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China's Foreign Currency Swap Market*

by

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Abstract

This paper describes the operations of the foreign currency swap market in China, reviews and analyzes developments of exchange rates in recent years, and assesses the contribution of the swap market to the economy. It concludes that the swap market is a transitional mechanism that has played an important role in China's economic transformation by promoting exports and facilitating macroeconomic adjustment during periods of economic overheating. Finally, some suggestions are made on ways to improve the functioning of the swap market.

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F31, O53

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I. Introduction

The swap market in China is an officially sanctioned parallel market in foreign exchange that has played an increasingly important role in China's economy since the mid-1980s. This paper describes the operations of the swap market, reviews and analyzes developments of exchange rates in the market through mid-1993, and assesses its contribution to the economy. 1/ Finally, some suggestions are made on ways to improve the functioning of the swap market.

In October 1980, the authorities began to allow domestic enterprises to swap their retention quotas (certificates that give holders the right to purchase a specified amount of foreign exchange) for renminbi at officially set prices. 2/ In November 1985, the first foreign exchange adjustment center (FEAC) was established in Shenzhen on an experimental basis to facilitate trading in retention quotas. In October 1986, the authorities approved trading of actual foreign exchange by foreign-funded enterprises (FFEs) in the newly established swap centers. In the initial years, the

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1/ This paper was completed before July 1993 when the Chinese authorities launched an adjustment program aimed partly at restoring orderly conditions to China's exchange system. Hence, while the paper updates developments through mid-November, it does not attempt to analyze the full consequence of the adjustment program on the exchange system.

2/ Under the retention quota system, domestic enterprises are required to surrender all their foreign exchange earnings to the state at an official rate. The enterprises are then allocated a percentage of their foreign exchange earnings as retention quotas. These are certificates that correspond to book entries kept by the State Administration of Exchange Control (SAEC). For a description of the retention quota system, see IMF (1993).

system was restrictive because the exchange rate (or price of retention quotas) was officially set. In May 1988, the authorities lifted control on the swap market exchange rate, allowing it to be determined through negotiations between buyers and sellers. Since then, the market has developed rapidly with the number of swap centers rising to nearly 100 and with the volume of transactions increasing from $6.2 billion in 1988 to an estimated $25 billion in 1992. Also, techniques of trading have become more sophisticated with about 18 centers having adopted the electronic open bidding system.

II. Operations of the Swap Market

The swap market is analogous to the dual-track pricing system that was introduced in the mid-1980s to permit enterprises to sell their above-quota production at prices freely negotiated between buyers and sellers. Similarly, the swap market covers that portion of the foreign exchange earnings that is retained by foreign trade corporations and other exporters either in the form of retention quotas or in cash. In the swap centers, holders of foreign exchange or quotas are able to sell their excess holdings to enterprises that offer the best price. This allows foreign exchange to be allocated at the margin in accordance with more market-oriented criteria. In this way, the swap market provides a more competitive and efficient way of allocating foreign exchange.

1. Criteria for access to swap centers

Since December 1991 when all domestic residents were allowed to sell foreign exchange at the swap rate at designated branches of banks, there has been virtually no restriction on the sale of foreign exchange in the swap centers. 1/

In contrast, access to swap centers to purchase foreign exchange is subject to authorization by the State Administration of Exchange Control and is restricted mainly to enterprises that need foreign exchange either to service their foreign currency debt or to import goods that are consistent with the industrial policy of the state. Purchases of actual foreign exchange are usually limited to FFEs. According to the terms of their contracts as approved by the Ministry of Foreign Trade and Economic Cooperation (MOFTEC) 2/, FFEs can use their foreign exchange for designated purposes including their own operating needs, debt repayment, and remittances. Domestic enterprises, which are approved by MOFTEC to import, can purchase retention quotas in the swap centers; the purchased quotas must be used within a six-month period to acquire foreign exchange from the state reserves at the prevailing official rate.

SAEC authorization to use the swap center is based on two criteria. For licensed imports, if an enterprise has received MOFTEC approval, then the enterprise is allowed access to the swap center. For those imports that do not require a specific license, SAEC approval is based on a "priority

1/ In one local branch of the Bank of China, the rate at which domestic residents could sell their foreign exchange was fixed by the bank at about 3 1/2 percent below the rate prevailing in the local swap center.

2/ Until March 1993, known as the Ministry of Foreign Economic Relations and Trade (MOFERT).

list" of uses of foreign exchange compiled in conformity with the state industrial policy. In general, lower priority is given to requests for foreign exchange to finance imports of consumer goods and luxury items. It appears, however, that imports of such goods by foreign trade corporations using retained foreign exchange earnings are relatively unrestricted. Generally, capital account transactions and imports of luxury consumer goods are prohibited from having access to the market. Moreover, there is considerable variation in the degree with which local SAECs enforce the priority list. For those imports that do not require a specific license, priority is given to the imports of certain goods deemed to be of greater national importance, such as fertilizers and other agricultural production materials, imports of foreign-funded enterprises, and the imports of advanced equipment by large and medium-sized state-owned enterprises.

2. Trading procedures

An electronic open bidding system is used in 18 of the nearly 100 swap centers in the country. 1/ In these centers, authorized dealers and brokers can participate on a trading floor where retention quotas and U.S. dollars are traded openly. 2/ Typically, there is a large electronic board that displays the bids and offers of buyers and sellers with the opening bid being the closing price of the previous day. The market matches

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1/ Including the National FEAC, and the FEACs in Beijing, Changsha, Chongqing, Dalian, Fuzhou, Guangzhou, Haikou, Hangzhou, Hefei, Nanjing, Qingdao, Shanghai, Shenzhen, Tianjin, Wuhan, Xiamen and Zhengzhou.

2/ In Shenzhen, the Hong Kong dollar is also traded.

buyers and sellers on the principle of price and time priority. 1/ Prices are allowed to fluctuate freely during each trading session. The People's Bank of China (PBC) can intervene to smooth out the trading and to limit the fluctuations, although such intervention is rare. A trading session may be split into two smaller sessions, one for retention quotas and the other for cash. 2/ Each subsession is closed when either all the sellers have sold out or all the buyers have purchased their requirements. Trading sessions are normally opened a few times a week and last from one to two hours. Buyers or sellers who are unable to satisfy their requirements during a trading session can either wait until the next session or apply to the swap center to arrange bilateral deals.

In the 85 other centers, the swap center is an office within the SAEC which matches written applications to buy or sell retention quotas. Applicants must appear in person at the swap center with the requisite documentation. Operations in the swap centers on behalf of individuals have been allowed since December 1991 provided that the transactions are conducted by authorized banks. Each center is organized to match buy and sell orders under local SAEC authority; the centers are not yet integrated into a unified national market. The swap center verifies the applicant's documentation and executes transactions.

1/ This means that bids to buy are prioritized from the highest to the lowest price while offers to sell are prioritized from the lowest to the highest price. Within the same price, the earlier bids or offers receive higher priority.

2/ Because of the possibility for arbitrage, there is little difference between the exchange rates based on trading in retention quotas and cash. In fact, at the Shanghai swap center, the rates are identical because the price of retention quotas is derived from the difference between the swap rate and the official rate.

As noted above, the swap center processes buying and selling orders and attempts to match them. If there is excess demand, as has happened frequently in certain provinces such as Guangdong, preference is given to transactions in accordance with central and provincial priorities. The swap center may also split large orders over several days or authorize access to the PBC's reserves on a discretionary basis. Increasingly, the SAEC will arrange for transfers of foreign exchange from other centers or authorize enterprises to purchase directly from other (nonlocal) swap centers through brokers. On the other hand, if a center normally has an excess supply of foreign exchange (such as Shanghai), it would tend to be more liberal in allowing enterprises from other centers to buy foreign exchange. Initially, the volume of transactions between swap centers was low because provincial authorities were reluctant to let foreign currency leave their provinces; however, it appears that such administrative barriers are breaking down and the volume of inter-swap center transactions had risen to $6 billion by 1991. 1/

III. Review of Exchange Rate Developments

The behavior of the exchange rate in the swap market may be divided into three distinct periods. From 1987 to 1988, the average exchange rate in the swap market depreciated sharply and the spread between the official rate and the average swap market rate widened from 40 percent to about

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1/ In April 1993, the authorities issued new regulations that seek to limit the power of local authorities to restrict the free flow of foreign exchange. However, the enforcement of the regulations is likely to be difficult.

80 percent in late 1988 (Table 1 and Chart 1). The depreciation reflected the overheating in the economy that led to a strong rise in imports and a marked acceleration in inflation. Following the imposition of a rectification program in late 1988 and reflecting weak import demand, the swap market rates stabilized.

In November 1989, the swap rate appreciated by 13 percent in the wake of a devaluation of the official exchange rate by 21.2 percent. As a result, the spread between the two rates narrowed to 25 percent. Similarly, in December 1990, following a 9.6 percent devaluation of the official exchange rate, the swap rate appreciated somewhat and the spread between the two rates narrowed again to 11 percent. In April 1991, the authorities adopted a managed floating system for the official exchange rate whereby it was adjusted by small amounts at frequent intervals according to unspecified criteria. As a result, the spread between the official rate and the average swap market rate tended to narrow reaching a minimum of 9 percent in early 1992.

Since April 1992, the exchange rates in the swap market have depreciated markedly and, despite the continued adjustments of the official rate, the spread between the official rate and the average swap rate widened to about 30 percent in July 1992. A tightening of credit policy in the fall of 1992 led to a stabilization of the spread at about 25 percent for a few months. However, the swap rates resumed their depreciation toward the end of the year and the spread reached almost 50 percent by February 1993.

Table 1. China: Exchange Rates, 1987-93

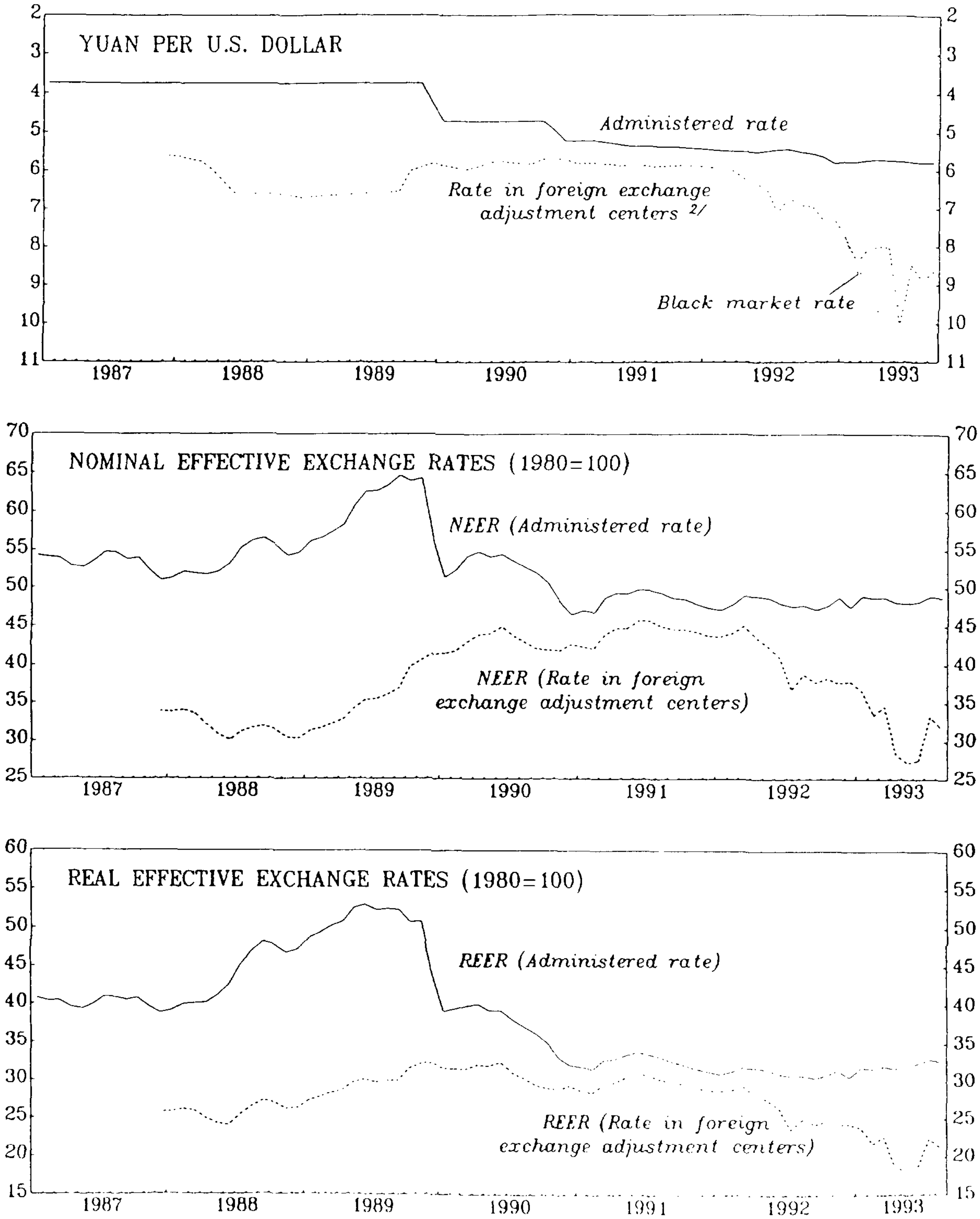
Period	Official Exchange Rate (Yuan/$)	Swap Market Exchange Rate (Yuan/$)	Implied Tax on Exports and Non-Plan Imports (In percent)	Weighted Exchange Rate for Exports (Yuan/$)
1987 - I	3.72	5.25	20	4.39
II	3.72	5.30	20	4.42
III	3.72	5.46	22	4.49
IV	3.72	5.61	23	4.55
1988 - I	3.72	5.70	24	4.59
II	3.72	6.30	30	4.86
III	3.72	6.60	32	4.99
IV	3.72	6.65	33	5.01
1989 - I	3.72	6.65	33	5.01
II	3.72	6.60	32	4.99
III	3.72	6.55	32	4.97
IV	3.89	5.90	24	4.77
1990 - I	4.72	5.91	13	5.24
II	4.72	5.81	12	5.20
III	4.72	5.80	12	5.20
IV	4.97	5.70	8	5.29
1991 - I	5.22	5.80	2	5.68
II	5.31	5.84	2	5.73
III	5.36	5.87	2	5.77
IV	5.39	5.87	2	5.77
1992 - I	5.46	5.95	2	5.85
II	5.50	6.25	2	6.10
III	5.50	7.00	4	6.70
IV	5.70	7.10	4	6.80
1993 - I	5.75	8.05	6	7.59
II	5.72	8.77	7	8.16

Sources: Data provided by the Chinese authorities; and staff estimates.

CHART I

CHINA

DEVELOPMENTS IN EXCHANGE RATE, 1987-93 1/



Sources: Data provided by the Chinese authorities, and staff estimates.

1/ Monthly average; downward movement indicates depreciation of the renminbi.
2/ These centers were established in late 1986.

In early March, the authorities placed a cap on the swap rates and adopted other administrative measures in an effort to prevent the swap rates from depreciating. However, the effect of these measures was to discourage enterprises from selling their foreign exchange which, in turn, led to a sharp reduction in trading in the swap centers. As a result, most deals were struck informally outside the swap centers but the transactions were subsequently registered in the swap centers at the capped rate. 1/ A flourishing black market developed in which the exchange rate continued to depreciate. On June 1, the authorities removed the cap on the swap rates in order to revive the swap market. Almost immediately, the swap rates in most centers depreciated by about 18 percent to a level close to the prevailing black market rate. The depreciation of the swap market rate occurred against the background of strong import growth stemming from rapid economic growth, an investment boom, and trade liberalization initiatives.

In early July 1993, the authorities adopted decisive measures to cool down the economy and to restore order to the financial system. At the same time, the PBC began to intervene in the Shanghai swap center to stabilize the swap rates at around Y 8.5-9 per U.S. dollar. From August to mid-November, there was little or no PBC intervention and the exchange rates in the swap centers stabilized at about Y 8.8 per U.S. dollar reflecting mainly the tightening in monetary policy although there were also reports of some tightening in administrative controls.

1/ Because of the retention quota system, the transactions must be registered in the swap centers in order for retention quotas to be transferred from sellers to buyers.

IV. Factors Affecting the Behavior of Swap Rates

The behavior of the exchange rates in the swap market is influenced to an important extent by macroeconomic developments as indicated above. However, its behavior is also affected by institutional and administrative factors such as the retention system, the foreign exchange plan, the protectionist tendency of local officials, and the exchange and trade regime. These, indeed, seem to have been important factors behind the sharp depreciation of the swap rates and the widening spread with the official rate from April 1992 to mid-November 1993.

1. Retention system

Under the uniform retention scheme, introduced in January 1991, enterprises are allowed to retain 80 percent of their foreign exchange earnings in retention quotas (compared with an average of 44 percent in the prior period). However, of the 80 percent retention, the state has the right to buy back 30 percentage points at the swap market rate. It appears that the state did exercise that right during much of 1991-92. In other words, the state pre-empted 50 percent of export earnings for official purposes; a fraction of the amount acquired by the state was left unused, resulting in a small reserve accumulation. Meanwhile, only 50 percent of the foreign exchange earnings were available in the swap market to finance imports outside the plan. Under these circumstances, it is entirely possible, especially if underlying demand for nonplan imports is very strong, as it was in 1992, that the swap rate depreciates while official reserves are rising.

Another effect of the retention quota system is the incentive it provides for enterprises to speculate against the renminbi at times when the swap market is under pressure. This is because, under the retention quota system, holders of retention quotas have already obtained most of the liquidity in renminbi at the official rate. Hence, the enterprises can afford to wait until the rates are more favorable before selling their quotas thus increasing the pressure on the swap rates.

2. Local protectionism

The swap market is presently fragmented because local officials are reluctant to allow access to their FEACs by enterprises from other centers. As a result, the arbitrage mechanism is weak and the rates in different centers tend to vary because they reflect local supply and demand (Table 2 and Chart 2). This is particularly true in the short run when the swap market is under demand pressure, as happened in 1992. For instance, the differential between the exchange rates for the Beijing FEAC and the national FEAC, both of which are physically located in the same building, was as large as 8 1/2 percent in January 1993. In the longer run, the rates do tend to converge because sellers of foreign exchange have the option to withhold their sales if the rates are not favorable while buyers can wait until rates are more favorable or approach some of the more open centers, such as Shanghai, to purchase foreign exchange.

3. Exchange regime

At present, access to the swap market is still restricted. The restrictiveness of the exchange regime has encouraged many enterprises to

Table 2. China: Swap Market Exchange Rates, 1992-93

(Yuan per dollar, end of period)

Average	National Average	Beijing	Shanghai	Guangzhou	Shenzhen	Tianjin	Chengdu	Nanjing
1992								
January	5.89	5.93	5.92	5.92	5.87	5.46	5.93	5.94
February	5.94	5.92	5.94	5.93	5.91	5.93	5.92	5.93
March	5.96	5.93	6.02	5.95	6.00	5.95	5.98	5.96
April	6.17	6.14	6.25	6.12	6.21	6.14	6.17	6.17
May	6.32	6.24	6.40	6.27	6.38	6.31	6.34	6.27
June	6.41	6.50	6.60	6.46	6.56	6.66	6.45	6.51
July	7.08	6.87	7.48	6.71	7.02	7.21	6.68	7.01
August	6.70	6.86	6.81	6.90	6.93	6.96	7.04	6.91
September	6.90	6.84	6.89	6.88	6.82	6.83	6.80	6.95
October	6.91	6.89	7.02	6.95	6.93	6.97	6.90	7.00
November	7.16	7.16	7.17	7.17	7.14	7.21	7.13	7.22
December	7.30	7.77	7.64	7.30	7.47	7.38	...	7.83
1993								
January	7.54	8.00	8.16	7.35	6.85	7.66	7.42	8.15
February	8.24	8.31	8.26	8.12	8.55	8.46	8.36	8.42
March	8.04	8.03	8.14	8.12	8.11	8.18	8.32	8.23
April	8.00	8.03	8.13	8.03	8.13	8.20	8.19	8.15
May	8.01	8.03	8.12	8.17	8.55	8.19	8.19	8.67
June	10.26	10.20	10.53	10.65	10.20	10.40	10.53	10.80
July	8.48	8.49	8.78	8.73	8.80	9.14	9.19	8.93
August	8.86	8.85	8.81	8.80	8.67	8.85	9.01	8.70
September	8.69	8.80	8.75	8.80	8.56	8.73	8.87	8.79

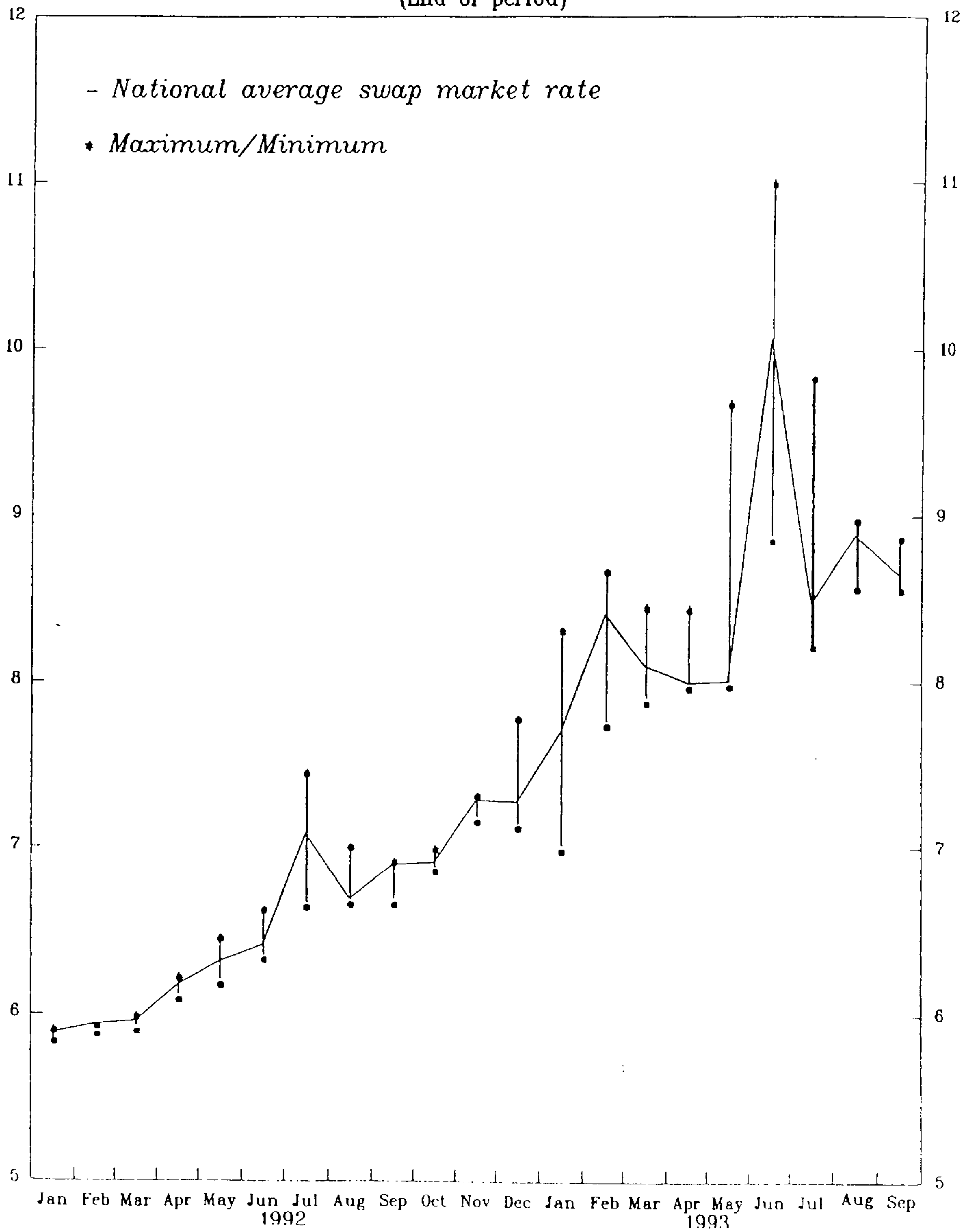
Source: Data provided by the Chinese authorities.

CHART 2

CHINA

DISPERSION OF SWAP MARKET EXCHANGE RATES, 1992-93

(End of period)



Sources: Data provided by Chinese authorities; and staff estimates.

hold their foreign exchange earnings abroad thus reducing the overall supply of foreign exchange to the market. The restrictiveness of the exchange regime is also reflected in the existence of a black market that was particularly active during the first half of 1993 when the authorities imposed a cap on the swap rates.

4. Trade liberalization

In the last two years, the authorities have taken steps to liberalize the trade regime by reducing import tariffs and licensing, abolishing the import surcharge, and eliminating the import substitution list. The liberalization of the trade regime was not accompanied by a more restrictive financial policy and is likely to have led to greater demand for foreign exchange in the swap market because most of the additional imports were likely to have been nonplan imports. Hence, the depreciation of the swap rate during the past year may have also reflected the liberalization of the trade regime.

V. Analysis of Exchange Rate Developments 1/

One of the most important effects of introducing a swap market is to boost the profitability of the export sector by allowing exporters to sell their retained earnings at a rate that is more depreciated than the official rate. This is likely to stimulate exports and thereby increase the supply of foreign exchange. The effective exchange rate received by an exporter is a weighted average of the swap and the official rates where the weights

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1/ For a technical analysis of the exchange regime, see Martin (1991), also summarized in World Bank (1993).

depend on the retention ratios. 1/ One important result of the policy adopted in January 1991 to increase the average retention ratio from an estimated 45 percent to 80 percent is that the swap market rate has become the predominant rate in the calculation of the weighted average exchange rate.

According to Table 1, which shows the official, the swap, and the weighted average exchange rates for the period 1987-92 in yuan per U.S. dollar, the weighted average exchange rate depreciated by about 12 percent from 1987 to late 1989 on account of a 20 percent depreciation of the swap rate and notwithstanding a freeze in the official rate. This depreciation of the weighted average exchange rate contributed to maintaining the competitiveness of the export sector and helped to curb the demand for nonplan imports, particularly in 1988 when the economy was overheated. Although the official exchange rate appreciated in real effective terms by 30 percent from 1987 to 1989, the weighted average index rose by only 18 percent in real effective terms over the same period.

The devaluation of the official rate in November 1989 by 21.2 percent was partially offset by a 13 percent appreciation of the swap market rate; as a result, the weighted average exchange rate depreciated by only

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1/ The effective exchange rate facing an exporter is determined by a weighted average of the official and swap rates as follows:

$$r*eswap+(1-r)*eoff,$$

where r is the retention ratio, eswap the swap center rate, and eoff the official exchange rate. If the marginal retention is higher--as was the case for many exporters--then the marginal exchange rate facing the exporter is correspondingly more depreciated.

5 percent (Chart 3). Similarly, the 9.6 percent devaluation of the official rate in December 1990 was offset by a slight appreciation of the swap rate and the weighted average exchange rate depreciated by 8 1/2 percent. These calculations show that the true effects of the official devaluations were smaller than suggested by the magnitude of the devaluations.

In any event, an important effect of the devaluations was to reduce the implicit tax on exports and nonplan imports and the fiscal subsidies for plan imports. This is illustrated in Table 1, which shows a decline in the implicit tax rate from 32 percent in late 1989 to 8 percent in late 1990. 1/ The subsequent reduction in the implicit tax rate to 2 percent is a reflection of two factors: the devaluation in December 1990 and the increase in the average retention ratio from 45 percent to 80 percent.

From April 1992 to mid-1993, the swap market rate depreciated markedly, leading to a commensurate depreciation of the real effective exchange rate. As noted above, the role of the swap market has been enhanced by the measures adopted in 1991-92 to reform the foreign exchange retention system and to liberalize the trade system. As a result, the swap rate is playing a more important role in macroeconomic adjustment. As Table 1 shows, the strong depreciation of the swap rate led to a widening in the spread between the official and the swap rates causing the implicit tax to widen to about 7 percent in the second quarter of 1993.

1/ The implicit tax is calculated as e.equi - e.wted where e.equi is the equilibrium exchange rate and e.wted is a weighted average of the official and swap rates using the retention ratio as the weights. For details on the actual estimation, see World Bank (1993).

VI. Assessment

The swap market can be viewed as a transitional mechanism for an economy that is in the process of transforming from a system of central planning to one that is market based. Under central planning, the volume and composition of external trade and allocation of foreign exchange were determined by administrative means. The structure of relative prices in the economy bore no relation to international prices; hence, the exchange rate was merely an accounting unit and did not play a role in linking international prices to domestic prices. In such circumstances, it was difficult to determine an appropriate level of the exchange rate. 1/ The swap market has provided a mechanism under which greater scope is given to market forces in exchange rate determination as the price system is undergoing reform.

The swap market has provided a market-oriented mechanism of allocating foreign exchange for imports that are outside the foreign exchange plan. It has also relaxed the foreign exchange constraint for foreign investors wishing to invest in China because they can now satisfy their foreign exchange requirements through the swap market. This has facilitated the large inflows of foreign capital into the services sector during the past year.

In sum, the swap market has (1) contributed to China's strong export performance by raising the profitability of the export sector; (2) curbed import demand during periods of economic overheating; and (3) provided vital

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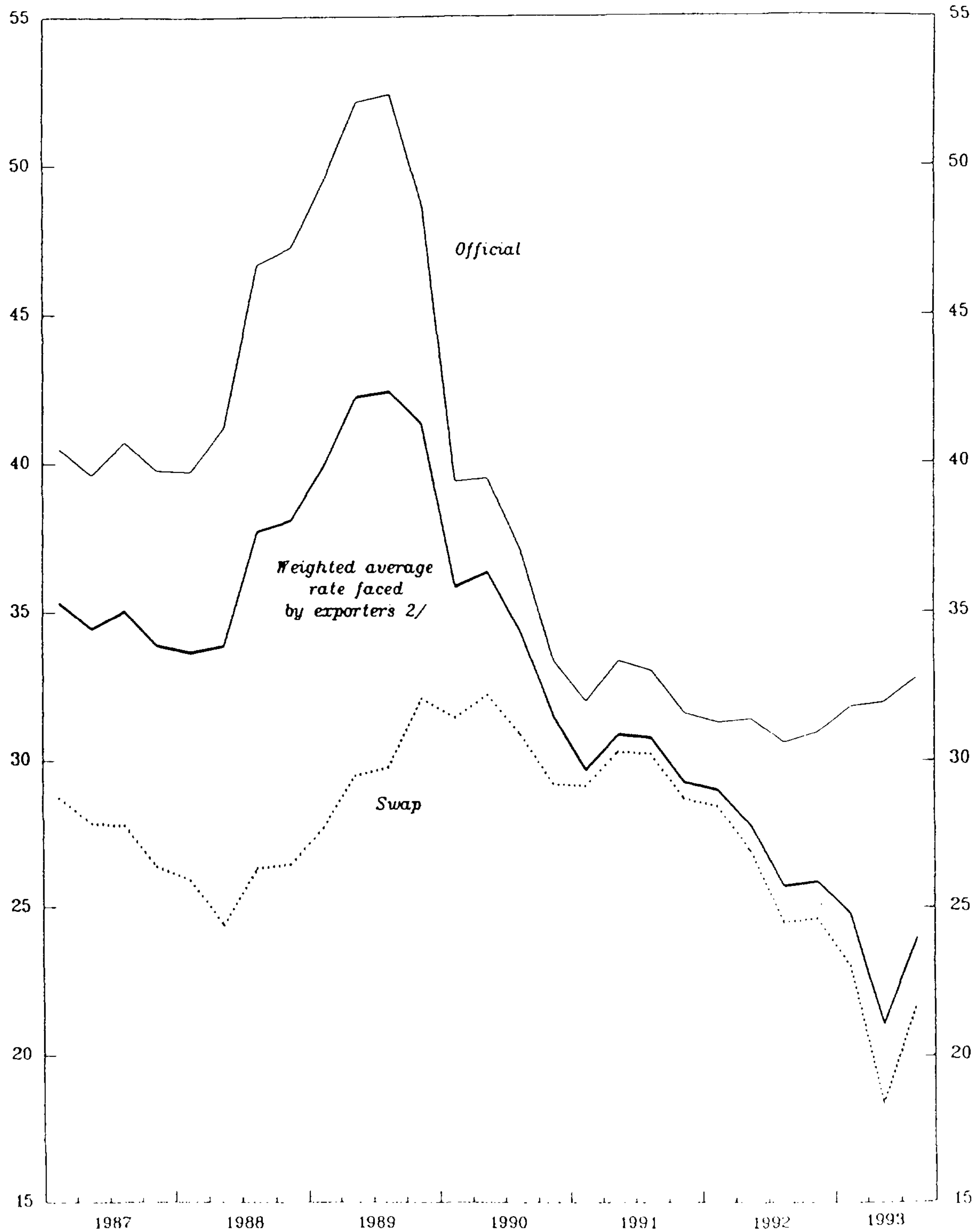
1/ For an elaboration of the argument that the exchange rate is indeterminate in a centrally planned system, see McKinnon (1992).

CHART 3

CHINA

REAL EFFECTIVE EXCHANGE RATES, 1987-93 1/

(1980=100)



Sources: Data provided by the Chinese authorities; and staff estimates

1/ Quarterly average, downward movement indicates depreciation of the renminbi.

2/ The weight attached to the swap market rate corresponds to the retention ratio. It equals 0.44 from 1987 to 1990, and 0.80 from 1991 onwards.

information to aid the authorities in formulating and adopting appropriate macroeconomic policies. With the implementation of reforms in the price and exchange system and the liberalization of the trade regime during the past two years, the swap market has become an integral part of macroeconomic adjustment and the swap rate has become a key macroeconomic variable to be monitored closely. The linkages between the swap rate and monetary policy have strengthened; thus, it is now essential for the monetary authorities to take explicit account of the swap rate in their formulation of monetary policy.

Notwithstanding the increased importance of the swap market, its functioning is still hampered by institutional restrictions. With a view to enabling the market to realize its full potential, the authorities have announced their intention to reform the foreign exchange system with the aim of achieving eventual convertibility of the currency. Their plans include: (1) the establishment of an integrated national swap market; (2) the unification of the official and swap rates; and (3) the replacement of retention in quotas with cash retention.

Some of the additional measures that could be taken to eliminate the existing distortions in the market include:

- Increasing the exporter's retention ratio to 100 percent. This would eliminate the implicit tax on exports and nonplan imports;

- Reducing the requirement for exporters to sell a certain percentage of their retained foreign exchange to the state. This would imply channeling a greater volume of official imports through the swap market;
- Eliminating all restrictions by local authorities on access to their swap centers by enterprises from outside their areas. 1/ This would improve the arbitrage mechanism and facilitate the establishment of an integrated national swap market;
- Allowing greater access to the swap market for current account transactions; and
- Allowing the banks to become dealers in the swap market in order to phase in the interbank foreign exchange market.

1/ As noted above, the SAEC introduced regulations in April to limit local restrictions on the free flow of foreign exchange.

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