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THE CONTROL OF MONEY SUPPLY
IN DEVELOPING COUNTRIES:
CHINA, 1949-1988

Anita Santorum

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OVERSEAS DEVELOPMENT INSTITUTE
Regent's College
Inner Circle, Regent's Park
LONDON, NW1 4NS

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This working paper is one of six country studies prepared as part of a study of the role of monetary policy in primary-producing, low income studies. The objective of the general study is to examine what monetary policy can be expected to accomplish in low income countries, and what are the principal constraints on its effectiveness. The country studies examine the development of monetary institutions, the determination of money supply and demand, and the objectives and experience of governments in implementing monetary policy in individual countries. The other countries for which studies are planned are Bangladesh, Cote d'Ivoire, Ghana, Kenya, and Peru. It is hoped that a final report will be published in 1991. The project is directed at ODI by Sheila Page. We are grateful for financial support from the Overseas Development Administration, the Rockefeller Foundation, and the International Development Research Centre of Canada, but they are not responsible for the views expressed here.

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I. INTRODUCTION

China's economy was based on a strict system of central planning from 1949 to 1978. In the late 1970s, it started an ambitious programme of economic reform, which involved both market liberalisation and a partial decentralisation of production decisions to the level of enterprises and agricultural units.

The role of monetary policy and of the financial system, which was limited to providing financial support for the economic plan during the central planning period, changed rapidly and dramatically as a consequence of the reform. A different banking system structure and a more dynamic monetary policy were required to support the economic reform and to control excess demand.

The transition period from planning to market system was the most dramatic stage of the reform. When the state withdraws from most economic activities and the government reduces the amount of subsidisation for the economy, the way the banking system and the central bank's monetary policy respond to the changing requirements of the economy determine the success of the reform.

From this perspective, China's experience is relevant to both CPEs and other developing countries at a similar stage of economic development and liberalisation. As the first among the CPEs to set up a two-level banking system (in 1984), China has also been particularly successful, compared with other LDCs, in developing an extended banking system despite the size of the country. The high degree of dispersion of small banking institutions in rural areas seems to have provided an adequate basis both for the successful collection of savings during the period 1978-84 and for the extension of credit to small agricultural units, during the transition from the commune system to the production responsibility system (PRS).

In comparison with other LDCs, China had the relative advantage of having been an almost closed economy until 1978. The volume of trade has always been modest as compared with both national GDP and world trade. Furthermore, balanced trade has been the main target of external trade policy, achieved almost every year until 1978. After that date a rapid increase in imports, mainly equipment and technology, produced a considerable increase in the volume of trade and a trade deficit. The Chinese authorities, however, have always been concerned about running a trade deficit for prolonged periods and keep strict control over the size of both foreign exchange reserves and foreign debt, being ready to cut imports drastically whenever reserves drop below optimal limits or foreign debt increases.

Still based on a fixed exchange-rate system, most foreign trade operations are carried out by the Ministry of Foreign Trade or by companies under the strict supervision of the Ministry. The difference between foreign and domestic prices is subsidised by the government.

There is an illegal market in Foreign Exchange Certificates (currency notes for foreign visitors) in most cities, since they need to be used for purchases in Friendship Stores, and in most hotels and expensive restaurants. The unofficial exchange rate in 1987 was between 170 and 200 RMB (Ren Min Bi = people's money) for 100 FEC. In some coastal cities and areas near Hong Kong and the special economic zones there is also an illegal market in US and HK dollars. The secondary market for foreign exchange appeared only around 1983, but it developed fast in the richest areas of the country. Its size is unknown; it is believed, however, still to be of only limited importance.

Being a closed economy with no foreign debt problem, China's market liberalisation was a choice determined by domestic political and economic pressures rather than by any economic policy advisers from the IMF.

Before the economic reform, the role of the banking system and of monetary policy was limited to accommodating the economic plan financially and to controlling excess demand in the consumer goods market. After the economic reform, the role of the banking system gained rapidly in importance for mobilising funds and providing finance for enterprises and agricultural units. Monetary policy, however, is still of secondary importance as compared with other economic policies and its main target remains the control of inflation. Despite the introduction of instruments of monetary policy such as reserve requirements and interest on loans to specialised banks, the monetary policy of the People's Bank is still based on a vertical system of credit control.

Restrictive monetary measures contributed to the decline in the rate of growth of the economy, and of the agricultural sector in particular, in 1981-2 and 1985-86, but had only slight effects on inflation in 1981 and no effect at all in 1985 and following years.

The present paper aims to describe the role of the banking system and monetary policy in China both before and during the economic reform, giving an evaluation of the effectiveness of monetary policy over the whole period 1954-86, with particular reference to the targets and effects of monetary policy after 1978.

Section II looks at the structure and role of the banking system and how the banking system and the central bank's monetary policy have responded to changes in the economy and in economic policy from 1949 to the 1984 reform. Section III analyses the determination of money supply and addresses the issue of stability in the demand for money. Section IV examines the impact of monetary policy on major macroeconomic and sectoral indicators. Section V sums up the conclusions.

II. FINANCIAL INSTITUTIONS

II.1. Introduction¹

We can distinguish four economic periods which affected the evolution of the Chinese banking system: the reconstruction period, soon after the Revolution and before the establishment of the planning system, from 1949 to 1954; the centrally planned period, from the First Five Year Plan in 1954 to the beginning of the economic reform in 1978; the first wave of economic reform, from 1978 to 1984; and the second wave of economic reform, after 1984.

As described in section II.2, the structure and function of the banking system evolved according to the changes in the economy and in economic policy. Understanding the history of the Chinese banking system is quite important, since most features of its past structure and functions can still be found in the present. As in other CPEs, before September 1983 China had a monobank system: the People's Bank functioned both as central bank and as commercial bank and firmly controlled all the other banks. In 1984, a series of economic reforms dramatically changed the banking system and its functions. The financial system has been entirely restructured, a two-level banking system (the first among CPEs) has been established, and new financial intermediaries (banks, insurance companies, leasing and investment companies) have been created.

Section II.3 examines the targets and instruments of monetary policy of the People's Bank. Section II.4 is devoted to the specialised banks and the interbank market. Section II.5 looks at Treasury bonds and other institutional bonds and shares.

II.2. Changing role of the banking system in a changing economy.

II.2.1. The reconstruction period and the setting up of the banking system, 1949-1954

After the Revolution (1949) the banks remained the sole actors in the financial sector; their operations changed from the general mediation of funds to the fulfilling of directives of the new Chinese Government. All other financial institutions as well as all financial markets were closed. Cash, deposits and some irredeemable government bonds were the only financial assets.

The People's Bank of China, established in 1948 in the regions under the control of the Chinese Communist Party (CCP), was

¹The monetary system and monetary policy in China are discussed by Byrd (1983), Bortolani and Santorum (1984), Yang (1984), de Wulf and Goldsbrough (1986), and Brotman (1985), who covers some of the most recent changes in the banking system.

designated as the central bank soon after the Revolution. Its role was fundamental in the process of socialisation of the economy. Its immediate tasks were the unification of the banking system under state control (more than 900 private banks existed before 1949) and control of the hyper-inflation which hit the economy at the end of the Guo Min Dang government. The unification of the banking system was completed in 1955 and inflation was eventually halted thanks both to the strict credit controls imposed by the central bank on enterprises and to the implementation of the centrally planned system of investment, pricing and production.

During the reconstruction period (1949-54), the People's Bank resumed control of the Bank of China (in 1953) and of the other two specialised banks: the Bank of Communications, already in existence before the Revolution) and the Agriculture Cooperative Bank, created in 1951. The relevance of the latter two banks was limited to the reconstruction period. Both banks were replaced by other similar institutions at the beginning of the first Five Year Plan, which established the planning system.

By the end of the period, the People's Bank was virtually the sole financial institution in China, since the other specialised banks had become special departments within the People's Bank, most of the operations of the Bank of China had been transferred to the People's Bank, and the Bank of China itself was directly controlled as regards all other operations it was allowed to maintain. The People's Bank was given ministry status and functioned both as central bank and as a commercial bank.

The monobank system underwent very few changes during the period 1954-77: at times, when the economic Plan required special financial support for some priority sectors of the economy (agriculture and construction), the specialised banks reappeared as separate units. The basic structure of the system, however, as well as its basic functions remained virtually unchanged until 1984.

II.2.2. The establishment of the planning system and the role of banks, 1954-77

Under the Soviet economic model imposed by the political leadership in the early 1950s, all key resources were to be centrally allocated. The function of the banking system was confined to financing the economic plan, with the aim of preventing the creation of excess liquidity outside the enterprise sector (De Wulf, Goldsborough, 1986).

The allocation of financial resources relied upon the tax system: all enterprise profits were delivered to the state, which, in its turn, assigned budgetary grants, free of both interest and repayment of principal, to enterprises, according to the economic plan. The intermediation function of the banking system was strictly limited on the principle of separation of responsibilities between bank lending and budgetary grants, as

modelled on the Soviet experience of the 1930s and after. The budget was to supply, in the form of grants, investment and construction, funds as well as a minimum working capital (quota capital) to both state enterprises and agricultural collective units. Bank lending was to cover only transitory and unexpected financial requirements, above the assigned quota. Bank loans were generally short-term, mostly granted to finance the accumulation of stocks or the purchase of raw materials, as kinds of substitutes for buyers' credits and commercial bills. The banks charged interest on the funds provided, in an attempt to lead enterprises to a more accurate use of funds. The interest rates, however, were low compared with both interest rates on savings deposits and administrative costs, with preferential rates for priority sectors.

The aim of the whole system was to reduce to a minimum and to control enterprises' liquidity through the banking system. In fact, the separation between budgetary grants and bank loans has never been completely effective. Since enterprises were not allowed to reinvest their own profits, in order to avoid fund shortages they tended to overestimate the amount of working capital they required from the state budget and often diverted the funds granted from short-term expenditures to long-term investment projects. The allocation of resources was determined by the economic plan, never by profitability.

Since most of the funds allocated to enterprises were budgetary funds and performance was judged exclusively on the fulfilment of production plans, enterprises had no incentive to ensure an accurate and profitable use of financial resources (Zhang, 1981). Budget constraints have never been compulsory for state enterprises: if losses occurred, either budget support or liberal bank lending would be provided in order to avoid bankruptcies or reorganisation of the enterprise. The latter was quite unlikely to occur in the socialist system. A large part of bank lending served to keep unprofitable production units afloat and to finance the accumulation of stocks of unwanted goods in the commercial sector (De Wulf, Goldsborough, 1986), the option of unprofitable use of financial resources being preferred to carrying out changes in the economic plan.

From 1954 to 1978, the Chinese banks acted mainly as cashiers, with their functions confined to the settlement of enterprises' transactions, the administration of funds for working capital and short-term investment, for that part not already covered by budgetary grants, and to the collection of households' savings.

II.2.3. Mao's death and the switch in leadership, 1976-7

After Mao's death (September 1976) and the arrest of the Gang of Four (October 1976), the "moderate" wing of the CCF led by Deng Xiao Bing grew strong enough to establish itself in power, with good prospects for imposing quite a long period of political stability. Under these conditions, a general long-term programme of economic reform could be launched. The general macroeconomic situation in 1977 was characterised by declining growth in labour productivity, an increase in the investment/net material product ratio, a decrease in the rate of economic growth, inequalities in the allocation of investment across sectors, with a clear dominance of investment in the capital goods sector over investment in the production of consumer goods. The main targets of the new leadership were rapid modernisation and economic growth. Agriculture, light industry, consumer goods and the welfare of the population became economic priorities. Decentralisation of production and gradual liberalisation of markets were among the means for achieving these targets.

II.2.4. The economic reform, 1978-84

The first wave of economic reforms was aimed at decentralising production decisions both in agriculture and industry, and at gradually introducing some market forces. In 1979, wages and procurement prices of agricultural products were raised, and enterprises were allowed to use part of their profits for wages and bonus payments. The role of the private economy was reevaluated and its development actively supported, both by the provision of credit and by some forms of political and legal encouragement.

The Production Responsibility System, based on contracts between the brigade and single production units, decentralised production and investment decisions from the communal organisations to the farmers. The PRS was given official status in 1982; experiments had begun, however, in selected geographical areas since 1978². Decentralisation in the industrial sector introduced, among other innovations, the possibility for state enterprises to retain and use according to their own decisions a consistent part of their profits.

The switch to a decentralised system of production, together with the expansion of the private economy caused a sharp increase in monetary income, in demand for working capital and, consequently, in the money stock. Nominal currency in circulation increased much faster than both the net material product and retail sales.

²An extensive literature exists on the PRS: see in particular, Sinha, 1982, Wiens, 1983 and 1987, and Lin, 1987.

The demand for credit and currency in rural areas increased rapidly after the end of the commune system and the introduction of the PRS.

Decentralisation in the production sectors and the growth of private small businesses in the marketing sector all required efficient financial intermediation, in order to mobilise capital funds and give economic units prompt access to financial resources for new investment. In order to sustain the economic reform the financial system needed to be changed accordingly.

II.2.5. Banking system structure, 1978-84.

The programme of economic reforms started in 1978, and although most reforms remained at the experimental stage until 1982-3, its impact on the structure and requirements of the banking system manifested itself immediately.

The structure and functions of the banking system were reformed in 1979. In that year a directive of the State Council announced that the allocation of investment funds would no longer consist exclusively of budgetary grants and would be gradually substituted by bank loans, subject to interest rates and repayment of principal; this directive was to have a major impact on the whole financial system.

From 1979, both the People's Bank and the specialised banks were authorised to issue medium-term and even long-term (5-10 years) loans for the purchase and improvement of equipment and other approved investment projects. The composition of funds allocated to industrial enterprises changed rapidly from 70% budgetary grants, in 1978, to 80% from bank lending in 1982 (Bortolani, Santorum, 1984).

Loans were granted on the basis of the following criteria: (1) that the project for which funding was requested had been previously included in the economic plan of the borrowing unit and/or the project conformed to the general guidelines of the economic plan of the area where the borrowing unit was operating; (2) that the goods to be purchased with the loan were available on the market. Projects' profitability as well as the borrower's repayment ability were not taken into consideration in the monitoring process.

In order to improve the allocation of financial resources to specific sectors of the economy the specialised banks were once more needed. Both the Agricultural Bank and the Construction Bank were re-established as separate units. The Bank of China benefited from the effects of the "open door" policy in foreign relations and a programme of partial decentralisation of import-export decisions to selected economic units. Two more financial institutions for foreign investment dealings were established: the China International Trust and Investment Corporation (CITIC), under the control of the State Council, in 1979, and the Investment Bank, under the control of the Construction Bank, in

1982. The structure of the banking system for the period 1978-84 is illustrated in Figure 1 and is described in Byrd (1983) and Bortolani, Santorum (1984).

Under the new system, the People's Bank controlled directly or through the specialised banks all financial institutions, with the exception of the CITIC, and also performed, at the same time, the functions both of a central bank and a commercial bank.

II.2.6. The economic reform, 1984

In October 1984 the State Council decided to push further the programme of decentralisation of the economy and market liberalisation (Decision, 1984). Budgetary funds for state enterprises were further cut and bank lending became the major financial source for short- and medium- term investment. The reform of the tax system allowed enterprises to retain and use a significant part of their profits, and the decision-making power of state-owned firms was expanded. The role of the individual economic unit was enhanced further; free markets grew rapidly both in rural and urban areas. The price system underwent further changes: a new range of prices was introduced and the range of products with flexible and free market prices was enlarged. The role of the market mechanism involved not only agricultural products, but also the distribution of industrial goods. A two-tier system emerged: part of the total production of each good was to be allocated by the economic plan and part by the market.

The second wave of economic reforms further changed the requirements of the banking system. The tax reform which gave state enterprises the full responsibility for the use of their after-tax profits changed the destination and size of enterprise deposits: enterprises can now use their funds not only in order to settle approved goods transactions, but also for wage and bonus payments as well as financing working capital and short-term investment.

Bank loans had replaced budgetary grants for working capital by 1983, and for investment and even capital construction, with the exclusion of sectors of national interest such as infrastructure, welfare, education and health, by 1985 (Zhou, Zhu, 1987).

The whole economic reform process, since 1978, produced dramatic changes in the distribution of income. Between 1978 and 1986, households' income increased from 53% to 65% of disposable national income, while government revenue declined from 34% to 23%. Thus, the control of about one-eighth of national income shifted from government to households (Naughton, 1988).

Table 1 reports net savings from different sources, as a percentage of disposable national income, over the period 1978-86 (unfortunately the series does not go back to previous years). Between 1978 and 1986, government savings, measured as the surplus on the state budget, fell from 20% of disposable national income to 9.5%, while household savings increased dramatically

from 1% of national income in 1978 to 12% in 1986. During the same period, total savings declined from 33.2% of national income in 1978 to 28% in 1982, climbing again after 1983 to 32.2% in 1986. The 1978-82 drop in the savings rate reflects the central authorities' decision to reduce the accumulation rate (36.5% of NMP in 1978) in favour of total consumption. The savings rate, however, increased again to over 30% of national income in 1984, when the economic reform had already produced a major shift in the source of savings. The increase in domestic savings since 1983 has derived from households' and non-state enterprises' savings, while saving by the state economy (government and state enterprises) declined from 17.6% in 1982 to 14.7% in 1986.

The shift in the composition of savings, together with the decreasing role of the economic plan in allocating funds, increased the importance of providing adequate financial intermediation.

II.2.7. Banking system structure, 1984.

In 1982, the central authorities recognised that the existing structure of the banking system could not adequately support the economic reform. The State Council directive reforming the banking system was issued in September 1983, a year before the second wave of economic reforms was launched.

The People's Bank was restructured as a central bank only and its commercial banking functions were given to the newly established Industrial and Commercial Bank. Urban credit co-operatives were opened in 1986, following the example and successful experience of the rural credit co-operatives. All government financial institutions including insurance companies and the CITIC, are now under the direct control of the People's Bank.

The present structure of China's banking system is illustrated in Figure 2 and described in De Wulf, Goldsborough (1986) and Zhou, Zhu (1987).

It is important to note that China was the first socialist country to set up a two-level banking system. Hungary followed only in 1986, at a similar stage of its economic reforms.

II.2.8. How powerful is the People's Bank?

As we have seen, the People's Bank has the functions of a central bank, with the rank of a ministry and also has Treasury functions. Its power control over the banking system, however, appears to be rather weak, for a number of reasons:

(1) there is no banking law which regulates banks' lending and deposits, the fixing of interest rates, monitoring, etc.; but only a series of directives, which are at times contradictory.

(2) the size of the banking system is such as to prevent effective direct control from the centre over all branches of the

specialised banks: the pyramidal system of competences and responsibilities translates into bureaucratic complexity;

(3) local government at various levels as well as departments under the State Council can still hand out mandatory loans with different priorities that the banks have to follow (Zhou, Zhu, 1987).

During the transition from the old, centrally controlled, financial system, to the new system, in which banks will ultimately be responsible for both sources and uses of their own funds, the central bank will have to strengthen its supervision over the specialised banks and issue adequate regulations.

The main obstacle to a more efficient banking system, however, is government intervention, which determines priority sectors as well as "prime-rate" borrowers and puts direct pressure on bank branches at the local level.

II.3. Targets and instruments of monetary policy

The principal targets of monetary policy have been: control of total credit within the limits imposed by the economic plan; and control of currency in circulation in order to achieve macroeconomic equilibrium in the consumer market, without inflation.

Both targets strictly derive from the accommodating function of the banking system during the planning period, when the banks were supposed to provide the financial resources necessary for the achievement of the plan goals without generating excess demand.

It is important to note that: (1) these targets have apparently not changed even after the most recent economic reform; (2) the foreign sector is still not taken into account.

The use of monetary policy instruments is still quite limited; even if a few experiments have been attempted and widely publicised, the monetary base is still determined by a vertical system of control, with the central bank directly controlling the specialised banks and their local branches, based on the implementation of the credit plan and the cash plan.

Other instruments of monetary policy are interest rates on loans and saving deposits, reserve requirements, interest rates on loans to specialised banks and Treasury bonds.

Better monitoring, based on both project profitability and borrowers' trustworthiness, would dramatically improve the efficiency of the banking system.

II.3.1. Targets of monetary policy: currency in circulation

The choice of M0 as the target of monetary policy followed directly from the "surplus purchasing power" theory, according to

which households' purchasing power, strictly determined by cash holdings, is to be matched by an adequate supply of consumer goods, in order to avoid inflation and excess demand (Shi, 1982, and Huang Da et al., 1984). Currency in circulation is therefore the intermediate target, whereas equilibrium in the consumer goods market is the final macroeconomic goal.

The M0 target was determined on the basis of a balance of income and expenditures, so that the volume of currency in circulation to provide household purchasing power would match the total value of retail sale goods available. This system of determining the desired stock of currency in circulation is conventional in planned economies.

Before 1984, when surplus purchasing power was predicted, the planning authorities generally followed three options: an increase in imports of consumer goods; control over the purchasing power of departments and institutional units (through credit restrictions); an increase in production of consumer goods. Sometimes the prices of certain goods in excess demand or of luxury items such as cigarettes and alcohol were raised, with the aim of withdrawing part of the excess currency in circulation through retail sales. There were no taxes on personal incomes (except on very high incomes) and the tax system in general was not used with the direct purpose of controlling aggregate excess demand, but rather income allocation.

The central bank's power over the money supply, whenever the enforcement of the cash plan was likely to miss its targets, appears to have been limited to the use of the interest rate on saving deposits as an instrument for affecting households' liquidity preference.

The reform of the banking system in September 1983 aimed to give more power and instruments of monetary control to the PB. At present, however, the stock of currency in circulation remains the main target of monetary policy.

II.3.2. Instruments of monetary policy: credit plan and cash plan

As we have seen, the main function of the banking system in a planned economy is to accommodate the economic plan financially by providing those financial resources not already included in the economic plan as well as issuing currency to be used for cash transactions.

In accordance with this function, the People's Bank each year prepares the financial plan, which includes the credit plan, the cash plan and the government budget. The credit plan and the cash plan are based on information available from each branch of the People's Bank and of the specialised banks and are formed according to a pyramidal system of responsibilities, from offices at the grass-roots level to the central bank.

The "desired" amount of currency in circulation is determined by the central bank through the compilation of both the cash plan

and the credit plan (see, among others, Cheng, 1981, De Wulf, Goldsborough, 1986, and Bortolani, Santorum, 1984).

Even after the reform of the banking system in 1984, the central bank still uses the credit plan in order to implement its direct control over the other banks' credit operations. The effectiveness of the credit plan and the cash plan, however, is limited by the ability of the central bank to enforce the plans themselves. This ability was hampered in the past, i.e. before 1978, by economic plan errors, lack of monitoring, illegal practices and corruption, and local government intervention. Liberalisation brought the major problem of predicting accurately both currency and credit supply. The rapid monetary growth which occurred after 1978 showed the central bank's inability to enforce the credit plan and the cash plan; the reform of the banking system in 1984 also aimed at providing the People's Bank with other instruments of monetary policy.

II.3.3. Instruments of monetary policy: interest rate on loans

Interest rates on loans have never been used to attempt to control total bank lending. Until 1984 probably they only had the purpose of encouraging enterprises to use the funds borrowed from the banks more accurately than the funds provided free of charge from the government budget. Designated priority sectors have always benefited from preferential interest rates.

Real interest rates were at times negative and the spread between interest rates on savings deposits and interest rates on loans was often negative (Table 2). The banking system could make profits by setting a low interest rate on enterprises' sight deposits and higher interest rates on loans to enterprises. Time deposits, of up to one year, for enterprises were only introduced in 1982. Until 1982, therefore, all enterprise deposits (about one third of total deposits at the People's Bank) were sight deposits and, since they were compulsory, they could bear otherwise unattractive rates.

The annual interest rate on enterprises' sight deposits was set at 1.80% while that on loans for working capital (the great majority of loans to enterprises) was set at 5.40% raised to 7.20% in 1982. Interest rates on time deposits under one year ranged from 3.60 to 5.04%. Interest rates on medium term (1 to 5 years) ranged from 5.04 to 6.48%. Preferential rates varied from 3.60 to 4.32%.

The banking operations with enterprises were thus profitable, while losses on household savings collection were probably covered by profits from other sectors. The whole banking system seems to have been profitable until 1984. Since the reform, a wider range of loans and deposits has been introduced and deposit rates have been revised upwards because of inflation, while most loans rates have been kept low for economic and political reasons. At present, the profitability of the banking sector may be questionable and the structure of interest rates, both term and across sector, will need to be revised as a consequence of

both inflation and the new kinds of loans and deposits introduced.

When price liberalisation rapidly raised the retail sales price index and the cost of living (Table 3), the banks had to raise their interest rates to take account of inflation. The People's Bank revised upward the rates of interest on both loans and saving deposits three times over the period 1978-83.

Flexible rates of interest on loans were introduced in 1984: they can fluctuate, according to local market conditions, within a spread fixed by the central bank. However, those enterprises which suffer from the increased cost of capital can ask for a subsequent tax reduction.

The structure of interest rates, both term and across-sector, will eventually need to be changed. The price reform will also be important for the determination of more realistic interest rates. The present price structure (with free, flexible and fixed prices) causes considerable distortions in the evaluation of opportunity costs both to borrowers and to the banks.

Credit rationing and misallocation of resources have repeatedly occurred. Preference has traditionally been given to investments which guaranteed quick and high nominal returns, because they appeared the safest and simplest to finance. Since low prices have been maintained in the primary sectors and in the construction sector, while those in other sectors have been raised and, at least partially, liberalised, certain low priority sectors (such as processing industries) have benefited from the financial reform and the credit expansion more than higher priority sectors (such as transport and energy). Since banks base their evaluation on nominal prices, rather than the true opportunity costs, resources have repeatedly been allocated to comparatively low yielding investment.

II.3.4. Monitoring

Until 1984, credit operations were guided by the principle of what was called the "commodity inventory system", introduced in 1955. According to this principle, loans were granted to projects in relation to the specific economic plan of the borrowing unit and backed by material stocks held by the unit. The loans had to be repaid promptly soon after the stocks used to back the loan were sold (De Wulf, Goldsborough, 1985).

A widely used indicator for monitoring loans, was the turnover rate of working capital, i.e. the ratio of the enterprise's total production to the working capital financed by bank borrowing. This ratio was compared with the turnover rate of the whole production sector and the rates realised by the enterprise in the past. When the enterprise's turnover rate fell below one, or was lower than either of the other two indicators the enterprise's performance was checked. The power of the banking authorities, however, was limited to reporting their findings to the planning authorities, who would take the final decision on the future of

the enterprise. In effect, very few defaulting borrowers were ever restructured or closed down, while it is known that "a large number of bad debts emerge and are cancelled from the bank's asset column periodically by the State's orders" (Zhou, Zhu, 1987).

Since the banking reform of 1984, monitoring has become more effective and based on the profitability of the project as well as on the repayment ability of the borrowers. The shortage of trained personnel and the difficulties in establishing an efficient information system are the main obstacles to proper monitoring of loans.

II.3.5. Instruments of monetary policy: interest rate on savings deposits

The interest rate on savings deposits was used in the period 1978-86, as an instrument for influencing households' liquidity preference, in an attempt to reduce the excess currency in circulation by increasing saving deposits.

An empirical model of households' portfolio and expenditure behaviour in China, estimated by Santorum (1987) over the period 1955-83, confirms a positive relationship between the interest rate on savings deposits and savings deposits and a negative relationship between the interest rate on savings deposits and currency in circulation.

Santorum (1987) shows that in China consumers' expenditure and decisions on portfolio allocation are interdependent: the composition of wealth in the previous period affects flow decisions, and expenditures affect the next-period portfolio allocation. The interest rate on savings deposits can, therefore, be used as an instrument of monetary policy in order to influence consumers' decisions. Furthermore, an increase in the interest rate, by reducing currency in circulation and increasing savings deposits, causes a change in portfolio liquidity, with a final negative effect on next-period expenditures. The predictive ability of the model, however, is dramatically affected by the structural changes which occurred during and after the economic reform, so that the model can say very little about a similar policy carried out in later years. The estimated model also suggests that saving deposits represent an accumulated purchasing power which could be subsequently released, causing an unpredictable increase in expenditure in later years.

Interest rates on saving deposits were changed only 8 times during the period 1953-78, remaining unmodified sometimes for years, while they have been raised constantly every year (with the exception of 1983) since 1979. In 1985, in response to the rapid increase of inflation (+11.9%), which was due to the uncontrolled expansion of the money supply, the monetary authorities raised the interest rates on savings deposits twice in the same year, while still maintaining their levels below the rate of inflation.

The interest rate on savings deposits has never yet been linked to changes in prices of consumer goods: a State Council directive of August 1988, however, contemplates the introduction of price index linked interest rates on savings deposits of 3 or more years duration. At the end of 1988, the interest rate on one-year savings deposits was raised to 16%, as a consequence of the accelerating inflation in the major cities and the widespread withdrawals of savings deposits which followed.

Table 2 shows that, over the period 1978-86, the real rate of interest on one-year savings deposits was negative in 1980 and in 1985; it was slightly positive in 1986, but negative again in 1987. The real rate of interest in Table 2 is "ex-post" and based on the official index of inflation. In view of the fact that the "true" rate of inflation (without considering repressed inflation) is reported to be higher (particularly in the urban areas) than the official figures and that expectations of inflation are rising dramatically, the "true" real rate of interest, as perceived by economic agents, is probably deeply negative.

Feltenstein, Lebow and van Wijnbergen (1986) found a negative and significant correlation between households' consumption and the real rate of interest on savings deposits, notwithstanding the fact that real interest rates were negative. Their result is particularly interesting, since it is based on an approach, the virtual price index, which takes into account distortions deriving from excess demand in the consumer goods market.

In 1988, inflation was around 24% in cities and towns, according to official data, while the true figure was probably twice as high, according to the local press. The Decision of the Politburo to speed up the price reform, which should be completed within 5 years (Renmin Ribao, August 21, 1988) had a dramatic impact on households' expectations. Chinese sources have reported massive withdrawals of savings deposits, a widespread rush to buy any consumer goods available in the shops and a sharp increase in household stocks of non-perishable consumer goods. Speculation by commercial enterprises, ready to exploit the sudden increase in excess demand, worsened the situation. Ten days later, the State Council announced that no radical price reform would be undertaken in the next two years and issued directives to the People's Bank to link the interest rate on savings deposits of 3 years duration or more to inflation (Renmin Ribao, August 31, 1988).

It is too early to assess whether households will review their expectations. The current situation as depicted by the Chinese press, however, indicates that, at present, the "true" real rate of interest on savings deposits is highly negative, and suggests that price reform and financial liberalisation have to proceed together in order to achieve macroeconomic balance and stabilisation goals.

II.3.6. Instruments of monetary policy: reserve requirements

Since 1978, the Agricultural Bank and the other specialised banks have kept some reserves at the central bank, in proportion to their deposits: before 1984, however, neither was the proportion fixed nor did the authorities permit them to be used as reserve requirements.

After 1984, a more traditional system of reserve requirements was established. Reserve requirements are entirely composed of deposits with the People's Bank. Their ratio was originally fixed, in 1984, at 40% of urban households' deposits, 20% of enterprises' deposits and 25% of rural deposits, including the redeposits of the rural credit co-operatives with the Agricultural Bank (People's Bank Promulgates ..., 1984). In 1985, the requirements were reduced to 10% of deposits for all specialised banks, except the Construction bank, for which 30% was imposed (Zhou, Zhu, 1987).

The formal reserve requirement was pegged at 10% of deposits until late 1987; the specialised banks, however, had been maintaining larger deposits with the central bank, with such excess reserves amounting to 11.56% of deposits at the end of 1985. Excess reserves have been falling steadily with the development of the interbank lending market (see II.4.11 on the specialised banks), which provided the opportunity for more profitable investment, and amounted to only 6.4% of deposits in October 1987 (Naughton, 1988). The drop in excess reserves is likely to have contributed to the growth of money supply over the period 1985-7.

The reserve requirement quotas were obviously too low to be effectively used as instruments of monetary policy. The indecision shown by the monetary authorities about using the reserve requirement ratio as an effective instrument to control monetary expansion reflects the difficulties, the lack of preparation and sometimes the political pressures that have affected the process of transition to a new kind of monetary policy. The result was that in a period of rapid inflation, the opportunity to switch decisively to new instruments of monetary policy was discussed in a leisurely way, while the traditional vertical control of bank lending was strengthened.

In October 1987, the reserve requirement quota was raised to 12% and the rural credit co-operatives were required to maintain an additional 5 billion yuan in deposits at the central bank over and above their reserve requirement.

II.3.7. Instruments of monetary policy: interest rate on loans to specialised banks

Loans from the People's Bank to other banks were introduced in 1984. However, they seem to have been used generally for purposes other than the control of the monetary base. In 1984, the interest rate on loans to the specialised banks was exactly the same as the rate on their redeposits at the central bank (0.36 per month), so that there was no financial disincentive to borrow from the People's Bank (De Wulf, Goldsborough, 1986).

Specialised banks can borrow from the PB at a 0.39% monthly interest rate on borrowing previously included in the credit plan and at a 0.42% monthly interest rate on temporary (unplanned) borrowing (Zhou, Zhu, 1987): the interest rates, however, have been mainly changed for specific purposes, such as to facilitate borrowing by the Agricultural Bank during the harvest period.

II.3.8. Savings collection

Households can save income in only three forms of financial assets: cash, savings deposits and Treasury bonds. The latter (see section II.3.13) have been sold to households only since 1982, they are not negotiable and represent about 1% of total savings. Some enterprises have recently been allowed to issue "shares" to be purchased by their workers; these "shares" have all the characteristics of bonds rather than equity shares, bear a fixed minimum dividend, are not negotiable and are issued with the specific purpose of raising the workers' salary above the ceiling imposed by the government on bonuses to workers. Enterprises' shares, therefore, cannot be considered as savings deposits substitutes. Their volume is also extremely modest; share issues are still at the experimental stage.

There are two kinds of savings deposits: sight and time deposits. Time deposits offer a range of various durations at different interest rates. It appears, however, that withdrawing the deposit before the end of the prescribed term is possible but is penalised by the application of a lower interest rate. The effective liquidity of all kinds of deposits depends on the cash reserve of the bank branch and on the general monetary policy directives of the People's Bank. Before the economic reform, some sorts of political pressures were known to be used by bank managers on depositors who wanted to withdraw their savings. Since the reform, this sort of action is very unlikely to be taken; in a period of widespread withdrawals, however, as in the second half of 1988, the authorities have delayed payment considerably and, in some cases, have issued a sort of IOU because of cash shortages.

Savings deposits increased very rapidly during the period 1978-86 (see Table 4). Three main factors behind the rapid increase of households' savings can be identified (Naughton, 1986): (1) the unprecedentedly rapid growth of households' money income, due to the economic reform; (2) the changes which have occurred in the nature of household income in rural areas, as a consequence of the Production Responsibility System, and the corresponding transfer of responsibility over agricultural production and investment from the collective organisations to individual households; (3) the changes in the nature of expenditures, introduced by the increasing availability of large-scale consumer goods, such as radios, bicycles, televisions, fans, tape recorders.

As we have seen, households' portfolios consist essentially of two assets: cash and saving deposits; the increase in savings, therefore, was bound to be reflected by an increase in both cash and savings deposits. It is interesting to note that before the economic reform currency was 50% of the money stock (defined as M2, currency plus saving deposits). After 1979, savings deposits increased more rapidly than currency in circulation, reaching 60% of the money stock by 1982.

The "switch" in the components of household portfolios could be readily attributed to the successful savings collection policy of the People's Bank. Without underestimating the effects of the increase in the interest rate on savings deposits and the expansion of bank savings offices, it should be noted, however, that the same "switch" occurred in other CPEs at similar stages in their economic growth: currency in circulation ceased to be the major component of M2 from the early 1950s in Czechoslovakia and the GDR, and from the early 1960s in Hungary and Poland (Rudcenko, 1979).

After 1978, the People's Bank stressed the importance of savings collection in withdrawing the excess currency in circulation. Interest rates were raised, more types of term deposits were offered, and, most important, the number of savings offices was rapidly increased, as is shown in Table 5. The population/savings offices ratio has dropped continuously in the rural areas and, until 1984, in the urban areas (Table 6). As Table 6 shows, the number of savings offices in proportion to population is much higher in the rural areas; this is due to the high number and flexible structure of the rural credit co-operatives. Their flexible structure has certainly been one of the key factors behind the rapid increase in savings deposits in rural areas over the period 1978-82. Table 4 shows how successful the collection of savings has been: by the end of 1982, the total savings deposits figure was nearly four times higher than in 1977. Both the number of depositors and the average size of deposits increased (Bortolani, Santorum, 1984).

It is interesting to note that the collection of savings was carried out mainly in order to withdraw the excess currency in circulation outside the enterprise sector, rather than in order to mobilise funds.

Given the limited range of existing financial instruments, savings deposits seem more likely to have responded positively to the increased accessibility of deposit institutions and, more generally, to the improvement as well as innovation in banking services.

II.3.9. Services

Recent directives from the People's Bank stress the importance of banks becoming self-sufficient and of their performance being evaluated on the basis of their profitability. Though this statement sounds meaningless in view of the fact that the spread between interest rates on loans and interest rates on savings deposits is still far from covering administrative costs, it has started to produce some effects at the branch level. More services are gradually being offered to depositors: cheques, cashier's cheques, bill payments, and even credit cards. As usually happens with any kind of innovation, all these services are being introduced on an experimental basis in selected areas and to priority customers.

II.3.10. Specialised banks

The Agricultural Bank and the Construction Bank have appeared and disappeared from the structure of the banking system according to the economic priorities established by the political leadership. Their history is related to the changes in leadership which occurred over the period 1954-77.

In 1954 the "moderate" leadership launched an economic programme in which centralisation and heavy industry development were the main issues. At the same time, the free market in agriculture was partially liberalised and the proportion of private plots extended. The Construction Bank and the Agricultural Bank were established in the period 1954-5. The Construction Bank was mainly to act as an intermediary between central government and construction units in the allocation of budgetary funds. The Agricultural Bank was in charge of banking operations and in control of the money supply in rural areas.

A change in leadership occurred in 1957. The new "radical" government completed the process of collectivisation in the countryside and launched the short, but dramatic, adventure of the Great Leap Forward: the Agricultural Bank was closed. It was then reopened briefly during another period of "moderate" leadership (1963-5), when free markets and private plots of land were once again promoted. In 1965, the Agricultural Bank became just another specialised department within the People's Bank. The Construction Bank completely disappeared from the financial system during the Cultural Revolution. During its short existence, however, the Construction Bank never functioned as a proper bank, its operations being confined to the distribution of budgetary grants for long-term investment and medium-term lending of funds provided by the People's Bank. Both banks reopened in 1978.

The two other financial institutions, the Bank of China and the rural credit co-operatives, had seemingly passed through the whole political succession cycle without undergoing dramatic changes: the Bank of China, because its functions were confined

to the foreign sector, and the rural credit co-operatives, which existed from 1933, because of their importance in mobilising savings in rural areas.

The shift in enterprises' sources of financing which occurred after 1978 enhanced the role of the specialised banks, which also seem to have been given more responsibilities after the reform of the banking system in 1984. Any assessment of the degree of independence from the central bank since the reform is difficult, as China still lacks a proper banking law. This also makes the control of the People's Bank over the specialised banks hard to define and to enforce.

The Agricultural Bank and the Construction Bank, when in operation, were responsible for the allocation of funds to agricultural collective units and construction units respectively. There was no possible source of competition among banks, since they were allocated funds directly from the People's Bank according to the economic plan, were given their own sphere of responsibility, and their customers (enterprises, collective units, households) were assigned one bank with which to do their business (De Wulf, Goldsborough, 1985). No direct liquidity transfer from one economic sector to another or from one province to another was possible: all mobilisation of resources had either to go through the central bank or through the central government, or to remain within the same sector and the same area from which the resources originated.

At present, there is still a high degree of specialisation and each bank is assigned its specific sphere of responsibility. A first sign that this rule might be overcome in the near future came in 1986 when individuals were allowed to choose the bank they wanted for deposits (Sherer, 1988).

The willingness to increase competition within the financial system has been shown by the opening of the Bank of Communications and of the first non-governmental bank, the Shanghai Aijian Banking, Trust and Investment Company, in 1986. Their operations, like those of the few operating branches of foreign banks, are strictly limited and virtually do not conflict with other banks' areas of responsibilities. They represent, however, initial exploratory experiments, and the Chinese experience suggests that experiments of this sort might, at times, evolve quite rapidly.

In the long term, competition among specialised banks could be allowed and promoted, with benefits resulting from reduction in administrative costs, increased efficiency of the service and a new range of services offered to the public.

II.3.11. The rural credit co-operatives

The rural credit co-operatives are collectively owned units under the direct control of the Agricultural Bank, which they use as a clearing bank. Their structure is simple: a main office at the commune level, branch offices at the brigade level and the credit

stations at the "grass-roots" level. The ability of the rural credit co-operatives physically to reach a high number of depositors is due to the extremely flexible structure of the credit stations: consisting of 1 or 3 workers, they employ both full-time and part-time workers up to a total of 706,000 employees in 1986. Part-time staff have decreased as a proportion of total staff since 1982, when they were 52% of the total personnel; part-timers, however, still represent 43% of the total personnel, equivalent to 28% of total staff employed in the banking sector in rural areas.

II.3.12. Interbank lending market

The dramatic increase in the demand for credit which followed the economic reform put the banks heavily under strain and is now pushing them to become competitive. Since 1985, recommendations from the People's Bank state that loans can be granted only in proportion to deposits. At fixed interest rates, the excess demand for bank loans has produced a shortage of funds within the banking system.

The specialised banks, which used to borrow directly from the central bank, had to look for alternative sources when the People's Bank imposed a "credit squeeze" on the whole financial system by granting loans to the specialised banks strictly in accordance with the credit plan and charging higher interest rates on above-quota funds. The two sources the specialised banks turned to have been interbank loans and bond issues. In 1985, both the Agricultural Bank and the Industrial and Commercial Bank issued bonds. The interbank loan market appeared officially in 1985 and is slowly becoming an important source of short-term funds.

Since 1985, regional offices of the People's Bank in ten major cities have started to act as clearing houses for short-term (10 day) interbank funds, "by temporarily releasing a specialised bank's excess deposits and permitted but unutilised credit to other specialised banks" (De Wulf, Goldsborough, 1986). The interest rate is negotiable within a fixed spread, which is linked to the People's Bank's lending rates (Sherer, 1988).

The introduction of the interbank lending market has had the immediate effect of reducing the excess reserves of the specialised banks at the central bank. In the short term, the development of the interbank lending market seems difficult. At present, contractionary monetary Policies are intended to affect economic sectors differentially, while the development of the interbank lending market would give the more penalised banks a chance to overcome their credit plan quotas. In September 1988, there was even an attempt by the central bank to limit the operations of the inter-bank market drastically, in order to cut credit; this attempt, however, met with strong resistance from enterprises and other units which complained they could not find the necessary capital to finance wages and working capital.

A well-functioning interbank lending market would avoid situations in which banks, and therefore economic sectors, were affected differentially by the same monetary policy measures (Fry, 1988). Agriculture, for example, has always been penalised in favour of other sectors. The allocation of resources as well as the effectiveness of monetary policy could both be improved dramatically.

II.3.13. Treasury Bonds and other institutions' bonds and shares

In 1979, total government expenditure overtook total revenue for the first time after a long period of budget surpluses. A budget deficit was recorded each year from 1979 to 1984 and then again from 1986 to 1987. In the first two years, the People's Bank intervened directly, financing most of the government deficit by net lending (53% of total deficit financing, in 1980, according to IMF estimates).

Though the deficit/GDP ratio was rather low compared with other countries (5.3% in 1979, 3.5% in 1980 and 1.3% in 1982, according to IMF estimates), the financial authorities regarded the government deficit as a possible source of inflationary pressures and looked for alternative sources of financing.

In 1981, Treasury bonds were issued for the first time since the 1950s. The 1981 issue covered 84% of the deficit, as measured according to standard Western criteria by the IMF (Bortolani, Santorum, 1984). Treasury bonds were allocated through the central bank. The first issue was compulsorily allocated among designated institutions. Since 1982, however, Treasury bonds can also be purchased on a voluntary basis by individuals as well as enterprises.

Treasury bonds are not negotiable; since 1985, however, they have been discountable at the central bank and used by enterprises as collateral for borrowing (Grub, Sudweeks, 1988). Table 7 reports data on Treasury bond issues and government deficit/surplus over the period 1981-6. Note that the Chinese data, in this case from the Statistical Yearbook of China, include Treasury bond sales in government revenue; furthermore, in certain years (e.g., 1981) the Treasury bonds issued in that year have been attributed to the previous year when the deficit arose.

Treasury bonds bear an interest rate and their duration is 5-10 years. The nominal interest rate on Treasury bonds was 5% in 1981. It was raised to 8% on bonds purchased by individuals, but reduced to 4% on bonds purchased by enterprises and other institutions, in 1982, and raised to 9% for individuals and 5% for enterprises in 1985.

Although the Treasury bond yield for individuals has been maintained 1-2 percentage points above the interest rate on one-year saving deposits, Treasury bonds still cannot compete fully with savings deposits, because of their limited degree of liquidity. Furthermore, the low yield for enterprises and institutions means that compulsory purchases of Treasury bonds,

which still often occur (e.g., by banks), are equivalent to a tax imposition.

Since 1984, state enterprises, banks and local government units have also been allowed to issue bonds. Bond issues increased dramatically in 1986, particularly from rural enterprises, as the credit squeeze started. By the end of 1986, 7,000 enterprises had issued shares, and stock exchanges had opened in the major cities. The size of the market, however, is still negligible in terms both of participants and of the amount of funds deriving from bond and share issues as compared with bank borrowing.

Bond regulations include the designation of potential investors: e.g., banks can only issue bonds to their depositors; enterprises can only issue bonds to their workers. Enterprises' bonds are "non-voting participatory certificates", and are generally called "shares". They are redeemable and bear a minimum guaranteed interest rate (generally fixed, sometimes pegged to the People's Bank rates) plus a possible dividend, according to the enterprise's performance. They are typically sold to workers in an attempt to evade bonus and wage ceilings, rather than with the purpose of obtaining funds from alternative sources of financing.

Experimental stock exchanges have opened in Shenyang, Shanghai and Beijing; both the People's Bank and the Industrial and Commercial Bank may also act as dealers.

III. MONEY SUPPLY AND DEMAND

III.1. Introduction

In the previous section we have seen how the People's Bank sets its monetary targets on the basis of the credit plan and the cash plan. In order to give an evaluation of the People's Bank's monetary policy, and before discussing its effectiveness in relation to real variables, this section addresses the following issues: the determination of the money supply, employing a flow of funds analysis; the exogeneity or endogeneity of the money stock; the stability of the demand for money; and the cyclical pattern exhibited by the monetary policy of the People's Bank since 1978.

III.2. Definition of money

The definition of money in a centrally planned economy (CPE) is different from standard classifications. Government production units can settle transactions among themselves by bank transfer only and can keep only a fixed amount of cash for unpredictable transactions. Cash is used only for retail sales, wages and state purchases of agricultural products. We can thus identify two monetary circuits: one in which cash plays the role of means of exchange and the other, restricted to government and production units, in which most payments are made by bank transfer.

Monetary aggregates in CPEs are generally defined as:

$M0$ = currency in circulation

$M2$ = $M0$ + saving deposits

$M3$ = $M2$ + enterprises' deposits + budgetary deposits + capital construction deposits + deposits of government agencies and organisations.

III.3. Determination of the money supply: a flow of funds analysis

We have seen that one important target of monetary policy has been the control of currency in circulation. Two kinds of analysis can be used in order to analyse the process of money creation: the deposit multiplier approach and flow of funds analysis.

The former requires (1) that bank reserves are exogenously determined and (2) that there is a rigid link between bank reserves and the money supply (Chick, 1973). In view of the fact that loans have been granted in proportion to bank deposits only in recent years and that reserve requirements have never been used efficiently, neither condition is likely to hold for the Chinese case.

Flow of funds analysis can give useful insights on why the control of currency in circulation by means of the credit plan and the cash plan has become more and more inadequate during the process of liberalisation.

Before 1984, currency was put in circulation by the central bank through other banks, state enterprises and government units, and it was withdrawn through the same institutions. 80% of the currency outflow was due to wage payments (42%) and state procurement of agricultural products. 82% of currency in circulation was held by households and the remainder by enterprises, agricultural units and government units. Retail sales accounted for 70% of cash inflow (People's Bank of China, 1983). Figure 3 illustrates the process; as can be seen, strictly it refers to the demand for money for transactions:

As noted above, the central bank determined the money stock on the basis of the credit plan used jointly with the cash plan. The balance sheet of the People's Bank up to 1984 was something like the following:

People's Bank balance sheet	
ASSETS	LIABILITIES
Loans to enterprises	Enterprises' deposits
Loans to government	Government deposits
Loans to non-state sector	Savings deposits
(private and agric. units)	Currency
Reserves (gold and foreign exchange)	Other banks' reserves
	Agricultural bank reserves

The People's Bank cannot control total credit directly, since it is primarily determined by the economic plan and the government budget.

Under a flow of funds analysis and assuming fixed bank reserves, changes in the money stock result as follows :

$$\begin{aligned}\Delta CU &= (\Delta L_e + \Delta L_g + \Delta L_{ns}) - (\Delta D_e + \Delta D_g + \Delta SD) \\ \Delta CU &= (\Delta L_e - \Delta D_e) + (\Delta L_g - \Delta D_g) + (\Delta L_{ns} - \Delta SD) \\ \Delta CU &= SEBR + PSBR + NSBR\end{aligned}$$

where:

CU = currency; L = loans and D = deposits; subscripts e and g are respectively for enterprises and government units; subscript ns is for non-state sector; SD = saving deposits; SEBR = State enterprises' net borrowing requirement; PSBR = public sector net borrowing requirement; NSBR = non-state sector borrowing requirement. SD includes the Agricultural Bank deposits at the People's Bank.

Thus

$$SEBR + PSBR > -NSBR \Rightarrow \Delta CU > 0.$$

In principle both SEBR and PSBR are determined by the economic plan. The central bank has no power over them; it can only ensure that the borrowing requirement does not exceed the plan targets.

Only cash loans will produce changes in the money stock, since any other kind of loan is counterbalanced by a corresponding change in enterprise or government deposits. Cash loans are mainly for wage payments and purchases of agricultural products. They depend on the plan, the enterprises' economic performance

(since bonuses have been introduced) and the (unpredictable) agricultural production. Interest rates on these loans had no incentive effects on enterprises or government units until perhaps 1985, when production units' performance became important and interest on loans finally became greater than the corresponding interest rate on deposits.

This leaves the People's Bank with the task of controlling NSBR. With fixed interest rates on loans, ineffective loan monitoring, and non-binding reserve requirements, the central bank had virtually no means of controlling NSBR except by increasing the interest rate on savings deposits.

Money creation in rural areas is very important: we can reasonably assume that nearly half the currency in circulation is in the rural areas, where production units used to keep cash for payments to members of the brigade and purchases of various inputs, and peasants were paid only once or twice a year (although only part of their income was in cash). The Production Responsibility System introduced in agriculture between 1979 and 1983 contributed considerably to the increase in the volume of currency in circulation in the rural areas: most of the payments are made in cash, while peasants are given land for their own personal needs rather than goods, in a new form of income in kind which is quite difficult to value.

The rural credit co-operatives contributed in recent years to a very large savings deposit increase relative to the rural areas, while on the other hand they lent less than one-third of the money they collected.

Another main concern for the next few years will be the process of accumulation and investment in the rural areas, which, after the dismantling of the communes, depend largely on peasants' own decisions (see Reynolds 1987). In the two years 1985-6 the growth of savings deposits in real terms declined, while peasants showed more interest in spending on consumer goods than in investing in agricultural inputs; as a result, investment in agriculture has declined so sharply that the planning authorities now fear for the long-term growth of agricultural production. The role of banks in this particular problem area could be vital: credit facilities could be extended and better monitoring implemented; a structure of interest rates on both loans and savings deposits which takes into account the real opportunity cost of alternative investment could guide households' portfolio and investment decisions towards the desired mix of investment and consumption expenditure.

III.4. Is the money stock exogenous?

The question of exogeneity of the money stock is important in order to assess whether the money stock can be used as an instrument of monetary policy.

Two studies have addressed the question of the exogeneity of the money stock in China: Portes and Santorum (1987) and Chen (1988). Both reach the same conclusion, namely that the money stock is not exogenous. Although both studies used a causality approach (Portes and Santorum used the Granger test while Chen used a Vector Autoregression Model) and exogeneity, in its more technical sense, should be determined in the context of a particular model (and might not hold in other models), their results provide evidence that the money stock in China is largely demand determined.

It remains to be established how the private sector can command the money supply it wants. One reasonable explanation for China (where securities have been only recently introduced and do not play any relevant role in monetary policy) could be the following: an original increase in the demand for bank loans (due to exogenous changes in aggregate demand) induces banks (in aggregate) to overexpand; this would produce a "cash drain" which would oblige the specialised banks to borrow from the central bank, thus increasing the money supply, to support the increase in deposits, initiated by the increased desire to spend (see Chick, 1973), in a typical "accommodating" monetary policy fashion.

In contrast to an "accommodating" policy and in view of the economic reform, the People's Bank will be interested in the near future in acquiring further instruments (e.g. open market operations) and in implementing a better use of the existing instruments (e.g. reserve requirements, discounting operations) necessary to a "dynamic" monetary policy. This would allow the central bank to initiate changes in the monetary sector, in order to promote broad macroeconomic targets of stabilisation and growth. In this "dynamic" policy, changes in cash supply would be exogenously determined at least in the sense that they would be initiated "outside" the private sector.

III.5. Demand for money

Several studies have estimated demand for money equations for China. The most interesting findings are in Portes and Santorum (1987) and in Feltenstein and Farhidian (1987).

Portes and Santorum estimated a standard general demand for money equation. Their best estimated equation for M0 was the following (equation (3) in table 3 of their paper):

$$m = 0.32^* + 0.35^* m_{-1} + 0.73^* y + 0.74^* p + 1.64^* \Delta p - 0.12^{**} R$$

where all variables are in logs, except R, and $m=M0$, y = households' disposable income, p = retail sales price index, R = interest rate on one year saving deposits. * and ** mean significant at the 5% and 10% confidence levels respectively. Δ means change.

According to the estimated equation, the income elasticity is 1.123 and the adjustment coefficient 0.65, that is, money balances adjust within 6 months. The interesting result is the negative correlation between interest rates on savings deposits and money balances. The odd result is the positive correlation between prices and money balances: this is probably due to the use of official prices, which do not include hidden and repressed inflation. The effects of excess demand on the consumption goods markets should enter the demand for money equation.

Feltenstein and Farhidian (1987) estimated a demand for money equation which takes into account repressed inflation. Although their theoretical model might be questionable (see Portes and Santorum, 1987), their results are rather interesting. Their estimates are the following:

$$m = -1.60 + 1.373 y - 4.023 \pi^e_t$$

$$\Delta m = 0.255 (m^d - m_{-1})$$

where all variables are in logs and $m = M2/\pi_t$, y = real disposable income deflated by π_t , π_t is the virtual price index defined as $\pi_t = p\alpha$ (p = official price index), and m^d is the long-run demand for money. The use of virtual prices, instead of official prices, gives less weight to income and more weight to inflation. Most important of all, the coefficient of the expected true rate of inflation is negative.

As the results obtained by Portes and Santorum and by Feltenstein and Farhidian suggest, demand for money equations for China need to include the effects of excess demand on the consumer goods market and the interest rate on savings deposits.

A crucial factor for setting realistic targets in monetary policy is the stability of the demand for money. The dramatic and continuous changes in the structure of the Chinese economy, however, have deeply affected agents' behaviour and estimates of long-term behavioural equations by means of quantitative methods display parameter time variance: the changes in parameters generally occur either in 1978-9, when the economic reform started, or in 1984, when the first programme of reform reached its full effect and the second wave of economic reform was on its way.

One possible explanation is the change in liquidity due to the financial reform and to the partial liberalisation of the economy. The former has increased the range of cash loans and financial sources available to private units as well as the number of financial intermediaries (insurance companies, local governments, etc.), while the latter has raised the number of private units entitled to borrow money and increased the volume of cash kept as working capital by those units.

The pattern shown by the velocity of money (defined as the ratio of currency held by households over households' expenditures) gives some further insights on this particular matter. The velocity of M0 continued to fall from 1979 to 1984; in 1984, however, M0 increased by 44% over the previous year. In 1985, velocity increased suddenly by 7.5% over 1984, while currency held by households showed a further increase of 24%. The 1985 changes in currency and velocity are rather peculiar: in previous years (e.g., 1970, 1976, 1977) when velocity increased considerably over the previous Period, the change in velocity had always been matched by a moderate increase, or even by a reduction, in currency in circulation. In this perspective, the 1984 and 1985 data suggest that important changes in the liquidity of assets and in the financial intermediaries sector must have taken place. These changes continued to have a strong effect on the demand for money after 1985.

Until 1983, the People's Bank used to fix its M0 target on the basis of the balance of purchasing power and expenditures, which corresponds to using the quantity equation $MV=PQ$ for predicting M (money), given P (general price level) and Q (quantity of traded goods), and assuming a stable velocity of money (V). Velocity was measured as the ratio of retail sales to currency in circulation. The base period was 1953-57, which was considered to be financially stable (De Wulf, Goldsborough, 1986). The instability of the velocity of money, not taken into account by the economic authorities, hampered their ability to set and reach their targets (see De Wulf, Goldsborough, 1986).

III.6. Monetary policy cycle

A macroeconomic model is currently under study at the Research Centre for Technological, Social and Economic Development of the State Council. The model includes the banking system and considers the effects of disequilibria both in the consumer goods market and in the labour market. Zhou and Zhu (1987) use this model in order to evaluate the performance of the banking system since the economic reform. The model indicates that, under the present regulations and price system, the banking system will generate a monetary policy cycle from periods of credit squeeze and tight monetary control to periods of rapid monetary expansion.

The monetary policy cycle, with the alternation of 1-2 years of contractionary measures followed by 1-2 years of monetary expansion, has deeply affected enterprises' behaviour. In periods of monetary contraction enterprises use their own funds and working capital loans in order to pay wages and bonuses to workers and to finance the accumulation of precautionary stocks, simply preparing themselves to wait for the next expansionary period (Naughton, 1988). Investment drops, while the demand for intermediate goods as well as the demand for consumption goods increase.

This process obviously affects the efficiency of credit control. In order to break the cycle, realistic rates of interest should be adopted, lending criteria should be revised and enforced, and "hard" budget constraints imposed on enterprises. The latter implies the revision of fiscal benefits to enterprises as well as the reduction of government intervention in establishing priority sectors and priority borrowers. Last but not least, monetary policy itself must gain some long-run credibility in order to be effective in the short run.

IV. AGGREGATE AND SECTORAL EFFECTS OF THE CENTRAL BANK'S MONETARY POLICY

IV.1. Introduction

The main target of monetary policy has been the control of inflation. The previous section has looked at the difficulties in setting and achieving monetary targets in an economy where the money stock is endogenously determined and the demand for money is unstable. This section looks at the effects of monetary policy on the consumer goods market, on national income and other macroeconomic variables, and on the agricultural sector.

IV.2. Effects on consumer goods market: excess demand

A number of studies on excess demand for consumer goods in China have recently been published: Feltenstein and Farhadian (1987), Feltenstein, Lebow and van wijnenbergen (1986), Naughton (1986) and Portes and Santorum (1987). All these studies attempt, using different methods and approaches, to give some estimate of the size and pattern of excess demand for consumer goods. Their findings are similar and consistent with each other. All indices show a similar pattern of excess demand over the period 1955-83 and indicate that general excess demand has been the dominant regime in the past 30 years.

The most interesting results have been obtained by Portes and Santorum (1987) by the estimation of a macro-disequilibrium model previously used by Portes and Winter (1980) for other planned economies.

According to Portes and Santorum's estimates, the pattern of excess demand has been strictly linked to the political cycle and changes in economic priorities. Plotting the Portes-Santorum index of excess demand and the percentage changes in currency in circulation over the period 1955-83 (see Figure 4), we can note a strong correlation between monetary growth and excess demand for consumer goods.

Figure 4 suggests similarities between the period of the first Five Year Plan and the Great Leap Forward, and the economic reform of the 1980s, both characterised by large excess demand. The main characteristics common to both periods are: rapid economic growth and transition to different systems of production in agriculture (from private production to communes in the 1950s and from communes to household production in the 1980s), sustained by a large increase in bank credit and uncontrolled expansion of currency in circulation.

General excess demand seems to characterise those periods in which the economic authorities try to regulate a mixed-economy system while still using a direct-from-the-centre control, without having at their disposal suitable and powerful instruments of macroeconomic policy.

Katharine Hsiao (1971) identified 1953 and 1956 as years of high repressed inflation by use of a simple index based on the velocity of money; her findings for 1956 are confirmed by the Portes-Winter model estimated by Portes and Santorum. In 1953, the process of socialisation of the economy was not yet completed: the state was in control of 41% of retail sales of consumer goods and about 69% of total transactions; the first economic plan was only just on its way. The main reasons for the unexpected increase in the money supply were the government deficit and the introduction of state procurements for the main agricultural products, which were paid for in cash. In 1956, the AB and the RCC increased the amount of loans to peasants, helping them to join the new collective units. At the same time, industrial salaries were raised and a large share of investment was financed by bank credit.

Similarly, in 1979 and in the early 1980s, the money supply rose sharply because of the growth of agricultural loans together with the increase in agricultural prices and the privatisation of rural markets, while the procurement practice was maintained (see Sicular, 1987, for a theoretical model which analyses the economic disadvantages of such a mixed market system). Furthermore, at the same time a large share of investment and the whole working capital of enterprises were to be financed by bank loans, and salaries in industry were raised to counterbalance the increase in Prices for agricultural products.

Referring to the monetary expansion of the early 1980s, Byrd (1983) and Balassa (1982) suggest an additional explanation: that the reform of the banking system itself, decentralising the collection of deposits and the issues of loans to local branches, has been a main factor in the rapid monetary growth, through the deposit multiplier.

IV.3. Effects on consumer goods market: open inflation

Considering that China has been a planned economy from 1954 to 1978 and a "mixed" economy from 1978, we might continue the analysis of the previous section on excess demand by searching for direct links, if any, between monetary expansion and open inflation.

Chow (1987) investigates the effects of the money supply on the price level, testing the hypothesis that inflation in China has been mainly a monetary phenomenon. His analysis is entirely based on an econometric model derived from the quantity equation $MV=PQ$. Chow's results are interesting: he finds a long-run positive relationship between price level and M/y (where M = currency in circulation and y = NMP, Net Material Product, in real terms) and a less than unit price elasticity with respect to M/y , indicating that the velocity of money is not constant.

However, the model used by Chow depends strictly on the assumption that the money stock is exogenous and that changes in output are independent of changes in the money supply.

Following Chow's approach, but being willing to remove the assumptions of money stock exogeneity and non-correlation between money and output, I have examined the relation between price and money supply in a rather different framework. The econometric structure of the model is borrowed from the rational expectations approach; however, as we shall see, the assumptions are quite different.

It is intended to be strictly a model of planners' behaviour. Planners are assumed to follow rational behaviour; they plan/forecast current period changes in the money supply on the basis of information available at the end of the previous period. The money stock is not completely under the planners' control and is affected by unpredictable demand shocks, since the banking system is willing to supply any cash that is demanded.

Planners respond to unanticipated changes in the money stock by changing either output or prices, or both, in order to reduce households' surplus purchasing power. They respond to anticipated changes in the money supply by changes in the supply of consumer goods. Imports are not considered in the model because of the lack of separate data on imports of consumer goods. The planners' final target is assumed to be equilibrium, defined as equality on the consumer market without inflation, to be achieved through the combined adjustment of the supply of consumer goods, prices and interest rates. Variables in period $t-1$ are assumed to be already available to planners at the beginning of period t .

The empirical model is composed of a money growth equation, on the basis of which planners are assumed to formulate their expectations, and a price equation. The empirical variables have been chosen to take account of the planners' monetary policy target, $M0$. Therefore, the money variable is currency in circulation, the corresponding output variable is personal consumption and the price variable is the retail price index.

The empirical model has been estimated first by OLS on single equations. The first step was to obtain the best possible regression of actual monetary growth on a set of exogenous variables which contains only information available to the planners at the beginning of period t (only lagged variables are included in the equation). The underlying assumption is that rational planners would use all the available information and the "best" statistical description of the process determining money growth for formulating their expectations. The following equation seemed to be the best obtainable description of the process governing monetary growth over the period 1956-83 (all variables are in logs):

$$\begin{aligned}
 (1) \quad \Delta M_t = & 0.37 - 0.78 \Delta M_{t-1} - 0.53 M_{t-2} + 0.42 \Delta SD_{t-1} + 0.70 \Delta SD_{t-2} \\
 & (.17) \quad (.20) \quad (.19) \quad (.12) \quad (.15) \\
 & - 0.36 SD_{t-3} + 1.24 \Delta (c_{t-1} + p_{t-1}) \\
 & (.12) \quad (.49)
 \end{aligned}$$

$R^2=0.70$ $\bar{R}^2=0.72$ $s=0.0827$ $\chi^2(2,25)=1.91$ $\xi^3(2,25)=0.77$
 $BJ(2)=0.43$, $LM1(1,20)=0.003$ $CHOW(6,15)=1.86$ (break in 1977)
 $CHOW(4,17)=3.07$ (break in 1979) $N=28$

see note to Table 3 for explanation of the tests.

M = currency in circulation; SD = households' saving deposits;
 c = real consumption; p = retail price index; Δ indicates changes
 in the logarithm of variables.

The supply equation is assumed to be simply:

$$(2) \quad c^s_t = \beta_0 + \beta_1 c_{t-1} + \beta_2 T + \sum_{i=1}^n \beta_3 \epsilon_{t-i} + v_t$$

where T is time trend and ϵ_{t-1} are the residuals from (1), i.e.
 unanticipated disturbances in the money supply. The price
 equation, corresponding to (2), which has been finally estimated
 is: (3) $P_t = \gamma_0 + \gamma_1 M_t + \gamma_2 \epsilon_{t-1} + \gamma_3 T + \gamma_4 c_{t-1} + \gamma_5 p_{t-1} + \gamma_6 R_{t-1}$
 $+ \gamma_7 (M_{t-1} - p_{t-1}) + v_t$

The mathematical explanation of (3) is in the Appendix.

Because of disequilibrium on the consumer market and since the
 planning authorities can respond to expected changes in excess
 demand by increasing either output or prices, the supply equation
 is not directly observable. In equation (3), we expect $\gamma_2 > 0$,
 since unanticipated money should induce the authorities to
 increase prices, because the production plan is inflexible in the
 short term: this is exactly opposite to what is expected in a
 free economy, where, according to the RE theory, unanticipated
 money should increase output and reduce prices.

Results from the estimation of equation (3) over the period 1958-
 83 are given in Table 3 column (a). The equation is well defined
 and appears to be reasonably stable. The ϵ_{t-1} coefficient is
 positive and significant, suggesting that the authorities respond
 to previous period unanticipated money by increasing the price
 level.

Test of the RE hypothesis gave a likelihood ratio of 13.014,
 χ^2 -distributed with 6 degrees of freedom; χ^2 values are 12.95 at
 95% confidence level and 14.45 at 97.5% level. In view of the
 fact that we are dealing with small samples and asymptotic tests
 tend to overreject, I do not consider the result from the
 likelihood ratio test as providing enough evidence for rejecting
 the RE hypothesis.

Tests of the hypothesis that only unexpected monetary growth has
 an impact on the price level gave a likelihood ratio of 4.088

χ^2 -distributed with 1 degree of freedom; at the 95% confidence level $\chi^2_{(1)} = 3.841$ and at the 97.5%, $\chi^2_{(1)} = 5.024$. Again, since we are dealing with a small sample, I do not consider the test gives enough ground to reject the hypothesis that only unanticipated money growth causes changes in prices.

Finally equation (8) and equation (b) in Table 8 have been used separately in order to forecast 1984 and 1985 values of monetary growth and price level. The predicted growth in money was +11% in 1984 (compared with an actual increase of +49%) and +2% in 1985 (actual increase +25%). The price equation performed only slightly better, predicting a price index of 1.69 in 1984 (actual value 1.60) and of 1.80 in 1985 (actual value 1.74). Both equations become unstable when 1984 and 1985 observations are included: no matter where we break the series, the Chow test always rejects the hypothesis of parameter time invariance.

Estimating the restricted price equation (b), in Table 8, over the period 1958-76 only, I could still get a well defined model. I then used that model for forecasting over the period 1977-85. The results were as follows:

	\hat{p}	p
1977	1.31	1.35
1978	1.33	1.36
1979	1.39	1.39
1980	1.48	1.47
1981	1.54	1.50
1982	1.51	1.53
1983	1.55	1.57
1984	1.70	1.60
1985	1.84	1.74

Theil's inequality coefficient (Spanos, 1987, pp. 402-5) was only 0.00356, which indicates that the prediction power of the model was indeed rather good.

The only contradiction is in 1982, when the model predicts a decrease in prices, while in that year the price level actually increased. It is interesting that again the model tends to overestimate the price level in 1984 and 1985, while equation (1) greatly underestimated the monetary growth in those years.

On the basis of the results obtained, unexpected monetary growth seems to have been a major cause of inflation in the 1980s.

IV.4. Causal relationships between money and other macroeconomic variables

We have seen that money supply changes in China affect both prices and the demand for consumer goods. Chen (1988) addresses the more general issue of the existence of a causal relationship

between money and four macroeconomic variables: national income, the budget deficit, the trade deficit and an index of total inflation, inclusive of both official inflation and a measure of repressed inflation, derived from the ex-post identity $MV=PQ$. Chen also attempts to determine which definition of monetary aggregate is more appropriate for defining targets of monetary policy. He estimates three VAR models using alternatively' M0, M2 and M3.

According to Chen's results, M0 seems to be the best indicator of changes in the other macroeconomic variables; changes in M0, in their turn, have effects on all four macro-variables under consideration. M2 and M3 can also be used as indicators (their response to changes in the other macro-variables is significant, even if to a lesser degree than M0); their own causality effects on the other variables, however, are restricted to national income for M2, and to the government deficit for M3. Figure 5 shows the high correlation among the three variables.

Caution should be used, however, in considering the causality effects suggested by the results, in particular by the relationship between the money stock (defined either as M0 or M2) and national income. The estimates indicate that both M0 and M2 are extremely significant in predicting national income, which would suggest the possibility of a Keynesian effect running from money to national income: the result is surprising, in view of the fact that for 27 years of the estimation period (1952-83) China was strictly a CPE.

Bidirectional causality has been found, however, for all three monetary aggregates. Although this is not a proper exogeneity test, the results do suggest that the money stock could be used as an indicator/target of monetary policy, but not as an instrument.

IV.5. Sectoral effects of monetary policy

Empirical studies of periods of general economic reform, when changes in macroeconomic variables are due to several reasons, most of which are structural and, therefore, non-quantifiable, are extremely difficult. Table 9 reports the percentage changes in M0 and compares them with the rates of growth of net value of industrial output (NVIO), net value of agricultural output (NVAO), net material product and the job-waiting rate in cities and towns (ratio of people waiting for jobs over total workers), in an attempt to identify some correlation between monetary growth and changes in other macroeconomic variables.

There have been two contractions of the rate of growth of M0: in 1980, when the rate of growth was even negative, and in 1984-5, when the rate of growth decreased. The first monetary contraction seems to have had an effect on NVIO in the following year (rate of growth reduced to 1.7 from 10.9) and on NVAO the same year (negative rate of growth). Net Material Product increased by only 4.9% in 1981 compared with 6.4% in 1980. No effect can be found on the job-waiting rate.

A clear correlation is shown between the reduction in monetary growth in 1985 and the reduction in the rates of growth of GVIO, GVAO and NMP, as well as the increase in unemployment. Furthermore, as can be seen from Figure 6, which illustrates the correlation between M0 and NVIO and NVAO, both in 1980 and in 1985, contractionary monetary policies have been accompanied by a reduction in the growth rate of NVAO, in the same period, and a reduction in the growth rate of NVIO, in the following period.

The effects of the 1984-5 contractionary monetary policy can be seen in a reduction in the rate of growth of NVIO in 1986 (two years later). More significant is the reduction in the rate of growth of NVAO in 1985 (one year lag) and the still slow rate of growth, compared with the previous period, in 1986. The NMP growth rate also declined in 1986, while the job-waiting rate suddenly increased.

Figure 6, which illustrates the correlation between M0, NVIO and NVAO, shows how the contraction in the money supply has been accompanied by a reduction in the growth rate of NVAO in the same period and a reduction in the growth rate of NVIO in the following period.

In view of the enormous structural changes which have occurred in the period 1980-86, however, it is hard to distinguish the impact of monetary policy from that of other economic factors.

The effects of monetary policy largely depend on the response from production units. Therefore, while the monetary authorities set their macroeconomic targets, they must also pay attention to the way the chosen monetary policy is likely to affect different sectors of the economy.

Table 10 reports data on agricultural credit and the volume of sales of chemical fertilizer and tractors, which are quite sensitive to credit availability. In spite of the fact that variations in the sales of fertilizer as well as in the sales of tractors have also been affected by changes in prices (for which we do not have data) and by the availability of products on the market, we can still attempt to draw a few conclusions. Figure 7 gives the data of the table in a graph. Even if we cannot find a clear correlation between credit and sales of agricultural inputs over the period 1979-86, the figure shows that in 1984 the imposition of a tight credit policy caused a dramatic decline in the sales of both fertilizer and tractors; the decline in the sales of chemical fertilizer continued in 1985, probably as a consequence of the imposition of a tight credit policy in the second quarter of that year.

Rural enterprises are also dependent on credit from the banking system for their start-up costs (Naughton 1988). Figure 8 plots the increase in value added in township and village enterprises and the net increase in credit extended to those enterprises each year. In most years, these figures are quite close, indicating that the rapid growth in this sector in 1983-4 has been closely

related to the growth in credit resources. The credit squeeze in 1985, however, seems to have had an effect on the value added of the sector a year later, in 1986.

V. CONCLUSIONS

Until 1978 the main role of the banking system was to give financial support for that part of the economic plan not already covered by budgetary grants. The main target of monetary policy was to control excess demand in the consumer goods market. The central bank used the cash plan in order to set its M0 target; the only instrument of monetary policy was a vertical system of credit control based on the credit plan and the cash plan.

After the economic reform, the role of the banking system in providing funds for production and commercial units was enhanced and its structure was changed in order to implement a more efficient mobilisation of capital among sectors. At the same time the number of bank offices at the local level increased rapidly (this was a key factor in the successful collection of household savings during the period 1978-84), the range of both loans and deposits was widened and more services were introduced.

Despite the radical changes in the structure of the banking system, the central bank maintained the control of inflation as its main monetary target and continued to rely on direct credit control as the main instrument of monetary policy. Other instruments, such as reserve requirements and interest rates on loans to specialised banks, were gradually introduced; at the present time, however, they are still regarded as 'experiments' and are not used for specifically monetary policy purposes.

It is difficult to evaluate the effectiveness of monetary policy before the economic reform: indices of excess demand in the consumer goods market estimated by various authors indicate that over the period 1953-78 China was characterised by general excess demand: they do not describe China, however, as an economy suffering from chronic shortages.

After 1978, as a consequence of the economic reform, the money supply increased rapidly despite attempts by the monetary authorities to control it. A restrictive monetary policy was implemented in 1981 and in 1985-6. In both cases the monetary restrictions had effects on economic growth and on both agricultural and industrial production. The effects on inflation, however, were limited in 1981 and virtually unidentifiable after 1986. Furthermore, agriculture seems to have been the sector most penalised during both periods of monetary restriction.

Since 1978, the monetary policy of the People's Bank has been characterised by a "stop-go" pattern, under which periods of restrictive monetary policy, of an average duration of one year, were followed by periods of expansionary monetary policy during which the banking system virtually supplied all the funds demanded. The monetary policy cycle deeply affected the behaviour of enterprises and resulted in a loss of credibility for all restrictive monetary measures.

Monetary policy has become less and less effective as a means of controlling inflation, as widespread and accelerating inflation (with rates ranging from 20 to 40%) in urban areas in the second part of 1988 indicates.

As discussed in sections II and III, the central bank was able to enforce the use of properly set reserve requirement ratios and interest rates on loans to the specialised banks in order to tie money creation to a controllable monetary base. It was also able to use the interbank lending market to protect vulnerable sectors, such as agriculture, during periods of restrictive monetary policy.

At the moment, however, the central bank seems to prefer to return to the old system of credit plans in order to control monetary expansion and to increases in the savings deposit interest rate (up to 16%, more than double that of the previous year, at the end of 1988) in order to withdraw excess currency from circulation. In September 1988, rumours about attempts to close down the interbank loan market were reported; at the beginning of 1989, however, the interbank market continues in operation.

In the short term, the central bank urgently needs to recover the credibility of its monetary policy. This could be achieved by implementing an efficient loan monitoring system as well as by giving banks the power to enforce it effectively. This requires both less central and local government intervention in selecting priority borrowers and a fiscal system which does not allow enterprises to deduct the cost of higher interest rates from their tax charges.

Interest rates on loans do not provide realistic indications about the real opportunity costs of alternative investments; in order to avoid misallocation of resources to low-yielding sectors, as has repeatedly happened in the past, the structure of interest rates across sectors should be revised.

Finally, the second half of 1988 has seen the development of a widespread debate, particularly by young and dynamic groups of Chinese economists, about opportunities to allow most enterprises to issue shares, to introduce more financial instruments and to expand the capital market.

A major development of China's capital market, however, seems to be out of the question in the next few years. Shi Lei and Ao Huicheng, two experts at the Planning Department of the People's Bank, identify four major obstacles to a rapid growth of the capital market: lack of development of the credit system; scarcity of funds; the public's lack of confidence in the new financial instruments; the issues of specific regulation and the development of well-trained personnel (Yue, 1988).

Another limit to development comes from the structure of the interest rates on bonds. Yields on bonds purchased by enterprises

are too low compared with alternative investment. Competition between saving deposits and bonds issued to individuals is also limited and the interest rates on bonds have already been pegged to bank rates (with a ceiling of 20% above banking rates on saving deposits) in Guangzhou province (Grab, Sudweek, 1988).

APPENDIX

The conventional R.E. model is composed of a long-run demand for money equation (1) and an output equation (2):

$$(1) \quad M_t - p_t = \alpha_0 + \alpha_1 y_t^d + \alpha_2 R_t + u_t$$

$$(2) \quad y_t^s = \beta_0 + \beta_1 x_{2t} + \sum_{i=1}^n \beta_{2i} \epsilon_{t-i} + v_t$$

where: M = nominal money stock

p = price level

y^d = quantity demanded

y^s = quantity supplied

R = nominal interest rate.

x_{2t} is a set of explanatory variables, u_t and v_t are independent serially uncorrelated error terms. All variables are in logs, except the interest rate. ϵ_{t-i} are unanticipated disturbances in the money supply, given by

$$\epsilon_{t-i} = M_{t-i} - E(M_{t-i} | I_{t-i-1})$$

Expectations are assumed to be formed on the basis of information available at the end of the previous period. Equation (1) describes equilibrium in the monetary sector. Assuming $y^d = y^s$ the model can be solved with respect to p_t by substituting (2) for (1), giving:

$$(3) \quad p_t = -(\alpha_0 + \alpha_1 \beta_0) + M_t - \alpha_1 \beta_1 x_{2t} - \alpha_1 \sum \beta_{2i} \epsilon_{t-i} - \alpha_2 R_t - (\alpha_1 v_t + u_t)$$

This is the conventional equation tested by Barro (1981) and others.

The key hypothesis is that anticipated movements in the money stock (with the expected rate of inflation-type effects held fixed) would be reflected in one-to-one, contemporaneous movements in the price level (Barro, 1978).

Algoskoufis and Pissarides (1983) build a more general model which includes the hypotheses of real partial adjustment in the monetary sector

and price sluggishness.

Monetary adjustment assumes that the demand for money does not adjust instantaneously to its long-run values. Current period demand for real money balances is assumed to adjust with respect to previous period deviation from its long-run value according to:

$$(M_t - p_t) - (M_{t-1} - p_{t-1}) = \mu [(M_t^* - p_t^*) - (M_{t-1} - p_{t-1})]$$

which yields:

$$(4) \quad M_t - p_t = \mu (M_t^* - p_t^*) + (1-\mu)(M_{t-1} - p_{t-1})$$

where $(M_t^* - p_t^*)$ is the long-run demand for real money balances and μ is the parameter which indicates the speed of adjustment: when $\mu = 1$, we have full adjustment and the current period demand for money is equal to the long-run demand. When $\mu = 0$, there is no adjustment and current demand is equal to previous period demand.

Similarly, prices can be assumed to change according to the following adjustment process:

$$p_t - p_{t-1} = \lambda (p_t^* - p_{t-1})$$

which yields:

$$(5) \quad p_t = \lambda p_t^* + (1-\lambda)p_{t-1}$$

where p_t^* is the equilibrium price. When $\lambda=1$, $p_t = p_t^*$ (full adjustment), while when $\lambda=0$, no adjustment occurs and $p_t = p_{t-1}$.

In a conventional market model where prices are expected to move towards equilibrium, the parameter λ describes the movement of the aggregate price level and not the behaviour of any particular agent in the economy (Alogoskoufis and Pissarides, 1983). In our specific context, λ is probably far from describing the movement of the price level and might explain planners' behaviour only as long as they follow the

adjustment rule in (5): neither hypothesis may hold; however, they can be tested.

Substituting (3) for (4) and equating y^s and y^d yields:

$$(6) \quad p_t = -\mu(\alpha_0 + \alpha_1 \beta_0) + M_t - \mu\alpha_1 \beta_1 X_{2t} - \mu\alpha_1 \Sigma \beta_{3i} \epsilon_{t-i} - \mu\alpha_2 R_t \\ - (1-\mu)(M_{t-1} - p_{t-1}) - \mu(\alpha_1 v_t + u_t)$$

The price equation including both monetary adjustment and price sluggishness is obtained by substituting market clearing prices, as derived from (6) for (5):

$$(7) \quad p_t = -\lambda\mu(\alpha_0 + \alpha_1 \beta_0) + \lambda M_t - \lambda\mu\alpha_1 \beta_1 X_{2t} - \lambda\mu\alpha_1 \Sigma \beta_{3i} \epsilon_{t-i} - \lambda\mu\alpha_2 R_t \\ - \lambda(1-\mu)(M_{t-1} - p_{t-1}) - (1-\lambda)p_{t-1} - \lambda\mu(\alpha_1 v_t + u_t)$$

If the price-adjustment rule of equation (5) holds, (7) can be re-written as:

$$(8) \quad p_t = -\lambda\mu(\alpha_0 + \alpha_1 \beta_0) + M_t - \lambda\mu\alpha_1 \beta_1 X_{2t} - \lambda\mu\alpha_1 \Sigma \beta_{3i} \epsilon_{t-i} - \lambda\mu\alpha_2 R_t \\ - \lambda(1-\mu)(M_{t-1} - p_{t-1}) - (1-\lambda)(M_t - p_{t-1}) - \lambda\mu(\alpha_1 v_t + u_t)$$

When $\lambda \neq 1$, there will no longer be equilibrium in the goods market: in this case, we cannot observe the output equation unless we specify the rule determining excess demand. Empirical tests gave $F(1,19) = 0.39$ for $H_1: \mu = 1$ and $F(1,19) = 11.48$, for $H_2: \lambda = 1$ (critical value $_{.95}F(1,19)=4.38$). Therefore, we reject the full price adjustment hypothesis, but we cannot reject the full monetary adjustment hypothesis.

The demand for money adjusts completely within a one year period to its long-run value. This could mean that the monetary authorities are actually willing to supply any amount of cash they are asked for and households can return any unwanted quantity of money simply ^{by} depositing it in the bank. The price index, on the ^{other hand} / does not adjust within the period to its equilibrium level, which inevitably implies disequilibrium

in the consumer / ^{goods} market. Moreover, the sum of the current money coefficient (λ , in equation (8)) and the lagged prices coefficient, $(1-\lambda)$, is different from 1.

This implies that the planning authorities do not follow the adjustment rule assumed in equation (5).

TABLE 1
 Net Savings as Percentage of National Income

	Tot. Net Saving	Of which: Governm.	State Enterpr	Non-Stat Enterpr.	Households
1978	33.2	20.0	6.7	4.9	1.6
1979	31.2	13.8	8.7	5.0	3.6
1980	30.2	12.2	7.7	3.9	6.4
1981	28.7	10.7	8.8	3.1	6.1
1982	28.0	9.1	8.5	3.4	7.0
1983	29.5	9.6	7.2	3.5	9.3
1984	31.5	10.4	4.9	3.6	12.5
1985	30.1	11.8	4.8	3.7	9.7
1986	32.2	9.5	5.2	5.5	12.0

Source: Macroeconomic Research Office, 1987.

TABLE 2
Real Rates of Interest and Nominal Spread
between Interest Rates on Loans and Savings Deposits
(annual averages)

	Working Capital Loans from People's Bank	One Year Savings Deposits	Nominal Spread Working Capital Loans-Sav.Dep.
1978	3.50	2.54	0.96
1979	2.30	1.79	0.51
1980	-2.74	-2.46	-0.28
1981	2.54	2.90	-0.36
1982	4.48	3.67	0.81
1983	5.20	3.76	1.44
1984	4.50	3.06	1.44
1985	-4.22	-5.06	0.84
1986	0.92	0.20	0.72

Sources: Bortolani and Santorum, 1984, for data from 1978 to 1983 on interest rates on loans; Byrd, 1983, for 1978-81 interest rates on saving deposits and Zhongguo Jinrong for 1982-86

cost of living

Note: the percentage change of the official/ index in urban areas has been used as the inflation variable.

TABLE 3
Percentage Changes in Price Indices

	Retail Sales Price Index	Cost of Living In Urban Areas
1978	0.7	0.7
1979	2.0	1.9
1980	6.0	7.5
1981	2.4	2.5
1982	1.9	2.0
1983	1.5	2.0
1984	2.8	2.7
1985	8.8	11.9
1986	6.0	7.0
1987	9.1	11.7

Source: Statistical Yearbook, 1987 and China
Statistics Monthly, 1988, for 1987

TABLE 4
Households' Savings Deposits
(billion of yuan)

	Rural Areas Rural Credit Cooperatives	Urban Areas	Total
1977	4.65	13.51	18.16
1978	5.57	15.49	21.06
1979	7.84	20.26	28.10
1980	11.70	28.25	39.95
1981	16.95	35.41	52.36
1982	22.81	44.73	67.54
1983	31.99	57.26	89.25
1984	43.81	77.66	121.47
1985	56.84	105.78	162.62
1986	76.61	147.15	223.76

Source: Statistical Yearbook, 1987.

TABLE 5
Number of Savings Offices in Urban and Rural Areas

	Urban Areas	Rural Areas
	People's Bank and Agricultural Bank	Rural Credit Cooperatives
1979	6750	n/a
1980	8600	n/a
1981	10147	389726
1982	11380	393164
1983	12161	418805
1984	12539	421582
1985	n/a	406581
1986	n/a	393534

Note: the People's Bank ceased to operate as commercial bank in 1984. Data on saving offices of Industrial and Commercial Bank are not available.

Sources: Bortolani and Santorum, 1984, for 1979-80 data;
Statistical Yearbook, 1986 and 1987, for other years.

TABLE 6

Population/Savings Offices Ratio in Urban
and Rural Areas.

	Urban areas	Rural areas
1979	27400	n/a
1980	22256	n/a
1981	19879	2050
1982	18589	2045
1983	19839	1871
1984	17550	1672
1985	n/a	1630
1986	n/a	1574

Sources: Statistical Yearbook and Table 1.

TABLE 7

Treasury Bonds and Government Deficit
(billion of yuan)

	TB	Gov. Deficit	Deficit/GDP (%)
1981	4.87	-2.55	-0.6
1982	4.38	-2.93	-0.6
1983	4.16	-4.35	-0.8
1984	4.25	-4.45	-0.7
1985	6.06	2.16	0.3
1986	6.25	-7.05	-0.8

Sources: Statistical Yearbook, 1987 for TB and
Gov. Deficit; Jingji Yanjiu, for GDP

Table 8 Price equation.
Dependent variable p_t . Period 1958-83.

	(a)	(b)
const.	1.05 (.35)	0.66* (.08)
M_t	0.18* (.04)	0.20* (.02)
e_{t-1}	0.11* (.05)	0.13 (.05)
Time	0.006 (.005)	---
c_{t-1}	-0.35 (.10)	-0.24* (.03)
p_{t-1}	0.39* (.12)	0.52* (.06)
R_{t-1}	0.80 (.57)	---
$M_{t-1} - p_{t-1}$	0.03 (.04)	
<hr/>		
R^2	0.94	0.94
s	0.0163	0.0160
BJ(2)	0.60	0.15
$\chi^2(2,22)$	0.01	0.08
$\chi^3(2,22)$	0.50	0.72
LM 1	1.11 (1,17)	0.87 (1,20)
CHOW $T_1=20$	0.74 (6,12)	0.50 (6,15)
SSR	0.0048	0.0054
N=26		F(3,18)=0.75

Note: standard errors in brackets. * indicates values significant at the 5% confidence level. s is the standard error of the regression, BJ is the Bera-Jarque normality test, χ^2 -distributed with 2 degrees of freedom, χ^2 is an F-distributed linearity test, χ^3 is an F-distributed homoskedasticity test, LM 1 is the Lagrange Multiplier test for first order autocorrelation, CHOW is the standard Chow test, SSR is the sum of squared residuals. Column (b) reports also the F-test for the restrictions against equation (a).

TABLE 9

Monetary Growth and Economic Performance

(Percentage Changes)

	mO	NVIO	NVAO	NMP	Job-waiting rate
1978	4.0	17.7	3.9	12.3	5.3
1979	11.5	8.1	6.4	7.0	n/a
1980	-4.4	10.9	-1.8	6.4	4.9
1981	8.7	1.7	7.1	4.9	3.8
1982	26.4	6.0	11.7	8.3	3.2
1983	29.1	9.8	8.5	9.8	2.3
1984	14.5	14.9	13.0	13.5	1.9
1985	10.9	19.1	1.7	12.7	1.8
1986	20.7	9.1	3.7	7.4	2.0

NVIO = Net Value Industrial Output

NVAO = Net Value Agricultural Output

NMP = Net Material Product

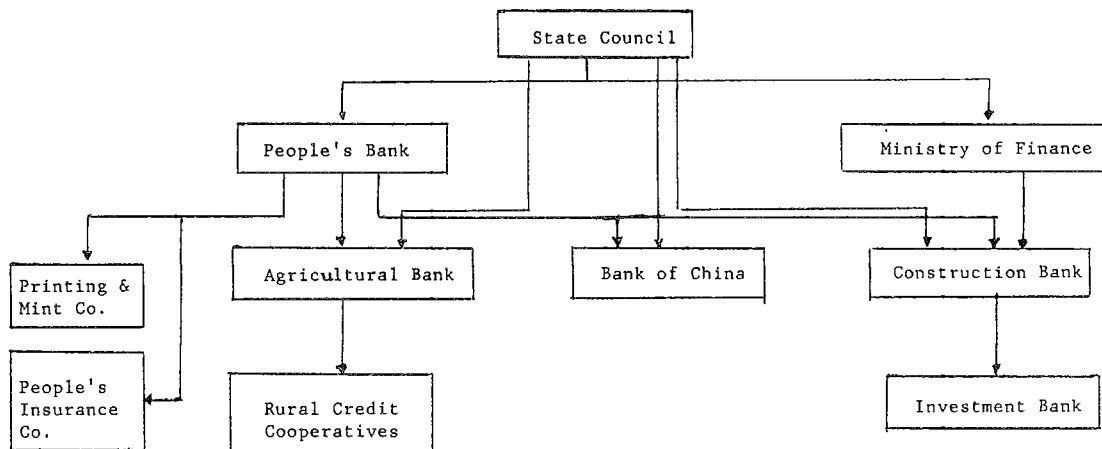
Sources: Chen, 1988, for monetary data, and State Statistical Yearbook
1987, for other data.

TABLE 10
 Agricultural Credit and Sales of Agricultural Inputs
 (Percentage Changes)

	Total Bank Lending to Agriculture	Sales of Chemical Fertilizer	Sales of Tractors Walking Tractors Motor Driven Agric Machineries
1979	n/a	21.1	-0.9
1980	56.5	11.8	-30.5
1981	-0.3	10.5	-23.2
1982	16.4	11.7	-8.6
1983	18.3	1.7	20.0
1984	-6.8	-1.9	-28.7
1985	-12.8	-8.0	1.7
1986	32.7	21.1	1.9

Source: Statistical Yearbook, 1987

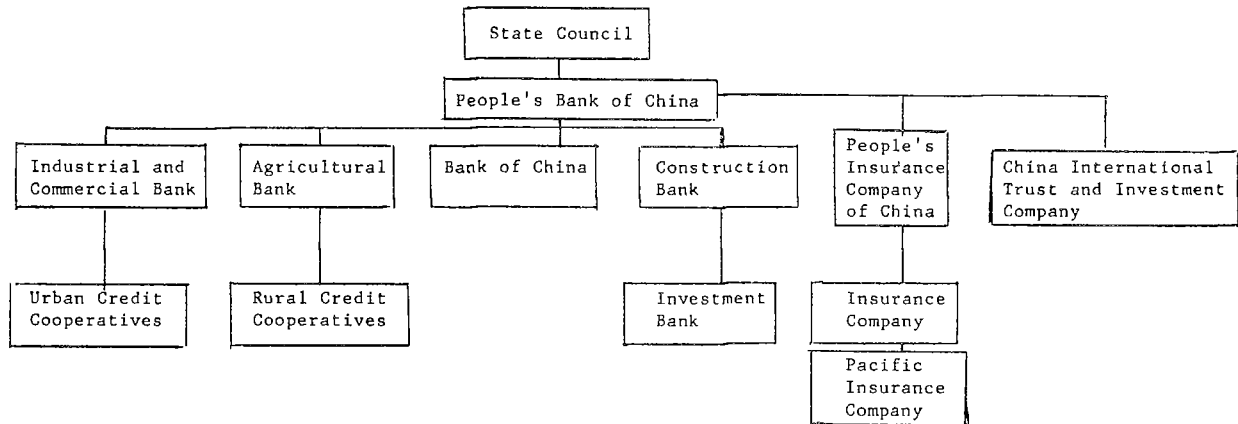
FIGURE 1
China's Banking System before 1984.



Source: Bortolani and Santorum, 1984.

FIGURE 2

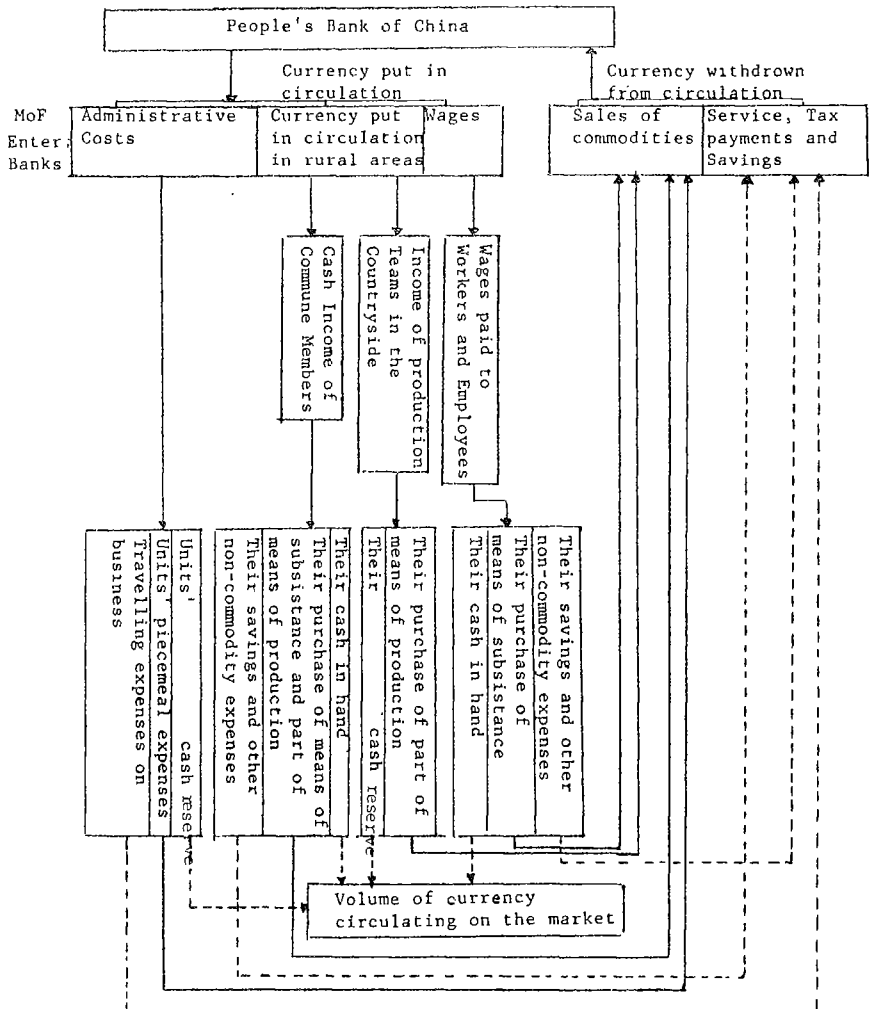
China's Banking System after 1984.



Source: Zhou and Zhu, 1987

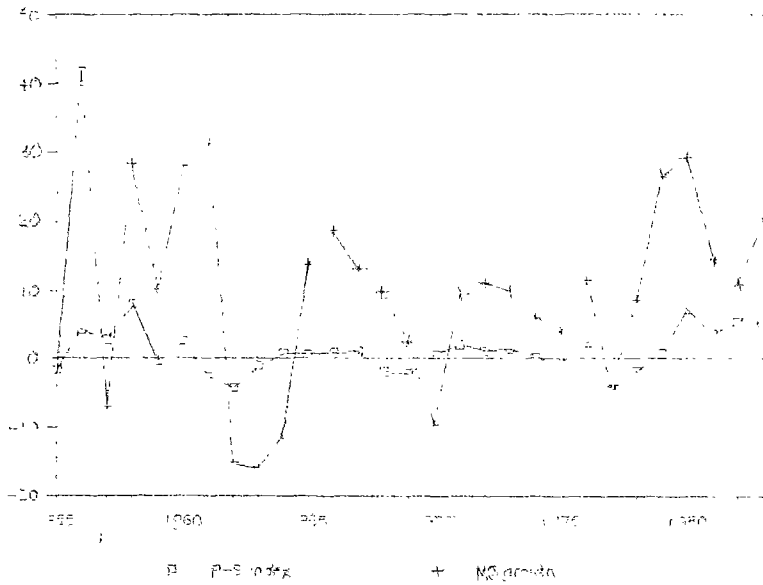
FIGURE 3

Currency flows in China, 1952-84.



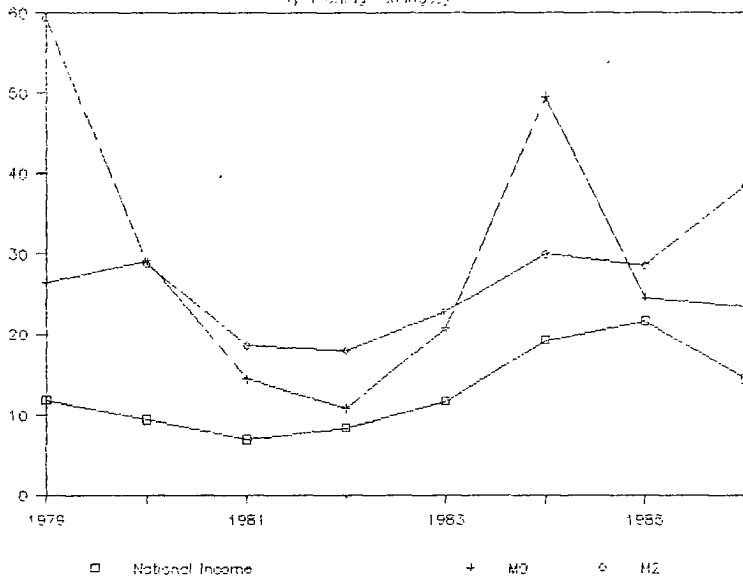
Source: People's Bank of China, 1983

Figure 4 P-S Index and Monetary Growth



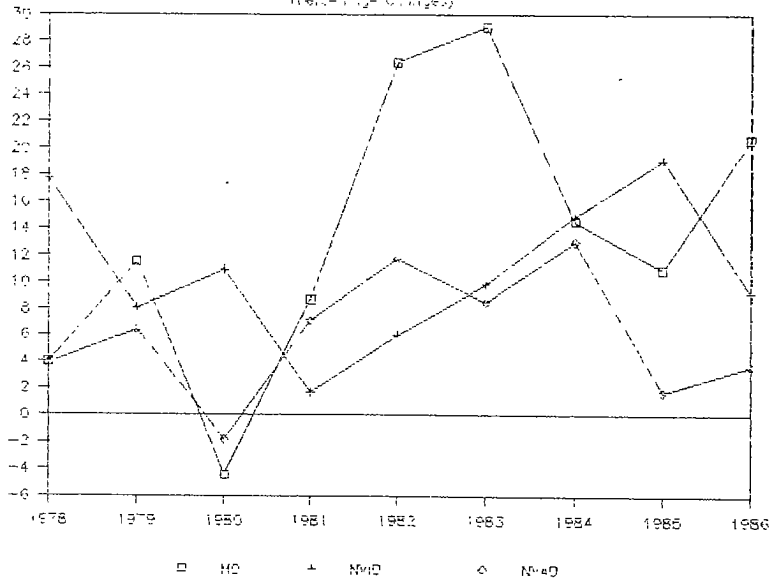
Source: Portes and Santorum, 1987, and Chen, 1988, for M0.

Figure 5. Income and Monetary Growth
(percentage changes)



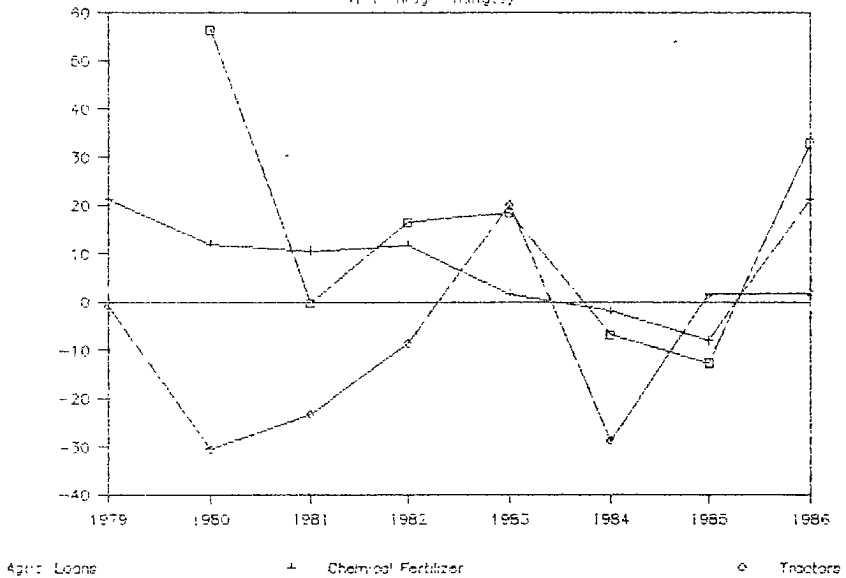
Source: Statistical Yearbook, 1987, for national income;
Chen, 1988, for monetary aggregates.

Figure 6 . M0 and Sectoral Output
(percentage changes)



Source: Chen, 1988, for M0, and Statistical Yearbook, 1987.

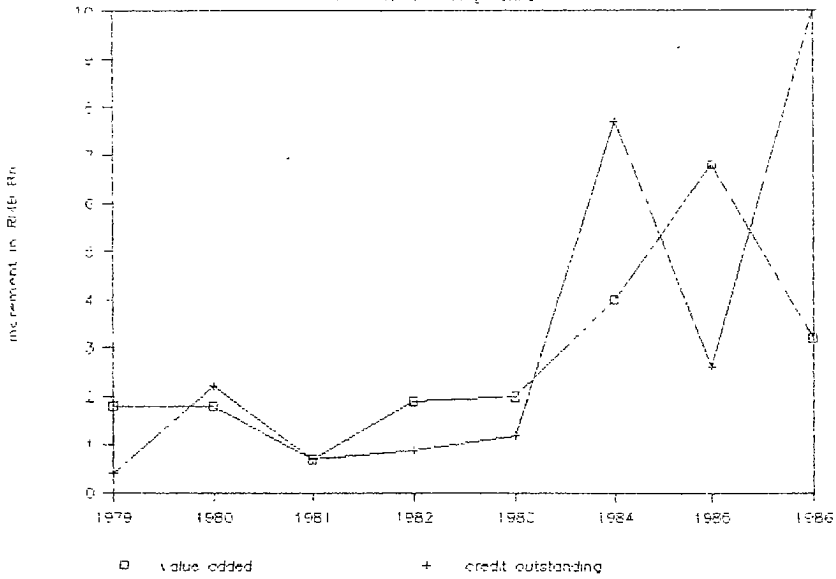
Figure 7. Credit and Agricultural Input
(percentage changes)



Source: Statistical Yearbook, 1987

Figure 8. Rural V.A. and Credit.

(Thousands and Village Units)



Source: Naughton, 1988

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