveal information about their assets and liabilities in order to ensure potential depositors about the safety of their deposits and thus attract deposits. In fact, the potential of banks runs itself may play a disciplinary role on

bank behavior and reduce bank failures (Diamond and Rajan, 1999). There are many examples of well functioning banking systems without deposit insurance. Hong Kong has never had deposit insurance, and there have been no bank runs. Before 1967, Canada did not have deposit insurance, and there were rarely any bank failures and there were no bank runs (Carr, Mathewson, and Quigly, 1994).

2. ***These institutions must have hard budget constraints.*** An implication of this is that the government should commit to not bailing them out in the event of failure and shutting them down when they become insolvent. Since public ownership will undermine the credibility of such a commitment, these institutions should be privately owned. The depositors should be informed clearly about the private ownership of these institutions. Some of the problems China had with RCFs were partly due to the depositors' perception that these institutions were backed by local governments. As a result, depositors presumed that their deposits were implicitly guaranteed by the governments. They did not pay much attention to which RCF they put their money in nor did they monitor the RCFs after depositing their funds.
3. ***Depositors' rights will be protected through bankruptcy law,*** which provides them some claim to the institution's assets in the event of failure, but they will face potential deposit risk. As noted above, they are not provided deposit insurance, and know this ex-ante. This feature will help increase the monitoring role of depositors in the governance of these institutions.
4. ***Interest liberalization will be allowed*** that will compensate depositors for the potential risk, and will allow financial institutions to price appropriately credit risk. Depositors will be able to choose between lower return, and insured deposits in the state banking system, and higher return, but uninsured deposits in these new institutions.

The development of these new financial institutions does not mean that the existing, largely state-owned financial institutions and capital markets will not play a

role. Rather, these institutions and markets will cater to larger firms and possibly new firms in the emerging high-tech sector. These new institutions will also play an important role in the long run. Over time, the best of these institutions will grow and evolve into comprehensive, regional-based (as opposed to locally-based) financial institutions. As they become more integrated into China's financial system, they will begin to serve a wider clientele. However, as long as there are small firms with unmet financial needs, the demand for some local-based intermediaries will remain. Those institutions that succeed the test of the market and expand over time will introduce much needed competition for China's SOBs, much as China's township and village enterprises did in the 1980s. This kind of competition is likely to be much more effective than that offered by foreign banks, largely because of the differences in the kinds of firms the latter are likely to serve.

9. Concluding Remarks

This paper provides a framework for thinking about China's current economic difficulties, which is equally capable of explaining pre-1994 dynamics. It puts at center stage the functioning of the financial system and the allocation of credit and investment in the non-state sector. Contrary with much of the conventional wisdom, we do not believe that weak aggregate demand lies behind the sluggish growth, and thus are doubtful that expansionary fiscal policy or a loosening of monetary policy can have the desired effect. Rather, the problem is the inability of the financial system to intermediate efficiently China's enormous savings, and more specifically, to direct a larger portion of those savings to China's dynamic small and medium non-state enterprises, which have been the driving force in the economy for almost two decades. Our analysis suggests a re-thinking of issues related to the design of China's financial system, and a renewed attention to the development of locally based, decentralized financial institutions outside of the purview of state control.

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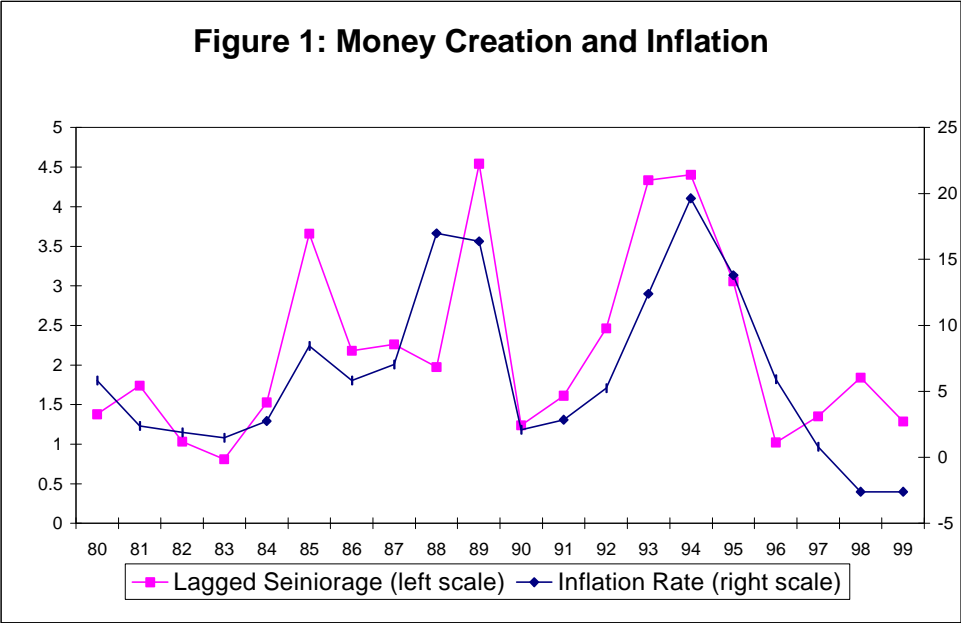
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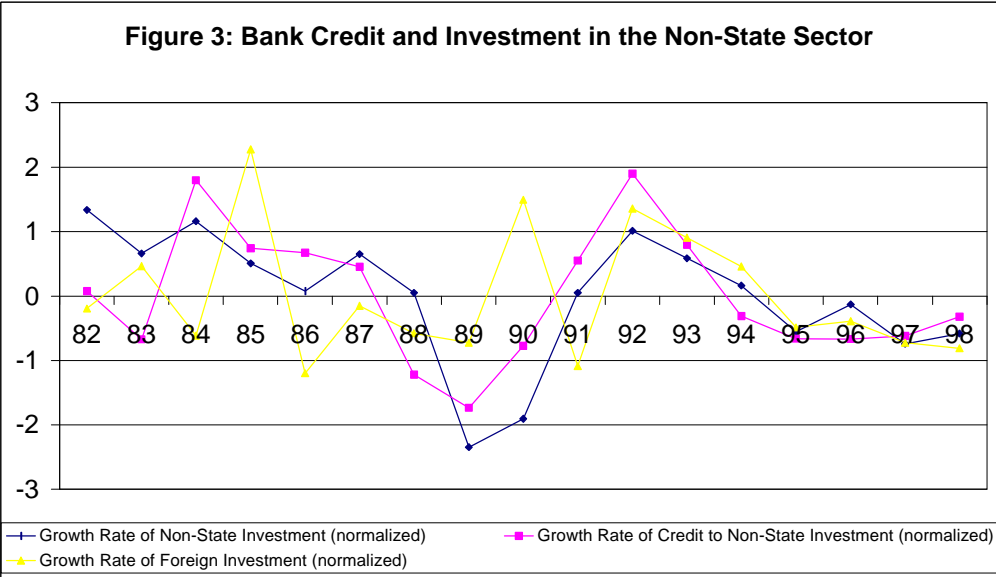
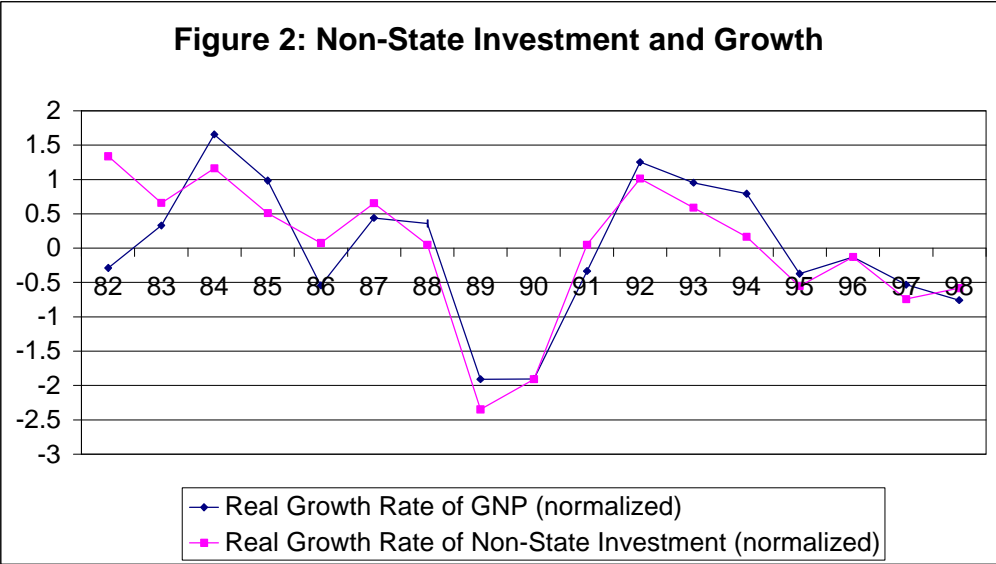
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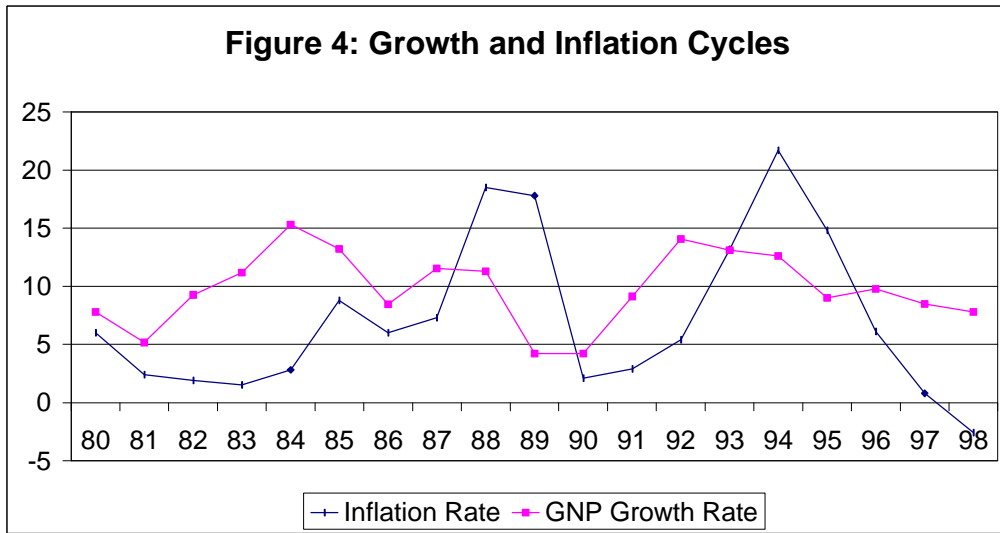
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Source: *Zhongguo Tongji Nianjian* (China Statistical Yearbook), various issues



Source: China Statistical Yearbook



Source: China Statistical Yearbook

Table 1					
Price Indices by Goods Category					
	Dec-96	Dec-97	Dec-98	Dec-99	Dec-00
RPI ¹	104.4	98.8	97.3	97.0	99.6
CPI ²	107.0	100.4	99.0	99.0	101.5
Food	105.0	97.1	97.2	95.6	99.8
Clothing	105.9	101.9	97.9	97.5	99.8
HH articles	102.6	101.9	97.9	97.7	97.5
Health Care	107.4	103.0	102.1	100.0	100.7
Housing	112.0	105.2	100.0	102.9	105.2
Services	118.3	112.5	109.6	114.5	112.8
Imports				94.9	
Exports			92.3	92.5	
Notes: 1. Retail price index; 2. Consumer price index. All data are from the China Statistical Yearbook except the price indices for imports and exports, which are from the World Bank.					

Table 2
Enterprise Financing by Source (%)

Year	Banks	NBFIs	Government Bonds	Stock Issue	Enterprise Debt	State Sector ²
1987	71.6	23.3	5.1			59.8
1988	72.7	20.5	5.3		1.4	67.6
1989	82.1	10.9	5.6		1.4	80.6
1990	78.3	16.0	4.3		1.4	73.4
1991	72.4	19.6	4.4	0.1	3.5	67.1
1992	61.2	24.2	5.8	1.6	7.2	57.1
1993	66.5	24.3	3.8	5.2	0.3	63.8
1994	67.1	19.5	9.6	3.7		69.2
1995	63.0	25.2	10.4	1.4		63.2
1996	64.3	21.7	10.7	3.4	-.1	70.9
1997	73.2	11.6	7.1	8.0	.2	70.1
1998	64.1	17.5	12.2	5.9	.3	71.5
1999	47.8	17.8	25.8	8.6		63.7

Notes: 1. This includes the portion of lending by the banks that went to state sector firms, plus government bonds, and stock issue. All data are taken from China's Financial Almanac.

Table 3: Policy Regime Shifts in 1994

	Employment Growth in Whole Economy	Employment Growth in State Sector	Growth of PBC Loans to SOBs	Seniorage as Percentage of GNP	SOB's Credit Growth
86	2.83	3.82	18.72	2.26	28.54
87	2.93	3.44	2.35	1.97	18.99
88	2.94	3.42	20.53	4.54	16.81
89	1.83	1.24	22.92	1.24	17.61
90	1.61	2.35	19.39	1.61	22.22
91	1.39	3.07	14.99	2.46	18.98
92	1.17	2.11	12.66	4.34	19.79
93	1.25	0.28	40.07	4.41	22.42
94	1.24	2.69	8.14	3.06	22.60
95	1.11	0.42	9.88	1.02	21.43
96	1.33	-0.15	9.73	1.35	20.41
97	1.09	-1.78	-1.10	1.85	25.05
98	0.51	-17.98	-7.92	1.31	15.38
99	0.90	-5.37	7.25	2.75	7.68
86-94 average	1.91	2.49	17.75	2.88	20.88
95-99 average	0.99	-4.97	3.57	1.66	17.99