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MONETARY POLICY IN TAIWAN, CHINA

by

Robert F. Emery

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ABSTRACT

This paper examines how Taiwan, China, has used monetary policy to deal with the impact of the two oil shocks since 1973, as well as with the recent problem of a very large rise in foreign exchange holdings. In dealing with the inflationary pressures brought on by the two oil shocks, the central bank relied primarily on changes in its rediscount rate to reduce inflationary pressures. However, the changes were initially too small and too late to prevent a large rise in consumer prices in 1974 and 1980. Since 1985, the large gains in foreign exchange reserves, due to a rising trade surplus and capital inflows, have sharply expanded the money supply. The burden of containing this inflationary threat has fallen on monetary policy, and the government has not been able to offset the buildup in reserves by prepayment of external debt since the amount of outstanding debt is relatively small. In addition, use by the central bank of its rediscount policy or changes in reserve requirements has not been appropriate as domestic credit expansion has been low and not a basic cause of the large rise in liquidity. Instead, the central bank has relied almost exclusively on open market operations. It has engaged in a massive sterilization operation, selling primarily central bank certificates of deposit to neutralize the potentially inflationary impact from the large rise in the money supply. So far the central bank has been successful in holding the inflation rate to a low level, but it is not yet clear whether the present strategy will continue to be successful. Some suggestions of new basic measures for restoring a sustainable equilibrium between the external and domestic sectors are discussed.

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Robert F. Emery*

Introduction

The main purpose of this paper is to examine how Taiwan, China, has used monetary policy to deal with the inflationary impact of the two oil shocks since 1973, as well as the more recent problem of a very large rise in foreign exchange holdings. As an open economy that has relied heavily on export-led growth, this rise in foreign exchange holdings has sharply expanded the money supply and has created a major challenge to monetary policy's basic goal of maintaining price stability. The paper first describes the basic structure of the financial and foreign exchange systems—as well as recent regulatory changes—and then summarizes the major economic developments since the first oil shock. The central bank's arsenal of monetary instruments and their past use are then examined, particularly with regard to the large foreign exchange inflow in recent years. Lastly, the central bank's monetary policy performance is assessed, with some suggestions made for additional research on certain topics.

The Structure of the Financial System

The financial system consists mainly of the central bank (which holds about 29 percent of the assets of all financial institutions), the commercial banks, the postal savings system and the credit cooperatives.

*The author is a staff economist in the Division of International Finance. This paper represents the views of the author and should not be interpreted as reflecting those of the Board of Governors of the Federal Reserve System or other members of its staff. The paper was prepared for the Conference on Challenges to Monetary Policies in Pacific Basin Countries at the Federal Reserve Bank of San Francisco, September 23-25, 1987.

Together, these four institutions hold most of the assets of all financial institutions. Unlike other developing economies, the postal savings system is relatively important and its share of the assets of all financial institutions except the central bank, which was about 16 percent in April 1987, has grown substantially since 1961.

The other financial institutions--such as insurance, trust, finance companies and medium-term business banks--do not bulk very large and in early 1987 accounted for only 17 percent of the total assets of the financial institutions excluding the central bank. The data in Table 1 provide a more precise indication of the relative importance, as measured by total assets, of the different financial institutions.

Of the four main institutions, the commercial banks are the largest, accounting for about 60 percent (56 percent for domestic banks and about 3 percent for foreign banks) of the total assets excluding central bank assets. The foreign banks have actually lost ground since the mid-1970s when their share was several percentage points higher. At the end of April 1987 there were 16 domestic banks and 32 foreign bank branches.

Except for two small private banks (Overseas Chinese Commercial Banking Corporation and Shanghai Commercial and Saving Bank) and one small joint-venture bank, all of the domestic commercial banks are owned and controlled by the government. This reflects the fact that the government took over these banks from Japanese ownership after the end of World War II, but, unlike the Republic of Korea, has made no effort to privatize them. All of the directors and the senior management of these banks are appointed by the government. This institutional arrangement,

Table 1. Taiwan, China: Assets of Financial Institutions
(In billions of New Taiwan Dollars; as of April 30, 1987)

	<u>Assets</u>	<u>As a % of Sub-Total</u>	<u>No. of Units</u>
Domestic banks	2,840	56.2	16
Postal savings system	795	15.7	1,157
Credit cooperative associations	362	7.2	74
Credit departments of farmers' association	341	6.8	285
Medium business banks	265	5.2	8
Local branches of foreign banks	174	3.4	32
Investment and trust companies	121	2.4	8
Life insurance companies	115	2.3	8
Property and casualty insurance companies	17	0.3	14
Bill finance companies	13	0.3	3
Offshore banking units	7	0.1	15
The Fuh-Wha Securities Finance Company	5	0.1	1
Sub-Total	5,055	100.0	
Central bank	2,025	28.6 ^{1/}	1
Total	7,080		

Note: The above data are not presented on a consolidated basis. To convert to U.S. dollars, the exchange rate at the end of April 1987 was NT\$ 33.02 per U.S. dollar.

^{1/} As a percent of the NT\$7,080 billion in total assets of all financial institutions.

Source: Financial Statistics Monthly. Central Bank, Taipei, May 1987.

however, undoubtedly enhances the authorities' ability to implement and achieve their monetary policy objectives. In September 1985 a system of deposit insurance was inaugurated, and by mid-1986, about 20 percent of N.T. dollar deposits were covered by the insurance.

Included in the 16 domestic banks are four specialized banks: a development bank, two agricultural banks, and an export-import bank. Despite their charters, these banks tend to operate like regular commercial banks. There are also eight medium business banks separate from the 16 domestic banks that provide credits to small- and medium-sized enterprises, but they hold a relatively small proportion of the assets of all financial institutions. Of these eight, all but the Medium Business Bank of Taiwan are private.

These medium business banks and three of the specialized banks cited above (a development bank and two agricultural banks) receive a relatively large amount of the funds deposited in the postal savings system, with the allocation decisions being made by the central bank. The allocation to these particular banks, where most of the funds are used to finance medium-term rather than short-term loans, has implications for the central bank's credit policy in that it creates a bias toward the financing of capital--rather than current--expenditures.

There are several factors that have contributed to the rapid 31 percent average annual rate of growth in the postal savings system's assets since the mid-1970s. One is the fact that with 1,157 post offices and 422 postal agencies (as of April 1987), it is convenient for most residents to deposit in the system. The other fact is that the interest received by the depositors on their accounts is tax free.

With regard to overall financial administration, the Ministry of Finance is responsible for the formulation of financial regulatory policies and the licensing of financial institutions, while the central bank is responsible for the conduct of monetary and financial regulatory policies. Although the credit cooperatives are supervised by the Provincial Cooperative Bank, the central bank examines most of the financial institutions.

While the open money market has grown substantially since its establishment in 1976, the long-term capital market has not yet evolved into an important source of capital. Since firms prefer bank financing, and corporate bond issues typically require a bank guarantee, the corporate bond market is very small in size. At the end of April 1987, the total market value of stocks listed on the stock exchange was NT\$ 975 billion, equivalent to 13.8 percent of the total asset value of financial institutions. Growth of the stock market has been hindered by public distrust of the accounting standards of most corporations and by the fact that most enterprises are family owned. For these and other reasons, government efforts to promote the development of the capital market have not been very successful.

The government has been more successful in its efforts to develop an open money market, as opposed to the large, quasi-legal curb money market that has existed for decades--particularly the market in post-dated checks.¹ In December 1975 the government issued a regulation authorizing the establishment of bills finance companies. Several companies were established in the following years and the market has grown rapidly--increasing from NT\$977 million at the end of 1977 to NT\$13.4 billion in April 1987. Commercial paper and bankers' acceptances

are two of the main money market instruments of the bills finance companies. The development of the money market has increased the options for business finance and has also provided a market-determined money market rate. This has been helpful in directing interest rate policy since for many years the authorities have controlled bank deposit and loan rates with few guides to assist them in assessing the actual market trend in interest rates.

Beginning in July 1984, an offshore banking center started to operate in Taipei and by April 1987, the number of OBU's (offshore banking units) had increased to 15. Although the growth in total assets of the OBUs was rapid in 1984-85, a peak of U.S.\$7.1 billion was reached in February 1986. By April 1987 the total had declined to U.S.\$6.7 billion. This leveling off probably reflects in part the weakening position of the U.S. dollar and the general decline in international loan syndications.

From the above, it is evident that the commercial banks play the major role in providing various types of finance to the economy. It is primarily through these banks and the postal savings system that the central bank is able to conduct its main monetary policy actions, such as changes in its accommodation rates and open market operations.

Financial Regulatory Changes

Beginning in February 1979, the foreign exchange system for the NT dollar was changed in name from a fixed rate system to a more flexible, floating-rate system. But in actual practice, the authorities controlled the rate and did not introduce a true freely floating rate. Since 1979, residents have been allowed to hold and use foreign exchange in designated banks. The rate for the NT dollar has largely been tied to

the U.S. dollar, but there have been periods when the central bank has intervened in the market to prevent a significant loss of competitiveness of the currency in international markets—particularly when the U.S. dollar appreciated substantially.

According to the government, the rate for the NT dollar is determined daily at the Foreign Exchange Center by a panel of general managers of the five authorized foreign exchange banks in accordance with the amount of U.S. dollars bought and sold on the market during the previous day. But in actual practice, the government has intervened heavily in the foreign exchange market, buying large amounts of dollars. Since September of 1985, the NT dollar has been appreciating against the U.S. dollar, the rate of appreciation being particularly rapid since the end of July 1986.

The two main areas of partial deregulation in the economy since the mid-1970s have been interest rates and the foreign exchange system. After a series of unsuccessful, if not regressive, steps to liberalize interest rates from 1975,² the government in 1980 implemented four important actions aimed at a significant liberalization of the system. Briefly, these were: (1) authorization for a committee of the Bankers' Association to set on a monthly basis actual loan and deposit rates although the central bank retained the power to set ceilings for both rates; (2) a removal of restrictions on interest rates on banks' negotiable CDs and debentures; (3) permission for credit cooperatives and banks to set freely their own bill discount rates; and, (4) the exemption from interest rate restrictions for rates charged on foreign currency loans by foreign bank branches and on long-term letters of credit issued by domestic banks on the basis of foreign borrowing. In 1986 banks were

allowed to enlarge the spread between maximum and minimum lending rates to four percentage points, and the central bank reduced the number of deposit ceiling rates from 13 to 4, giving banks a freer hand to set their own deposit rates and the term structure of deposit rates.

However, since the major banks continued to be owned and controlled by the government, both the foreign exchange and interest rate liberalization measures during the 1980s simply involved the substitution of a banking cartel for the management of the central bank. Neither the foreign exchange nor the interest rate liberalization measures taken can be regarded as a fundamental shift in policy. But one important development from the above actions is that the central bank has been able to use the money market rates as a guide when overseeing a change in the structure or level of the interest rates.

Major Economic Developments Since the Early 1970s

During the postwar period, the economy has generally registered high rates of economic growth. From 1975 through 1986, the average annual increase in real GNP was 8.3 percent and in 1986 real GNP rose 11.6 percent. (See Appendix A for a full data series since 1970 on GNP and other domestic economic indicators.) During 1976-78, after adjustment to the first oil shock of 1973-74, the growth rate was particularly high, averaging 12-1/2 percent, but decreased to an annual rate of about 6 percent in 1979-82 after the second oil shock of 1979-80 and during the world-wide recession in the early 1980s.

Current account surpluses and other influences from abroad generated inflationary pressures in the early 1970s. The money stock increased annually at the relatively high rate of 29 percent during 1975-78, but subsequently dropped to half that level (14 percent) during 1979-

85 in response to various monetary policy measures.³ (See Table 2 for money supply data.) However, there was a very large jump of 51 percent in the money stock (M_{1B}) in 1986, primarily because of the large gains in foreign exchange and shifts in portfolios toward liquid assets since interest rates on transactions accounts did not decline as much as those on longer-term deposit accounts.

Although the annual rate of domestic credit expansion was also high in the late 1970s (21 percent), it has decelerated significantly since 1980 and last year increased only 3 percent. This sharp contrast with the 51 percent increase in the money stock last year reflects the crucial role played by the large increase in foreign exchange holdings stemming from the large current account surplus.

Government budget operations have generally not been an expansionary factor in the economy for several decades. There were slight deficits in Fiscal 79/80 and Fiscal 80/81 (the fiscal year ends June 30), but even the larger deficits in Fiscal 81/82 and Fiscal 82/83 were only equivalent to about 1 percent of GNP. Since Fiscal 82/83, the budget balance has generally registered a small surplus.

Except for the sharp jump in consumer prices (yearly averages) in 1974, Taiwan's inflation rate was relatively low in the 1970s. With the second oil shock, prices again rose rapidly (10 to 19 percent annually in 1979-81), but since then have been very stable and low (1.1 percent annual average increase in 1982-85 and a 0.7 percent increase in 1986). July 1987 consumer prices were 1 percent higher than a year earlier. However, this price stability is strongly threatened by the huge increase in the money supply during the past year and a half, and it remains to be seen whether the authorities can continue to avoid serious

inflation, particularly if some of the forces restraining inflation should reverse or become neutral.

Real earnings of employees in manufacturing have increased substantially since the early 1970s, partly reflecting the substantial gains in labor productivity and the success of monetary policy in generally keeping the inflation rate low. Deflating the average annual nominal earnings of manufacturing employees by the consumer price index, real earnings increased at an average annual rate of 7-1/2 percent during 1976-86. Last year real earnings increased 9 percent.

Interest rates during the postwar period have generally reflected changes in prices and other basic developments, but usually with a lag and only on a partial basis. (See interest rate data for 1970-86 in Appendix A.) The central bank discount rate, for example, which was 11-3/4 percent in 1981 during a period of high inflation (16 percent), has since declined to 4-1/2 percent (October 1986 through July 1987). Bank loan and deposit rates are still controlled and do not yet reflect fully and freely basic market conditions.

Turning to the external sector, one of the most important external influences over the years on domestic financial markets--and particularly the money supply--has been the trade surplus and capital inflows. In 1972-73 and again in 1977-78, large trade surpluses expanded the money supply sharply, one important result being a 50 percent increase in the money supply in 1973 and a 47 percent rise in consumer prices in 1974. In 1978, the main factors expanding bank credit and the money supply were the large trade surplus and the inflow of capital. Since 1982 the rapid growth in exports has led to increasingly large current account surpluses. (See Appendix B for a full data series since

1977 on the balance of payments and other external economic indicators.) By 1986, exports--at a level of about \$40 billion--were approximately double their level in 1980. This represented a compound average annual rate of growth in nominal terms of 12 percent. Most of the export gains in the 1980s have reflected an increase in the export of relatively sophisticated manufactured goods such as apparel, machine tools, chemicals and electronics. Approximately half of the exports have gone to the United States, other major purchasers being Japan, Hong Kong and the European Community.

Imports remained remarkably stable from 1980 through 1985, fluctuating \$1-1/2 billion above and below the \$19-1/2 billion level each year. Part of this stability reflected a decline in oil prices after the second oil shock; nevertheless, it is somewhat surprising that imports did not increase more during this period--given the relatively good rate of economic growth. Undoubtedly, high tariffs and various non-tariff barriers played a role in restraining imports. In 1986, however, imports rose 17 percent to \$22.6 billion and are likely to continue rising in view of the rapid appreciation of the New Taiwan dollar since August 1986. Most imports come from Japan (28 percent), the United States (25 percent) and the oil exporting countries.

This rapid growth in exports in the 1980s, coupled with stable imports, resulted in a steady and large increase in the trade surplus. From a trade balance averaging only \$1.4 billion annually in 1978-81, the balance grew steadily in 1982-86, reaching \$16.9 billion in 1986, and it is likely to increase even further this year. The deficit on invisibles has fluctuated between roughly \$0.5 and \$2 billion annually since the late 1970s, but is likely to decline in the future due to the

substantial amount of income earned from the large official holdings of foreign exchange.

As a result of the above developments, large and rising current account surpluses began to appear beginning in 1982. Between 1982 and 1986 the annual current account surplus increased from \$2.2 billion to \$16.2 billion, or by approximately \$3 billion per year. Reflecting these surpluses, the net inflows in the non-monetary long-term capital account, which were as large as \$0.9 billion in 1981, changed to net outflows, reaching \$0.8 billion in 1985 and \$1.4 billion in 1986. The bulk of these net outflows mainly reflected an excess of official loan repayments over official loans received.

Official holdings of foreign exchange excluding gold were not very large at the end of 1980, viz., \$2.2 billion, but since then they have increased greatly—more than doubling in 1986 from \$22.6 billion at the beginning of the year to \$46.3 billion at the end of 1986. These holdings were second in size in the world after the Republic of Germany at the end of 1986. By July 1987, reserves excluding gold had increased further to \$61.0 billion. Gold holdings at the end of 1986 (on the basis of official valuation) were \$1.3 billion, but \$2.2 billion when valued at the London free market price of gold.

Total gross external debt is low compared to the size of international trade. At the end of 1986 the government reported a public external debt of \$3.2 billion, with debt service payments equivalent to 4.6 percent of exports of goods and services. Adding private external debt, total gross external debt was roughly \$8 billion at the end of 1986. On a net basis, Taiwan, China is a large net foreign creditor, the estimated amount at the end of 1986 being roughly \$37 billion.

From 1973 through November 1986, the exchange rate for the NT dollar against the U.S. dollar fluctuated between roughly 36 and 40 NT dollars per U.S. dollar. But this has changed. As recently as the third quarter of 1985 the average rate was NT\$40.3 per U.S. dollar—one of the most depreciated rates for the New Taiwan dollar in decades. The NT dollar has generally appreciated against the U.S. dollar since then, with an even more rapid appreciation occurring from August 1986 after the United States Government began to exert some pressure on the authorities to let the rate appreciate in view of the large current account surpluses, the rapid rise in the level of foreign exchange reserves, and, especially, the large bilateral trade surpluses with the United States.

To understand better what lies behind Taiwan's large trade surpluses, it is helpful to examine changes in the terms of trade (as based on export and import prices) and the volume of trade. Rising import prices resulting from the second oil shock in the late 1970s tended to worsen the terms of trade through 1981. But since then the terms of trade have improved as import prices decreased while export prices stabilized or decreased less than import prices. The large increases in the value of exports in recent years have mainly stemmed from the large gains in export volume—not from a rise in export prices. Import volume, on the other hand, generally declined in 1981-85, but then increased sharply by 31-1/2 percent in 1986. The problems that these balance of payments developments have created for monetary policy are explored next.

The Monetary Policy Instruments and Their Use

Because of the government's policy to avoid large budget deficits or surpluses in the postwar period (see Appendix A), fiscal policy has not been used to any significant extent as a dynamic instrument in maintaining economic stability. The government's basic aim has been to have a balanced budget, but due to periodic fluctuations in the level of economic activity--which affect both revenues and expenditures--this has not been possible to achieve each fiscal year. As a result, most of the burden for active economic stabilization measures has fallen on monetary policy. The power to formulate appropriate monetary measures rests with the governor of the central bank, who is assisted by two deputy governors. Although the central bank is able to take important monetary policy actions without either consulting or obtaining the approval of the Ministry of Finance, various actions of the governor are subject to approval by the cabinet.

Since the early 1970s, the economy has been affected significantly by the two oil shocks of 1983-84 and 1979-80. Growth rates, external trade and, particularly, rates of inflation have varied significantly in response to these two shocks. The first oil shock, for example, led to a high rate of inflation in 1974 (47 percent) and the second oil shock boosted inflation rates significantly in 1979-81.

During the past two decades, the central bank's main instruments for pursuing its monetary policy objectives have been interest rates, open market operations, and occasional use of reserve requirements. Of these, changes in reserve requirements have been the least important. Over a 14-year period to 1974, commercial bank reserve requirements were changed only four times for demand deposits and five times for time

deposits. In addition, the permissible range for reserve requirements (10 to 15 percent) was too narrow through mid-1975 for the weapon to really be used effectively.

The reserve requirement system was revised substantially in 1975 following a revision of the general banking law. Basically the system was simplified by unifying the required reserve ratios for all financial institutions and by differentiating the requirement only according to the type and maturity of deposit. The minimum and maximum range was also changed from 10 to 15 percent, to 15 to 40 percent, thereby giving the central bank more flexibility in setting reserve requirements.

The key element in this reform was the widening of the permissible legal range for the ratios, but since 1975 reserve requirements have not been used by the central bank as a major monetary policy instrument. Reserve requirements have been changed only by moderate amounts four times since mid-1975 (excluding the imposition of a 7 percent requirement against CDs and foreign currency deposits on July 11, 1986). There is fairly clear evidence that since the 1975 reforms the central bank has been reluctant to raise the reserve requirements to a level at--or near--the maximum allowed by law since this might act as a partial drag on economic growth. In addition, although the central bank has the power to impose marginal reserve requirements, it has so far not utilized this power. In short, while the reserve requirement has been useful at times, it has not been in the forefront in the central bank's efforts to restrain inflation.

On the other hand, open market operations--which were not carried out on a very large scale through 1983--have since become quite important and currently constitute the central bank's main monetary

weapon. The central bank first began to make regular use of open market operations in January 1979, but during 1979-83 the amount of yearly central bank credit accommodation at the discount window far overshadowed the amount of commercial paper, Treasury bills and bankers' acceptances purchased by the central bank. In 1983, for example, the respective amounts were NT\$122 billion and NT\$18 billion. Even prior to 1979 the central bank made some use of open market operations.⁴

Even as recently as 1984 central bank credit accommodation totaled NT\$185 billion, or significantly more than the central bank's purchases of commercial paper, CDs, bankers' acceptances and Treasury bills which totaled NT\$129 billion. But in 1985, with a large inflow of foreign exchange swelling bank reserves, " ... the central bank actively undertook open market operations by auctioning certificates of deposit to banks, accepting deposits from the postal savings system, and issuing savings bonds to the public."⁵ Similar activity occurred in 1986, with the central bank also accepting a substantial amount of deposits from banks. By the end of 1986 the outstanding amount of the above items totaled NT\$1,091 billion, representing an increase of NT\$702 billion from a year earlier. On the other hand, central bank credit accommodation to domestic banks declined NT\$65 billion in 1985 and NT\$35 billion in 1986 to an outstanding level of NT\$54 billion.

What has basically happened is that the central bank, to absorb part of the gain in liquidity due to the large surpluses on trade account, has issued increasing amounts of its own Class B Treasury bills and later, its own CDs. Treasury bill issues increased NT\$9 billion in 1984, NT\$51 billion in 1985, and NT\$3 billion in 1986. It would appear that the central bank decided not to rely on the Class B Treasury Bills

very much after 1985 as the annual issue of these bills is subject to a ceiling equal to 20 percent of the total expenditures of the central government for a fiscal year.

Beginning in October 1985 these were supplemented by sales of the central bank's own CDs. These increased by NT\$27 billion in 1985 and by NT\$372 billion in 1986. These sales were further supplemented by the central bank's sale of its own savings bonds beginning in December 1985 (NT\$4 billion). The outstanding amount rose rapidly and at the end of 1986 had reached NT\$67 billion. Thus, these three central bank obligations increased from NT\$108 billion at the end of 1985 to NT\$543 billion at the end of 1986—a rise of NT\$435 billion. By July 1987 the total had increased further to NT\$862 billion. The central bank also accepted deposits from the postal savings system and banks. The outstanding amount reached NT\$548 billion at the end of 1986. This represented a very large rise in a relatively short period.

The CDs have been offered at relatively attractive interest rates and in several maturities. In June 1987, for example, yields ranged from 4.05 to 5.23 percent, and maturities of six months, one year and two years were offered. At that time the yield on one-year and two-year time savings deposits at commercial banks was 5.0 percent and 5.25 percent, respectively.

In short, the central bank is relying heavily on the issue of its own CDs, plus earlier Class B Treasury bills, the acceptance of deposits and the new savings bonds to offset much of the inflationary impact from the large gains in foreign assets. However, it is not yet clear whether the central bank can continue to absorb successfully large amounts of liquidity by issuing bills and accepting deposits. But so far

the central bank has been successful in restraining the rate of inflation. Since the foreign exchange inflow has been the main expansionary factor--and not the expansion of banks' loans and investment--the above sterilization actions appear appropriate as curtailment of central bank accommodation would have had little impact.

Until approximately 1985, interest rate regulation was the main monetary policy instrument used by the central bank. Since the central bank's reactivation in 1961 it has fixed not only the various discount rates that it charges borrowing banks, but has also prescribed the upper limit for bank deposit rates and has approved the range of interest rates on bank loans proposed by the Bankers' Association.

During the 1970s and early 1980s, the central bank made fairly frequent use of discount rate changes. This was mainly in connection with rediscounts of eligible bills at the central bank rather than the two other types of central bank accommodation, viz., temporary advances and the refinancing of secured loans. At the end of July 1987 the central bank had six different accommodation rates: 4.5 percent for rediscounts, 5.5 percent against secured loans, 9.0 percent for temporary accommodations, 6.75 percent for import financing in foreign exchange, 7.5 percent for accommodations in foreign currencies and 4.5 for export financing. This last rate, for export financing, has generally been the lowest of the six rates since the mid-1970s and being lower than many bank deposit rates, provided a subsidy to exporters. However, since November 1984 the rate has been the same as the basic rediscount rate. It would appear appropriate for the central bank to reduce the five different accommodation rates to simply a basic rate and a penalty rate

in order to avoid market distortions due to a differentiated rate structure.

The central bank's basic philosophy since 1961 has been to reduce gradually the interest rate structure in order to bring it closer to the interest rate levels in industrial countries and also to narrow the spread between loan and deposit rates. However, there have been three times since 1961 when the central bank has had to reverse direction and move rates up in order to restrain inflation. This occurred--in a mild way--in 1968, and more vigorously in 1973 and 1979 in response to the first and second oil shocks, respectively. In January 1974 the central bank rediscount rate was finally raised to the relatively high nominal level of 14 percent from a low of 8-1/2 percent in July 1972, but by that time much of the severe inflation had already occurred. Similarly, the rate also was raised to a high of 13-1/4 percent in June 1981 from a low of 8-1/4 percent in May 1979 following the 1979-80 second oil shock, but again this was too late to prevent a substantial increase in prices in 1980 and 1981. In retrospect, the rediscount rate should have been adjusted more quickly and with greater flexibility, as it clearly took too long to get the rate up to a truly restrictive level. In the future it would appear advisable for the central bank not to resist moving the rate to a punitive level when the circumstances warrant such action.

Since October 1981 the central bank has steadily lowered all of its accommodation rates. By October 1986 the main rediscount rate had fallen from a peak of 13-1/4 percent in October 1981 to 4-1/2 percent in mid-October 1986. Much of this reflected the general worldwide deflation and decline in interest rates after the second oil shock, but the central

bank also cut the rate three times in 1985 " ... in an effort to foster economic growth."⁶ As things now stand, interest rate policy is not being used actively to deal with the large increase in liquidity that has occurred since 1985, nor would it really be an appropriate instrument. Rather, the main weapon now consists of the open market operations, particularly the sale of central bank CDs.

The Central Bank's Response to the Large Foreign Exchange Inflow

An important aspect of the central bank's financial structure is that a very high proportion of its assets now consist of foreign assets. In July 1987, net foreign assets accounted for 97 percent of its total assets. The proportion was lower in earlier years, being--for example--42 percent in 1976 and 83 percent in 1984. This trend largely reflects three aspects: the absence of much government debt largely due to balanced budgets; a relatively small amount of credit accommodation extended to financial institutions; and, the rising yearly surpluses on current account in the balance of payments. This aspect has important implications for monetary policy.

To assist it in determining monetary policy, the central bank utilizes three measures of the money supply, *viz.*, M_{1A} , M_{1B} and M_2 . Of these, M_{1B} --which includes currency outside monetary institutions, checking accounts, passbook deposits and passbook savings deposits--appears to be the one most frequently used by the central bank in assessing the impact of monetary expansion. The M_2 series includes quasi-money and is a broad measure, while M_{1A} --which excludes passbook savings deposits--is a narrow measure. Central bank experience with all three indicators has shown that M_{1B} is the most helpful indicator for purposes of monetary analysis.

From 1979 through 1985, M_{1B} did not expand at a particularly rapid rate--given the nature of the economy and its development. During this period the average annual increase was 14 percent and the income velocity of money generally declined from 1981. (See Appendix A.) Various factors have contributed to this decline in velocity, but one of the more important ones has been the low rate of inflation since 1982 which has contributed to the rise in the large holdings of money balances by firms and individuals.

However, the large foreign trade surpluses of recent years and the present are adding greatly to the rate of monetary expansion as shown in Table 2, with the result that M_{1B} increased 51 percent in 1986--far above the average annual increase of earlier years. As shown in Table 2, which indicates on a year-to-year basis the main factors expanding or contracting the money supply, the two main expansionary factors have been the increase in the economy's net foreign assets and in claims on private enterprises. These two factors have been only partly offset by the rise in quasi-money, a contractionary factor. The three other contractionary factors have not been very important quantitatively in recent years. The increase in net foreign assets accounted for 72 percent of the expansionary factors in 1985 and 84-1/2 percent in 1986. In short, the trade and current account surpluses have been the main contributor to the large monetary expansion.

As noted earlier, the authorities through the end of 1986 were able to avoid a substantial increase in the rate of inflation, despite the 51 percent increase in the money supply last year. The very large increase in central bank CDs, plus the sale of central bank savings bonds

Table 2. Analysis of Changes in Money Supply (M_{1B})
(In billions of N.T. dollars)

	Incr. in M_{1B}	Expansionary Factors				Contractionary Factors			
		M_{1B} Out. Amt.	Net Foreign Assets	Claims on Private Enterprises	Claims on Govt.	Quasi- Money	Govt. Dpsts.	Claims on Govt. Enterpr.	Other Items (net)
1970	+5	35	+5	+12	+1	-13	-3	+3	+2
71	+11	46	+10	+18	-2	-16	+1	+4	-4
72	+15	61	+25	+12	0	-23	+6	+2	-7
73	+31	92	+21	+57	+3	-16	-21	+4	-17
74	+10	102	-22	+62	+5	-41	-4	+19	-9
75	+29	131	-7	+70	+1	-42	-9	+19	-3
76	+33	164	+36	+44	+7	-52	-9	+11	-3
77	+55	219	+41	+82	0	-77	0	+14	-6
78	+81	300	+84	+123	+7	-88	-32	+15	-29
79	+23	323	-6	+101	+3	-45	-34	+34	-29
80	+73	397	-18	+151	+1	-98	+5	+68	-35
81	+55	452	+44	+116	+13	-123	+19	+44	-57
82	+66	517	+100	+154	+28	-209	-0	+44	-44
83	+95	613	+198	+224	+6	-276	-24	-4	-29
84	+57	670	+236	+211	-12	-300	-21	0	-57
85	+82	751	+375	+118	+9	-417	-14	-8	+18
86	+386	1,138	+626	+107	+8	-278	-40	-2	-35

Note: Due to change in series, pre-1976 data are not strictly comparable with 1976-86 data.

Source: Financial Statistics Monthly, Central Bank of China, Taipei.

and the acceptance of deposits from the postal savings system and banks, accomplished much of the job of neutralizing the potentially inflationary impact from the large rise in the foreign exchange reserves. However, two other factors have helped to offset somewhat the expansionary forces in the economy. These are the rise in the national savings rate and the continuing decline in the income velocity of money. The upward shift in the savings function--the counterpart being a downward shift in the consumption function--represents a basically contractionary development, ceteris paribus. In a sense, part of the rise in incomes, as reflected in the large increase in the money supply, has been sterilized by the rise in savings. In addition, the decline in the income velocity of money indicates that money balances are being spent less rapidly--a basically contractionary development. It should also be noted that since the autumn of 1985 the new Taiwan dollar has appreciated against the U.S. dollar and this has helped to hold down the rise in prices--particularly since almost half of the economy's imports come from the United States. In addition, the economy has experienced a decline in unit labor costs, as well as a post-1981 drop in the prices of oil and other commodity imports, along with some reductions in import duties.

From the late 1970s through 1985, gross national savings (and also net national savings) as a proportion of GNP (and, respectively, national income) did not change very much. But in 1986 both savings rates rose by 4 to 5 percentage points, viz., to 37-1/2 and 32 percent, respectively. This substantial increase has helped to offset some of the expansionary forces in the economy.

In addition, there has been a general downtrend in the income velocity of money ($\frac{GNP}{M_{1B}}$) since 1974. The decline has occurred because M_{1B}

has been rising at a faster rate than nominal GNP. From a level of 5.3 in 1974, the ratio declined fairly steadily to 3.4 in 1984. In 1986 it declined further to 3.0. Part of the explanation for the recent decline has been the drop in interest rates and the generally stable level of consumer prices through July 1987. With lower interest rates and stable prices, firms and individuals have been willing to hold larger money balances since there is less of a loss of purchasing power.

The government has also taken extensive measures recently to halt, or at least restrain, the steady rise in international reserves by greatly liberalizing foreign exchange transactions. On July 15, 1987, the central bank lifted controls on trade-related transactions on current account and allowed citizens of Taiwan, China, for the first time in the postwar period to freely hold and use foreign currencies. For capital account transactions, no permission is required for individuals and companies to export capital of \$1 million or less per transaction, with an annual limit of \$5 million. For capital inflows, these will be limited to \$50,000 per year per account, with inward direct foreign investments still subject to approval. The new regulations mark a radical departure from the earlier regime under which people could only legally remit \$5,000 per year and all foreign exchange had to be sold to the central bank for local currency with the exception of authorized foreign currency deposits. The government hopes that the new regulations will lead to a rise in capital outflows which will ease pressure on the money supply.

Assessment of the Monetary Policy Performance

The key monetary issue has been how to deal with the rapid buildup of foreign exchange. This buildup has caused a sharp rise in the

money supply and thus has posed a serious inflationary threat. In the earlier inflationary episodes stemming from the two oil shocks (1973-74 and 1979-80), monetary policy relied heavily on interest rate policy. However, in both cases, the central bank's actions were too delayed and tentative to prevent serious inflation.⁷

It seems fairly clear that these two earlier episodes involved primarily the problem of cost-push inflation. The large rise in oil prices during the two oil shocks lay behind much of the increase in costs and prices in 1974 and 1980. On the other hand, the current problem is primarily one of excess liquidity, creating the strong possibility of a serious demand-pull inflation. Oil and other commodity prices have declined, or been weak, since about 1982. In a situation like this, with excess liquidity, interest rate policy aimed at increasing the cost of funds would appear to be a much less appropriate instrument for dealing with the problem. Rather, open market operations are better suited to the situation, viz., neutralizing the large gains in liquidity stemming from the rise in net foreign assets. In this regard, the authorities are to be commended for developing vehicles--such as the central bank's certificates of deposit--to mop up the large rise in liquidity.

As noted earlier, the central bank at first began to use its own Class B Treasury bills in its open market operations from 1983 through the end of 1985 to neutralize the rise in liquidity. However, that instrument had its limitations because of a ceiling imposed on the outstanding amount equal to 20 percent of the government's expenditures budget. In this connection the amount of bills outstanding did not change much in 1986 after rising NT\$52 billion to NT\$74 billion at the end of 1985. The central bank then began to issue its own CDs in October

1985 and, two months later, central bank savings bonds. The issues of savings bonds reached NT\$67 billion at the end of 1986 and NT\$130 billion in July 1987. On the other hand, issues of CDs have occurred in very large amounts and jumped from zero in September 1985 to NT\$398 billion at the end of 1986 and NT\$701 billion in July 1987. These central bank CDs have been held mainly by banks and other financial institutions. The central bank also accepted deposits from the postal savings system and banks. The amount reached NT\$548 billion at the end of 1986 and NT\$627 billion in July 1987. These deposits in the central bank have received virtually no attention in the news media, but they have been an important factor in restraining inflation.

The government authorities have been aided in their fight against inflation by two other factors, as noted earlier. These are the recent rise in the savings rate and the decline in the income velocity of money. However, the key factor currently is the large issue of central bank CDs. The excess reserves of the deposit money banks have not been large since the spring of 1986, being equal to only about 2 percent of total reserves. In addition, the deposit money banks did not expand their loans and discounts much in 1986 (about 5-1/2 percent), but their holdings of "Securities Issued by Financial Institutions" (including the central bank) did rise greatly--from NT\$122 billion at the end of 1985 to NT\$498 billion at the end of 1986 and to NT\$743 billion in July 1987--reflecting the large issue of central bank CDs. There are four important balance sheet items that reflect these key developments. The central bank's large increase in foreign assets has the counter entry of a large rise in its CD liabilities, while the rise in deposit money banks'

holdings of CDs has a counter entry--to some extent--in the decrease in the banks' holdings of foreign assets.

In summary, the central bank through July 1987 has been successful in restraining inflation through a massive sterilization operation. Consumer prices in July 1987 were only 1 percent higher than in the same period a year earlier. While the avoidance of inflation is commendable, the question remains as to what is the best way to use the existing resources? Is a large buildup of foreign exchange in the economy's best interests? Certainly more of the foreign exchange could be used to improve living standards in various ways, such as improved housing, transportation, communication and environment. At the end of May 1987, about 85 percent of the official holdings of foreign exchange were in U.S. dollar-denominated deposits. It would seem to be inappropriate for the current rate of increase in foreign exchange reserves to continue indefinitely, even if this were possible. There would seem to be an urgent need for the authorities to take basic measures to restore a sustainable equilibrium between the external and domestic sectors. In this regard, the July 15 measures described earlier are an important step forward in achieving more balance between the current and capital accounts, as well as a reallocation of domestic savings. However, there is still room for a further reduction of import tariffs and various non-tariff barriers. In addition, the exchange rate for the New Taiwan dollar could be allowed to move to a free market level that does not undervalue or overvalue the currency vis a vis the currencies of all trading partners.

NOTES

1. For details on the curb market, see Cheng, (1986), p. 149.
2. For details on the measures taken in the 1970s, see Cheng, (1986), pp. 153-54.
3. These data are based on M_{1B} money stock which is the sum of currency issued, checking accounts, passbook deposits and passbook savings deposits.
4. In August 1972, the central bank sold central bank time certificates of deposit to reduce commercial bank reserves following a rapid rise in net foreign assets, and in April 1973 the central bank for the first time issued its own Class B, 91-day Treasury bills to banks and the general public. During 1977-78 the central bank again sold its own CDs in order to reduce excess reserves. In a move to broaden the money market, the central bank in November 1983 began to issue Treasury bills on a non-competitive basis for small investors.
5. See the Foreward, Central Bank of China's Annual Report for 1985.
6. Central Bank of China, Annual Report: 1985, p. 35.
7. For a more detailed discussion of this subject, see Emery, (1984).

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Appendix A. Domestic Economic Indicators

Year	Consumer Price Index % Change		Income Velocity ^{1/} GNP/M	Real GNP % Incr.	Domestic Credit		Budget Surplus, or Deficit(-) to GNP %	CB Re- discount Rate	Interest Rates	
	Yr. Avg. Dec./Dec.	Dec./Dec.			Bill. NT\$ End of Yr.	% Increase			1-year Savings ^{3/} Rate	Maximum Short-term ^{4/} Loan Rate
1970	3.6	3.8	6.4	11.3	80	18.2	0.9	9.25	9.72	12.60
71	2.8	2.7	5.7	12.9	101	26.4	0.6	9.25	9.25	12.00
72	3.0	2.6	5.1	13.3	120	19.2	0.8	8.50	8.75	11.25
73	8.2	24.0	4.4	12.8	163	35.6	2.4	10.75	11.00	13.25
74	47.5	33.1	5.3	1.1	247	51.2	3.3	12.00	13.50	14.75
75	5.2	0.2	4.4	4.3	328	32.8	1.5	10.75	12.00	13.25
76	2.5	3.6	4.2	13.5	384	17.1	1.3	9.50	10.75	12.00
77	7.0	6.8	3.7	10.1	486	26.6	0.8	8.25	9.50	10.75
78	5.8	7.7	3.2	13.9	613	26.1	1.0	8.25	9.50	10.75
79	9.8	12.5	3.6	8.5	717	17.0	1.7	11.00	12.50	14.50
80	19.0	22.2	3.6	7.1	926	29.1	-0.6	11.00	12.50	16.20
81	16.3	9.9	3.8	5.7	1,115	20.4	-0.3	11.75	13.00	15.25
82	3.0	3.0	3.6	3.3	1,339	20.0	-1.0	7.75	9.00	10.75
83	1.4	0.1	3.3	7.9	1,538	14.9	-1.1	7.25	8.50	10.25
84	-0.0	1.7	3.4	10.5	1,721	11.9	0.1	6.75	8.00	10.00
85	-0.2	-1.3	3.5	5.1	1,857	7.9	0.2	5.25	6.25	9.50
86	0.7	2.8	3.0	11.6	1,918	3.3	0.5	4.50	6.25	9.00

^{1/} From 1982, ratio of nominal GNP to monthly average for year of M_B. For earlier years, ratio of nominal GNP to M₁.

^{2/} Fiscal year ends June 30.

^{3/} End of year.

^{4/} Maximum rate on secured loans for 1970-79.

Sources: Annual Report, Central Bank of China, Taipei, Taiwan; Financial Statistics Monthly, Central Bank of China; Financial Statistics, Central Bank of China; Taiwan Statistical Data Book, Council for Economic Planning and Development, Taipei; and Statistical Yearbook, Directorate-General of Budget, Accounting and Statistics, Taipei.

Appendix B. International Economic Indicators
(In billions of U.S. dollars unless indicated otherwise)

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
<u>Balance of Payments</u>										
Exports f.o.b.	9.5	12.6	15.8	19.6	22.4	21.8	25.0	30.2	30.5	39.5
Imports f.o.b.	-8.4	-10.4	-14.5	-19.5	-20.6	-18.1	-18.8	-21.0	-19.3	-22.6
Trade Balance	1.1	2.2	1.3	0.1	1.8	3.6	6.3	9.2	11.2	16.9
Services (net)	-0.2	-0.5	-0.9	-0.8	-1.2	-1.3	-1.8	-2.0	-1.7	-0.4
Receipts	1.4	1.8	2.6	3.1	3.7	3.9	3.8	4.6	5.0	6.7
Payments	-1.6	-2.3	-3.5	-3.9	-4.9	-5.2	-5.6	-6.6	-6.7	-7.1
Transfers	0.0	0.0	-0.2	-0.1	-0.1	-0.1	0.0	-0.2	-0.2	-0.3
Current Account	0.9	1.6	0.2	-0.9	0.5	2.2	4.4	7.0	9.2	16.2
Long-term cap. (Non-monetary)	0.4	0.4	0.5	1.2	0.9	1.3	1.0	-0.7	-0.8	-1.4
Short-term cap. (Non-monetary)	0.0	0.1	0.4	-0.3	0.1	-0.5	-0.4	-0.1	0.3	1.4
Errors & omissions	-0.2	-0.1	-0.2	-0.4	-0.3	-0.5	-0.4	-0.4	0.5	0.2
Monetization/Demonetization of Gold	0.0	0.0	0.0	0.3	0.1	0.1	0.2	0.1	0.2	0.2
Overall Balance	-1.1	-2.0	0.0	0.1	-1.3	-2.6	-4.9	-5.9	-9.4	-16.6
Exchange Rate: End of Period										
NT\$/U.S.\$	38.00	36.00	36.10	36.01	37.84	39.91	40.27	39.47	39.85	35.50
: Average										
NT\$/U.S.\$	38.00	37.05	36.05	36.02	36.85	39.12	40.07	39.60	39.85	37.84
Reserves (excl. gold; end of period)	1.3	1.4	1.5	2.2	7.2	8.5	11.9	15.7	22.6	46.3
Gold (mill. of oz.)	2.4	2.4	2.4	3.2	3.3	3.7	4.1	4.5	5.0	5.6
Export Vol. (1980=100)	68	85	90	100	110	113	134	155	164	206
Import Vol. (1980=100)	75	84	92	100	99	84	95	97	92	121
Export Prices (1981=100)	73.2	78.2	87.5	94.7	100.0	101.0	100.1	100.3	100.2	96.0
Import Prices (1981=100)	64.4	65.2	75.9	92.8	100.0	98.9	96.4	95.6	94.1	N.A.
Terms of Trade (XP - MP)	113.8	119.8	115.3	102.1	100.0	102.2	103.8	105.0	106.4	N.A.
Public External Debt (end of yr.)	2.6	2.9	3.1	4.1	4.8	5.7	6.3	5.5	4.8	3.4
OBU: Foreign Assets								3.2	5.7	3.4
: Foreign Liabilities								1.2	1.3	3.8

Note: Data may not total due to rounding. OBU = Offshore Banking Units.

Sources: Financial Statistics Monthly, Central Bank of China; Financial Statistics, Central Bank of China; Taiwan Statistical Data Book, Council for Economic Planning and Development, Taipei; and Statistical Yearbook, Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Taipei.

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