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January 4, 1988

To: Members of the Executive Board
From: The Secretary
Subject: Developing Forward Foreign Exchange Markets

The attached paper reviewing members' policies for developing forward foreign exchange markets is circulated for the information of Executive Directors.

It is proposed that a publication of this paper be issued in the Occasional Papers series. The text of the publication will reflect Executive Directors' comments and will delete certain sensitive material. Mr. Quirk (ext. 8520) or Mr. Schoofs (ext. 8531) is available to answer technical or factual questions relating to this paper or to receive any comments by Executive Directors.

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INTERNATIONAL MONETARY FUND

Developing Forward Foreign Exchange Markets

Prepared by the Exchange and Trade Relations Department

(In consultation with other departments)

Approved by L.A. Whittome

December 28, 1987

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I. Introduction

Systems for forward cover against exchange rate risk exist in most Fund member countries, either in the official or the commercial sectors. However, the form of arrangements varies widely from one country to another, with consequences for their economic efficiency and macroeconomic management. *Essentially, there are three forms of forward exchange systems: market-determined with the possibility of official intervention; market-approximating whereby the authorities attempt to set forward rates simulating free market conditions; and provision of official cover and exchange rate guarantees at fixed nonmarket rates.* In practice, the last two forms of arrangement have frequently given rise to government subsidies, with serious consequences in a number of instances for central bank profits, and hence, fiscal budgets and rates of monetary expansion.

A number of industrial countries have in recent years introduced market-determined forward exchange rate systems (Australia, 1983; Finland, 1980; Ireland, 1980; New Zealand, 1983), or have taken major steps to broaden the freedom of access to their forward markets (France, Japan, and Spain). These movements have paralleled similar developments in spot exchange markets in those countries. Only a few industrial countries continue now to limit access to forward markets to certain transactors, and in all the forward rate is market-determined (except in Iceland, which does not have such a market). In the group of developing countries, however, only a few market-determined forward exchange systems have been put in place, either accompanying floating spot exchange systems introduced since 1983, and still embryonic in nature (Jamaica, Nigeria, Philippines, and Zaïre), or in association with financial systems that are relatively well-developed within the group (Brazil, Chile, Indonesia, Jordan, Korea, Malaysia, Singapore, Thailand, and United Arab Emirates). Market-approximating forward systems are also relatively few (Mexico and certain transactions in the Philippines). On the other hand, exchange cover arrangements involving the setting of rates by governments are numerous and longstanding.

In a paper prepared for the Executive Board in 1983 ^{1/} some attention was given to the role of forward cover in alleviating the disruptive effects of currency fluctuations. That study provided a detailed examination of the macro- and microeconomic effects of increased exchange rate volatility, and concluded that facilities for hedging in industrial countries had been generally adequate to offset most of the adverse effects. ^{2/} The fortieth session of the GATT contracting parties took a decision in 1984 which noted that "adjustment of uncertainty over exchange market stability could be more difficult for small traders when hedging opportunities are limited, and for small trading countries and developing countries, inter alia, when the geographical distribution of the trade cannot be easily diversified." ^{3/} Forward exchange markets in certain developing countries were discussed in the context of a recent paper prepared for the information of the Executive Board reviewing floating spot market arrangements in those countries. ^{4/} An earlier version of Chapter II of the present paper was prepared at the request of the Executive Director for an industrial country.

While the benefits of forward exchange markets in offsetting exchange rate risk are widely understood, the extent to which such forward markets have emerged in countries not previously having them, or the extent to which they have been further developed in other countries, has been more limited than might have been expected. In particular for developing countries, discussion of the scope for market-determined forward exchange rate systems has been characterized by much the same concerns previously evinced for market-determined spot arrangements, i.e., lack of depth of financial systems (exchange and credit markets) and the consequent potential volatility of the quotations. In addition, fears have been expressed of greater sensitivity in forward than in spot markets to the presence of exchange controls--given the added risk that foreign exchange may not be available to complete the transaction on maturity. Nevertheless, forward markets have been introduced and are operating in certain developing countries.

^{1/} "Exchange Rate Volatility and World Trade," SM/83/203, and Revision 1, 12/9/83.

^{2/} A study by the New York Federal Reserve Bank in 1984 concluded, however, that exchange rate uncertainty has had in more recent years a significant adverse effect on the volume of trade between the United States and Germany. See "Effects of Exchange Rate Uncertainty on German and U.S. Trade," M.A. Akhthar, and R. Spence Hilton, Federal Reserve of New York, Quarterly Review, Spring 1984. This evidence has been challenged by a more recent study for a larger group of countries: "Effects of Exchange Rate Volatility on Trade: Some Further Evidence," Padma Gotur, Staff Papers, September 1985, Vol. 32, No. 3.

^{3/} General Agreement on Tariffs and Trade, Document L/5761, 12/20/84.

^{4/} Floating Exchange Rates in Developing Countries: Experience with Auction and Interbank Markets; International Monetary Fund, Occasional Paper No. 53, May 1987, pp. 19-20.

This paper is intended to describe and analyse types of forward market systems of varying degrees of sophistication, and to assess them from the viewpoint of a smaller industrial or developing country asking itself how it could institute a forward exchange system, or how it could further develop its existing system in a way consistent with its institutional and macroeconomic structure.

The paper is organized as follows: Section II examines the main features of the systems in the group of industrial countries, including regulation and market instruments. Section III describes and analyzes the more diverse arrangements presently in effect in developing countries. Section IV describes developments in, and the consequences of, various forms of forward systems--noting recent developments toward more liberal regulatory treatment and innovations in market instruments in industrial countries, and responses to the budgetary consequences of certain forms of arrangements in developing countries. It also discusses policies and available techniques for further developing forward markets in both groups of countries. Section V provides a summary of the main issues and conclusions.

II. Arrangements in Industrial Countries

There has always been a desire to avoid the risk associated with trade and economic activity across currency boundaries. An early form of exchange risk hedging in industrial countries was the use of long bills that constituted an asset or liability in foreign currencies; a practice dating back several centuries. With the improvements in financial techniques, genuine forward exchange markets, i.e., markets in which currencies were traded for future delivery, 1/ emerged in the latter half of the nineteenth century in Europe. Since that time, official or unofficial forward exchange trading has taken place whenever exchange rates fluctuated or were subject to significant uncertainty, provided that the authorities did not directly suppress the markets.

Strict control or suppression of forward currency markets in Europe took place during the two world wars. Trading resumed rather rapidly after World War I in 1919, but was prevented after World War II until the early 1950s, in most financial centers other than New York. 2/

Forward exchange markets reduce the risk associated with foreign trade to the extent that importers' demand for and exporters' supply of foreign currency are matched in the market at a given exchange rate, or the risk is shifted to agents who are willing to assume it (speculators). It is well known by now, and formalized in various capital asset pricing theories, that the required return on any

1/ Conventionally, contracts for delivery of foreign exchange by the second business day following the contract date are regarded as spot transactions.

2/ Paul Einzig, A Dynamic Theory of Forward Exchange, p. 5.

transaction is positively related to its level of risk. A reduction in exchange risk will therefore reduce the profit margins required to conduct foreign trade and will thus lower the cost of imports and exports. In 1922, a time of floating exchange rates and active forward markets, Keynes pointed out that the availability of forward cover in markets enabled traders to avoid speculative activities and to concentrate on the trading business, in which they had the expertise. ^{1/} He encouraged central banks of countries that did not have a well functioning forward exchange market to take steps to develop such markets or to provide backup cover to commercial banks in order to get a forward market started. (Specific reference was made to Austria and Romania.) He cautioned, however, that central banks should avoid carrying exchange risk and should cover their open positions in the spot markets.

Capital movements are much larger today than during the interwar period. The covering of exchange risks related to capital account transactions has therefore become a more important function of the forward exchange markets. A debtor would wish to cover the cash flow of his debt service payments as well as to limit his overall liability position in terms of domestic currency. The existence of forward exchange markets encourages potential borrowers and lenders to engage in foreign currency contracts, and improves the access of residents to foreign financing. Forward exchange markets play an especially important role in the management of the foreign exchange exposure of corporations operating internationally. ^{2/} From a private investor's point of view, forward contracts expand the choice of instruments for portfolio investment. As a consequence, investors can improve the risk return structure of their asset holdings and improve their intertemporal welfare.

On a broad macro-economic level, forward exchange rates may be seen as allowing interest rates to differ between countries, even under conditions of capital mobility. The forward differential will tend to compensate for interest rate deviations. Furthermore, the forward rate may serve as an indicator of the future movement of the spot exchange rate. Since a frictionless functioning of the forward exchange market depends on the existence of well-functioning spot exchanges and short-term financial markets, and requires a degree of freedom of cross border capital movements, the forward currency market will also have a catalytic effect on the efficiency and sophistication of other components of the financial system.

The positive effects of forward markets on trade and capital transactions in particular are clearly appreciated by the authorities of many countries. This is evident from the fact that industrial countries

^{1/} J.M. Keynes, *A Tract on Monetary Reform*, Chapter 3.4.

^{2/} See Boris Antl (ed.), *Currency Risk and the Corporation*, London, 1980.

have generally kept the forward exchange markets functioning effectively with a minimum of regulation, at least for cover of commercial transactions and debt service payments. When such markets have not existed, forward cover facilities have generally been made available. However, nonmarket forward cover schemes, usually provided by the central bank, have been problematic because the exchange risk has often been borne by the central bank, resulting in heavy budgetary losses at times.

In characterizing official arrangements for forward markets, the following are the major parameters:

Is entry to the forward market limited to certain forms of transactions (e.g., trade-related)? What are the available maturities? Is entry limited to certain transactors (e.g., banks or residents)? What foreign currencies are the facilities available for? Do the authorities intervene either to influence or to fix the forward exchange rate?

1. Coverage of transactions

There are three major categories of forward exchange market transactions, and some market arrangements provide facilities for only one or two of these. The most basic market provides cover for commercial transactions only. This to a significant degree characterizes arrangements in Austria, Denmark, Finland, France, Ireland, Norway, Spain, and Sweden, and for access by residents in Italy (Table 1). A second form of market also provides cover for interest arbitrage transactions. When transactors wish to move funds from one country to another in order to maximize yields on financial investments, while wishing to avoid exchange risk, they are likely to require cover for their spot exchange transactions. Commercial banks are often permitted to engage in interest arbitrage within their spot against forward limits, even in relatively tightly regulated markets, whereas nonbanks are prevented from shifting funds in this manner. A third type of forward market also enables transactors to take open positions of a purely speculative nature. The main difference between this form of activity and the two described above is that there need not exist underlying commercial or financial transactions.

Comprehensive and free forward markets in which all three forms of transactions may be undertaken by banks and nonbanks exist in many industrial countries (Australia, Belgium, Canada, Germany, Japan, Netherlands, New Zealand, Switzerland, United Kingdom and the United States).

2. Maturities

In a fully developed forward market, the maturity structure would be expected to reflect the maturities of other instruments in both the domestic and other major financial markets, operating through arbitrage

and the interest parity condition. In some countries, official limitations are placed on maturities of forward exchange transactions. In Ireland, Spain, and Sweden (for authorized financial transactions) the maximum permissible maturity is 12 months, in Austria and Italy it is 18 months, and in Denmark it is 3 years. Forward exchange contracts involving some major currencies are available in those countries for maturities of up to 5-10 years (U.S. dollars, pounds sterling, Canadian dollars, deutsche mark, Netherlands guilders and Swiss francs). Transactions involving other currencies, or transactions with longer maturities in the major currencies must be negotiated. However, such contracts tend to be quite exceptional (and expensive), even in markets with no official restrictions on maturities. In most instances, published quotes are available for up to one year, with maturities up to six months being more heavily traded. Pricing in the long-term forward market is also somewhat indeterminate, because the techniques used for pricing in the short-term markets based on arbitrage between Eurocurrencies and foreign exchange markets are not fully applicable for there is more than one way of calculating arbitrage in multi-period situations. ^{1/}

Although denomination of export and import contracts in the domestic currency of one party may relieve the uncertainty for that party over the duration of the contract, such an arrangement may not be acceptable to the foreign partner, to whom the risk is transferred. Maintenance of value clauses in contracts and similar methods of allocating currency risk between the parties also have the drawback, relative to hedging in forward markets, that the risk is not spread through the banking system to permit lower premia. Larger multinational corporations may also hedge risk by spreading their real and financial assets geographically and between currencies. But this is not the case for smaller or more locally-oriented businesses. The decision whether or not to expand production capacity for export, or to establish long-standing customer relationships for imports, may suggest a demand for cover extending over many years. However, even in the case of the more advanced industrial countries, such cover is typically available only on a limited basis.

There are several possible reasons why the maturities available in forward exchange markets have not been extended into longer maturities to the extent generally envisaged at the outset of generalized floating, despite the very long-term nature of some investment decisions. The first lies in the purchasing power parity view of long-run exchange rate determination. Importers and exporters with longer-term contracts or investments may rely implicitly on movements in the spot exchange rate to offset prospective changes in the domestic purchasing power of their foreign receipts. Another reason may be that much of the longer-term trade, international investment, and financing decisions are undertaken

^{1/} "Long-Term Forward Contracts." in Swap Financing Techniques, Boris Antl, ed. Euromoney Publications Limited, 1983, pp. 41-51.

Table 1. Industrial Countries: Main Features of Regulations
Affecting Forward Markets as of December 31, 1986

	Transac- tions Covered	Access Restrictions	Underlying Transaction Required	Official Maturity Limit	Approval Requirements by Type of Transaction	Restriction by Currency	Policy of Official Intervention	Direct Regulation of Forward Rate
Australia	Commercial Financial	No No	No No	No No	No No	No No	No No	No No
Austria	Commercial Financial	Yes Yes	Yes Yes	18 months 18 months	No Yes <u>4/</u>	No No	No No	No No
Belgium/ Luxembourg	Commercial Financial	No <u>1/</u> No	No <u>1/</u> No	No No	No Yes	No No	No No	No No
Canada	Commercial Financial <u>2/</u>	No No	No No	No No	No No	No No	No No	No No
Denmark	Commercial Financial	Yes Yes	Yes Yes	36 months <u>3/</u> 36 months <u>3/</u>	No Yes <u>4/</u>	No No	No No
Finland	Commercial Financial	Yes Yes	Yes Yes	No No	No Yes	No No	Yes Yes	No No
France	Commercial Financial	Yes Yes	Yes Yes	No No	No Yes <u>4/</u> <u>5/</u>	No No	No No	No No
Germany	Commercial Financial <u>2/</u>	No No	No No	No No	No No	No No	No No
Iceland	No forward market	--	--	--	--	--	--	--
Ireland	Commercial Financial	Yes Yes	Yes Yes	12 months 12 months	No Yes	No No	Yes Yes	No No
Italy	Commercial Financial	Yes Yes	Yes Yes	18 months 18 months	No Yes	No No	No No	No No
Japan	Commercial Financial <u>2/</u>	No No	No No	No No	No No	No No	No No	No No
Netherlands	Commercial Financial	No No	No No	No No	No No	No No	No No
New Zealand	Commercial Financial	No No	No No	No No	No No	No No	No No	No No
Norway	Commercial Financial	Yes Yes	Yes Yes	No No	No Yes	No No	Yes Yes	No No
Spain	Commercial Financial	Yes Yes	Yes Yes	12 months 12 months	No Yes <u>4/</u>	Yes <u>6/</u> Yes	
Sweden	Commercial Financial	Yes Yes	Yes Yes	No 12 months	No Yes <u>4/</u>	No No	No No
Switzerland	Commercial Financial <u>2/</u>	No No	No No	No No	No No	No No	No No
U.K.	Commercial Financial <u>2/</u>	No No	No No	No No	No No	No No	No No
U.S.	Commercial Financial <u>2/</u>	No No	No No	No No	No No	No No	No No	No No

Source: Appendix I.

- 1/ Restrictions apply to the official market.
2/ Forward cover for financial transactions is substantial.
3/ Restriction applies only to contracts involving Danish kroner.
4/ Payments on authorized loans and credits may be covered freely.
5/ Transactions in commodity futures markets may be covered freely.
6/ Currencies admitted to Madrid foreign exchange market plus ECU.

by large multinational corporations, which because of the diversity of their transactions may be able to balance their real and financial portfolios so as to minimize exchange rate risk internally. The dearth of longer maturities may also stem from the character of institutional arrangements in the long-term forward market; transactions tend to be of a barter nature, owing to the increased risks associated with longer maturities. Barter-type arrangements may not be conducive to rapid market growth because, as the maturities lengthen, the possibilities for matching transactions bilaterally with a significant degree of temporal accuracy become smaller. Banks may face considerably higher costs if they no longer act as brokers only. Yet another possible reason is the intrinsically smaller volume of long-term trade transactions. Trade financing, which accounts for a large proportion of forward markets activity, is typically short-term, in the range of 60-120 days. The bulk of interest arbitrage and speculative activity may have an even shorter time horizon.

3. Limitations on transactors, currencies, and rates

Entry limitations according to the type of transactor generally distinguish between three groups: banks, nonbank residents, and nonresidents. Cover for commercial transactions is not, by its nature, restricted in any country to interbank transactions. However, cover for some financial transactions in Finland, France, Spain, and Sweden is limited to transactions between resident banks. As for the currency coverage of forward transactions, this is generally restricted in practice to the exchange of domestic for foreign currencies that are convertible. The reason is that, where currencies are subject to restriction, the delivery at a future date becomes uncertain, because it may be blocked by actions of the authorities. A further possible reason is that the existence of restrictions on flows of the foreign currency may make it difficult to ascertain the appropriate forward discount or premium, because the interest parity condition will no longer hold with any precision.

No industrial country presently sets the forward exchange rate directly, although rates are subject in some to intervention to affect supply and demand in the market. ^{1/} Australia, Finland, Ireland, and New Zealand managed forward rates prior to liberalizing forward markets in recent years. As noted above, in the more regulated markets the most common restriction on entry refers to the need for underlying commercial transactions. Where the forward rate was managed in the past, this was almost always accompanied by restriction to commercial transactions. Management of the rate was seen as dampening speculative influences on the market from abroad. It was also consistent with participation on

^{1/} There is an extensive literature on the role of forward market intervention in exchange rate management. See, for example, William H.L. Day, "The Advantages of Exclusive Forward Exchange Rate Support," Staff Papers, March, 1976, Vol. 23.

the part of the central bank in the forward market, by which it assumes some of the administrative and other costs, and therefore might see the provision of cover to some extent as a "benefit" to be kept to the real sector.

4. Effects of financial sector regulation

An important impediment to forward market development results from the presence of exchange controls. Where transactors are unable to substitute assets on a spot basis in response to expected exchange rate movements, the supply of and demand for assets in the forward market may be distorted. This may tend to result in disequilibrium in the forward market and a consequent drying up of two-way transactions. As can be seen from Table 2, exchange controls remain in a number of industrial countries, and there is a close correspondence between the existence of exchange controls on current or capital transactions, and regulations on forward market operations (Austria, Denmark, Finland, France, Ireland, Italy, Norway, Spain, and Sweden). There is also a correspondence between such controls and arrangements for determining exchange rates. Members with floating rates and those participating in the EMS arrangements are more likely to be free of forward market restrictions. At one end of the spectrum, Iceland, which has no forward exchange market, maintains exchange controls on current and capital transactions.

The nature of the domestic money markets will also affect the efficiency of an unregulated forward market owing to the role of the interest rate differential in determining the equilibrium forward rate. Activities of arbitrageurs ensure considerable interdependence in the process of rate determination between foreign exchange markets and domestic money markets. Where there is insufficient interest rate flexibility or credit rationing in the domestic market, or in a major competing money market abroad, forward premia and discounts may take on a degree of unrealism as an indicator of future spot exchange movements. In such circumstances, as in the presence of exchange restrictions, the market will tend to become inefficient.

5. Market instruments

A 1982 survey by the Group of Thirty established that the cost of doing international business was perceived by bankers as having been raised by exchange rate instability under floating rates.^{1/} However, pegging the spot exchange rate of a smaller currency, or allowing the spot rate to float in a sticky fashion, would not obviate effects of this instability. One reason is that major currencies other than the peg currency will fluctuate in the short run against the domestic currency. Moreover, differential inflation developments in the domestic

^{1/} Foreign Exchange Markets Under Floating Rates, Group of Thirty, 1982, pp. 33-36.

Table 2. Industrial Countries: Main Features of Exchange Systems ^{1/}
(As of end-December 1986)

	Spot Exchange Arrangements Other than Independently Floating or EMS	Prescription of Currency	Bilateral Payments Arrangements	Payments Restrictions ^{2/}		Cost-related Import Restrictions		Surrender Requirement for Export Proceeds	Forward Exchange Markets Restrictive or Unavailable
				Current	Capital	Import Surcharges	Advance Import Deposit		
Australia	-	-	-	-	-	-	-	-	-
Austria	*	-	-	-	*	-	-	-	*
Belgium	-	*	-	-	-	-	-	*	-
Canada	-	-	-	-	-	-	-	-	-
Denmark	-	-	-	-	*	-	-	*	*
Finland	*	*	*	-	*	-	-	-	*
France	-	-	-	-	*	-	-	*	*
Germany	-	-	-	-	-	-	-	-	-
Iceland	*	-	-	*	*	*	-	*	*
Ireland	-	-	-	-	*	-	-	*	*
Italy	-	-	-	-	*	-	-	*	*
Japan	-	-	-	-	-	-	-	-	-
Netherlands	-	-	-	-	-	-	-	-	-
New Zealand	-	-	-	-	-	-	-	-	-
Norway	*	-	-	-	*	-	-	*	*
Spain	*	-	-	-	*	-	-	*	*
Sweden	*	-	-	-	*	-	-	-	*
Switzerland	-	-	-	-	-	-	-	-	-
United Kingdom	-	-	-	-	-	-	-	-	-
United States	-	-	-	-	-	-	-	-	-

Source: Annual Report on Exchange Arrangements and Exchange Restrictions, 1987; and national authorities.

Note: * indicates that the specified practice is a feature of the exchange and trade system.
- indicates that the specified practice is not a feature of the system.

^{1/} Classifications as per Annual Report on Exchange Arrangements and Exchange Restrictions.

^{2/} Restrictions (i.e., official action directly affecting the availability, use, or cost of exchange as such, or involving undue delay) on payments to member countries, other than restrictions imposed for security reasons under Executive Board Decision No. 144 adopted August 14, 1952.

and foreign markets, also in the short run, create another form of instability--in variations in purchasing power or asset revaluation resulting from the underlying contracts or otherwise unalterable arrangements entered into, that may create expectations of currency realignment. Consequently, the survey found that forward exchange market volume had increased greatly since the onset of greater exchange rate instability in the mid-1970s, and a wide number of instruments have evolved in this context.

a. Outright forward contracts

The outright forward foreign exchange market enables market participants to enter into agreements on foreign exchange transactions to be effected at specified times in the future. The core of forward markets is formed by interbank markets in forward transactions, with a substantial proportion of contracts involving the services of brokers operating on a commission basis. The size and maturity of a forward contract are negotiated between the buyer and seller, and forward exchange rates are generally quoted for 30, 60 or 90 days, or six, nine or twelve months from the date the forward contract is written. The forward contract stipulates the exchange rate at which the transaction is to be carried out at maturity and thus covers the parties against exchange rate changes intervening until maturity. Since participants in the interbank market usually maintain credit lines with each other, no upfront margin deposits are required against the risk involved in the liability associated with a forward contract.

Commercial customers generally do not have direct access to the interbank forward market and obtain forward cover from a bank, although large corporations with well-established credit ratings may be able to enter the interbank market through a brokerage firm or a bank acting as a broker. Because of the risk of nonperformance, banks usually require established relationships with a customer before entering into a forward contract. They may charge the customer an open commission or set a wider spread between buying and selling rates. Because forward contracts do not generally require payments before maturity (except where a commission is due at the outset), market participants do not experience any loss in liquidity.

Since an agent can, as an alternative to purchasing foreign exchange forward at the current forward rate, purchase foreign exchange in the spot market at the current spot rate and deposit the amount of foreign exchange proceeds for the same period as the forward contract with a bank, such arbitrage transactions should ensure that the deviation of the forward rate from the spot rate is, in the absence of exchange controls, taxes, or political risks, equal to the interest differential between the respective currencies--apart from a margin of indeterminacy resulting from transaction costs. The deviation between forward and spot rates may represent either a premium or a discount on the domestic currency, depending on the sign of the interest differential: if the domestic interest rate exceeds the foreign interest

rate, the domestic currency will be at a forward discount, and conversely. However, restrictions on financial capital movements or surrender requirements may prevent agents from holding foreign currency deposits or obligations, and thus distort the "covered interest parity" relationship. Transaction costs for the banks and dealers providing the services, taxes, and political risks also cause deviations from covered interest parity (relatively regular deviations in the former instance).

b. Swaps

The traditional form of currency swap generally denotes a combination of a purchase (sale) in the spot market and an offsetting sale to the same party (purchase) in the forward market; but it may sometimes refer to offsetting transactions at different maturities, or combinations of both.

Currency swaps are frequently combined with credit transactions as an instrument to exploit interest arbitrage possibilities while simultaneously hedging against the exchange risk associated with credit operations in foreign currencies. For example, a trader may have easier access to foreign credit markets and borrow a certain amount abroad to purchase a required amount of domestic currency in the spot market. At the same time, he engages in a forward contract to purchase the amount of foreign exchange he is obliged to pay (principal plus interest) at maturity of his credit. Currency swaps are frequently used by banks and multinational corporations to match the structure of their currency holdings or obligations to the expected payment flows in the respective currencies in order to limit their exposure to exchange rate risk.

Recently, a new form of currency swap has emerged. Instead of operating in the forward market, a domestic company may sell a certain amount of foreign currency to a foreign company and simultaneously enter into an agreement to reverse the transaction at a certain future point in time, at the same spot rate underlying the initial transaction. Usually, this kind of swap occurs in the framework of a credit swap agreement. For instance, a foreign company operating in the domestic market may not be able to obtain a loan in the domestic market while finding easy access to the respective foreign credit market. It may, therefore, decide to borrow abroad and to sell the proceeds to a domestic company in need of foreign exchange. At the same time, the parties agree that the foreign company repurchases the respective amount of foreign exchange at the initial exchange rate when its credit contract matures. Interest differentials are usually accounted for by payments from the party in the lower interest country to the party in the higher interest country, and depending on the maturity, interest payments may be made at several intervals over the contract period. In order to limit the exchange risk, the parties may agree on a topping-up clause, which provides for additional payments if the exchange rate moves beyond certain limits. Alternatively, instead of selling and repurchasing the respective currencies at different points in time, the

companies may agree to lend the respective currencies to each other for a certain period (parallel loans).

c. Futures

A currency futures contract is a standardized contract establishing a binding obligation to buy or sell a particular currency at a designated exchange rate on a specific future date (as against after a specific interval in the case of forward contracts). ^{1/} The futures market is organized in such a way that members of a futures exchange openly trade futures contracts of a standardized size for standard maturity dates. ^{2/} Payments associated with futures contracts are handled separately by a clearing house. Once a contract is struck, the clearing house interposes itself between buyer and seller and becomes the counterparty to both sides of a contract. Consequently, the clearing house absorbs the full credit risk from the market and only the exchange risk is left with seller or buyer. Exchange houses act solely as brokers and charge sellers and buyers a fixed commission for each deal, which covers the cost of entering into a contract and of terminating it.

Unlike forward contracts, which establish ownership with regard to the contracted amounts, futures contracts do not constitute any ownership, but only an obligation to buy or sell a fixed amount at a fixed date at the specified rate. In recognition of default risk, the clearing house requires traders to put up a deposit called "initial margin," in order to ensure that the terms of the contracts are respected by the traders. This initial margin is set by the clearing house and varies between 0.1 and 3 percent of the contract value. At the end of the business day the clearing house calculates the gains or losses experienced by market participants as a result of changes in the value of their respective futures contracts; these gains or losses, called "variation margins" are added to or subtracted from the futures margin accounts market participants are required to hold with the clearing house. If, as a result of a loss, the initial margin deposited is reduced and falls short of a minimum maintenance balance, traders are required to top up their accounts to the initial balance.

Futures markets allow traders to match foreign exchange payments or receipts at an uncertain date in the future with corresponding obligations in the futures market, because traders can close out their obligations in the futures market by an offsetting sale or purchase on

^{1/} Futures exchanges exist in Chicago (CME, Midam), London (LIFFE and IMM), New York (NYCE), Toronto, Auckland, Sydney, and Singapore (SIMEX).

^{2/} Maturities fall (with the exception of holidays) on the second Wednesday of March, June, September, and December on the LIFFE and on the IMM in London and Chicago, and on the third Wednesday of March, April, June, July, September, October, and December in the Chicago exchange.

any business day before maturity. In practice, more than 95 percent of futures contracts are closed out by offsetting contracts, and only a small fraction of contracts dealt is settled through actual delivery at maturity.

In contrast to outright transactions in the forward market, the system of commissions and margins may involve a substantial cost in terms of liquidity over the duration of a futures contract, as futures prices tend to be highly volatile. It has been suggested that, when brokerage commissions are added to bid-ask spreads, the cost of foreign exchange futures may be higher than that of forward transactions. However, cost comparisons are difficult to make because of differences in the services provided. ^{1/} Because of their standardization, and their high liquidity, futures are often more attractive to small participants, which do not have access to the open forward market, and large-scale operators may find futures more attractive than tailor-made forward contracts, because they offer a higher degree of flexibility and anonymity.

d. Options

Currency options give the holder the right to buy (call option) or sell (put option) a currency at a given price at any date until the option expires, but do not oblige the holder to exercise this right. As in the futures market, option contracts are typically standardized in size and with respect to their expiration dates. ^{2/}

The buyer of an option pays a premium to the option writer. This premium is defined per contract and depends inter alia on the exchange rate at which the option may be exercised (exercise or strike price). These strike prices are standardized as well, and at any point in time options are traded at a range of strike prices which are set at intervals above and below the current spot rate. The system of strike prices allows option buyers to choose the extent to which they want to limit their market risk.

As the writer of a currency option is exposed to an unlimited market risk, he is required to put up a margin, which is set by the exchange according to whether the option would provide the buyer currently with a profit or a loss when exercised. Currency options enable the buyer to limit his market risk when it is uncertain whether

^{1/} See "The Rise of the Foreign Currency Futures Market," Norman S. Fieleke, New England Economic Review, March/April 1985.

^{2/} Options are traded in Chicago (CBOE, CME), London (LIFFE), Amsterdam, Montreal, Philadelphia, Sydney, and Vancouver (also in Bangkok and Singapore). The expiration date, which is the last day an option may be exercised, is set as the last Saturday before the settlement date, which is the third Wednesday of March, June, September, and December, respectively.

or when he will actually make a foreign transaction in the future, or, alternatively, when he has a strong opinion about future currency movements. The premium for a currency option represents the cost at which he can insure himself against the risk resulting from exchange rate fluctuations. 1/

e. Range forward options

Range forward options typify a number of more sophisticated market instruments that have been developed recently (see Section IV for further discussion). They are offered by a large number of investment and commercial banks to provide the buyer with the possibility of limiting his potential exposure to exchange rate risk to a margin around a specified rate. A range forward contract defines a floor and a ceiling for the exchange rate, beyond which the buyer may exercise his option to buy or sell foreign exchange; within the range, which represents the risk that the transactor is prepared to absorb himself, the exchange rate is simply the spot rate at maturity. As range forward contracts are constructed by combining the sale of a call option and the purchase of a put option (or vice versa) in such a way that the net premium amounts to zero, bank customers are not required to pay a premium when entering into a contract, while the banks usually profit by offering a smaller range to the customer than the range they obtain in the exchange.

III. Arrangements in Developing Countries 2/

In the group of developing countries, there exist only a few forward exchange markets in which forward cover is provided to the private sector under competitive conditions by commercial banks. In some cases, these markets have been introduced in association with floating spot exchange systems and are at an early stage of development (Jamaica, Nigeria, Philippines, and Zaïre). In other cases, forward markets have arisen in association with relatively advanced financial systems or relatively free exchange systems, or both (Brazil, Chile, Indonesia, Jordan, Korea, Malaysia, Singapore, Thailand, and the United

1/ For an extensive discussion of options strategies see Recent Innovations in International Banking, Bank for International Settlements, April 1986, Chapter 3.

2/ Available information relating to forward exchange markets in developing countries is not exhaustive. The Annual Report on Exchange Arrangements and Exchange Restrictions has in recent years contained descriptions of forward practices for an increasing number of developing countries, and further extension of coverage is planned. As a basis for improving the information base in the Report, the staff intends to contact the relevant authorities in member countries. The expanded and improved data would be included in the 1988 edition, compilation of which commences in January 1988.

Arab Emirates). Much more numerous in developing countries are forward cover facilities either provided by the commercial banking system on terms that are officially regulated (and supported by official forward cover facilities provided to the banks), or provided directly to the private sector and public sector enterprises by the central bank or some other official institution. In such cases, access to forward cover is usually restricted either to traders or to rescheduled liabilities to foreign creditors. In some cases, official forward cover is provided at terms that are designed not to be loss making, or are intended to simulate the terms that a free market would offer. Examples are schemes for exchange cover of private sector debt service payments in Mexico and the Philippines, and cases where official cover is provided at forward premia which deliberately approximate international interest differentials, so that covered interest parity holds as in free markets without exchange or credit controls, or political risk (although, as discussed below, such an approach will generally result in losses). In most instances, official forward premia have been fixed for long periods without reference to market conditions, or have entailed deliberate subsidies from government budgets.

Even if forward cover is provided at estimated "commercial" terms, a central bank which sells forward foreign exchange to an importer or debtor will stand to make losses if the domestic currency depreciates over the period of the forward contract by more than the forward discount implicit in the contract, unless the central bank closes its position by simultaneously buying spot or forward exchange. Since central banks (unlike commercial banks) have tended not to close their positions in this way--largely because of the absence of a sufficiently developed domestic market in which to lay the risks off, or because of reserve constraints and the desire to avoid consequent pressure on the spot exchange rate which would result from such operations--forward exchange losses have been common. They have been much more common than profits because of the typical combination of a depreciating currency with a preponderance of official forward sales (over purchases) of foreign exchange.

Although the institution of forward arrangements may impose initial resource costs on the central bank, there are important benefits that flow from such a market. The first is the increase in efficiency and reduction of mark-ups on imported goods through the lessened exposure to exchange rate risk. The second is some improvement of the investment climate, by providing a more stable environment for investors with protection against short-term (but not longer-term) exchange risk. A third benefit is to lower the foreign currency working balance requirements of traders, thus improving overall availability of foreign exchange. A fourth is that the arrangements will encourage importers to access foreign sources of financing, thus providing further support to the balance of payments. To take the example of agricultural investments which take place over a season, and whose receipts are realized only at a later date, spreading the risk over time through the banking system may help promote the necessary annual investments in

cropping and cultivation. Another lag occurs when the produce is being marketed abroad--here again the forward exchange market would help eliminate this form of risk to the trader and spread it through the banking system. The lowering of working balance requirements may take the form both of lowering balances in banks, which are then utilizable by the economy (in the sense that they are available as a support for its creditworthiness), or, alternatively, they may influence the repatriation of balances held abroad by residents. In either way the forward market could contribute to the reversal of capital flight.

The exchange losses (or profits) resulting from official action in operating nonmarket cover schemes may have implications for the Fund's jurisdiction under Article VIII, Section 3. Multiple currency practices have arisen because the spot transaction that takes place to consummate the forward contract may involve an effective exchange rate that gives rise to a spread of more than 2 percent between buying and selling rates. The existence of such a practice requires that the spread results from action by a member or its fiscal agencies of itself, and "differs unreasonably from those that arise from the normal commercial costs and risks of exchange transactions." ^{1/} Since the 1981 decision, several official exchange rate guarantee and cover schemes have been found to be multiple currency practices. The Fund has been cautious in exercising jurisdictional judgments as to whether or not the official losses are commensurate with normal commercial practice in this area. Practices that appear to involve jurisdiction have therefore often been subject to surveillance over several Article IV consultation cycles with the members, and the staff reports have in the meantime referred to the likelihood or possibility of a multiple currency practice. In this interim period the Fund has recommended steps that members might take to avoid subsidization--either in the context of Article IV consultations or of economic programs supported by the use of the Fund's resources.

1. Exchange rate guarantees

The predominant form of forward exchange arrangements in developing countries involves an exchange rate guarantee provided, directly or indirectly, with official resources. In most instances the guarantee is provided for a fee, but in some (e.g., Costa Rica before 1983) the guarantee is for the exchange rate prevailing at the time that the guarantee is provided, without charge for the service. The guarantees are in some instances obtainable directly from the central bank (Argentina, Malta before 1981, and Mauritius), but in others they are administered, at a spread, by the commercial banking system (Table 3).

Transactions eligible for official forward cover of this variety generally involve repayment of suppliers' credits for imports (Pakistan) and provision of financing to domestic exporters (India). On occasion, the guarantees have also been applied by the Government to debt service

^{1/} Executive Board Decision No. 6790 (81/43), March 20, 1981.

payments (Argentina, Costa Rica, Mexico, the Philippines, and Venezuela), mainly at the behest of creditor groups who have wished to ensure both the commercial and sovereign viability of obligations being rescheduled.

On the other hand, forward cover is not normally requested for export receipts. One reason for this is that in many of the countries the domestic currency has been expected to depreciate by more than the available managed forward premium, so that exporters have been content to take the exchange risk. In fact, in many instances the Government has attempted to take advantage of the additional local currency equivalent of the depreciation through the institution of foreign exchange surrender requirements which limit the extension of suppliers' credits. There is no known case of exporters obtaining at the time of surrender, e.g., the exchange rate at the subsequent time of customs clearance or expiration of the export credit period.

An implicit rationale for forward cover provided to importers at a noncommercial or zero fee is that it is often viewed as promoting the overall availability of foreign financing to the economy through the trade credits made available to eligible importers. However, there is subsidization involved, because the net gain to the importer in obtaining risk insurance at zero premium is ultimately at the expense of the budget. Where a small fee is charged, the tendency has been for the fee to have been inadequate compared to reasonably expected, and actual, movements of the spot rate--thereby resulting in a cumulating loss to the central bank. 1/

2. Market-approximating forward exchange rates

In several developing countries attempts have been made to approximate the workings of a market system of determining forward exchange rates, while retaining official regulation of the forward premium or discount. Relatively sophisticated versions of such schemes were introduced by Mexico in 1983 (FICORCA) and by the Philippines in 1985. In both instances, eligibility for participation was restricted to the servicing of debt outstanding at the time of rescheduling, and the schemes involved relatively long periods of cover for the obligations--in fact, longer forward maturities than are usually available even in forward markets of the industrialized countries.

1/ Under one of the two major equilibrium conditions for the forward exchange rate, if the actual movement of the spot rate over the period of the contract is greater than the forward premium (expected spot movement at the time of contract) then there is a central bank loss, and otherwise a central bank profit. For further discussion of the experience with these losses, and their relationship to other macroeconomic policies, see Section IV below.

Table 3. Summary Features of Forward Exchange Systems
in Selected Developing Countries

	Cover by Private Sector		Cover Provided by Official Agencies to			Forward Cover Provided by or Through Banks
	Unregulated Rates	Rates Regulated	Banks	Traders	Debtors	
Argentina	x <u>1/</u>		x	x	x	x
Bangladesh		x	x		x	x
Brazil	x					
Chile	x					
China		x				x
Costa Rica				x	x	
Egypt				x <u>2/</u>		
Hungary				x		
India		x	x	x		x
Indonesia	x		x			x
Israel				x		
Jamaica <u>4/</u>	x					
Jordan	x			x <u>3/</u>		x
Kenya		x	x			x
Korea	x		x			x
Malaysia	x		x			x
Malta		x	x	x <u>2/</u>		x
Mauritius				x	x	
Mexico					x	
Morocco			x			
Nigeria	x					x
Pakistan		x	x		x	x
Philippines	x		x		x	
Singapore	x					x
South Africa	x		x			x
Sri Lanka	x		x			x
Thailand	x					
Turkey					x	
United Arab Emirates	x		x			
Uruguay		x				x
Venezuela					x	
Zaire		x				x
Zimbabwe		x				x

Source: Appendix II.

1/ Parallel (not officially recognized) market.

2/ Provided only to public sector agencies engaged in trade in special circumstances (not being utilized in Egypt).

3/ Central bank provides forward cover to banks only for corporations or projects of vital national interest.

4/ Market is inoperative at present.

Both schemes utilized the covered interest parity condition--and linkages through projected inflation rates to interest rates--in order to determine the calculated forward premium. The covered interest parity condition expresses the equality between the forward discount on the domestic currency and the uncovered interest differential in favor of domestic-currency assets when there is neither political risk nor actual or potential credit or exchange controls. ^{1/} In the case of the Mexican scheme, because of an original three-year grace period on repayments, and recent further restructuring, substantial payments from the FICORCA funds have yet to be made, although inflation and spot exchange rate depreciation have been more rapid than expected, and thus the FICORCA scheme is unlikely to have been self-financing. Nevertheless, there are specific provisions of the scheme for an acceleration of payments should the key assumptions of the projections inherent in the scheme not be satisfied.

A basic difficulty with this "quasi-market" approach is that the covered interest parity condition applies only when both domestic and foreign financial markets are free from controls. The interpretation of interest rates in terms of the equilibrium condition will be invalid when these assumptions do not hold, as is clear from major deviations from covered interest parity at times in industrial countries with less than perfectly competitive exchange systems. The calculated premia will also tend to be biased downwards in many developing countries by the presence of constrained interest rates and credit controls. Dynamically, the situation may be even worse, as the low real interest rates at the outset of the cover tend to feed into higher inflation, resulting ultimately in even lower real interest rates, and larger deviations of actual spot exchange rate movements from initial expectations. There is the further difficulty of forecasting the independent variables in the calculation, and there may be a tendency to be over-optimistic if the scheme is embarked upon as part of a broad program of economic stabilization. Nevertheless, the schemes represent an improvement over the straight provision of forward cover at either a zero premium, or premia pegged without regard for inflation and interest differentials, and hence expected spot depreciation. The initial experience from both the FICORCA and Philippines arrangements suggests that a review clause be included in any such formula, to take effect

^{1/} In such markets, covered interest parity will be maintained by riskless arbitrage, apart from a margin of indeterminacy resulting from transactions costs. Empirical evidence shows that the condition holds fairly precisely in the euro-currency markets, where these assumptions generally apply. Some forms of political risk may be reflected in interest rates, and therefore need not affect adherence to the parity condition.

even before scheduled payments from the funds so that continuous realism can be assured. 1/

Other applications of the covered interest parity condition by developing countries have offered less protection to the budget. Where the premium is set simply as the difference between the local and foreign interest rates, artificially low levels of domestic rates have implied substantial losses. In such circumstances, it would be necessary to use shadow interest rates in the calculation of forward premia via the interest parity condition. A shadow domestic rate may be calculated from the expected rate of inflation plus a premium for time preference, risk, and other transactions costs. Given that the latter costs may be roughly equal between countries, application of a covered interest parity condition in this form will come close to the use of inflation differentials or purchasing power parity (PPP) to determine the forward premia. Given the available evidence that PPP is broadly applicable in the longer term, use of the covered parity condition should result in minimizing extended losses in the provision of forward cover either by official or by officially supported agencies. However, losses may not be avoided and may be considerable in the short run under such managed schemes. The best approach is not for the central bank to assume or manage risk itself, but to encourage development of a forward market in the private sector.

There are considerations other than avoiding adverse budgetary effects for the application of realistic premia. An important reason is that the expected losses may themselves become a reason for not adjusting the spot exchange rate, thus extending inadequate competitiveness and balance of payments weaknesses into the future. In the projection of the inflation rate for this purpose, it may be necessary to err on the cautious side, by setting the premia higher than might be implied by the targets for macroeconomic performance. Given that market participants may have strong impressions of the past performance and will accordingly be slow to modify their own expectations, this is unlikely to result in the cover being unattractive to importers. On the other hand, the slow adjustment of expectations will deter exporters from using the scheme should the projected inflation rate (as modified for confidence effects of the adjustment program) be substantially lower than the previous inflation rate.

3. Cross hedging

The technique of cross hedging has its application in the absence of a domestic forward exchange market, by the use of a forward market in an asset whose price has a large covariance with the exchange rate of the domestic currency. The most obvious example would be the use of the forward market in the currency to which the domestic currency is

1/ A fuller explanation of the Mexican and Philippines arrangements is set out in Appendix II.

pegged. Tonga has recently instituted such an arrangement for the pa'anga, which is pegged at parity to the Australian dollar, through an Australian commercial bank. Another possibility would be to hedge the currency risk in a forward commodities market abroad, with the price of the commodity (e.g., a major export item) serving as a proxy for determinants of balance of payments developments. This would be distinct from any hedging of the international price of the commodity itself (in commodities futures markets).

Although cross hedging may be valuable for closely integrated economies where a fully fledged market arrangement may not be feasible for the smaller country, it may be of less value for more isolated economies. ^{1/} Even in closely integrated economies, the risk of divergence of monetary policies causing a need to adjust the peg may be significant. The timing of step devaluations is politically determined in most instances and may be difficult to predict. In addition, cross hedging may have no application at all for countries with relatively diversified relationships--for example, those with close regional ties as well as close ties to a major currency country. Nevertheless, as a technique it is of more value than the provision of exchange rate guarantees with low or zero fees, and unlike the market approximating techniques, it need not involve the central bank in risk, providing that the central bank does not assume responsibility for variations between the hedge currency or commodity and the domestic currency (the Bank of Tonga which is partly government owned does assume this risk at present). Should it do so, then the potentially adverse fiscal and related effects are shared to this extent with the pegged schemes discussed in Section III.1 above.

4. Market-determined systems

Outside of the industrial countries few Fund members maintain market-determined forward exchange systems. Although in recent years a number of developing countries (some 17) have adopted market arrangements for determining their spot exchange rates, in only a few of these countries have forward markets emerged in any depth. However, in several other countries maintaining fixed or managed exchange arrangements, market-determined forward rates evolved--mainly from official cover arrangements.

Forward markets in which rates are free to be determined by supply and demand and the range of external transactions is unregulated exist in some countries (Chile, Indonesia, Malaysia, Singapore, and United Arab Emirates), but in others the availability of forward cover is limited to certain underlying commercial or financial transactions, usually the former. The forward market is thus limited to commercial

^{1/} For example, see the empirical tests in "Cross-Hedging Foreign Currency Risk," Mark R. Eaker and Dwight M. Grant. Journal of International Money and Finance (1987), Vol. 6, pp. 85-105.

transactions in Brazil, Jamaica, Jordan, Korea, Nigeria, Sri Lanka, and Thailand. As noted in Section I, the basic reason for such a restriction is the desire on the part of the authorities to curb speculative influences on the market (although the regulations may themselves lead to other forms of "speculation"). Another reason for the limitation to underlying "real" transactions is that such transactions tend to attract commercial lending. If domestic interest rates are relatively low and the exchange rate is depreciating, importers may not wish to take up otherwise attractive official and nonofficial credits abroad. The availability of forward cover without its costs being borne by the central bank may be sufficient to facilitate such borrowing from opportune sources when financing is tight.

There are several existing and potential variants of market-determined forward market arrangements in developing countries:

a. Auction markets

It would be possible to devise mechanisms for forward auction markets, in the same way as auction markets for spot exchange (Bolivia, Ghana, Guinea, Jamaica, Nigeria, Somalia, Uganda, and Zambia). ^{1/} However, it is very likely that it would be more difficult in practice to commence operation of such a market because the timing and availability of supply of forward exchange to the auction may not be accurately enough determined ahead of the actual transaction (foreign exchange is surrendered ahead of the spot auctions). For this reason, it would probably be necessary to undertake an iterative auction in which representatives of both the buying and selling side of the market were present at one time, so that bids could converge on an equilibrium price. No country at present operates such a forward system.

The only forward market in the group of countries with a functioning spot auction is that of Nigeria. However, this market, which is presently in an early stage of growth, operates in the autonomous (interbank) exchange market for non-oil foreign exchange and secondary sales of oil receipts, and not in the official auction market for channelling oil receipts to commercial banks.

b. Brokered markets at the central bank

Brokering of forward transactions by the central bank involves in essence a barter operation. The central bank does not make the market on its own books, i.e., does not take an exposed position itself, but matches up transactors at the various maturities on the basis of rates that are mutually agreeable to both parties. Owing to the coincidence of wants, a risk premium need not be charged for such a transaction--

^{1/} For a description of these spot systems, see Occasional Paper No. 53, pp. 5-15.

instead, a small charge may be made by the central bank for the cost of undertaking the brokering role (say of the order of one quarter of one percent of the transaction value).

A probable difficulty in initiating a market with such arrangements is that the differing risk aversions of parties on either side of the market may make it unlikely that unfamiliar participants will wish to involve themselves in these transactions. For example, exporters may tend not to view the situation in an opportunity cost sense, in the absence of an established forward market, and be content to take whatever depreciation actually eventuates. The result may be difficulty in matching the exporters and importers at mutually agreeable rates owing to such initial biases in the views of the former. Where the risk element is large--for example, where there is a substantial differential between the official and parallel market exchange rates or the official rate is volatile--difficulties in evaluating the risk will be a more important consideration.

c. Funded markets at the central bank

One role for the central bank would involve the setting up of a small fund for the initial provision of foreign exchange at covered or qualified covered interest determined premia, in a way similar to the exchange guarantees provided by the central bank discussed in Section III.1 above. The difference would be that, under a market-oriented approach, the aim would be to ensure eventual independence from the fund by adjusting the forward premium successively to clear the market. A major drawback could be that, in the meantime, the central bank would be exposed to losses as the expected supply-demand imbalance in favor of importers resulted in a run down of the fund, if the premium for a depreciating currency was set too low at the outset. On the other hand, if the premium was set too high, importers would not begin to use the facility. (This approach is explored further in Section IV.2 below).

d. Parallel forward markets

In some countries parallel markets that are officially unrecognized may exist both for spot and forward exchange, (e.g., Argentina). However, in such instances the parallel forward market exists mainly to cover risks in the parallel spot market. Risks inherent in the availability of, and the exchange rate for, official foreign exchange may be different for all of the reasons that the official and parallel rates diverge, e.g., the timing of political action and controls on domestic and foreign money markets and capital markets, and the disequilibria may not be evenly spread between the spot and forward markets. Nevertheless, the premium on the parallel market may provide an indication of the forward premium applicable to the official spot market. Evaluation of the usefulness of this information will require a separate analysis of the collinearity of the spot and forward markets, which will depend on the special factors involved in the individual country.

e. Forward exchange markets in the private sector

The development of forward exchange market facilities in the developing countries that have adopted floating spot exchange rates is at a relatively early stage. There is no such country at present that could be considered to have an organized and satisfactorily operating forward exchange market. A limited volume of forward transactions has been observed in Jamaica, Nigeria, the Philippines, Uruguay, and Zaire. In Jamaica, a plan had been drawn up for a forward market and the system was put in place in 1984, but there were few transactions under the floating rate system, partly because of inflexible interest rates which made trade financing in the domestic currency more attractive. The suspension of the floating arrangements in the spot market since November 1985 formed an additional complication. Nigeria instituted in October 1986 arrangements in the private sector for forward trade cover of up to six months maturity, and some transactions have since taken place in the autonomous market. In the Philippines, developments in the organized forward market have been subject to generalized uncertainties and few transactions initially took place after the floating of the currency. In the past year or so, however, the market has stabilized and grown somewhat in depth. The relative thinness of interbank transactions in the spot market in Zaïre has precluded development of the interbank forward market, although the authorities are considering policies to improve the operation of the spot market.

The major thrust of the efforts to develop forward markets in countries adopting floating spot systems has been to give the commercial banks free rein to operate such markets (rather than to have the central bank participate). The requirement of underlying transactions in Jamaica, Nigeria, and Zaire has been set mainly to focus the commercial banks' attention on what has been considered to be the most important part of the market; it has also been motivated in part by the exchange controls on outflows of capital retained by these countries. In Nigeria and Zaïre, forward transactions have in principle been included in the limits on foreign currency exposure (spot plus forward) introduced by the authorities to preclude market cornering by the banks. There is no indication that these limits have served to curb the development of the markets to date, although, should the markets expand, this could be a consideration against continuing them. One market amongst this group that appears to have developed some depth is that of the Philippines. A reason for this may be that the Philippines has had in place for some time extensive official arrangements for forward cover which have increased the private sector's awareness of the benefits of cover. The pre-existing arrangements may therefore have served in practice as a transitional device for the development of the forward market.

Forward markets have evolved (mainly through official cover schemes) in several countries that do not have free floating

arrangements in their spot exchange markets (Brazil, Chile, Indonesia, Jordan, Korea, Malaysia, Singapore, Sri Lanka, Thailand, and the United Arab Emirates). The markets in Indonesia, Malaysia, Singapore, and the United Arab Emirates are not subject to regulation. The market in Thailand is subject to some regulation, although it is minimal. Forward foreign exchange premia or discounts in these markets have closely followed international interest rate differentials.

Requirements that the forward cover be for underlying commercial purposes, and that maturities correspond to trade financing terms, are present in a number of these markets. In Brazil, Nigeria, and Sri Lanka the forward market is open for commercial purposes. Only importers in Jamaica eligible for the spot auctions may participate in the forward market, and in Jordan the market is confined to specified commercial operations. Korea does not have restrictions on the coverage of forward transactions between banks, but transactions with nonbanks are restricted to underlying commercial transactions. The most common restriction on maturity limits is for up to six months (Brazil, Chile, Jamaica, Nigeria, Thailand, Sri Lanka). In Jordan the cover is permitted to one year, and also in Korea for nonbanks (interbank transactions are unrestricted as to maturity). Generally speaking, the central bank does not intervene in these markets directly by its own purchases and sales--although there is a provision for the Bank of Jamaica to deal in the forward markets subject to overall limits on its own covered and uncovered commitments of US\$2 million. Sri Lanka ceased intervening in the forward exchange market in February 1987. Limits on the open positions of individual banks exist in Brazil, Chile, Jordan, Thailand, and Nigeria, while in Jamaica there is an aggregate limit on the uncovered forward commitments of commercial banks (US\$10 million).

5. Foreign exchange deposit accounts

In many developing countries commercial banks or the central bank offer facilities for external accounts, with special exemptions from the exchange control regime. These accounts may involve either convertible foreign exchange per se, or foreign-exchange denominated deposits, without a freely transferable claim on a foreign asset. Because the foreign exchange or the foreign exchange denominated deposit may be held by residents against future liabilities abroad they constitute one means of hedging against exchange risk.

Relative to forward market cover of exchange risk, the difficulty with foreign exchange deposits which are held on account with the commercial bank or the central bank is that in the meantime they cannot be utilized by the depositor. They therefore represent liquidity in excess of efficient working balances. If the deposits are held with the central bank, their counterpart may be counted as official reserves, and may therefore contribute to the overall creditworthiness of the country concerned. Where they are held with commercial banks, they may increase the supply of credit in foreign currency. However, the foreign exchange deposits are sometimes subject to special reserve requirements that may

make them less attractive to banks as a source of liquidity, and their ready availability to the depositor for unforeseen uses may require the commercial bank to maintain foreign exchange reserves higher than otherwise. By comparison, provision of forward hedging facilities minimizes the need to tie up liquidity, often at less than remunerative deposit interest rates.

Foreign currency denominated accounts in a sense constitute forward cover arrangements. Claims per se on foreign entities are not involved, and the major distinguishing feature of the deposits is the provision of cover against exchange risk (although there may be ancillary features of the accounts, such as treatment under exchange controls). The same questions, therefore, arise as those noted under Section III.1 above--namely, the extent of subsidization by government, or the exposure of commercial banks to exchange risk beyond their ability to be involved prudently, or at unrealistic regulated rates. In some instances (e.g., Brazil) the deposits have constituted cover for debt servicing obligations, with the implicit cost of cover arising from exchange rate risk being borne by the Government. ^{1/} In some other instances, foreign currency denominated accounts have served as a vehicle for resident foreigners to engage in transactions with their country of origin. In the event that the exchange rate has changed abruptly, there have been impediments placed on exchange transactions through these accounts because of the inability of the banking system to meet the guarantees (e.g., the MEXDOLLAR deposit scheme in 1982). Further, although liquid foreign exchange is not tied up in these accounts, domestic currency liquidity requirements are higher than for forwards, resulting in the same inefficiencies of excess cash balances for individual depositors.

Another vehicle for implicit hedging of exchange rate risk is the swap transaction, as discussed in Section II.5.b above. Onlending by governments to the domestic private sector of credits obtained abroad, by which the government undertakes the foreign currency servicing and the private sector servicing is in domestic currency, is a common form of such implicit hedging arrangements in developing countries. Frequently, the interest rate will be swapped at the original foreign rate (say, at close to LIBOR). If domestic interest rates are controlled at relatively low levels, then the implicit subsidization may appear to be relatively low. However, the counterpart of the low domestic interest rate is likely to be a rate of domestic inflation that substantially exceeds that in the country in whose currency the foreign debt has been arranged or denominated. As the servicing proceeds, the exchange rate must be adjusted to restore competitiveness, raising local currency costs of repayments to the government, but not to the ultimate private sector user of the credit.

^{1/} The provision of these accounts by Brazil has been marked by large losses which have been monetized.

In arranging such swaps, the authorities must therefore evaluate the role of exchange rate risk in determining the interest rate at which the onlending is to take place. For this, the considerations are the same as for forward transactions--where no domestic forward exchange market exists, the cost of the implicit forward cover may be established by the various criteria established earlier. In the case of the swap transaction, the question of who should pay this cost--the government or private sector user of the credit--may depend on the use to which the foreign currency proceeds of the loan are put. If the intention of the foreign credit is simply to provide government or a domestic third party with foreign exchange, based upon the creditworthiness of the ultimate recipient of the credit who uses the foreign currency proceeds either in part or not at all, then the cost of hedging the exchange rate risk would need to be allocated to government and the domestic third parties. On the other hand, if it is the creditworthiness of the government (or a third party) that is being used to obtain foreign exchange for the ultimate borrower, then the cost of hedging would need to be factored into the onlending charges. In short, the exchange rate risk should be realistically established, and corresponding forward premia should be charged to the ultimate end-user of the foreign exchange proceeds, who may or may not be the borrower--in addition to the interest charged to the borrower.

IV. Development of Forward Markets

1. Recent experience with alternative systems

a. Industrial countries

The development of forward exchange markets in industrial countries in the 1980s has been characterized by a substantial reduction of government regulation and intervention, and by accelerating innovation in financial instruments available to these markets. Forward markets now operate in all industrial countries except Iceland. Forward markets were initiated by central banks in Ireland and New Zealand at the beginning of the 1980s, and in Finland in the 1970s. The central banks initially provided backup cover at officially quoted forward rates to commercial banks which enabled them to undertake forward sales and purchases without being left with overbought or oversold open positions. Significant losses on these and earlier operations were experienced by several central banks in this group. The central banks of Ireland and Finland withdrew from the forward market in 1980, and the Reserve Bank of New Zealand from that market in 1983 (Table 4). The Reserve Bank of Australia was the only other central bank in the industrial country group to have provided forward cover in this period to commercial banks at regulated official rates, and it also withdrew this facility in 1983, with the floating of the spot and forward

Table 4. Industrial Countries: Chronology of Major Regulatory Changes in Forward Exchange Systems

Date	Country	Summary Description of Change
1980		
March	Australia	Sydney Futures Exchange established.
March	Switzerland	Limits on forward sales of Swiss francs to nonresidents lifted.
April	Finland	Central Bank withdraws from the forward market.
December	Ireland	Central Bank withdraws from the forward market.
1981		
January	Spain	Forward transactions between commercial banks and nonresidents permitted.
1982		
June	Spain	Maximum time period between forward cover and payment due date extended.
1983		
March	Ireland	Shortening of maximum time period within which forward cover must be effected following assumption of currency risk.
May	Denmark	Maximum maturity for forward cover of debt service obligations extended.
August	New Zealand	Central Bank withdraws from the forward market.
October	Australia	Central Bank withdraws from the forward market.
1984		
January	Denmark	Forward sales of foreign currency with maturities of up to three years deregulated. Forward cover of financial and commodities futures transactions permitted.
April	Japan	Access restrictions to domestic forward market abolished.
June	Australia	Access restrictions to forward market abolished.
July	Norway	Currency option contracts permitted.
1985		
March	Sweden	Forward contracts between banks and nonresidents permitted.
1986		
April	Italy	Maximum maturity of forward cover extended. Currency option contracts permitted.
April	France	Maximum maturity of forward cover extended.
May	France	Maximum maturity of forward cover further extended. Forward cover of invisible imports and debt service obligations permitted.
July	France	Maturity restrictions on forward cover lifted.
November	Austria	Maximum maturity of forward cover extended.
1987		
May	France	Forward cover of direct investment permitted. Verification procedures for forward market access relaxed.
May	Japan	Trading in overseas markets for currency futures and options permitted.

Source: Appendix I.

markets. 1/ These markets have matured rapidly in all three cases, particularly in New Zealand following removal of interest rate and exchange controls in 1984, and floating of the currency in 1985.

Developments in forward markets in place before 1980 have also been marked by considerable liberalization. Australia and Japan removed completely requirements for an underlying commercial or financial transaction ("real demand principle"), and France has, on balance, expanded the scope of authorized transactions from purely commercial to financial transactions. 2/ The extent of access to the forward market may deviate from an underlying transaction, and the flexibility in terminating or extending contracts has been expanded in France and Spain. Maturity restrictions have been eliminated in France and relaxed in Austria, Denmark, and Italy. Access of financial institutions to forward markets has been expanded in Japan and Sweden, and restrictions on the banks' net positions have been eased in Japan and Spain. Where restrictions have been retained, they were aimed largely at reducing speculation against the currency. For example, in Australia prior to 1983, an unrestricted parallel exchange market was tolerated alongside the restricted official market because it was limited to directly matched purchases and sales by currencies and maturities and could not lead to pressure against the Australian dollar.

Forward exchange markets, particularly in the less regulated environments, have been marked in recent years by rapidly increasing sophistication of instruments. A major early innovation was the market for foreign currency futures launched in 1972 in Chicago--the International Monetary Market (IMM)--which has since extended to a number of financial centers. The main contribution of the futures market was seen as greater standardization of cover and ease of liquidation compared to the forward market, in which the amount and maturity of the contract must be tailored precisely to customer specifications, at a price quoted in advance, and the customer's

1/ Statistical tests suggest that the efficiency of the Australian forward market has developed quickly. Although speculative runs have occurred, the forward rate has proved generally an unbiased predictor of spot movements, and runs were connected with a specific episode of sharp depreciation from February 1985. "Risk Premia, Market Efficiency, and the Exchange Rate: Some Evidence since the Float," Warren J. Tease, Reserve Bank of Australia Research Discussion Paper 8603, May 1986. Tests of forward market efficiency for other countries (major industrials) have been less conclusive. See "Lessons from Empirical Models of Exchange Rates," Peter Isard, Staff Papers, March 1987, Vol. 34, No. 1, p. 8.

2/ For further details, see Appendix I.

creditworthiness must be established. Spreads, on the other hand, have not differed greatly between the futures and forward markets. 1/

Currency options introduced in 1978 on the European Options Exchange have given rise to a rapidly broadening range of differentiated financial products. They have also spread in coverage as exchanges in Montreal, Philadelphia, Sydney, London and Chicago have opened options trading. Although the traditional reliance on forward markets for hedging has necessitated adjustments in corporate financial management systems to accommodate options, growth in the new market has been very rapid. Despite some early objections that the instrument was speculative and would increase exchange rate volatility, it is now thought that options may be less speculative than uncovered forwards--in the sense that only the premium paid for the option is at risk in response to exchange rate changes and daily calculations for variation margins through the clearing house. In addition, because of the low liquidity involved, credit approval may not be required for standard option purchases as it is for forward contracts.

Within the forward foreign exchange markets there has been a recent influx of variations on the basic instruments (cylinders, collars, zero premium options, G-hedges, compound options, break forwards, participating forwards, and extra, scout, and pooled options), all tailored to particular risk situations and customer preferences. 2/ However, with this degree of sophistication, many participants now prefer to tailor their own specific instruments from combinations of forwards, futures, and options. In this connection, there has been a concern, as cited recently in the 1987 Annual Report of the Bank for International Settlements, that new techniques and facilities in the financial markets in general have not been tested over the business or interest rate cycles and may be causing prudential and management difficulties for the banks concerned. One concern noted by the BIS is that of "short-termism," whereby liberalization is seen as shortening planning horizons. 3/ Bankers have also been reported as having the view that the availability of longer term (over 1 year) forward contracts has become more limited.

However, despite the innovations of recent years, according to a recent survey of market participants by the Group of Thirty, 4/ the traditional "FOREX products" --spot and forward contracts--are expected to remain the markets' staple diet. Currency risk is covered on a selective basis, mostly by means of forward contracts and options;

1/ "The Rise of the Foreign Currency Futures Market" Norman S. Fieleke, New England Economic Review, March-April, 1985.

2/ See "Quick Brown Fox Breaks Forward Over Lazy Scout," Geoffrey Warren, Euromoney, May, 1987, pp. 245-72.

3/ Bank for International Settlements, Annual Report, 1987.

4/ The Foreign Exchange Market in the 1980s: The Views of Market Participants, Group of Thirty, New York, 1985.

options are a more frequent alternative than futures to forward contracts, and markets for both options and futures are still regarded as thin. If the new instruments have reduced the demand for forward contracts at all, the reduction has been very small and confined to U.S. dollar forwards, not between non-dollar currencies. Corporations also reported to the G-30 that they have experienced good results from the cover.

b. Developing countries

Systems of forward exchange cover involving exchange rate guarantees and officially managed cover at noncommercial terms have been prevalent in developing countries, and the major feature of the experience has been the heavy losses imposed in a number of instances on the central banks administering them. The response of the authorities to these losses has varied from country to country. In some countries they have been absorbed by budgets and monetized, with a severe impact on monetary growth and inflation. In other cases, the current losses have been reduced gradually by transition to a more market-related approach, involving closer observance of the covered interest parity condition, and in some cases, transition to a freely market-determined system of rate determination.

Available data for the magnitude of losses experienced by governments in meeting official cover guarantees show them to have been extremely large in some countries. In the case of Costa Rica, which introduced an exchange rate guarantee scheme in mid-1981, the Central Bank was unable to make any payments of amounts due, and at the end of 1983 potential losses amounted roughly to the equivalent of the Bank's total liabilities to the private sector (Appendix II). In addition, the losses stemming from exchange subsidies paid in 1981-82 are estimated to have been equivalent to total outstanding currency issue as of the end of 1982. The subsequent interest costs of stabilization bonds issued by the Central Bank to sterilize these effects resulted also in continuing operating losses for the Central Bank after 1982. A cover scheme introduced in 1981 by Israel for domestic value added in exports led to operating losses that in 1985-86 amounted to 1.3 percent of GNP, and were charged to the budget. In the Philippines, swap arrangements between the Central Bank and commercial banks played an important role in 1982-83 in defending official reserves. However, as the peso depreciated sharply in this period and in following years, the Central Bank's accumulated losses amounted to more than the equivalent of 6 percent of GNP at the end of 1984. South Africa has also absorbed large official losses on forward cover facilities provided by the Reserve Bank since 1980. These losses arose primarily from the provision by the Reserve Bank of South Africa of long-term forward cover to public enterprises on very favorable terms; by end-March 1986, the cumulative losses amounted to about 150 percent of the stock of reserve money outstanding. Partly to avoid further losses, the Reserve Bank discontinued the provision of forward cover facilities to public enterprises effective December 1986. In one instance, namely the FERIS

scheme in Turkey (for World Bank-financed lending by a domestic development bank), a minimum contribution from the budget was established at the outset of the scheme, at 7 percent of value added from a government sinking fund. In addition, a subsidy of varying size could arise, if the depreciation of the Turkish lira over time exceeded the interest differential between the foreign loan and the respective domestic credits. In practice, only very few transactions were conducted under these arrangements.

In a number of countries with fixed and managed forward exchange rates, significant one-way divergences between uncovered interest rate differentials and forward premia have been consistently maintained; these have generally implied losses on the arrangements. Premia charged by the Bangladesh Central Bank (as low as 0.3 percent) have been *markedly smaller than prevailing interest rate differentials, and also realized movements in the spot exchange rate* (Appendix Chart II.1). Charges levied by Bank Indonesia on swap contracts (2.5 percent per annum) have been small in relation to two step movements of the spot exchange rate (of about 30 percent each) in recent years (Appendix Chart II.2). Forward cover provided to authorized dealers by the Central Bank of Pakistan was at forward margins which were kept unchanged in absolute terms for more than 20 years until May 1987. There have also been discontinuities in the yield structure of forward rates in Pakistan--in early May 1987 the buying rate for U.S. dollars between 6 and 12 months forward implied a forward discount on the dollar of 3 percent per annum at 12 months, while the selling rate for 6-12 months maturities implied a forward premium on the U.S. dollar of 3 percent per annum. Meanwhile, there was an uncovered interest differential in favor of rupee bank deposits vis-à-vis Eurodollar deposits of about 7 percent per annum. Prior to February 1987, Sri Lanka had changed the forward quotations of the Central Bank infrequently so that they did not reflect international interest differentials, and losses were incurred. As of end-1986 the Central Bank's buying rate for one month forward dollars was the same as the spot middle rate, while the selling rate for one month forward dollar represented a forward premium of 1.4 percent per annum over a spot selling rate. Its corresponding buying and selling rates for three-month forward dollars represented forward premia on the dollar of 0.04 percent and 2.7 percent per annum, respectively.

In other situations, the potential for adverse effects on the central bank and fiscal budget has not been as clear. A forward cover scheme for certain transactions provided by the Reserve Bank of India implied, as of end 1986, a forward discount on the rupee of approximately 1.5 percent per annum, which was roughly consistent with the uncovered interest differential vis-à-vis the U.S. dollar at that time. As for realized movements in the spot exchange rate, there has been little movement on balance in the U.S. dollar exchange rate in the first half of 1986, but an average depreciation of some 8 percent in 1986. Mauritius provides forward exchange facilities for certain purposes, with forward rates based on a uniform margin of 3 percent per

annum. However, losses have not been realized, and the interest differential has generally been maintained at close to covered parity. The market-determined systems (which do not involve losses to the central bank and subsidization) have generally led to forward premia closely approximating interest differentials over time in the absence of strong impediments to capital movements (Malaysia, Singapore, and Thailand). (Appendix Charts II.3 and II.4).

In each of the countries incurring large losses relative to the monetary base, the impact on inflation rates and the balance of payments have been severe, and has contributed to delays in needed exchange rate adjustment, which was held hostage to the budgetary consequences of the exchange rate guarantee.

Adjustments to forward systems that have taken place in response to losses incurred have included shifts towards either application of covered interest parity to determine the forward premia, or to more market-approximating forward rates. Costa Rica has withdrawn the official cover schemes that led to the large losses in 1982-83. Indonesia in 1986 moved to a closer approximation to interest rate differentials in its provision of forward cover by the Central Bank, and more recently to a market among the commercial banks. Israel reacted to losses from the export insurance scheme by limiting the provision of subsidies to 11 percent of value added, and adopting in principle transition to self-financing for the scheme. Fees in Pakistan have been raised recently for official cover, and South Africa limited the Treasury's risk arising from the provision of forward cover by allocating a quota to each authorized exchange dealer for the maximum amount that a dealer can buy from the bank by means of swaps. ^{1/} Turkey has effectively eliminated the subsidy in the FERIS scheme.

In several developing countries market-determined rates have emerged in forwards and options markets. Following the large losses in Argentina, the official cover market for medium- and long-term external borrowing has generally not been used, while an unrecognized parallel forward market providing short-term cover for traders and investors has gained in depth. Chile in 1986 shifted from the previous system of a managed forward rate to a freely floating forward market, while in the Philippines, increasing reliance has been placed on free market determination of forward rates following sharp losses. Sri Lanka effected such a transition in February 1987 with the application of market principles for the official cover scheme for unbalanced commercial banks' positions. Thailand in July 1985 introduced an options market for foreign exchange, operating alongside a traditional market for forward contracts.

^{1/} Although the South African authorities planned to eliminate the forward cover facility for private sector transactions by August 1986, following the reintroduction of the dual exchange market, the withdrawal of the official forward market has been postponed.

Schemes for handling exchange risks associated with rescheduling of country debt have generally themselves been subject to ongoing revisions. As a consequence of losses incurred, the Argentinian schemes have been replaced by successive arrangements. The Mexican FICORCA scheme appears set to yield significant losses, but these have not yet been realized because further restructuring of the eligible debt has recently been agreed with lead commercial bank creditors. Schemes for guaranteeing debt repayments raise some special considerations. If external arrears are involved, equity considerations suggest the application of the exchange rate prevailing at the time that the obligation should originally have been serviced. However, such considerations do not point to the same ("old") exchange rate for newly maturing obligations. To the degree that subsidization is implied by the provision of guarantees for maturing obligations, this represents a delay in the supply-side effects of programs for rationalizing the exchange rate and domestic price structure.

In summary, the typical response to losses from fixed or managed forward exchange rates has been either to limit the cover of the schemes or to shift towards more market-oriented and self financing arrangements for forward cover. Narrowing the range of eligible transactions to avoid loss has not been the course generally taken--because it would negate the important benefits of cover, even relatively expensive cover to importers. In some instances, parallel exchange markets have developed to fill the gaps created by the absence or withdrawal of official cover for certain transactions. However, the parallel markets tend to relate to parallel spot transactions, and are not useful for import transactions for which sufficient customs and exchange documentation is available to police illegal activities.

Perhaps the most significant development in forward market operations in developing countries has occurred in Singapore, where banks are free to deal on the spot and forward markets in all currencies and with no limits on maturities on underlying transactions. The full menu of foreign currency futures and options is now traded on the Singapore International Monetary Exchange. Singapore's role as a financial center was deliberately promoted by government policies, including liberalization of exchange controls which culminated in the entire lifting of all such controls in 1978.

The environment provided by the exchange systems in developing countries has been important in promoting, although not in determining, the flexibility of forward rate arrangements. Among the countries with market-determined forward exchange rates, Indonesia, Malaysia, Singapore, and the United Arab Emirates maintain no restrictions on outward capital transfers, and permit residents to hold foreign currency accounts (Table 5). The exchange system of Korea is also relatively free; although there are general restrictions on capital transactions, residents are permitted to hold foreign currency accounts. On the other hand, there are capital controls and limits on bank and nonbank foreign exchange positions in several other countries with market forward rates

(Brazil, Chile, Jordan, Sri Lanka, and Thailand). In this latter group of countries, some resident foreign currency deposits are permitted. It is noteworthy that in all countries with market-determined forward rates, with the exception of Brazil, there has been no substantial ongoing parallel market for spot exchange (as indicated by a spread exceeding 10 percent between quotes in the official and parallel spot markets).

2. Policies for developing forward markets

The institutional characteristics, and the pre-existing stage of development of forward markets, of the individual developing countries are important in the choice of techniques for the establishment of forward market arrangements. Nevertheless, the experience analyzed above indicates that there are several general considerations that will bear on this decision.

Central in such considerations is the role of the central bank. Although forward markets have developed more or less spontaneously in one or two developing countries, in most instances free forward markets have evolved from more limited arrangements in which central banks have played a key role. However, it is also clear that the form of central bank involvement has differed from country to country, and certain forms of arrangements have been associated with highly adverse developments, as discussed in the previous section. The experience with the assumption of exchange rate risk by central banks has provided support for the principle that this should be as limited as possible, both in its coverage and in its role in the incipient stages of the development of the forward market.

In countries which do not already have market-determined arrangements (i.e., Iceland and most developing countries), as a first step, the central bank may set up a small fund for providing exchange cover to importers which would be replenished by purchases of forward foreign exchange from exporters. In the case of pre-existing cover, all official support would be channelled through this fund and other arrangements would be terminated. At the outset, the willingness of exporters and importers to transact in the market would no doubt be highly sensitive to the rates charged by the central bank. In establishing the market, the central bank would search for rates that would not only provide cover to importers, but would also activate forward sales by exporters. The operation of other than market-determined forward arrangements has thus far focussed most commonly on the provision of cover to importers--which has deterred the creation of a market by failing to disseminate information on the market to exporters, who are, in some ways, the more important sector. In principle, the search for market-clearing rates could involve a temporary "reverse spread" between buying and selling rates, in order to enhance the probability of striking such rates, but the experience with losses by central banks providing subsidized fixed rates suggests that this should be avoided.

Table 5. Summary Features of Exchange Systems of Selected Developing Countries, end-December 1986

Country	Exchange rate arrangement	Restrictions on commercial banks' foreign assets/liabilities	Restrictions on outward capital transfers	Restrictions on residents' holdings of foreign currency deposits with domestic banks
Argentina	Managed floating	Authorized banks are permitted to deal in prescribed foreign currencies. Export proceeds must be surrendered to the Central Bank within a limited period.	x	Permitted subject to minimum size and term restrictions.
Bangladesh	Pegged to currency composite <u>1/</u>	Authorized dealers not normally permitted to hold short-term foreign assets other than small working balances; they may borrow abroad for periods not exceeding seven days.	x	Not permitted.
Brazil	Adjusted according to a set of indicators	Limits on banks' bought and sold positions in foreign exchange, fixed in relation to capital. Banks permitted to sell foreign exchange to each other on certain conditions. Foreign obligations of banks restricted.	x	From 10/30/86, exporters, importers, and companies with foreign participation may open U. S. dollar accounts at Central Bank. Otherwise not permitted.
Chile	Adjusted according to a set of indicators	All new foreign borrowing or refinancing by commercial banks, apart from lines of credit of up to one-year maturity with foreign correspondents, and short-term loans for domestic relending, requires approval. Most capital outflows are restricted.	x	Exporters may, within limits, retain 5 percent of their receipts in special foreign exchange accounts. Proceeds from invisibles must be surrendered only when specifically required.
China, People's Republic of	Managed floating	Financial institutions may hold foreign exchange, but may not deal in it or conduct arbitrage transactions.	x	Individuals may open foreign exchange accounts at the Bank of China and withdraw foreign exchange from them. Enterprises other than trading companies need a license to hold foreign exchange.
Costa Rica	Managed floating <u>1/</u>	Authorized banks must sell proceeds from exports to the Central Bank.	x	Not permitted.
Egypt	Pegged to U.S. dollar <u>1/</u>	Commercial banks must transfer their outstanding balance of foreign exchange at the close of business each week to be used in accordance with Central Bank directives.	x	Certain residents may hold foreign exchange in Free Accounts or in Foreign Exchange Retention Accounts.
Hungary	Pegged to currency composite	Certain (foreign/joint-venture) banks exempt from foreign exchange regulations and restrictions in respect of authorized activities.	x	Residents may hold foreign currencies obtained from specified activities in designated accounts
India	Managed floating <u>2/</u>	Authorized dealers permitted to maintain balances and positions in main convertible currencies. Forward contracts against rupees with banks abroad prohibited. Banks' borrowings from foreign branches and correspondents exceeding Rs 2 million must be sold to Reserve Bank; repayments require approval.	x	Not permitted.
Indonesia	Managed floating	No restrictions for authorized traders, apart from on borrowing from nonresidents.	--	No restrictions.
Israel	Pegged to currency composite	Authorized banks are permitted to deal in foreign exchange.	x	Residents may hold accounts in convertible currencies.
Jamaica	Managed floating	Central bank's net uncovered position subject to limits.	x	Not permitted.

Table 5 (continued). Summary Features of Exchange Systems of Selected Developing Countries, end-December 1986

Country	Exchange rate arrangement	Restrictions on commercial banks' foreign assets/liabilities	Restrictions on outward capital transfers	Restrictions on residents' holdings of foreign currency deposits with domestic banks
Jordan	Pegged to SDR	Banks may apply for permission to transfer funds abroad for specified investment or operating purposes.	x	Permitted within a limit, provided accounts are credited from sources outside banking system.
Kenya	Pegged to SDR <u>3/</u>	Commercial banks may cover their forward exchange contracts in outside markets in other foreign currencies against U.S. dollars or pounds sterling.	x	Not permitted.
Korea	Managed floating	Commercial banks authorized to engage in commercial international banking and in all foreign exchange dealings, except where specifically prohibited.	x	All residents are permitted to hold foreign currency accounts.
Malaysia	Pegged to currency composite <u>2/</u>	Commercial banks and merchant banks can lend in foreign currency to residents and accept deposits in foreign currency from nonresidents.	--	Permitted.
Malta	Pegged to currency composite	Banks, other than those licensed to borrow and lend only outside Malta, are restricted in the acquisition of net foreign assets.	x	Subject to exchange control permission, companies may hold foreign currency accounts in Malta or abroad.
Mauritius	Pegged to currency composite	Commercial banks are authorized to deal in the French franc, sterling, and the U.S. dollar.	x	Not permitted.
Mexico	Managed floating <u>1/</u>	Credit institutions are authorized to operate in the free market through exchange houses.	x	Not permitted, apart from in areas bordering the United States.
Morocco	Managed floating	Each day, authorized banks must purchase from or sell to the Bank of Morocco the balances of their purchases and sales of foreign currencies.	x	Not permitted.
Nigeria	Independently floating <u>1/</u>	Authorized dealers may deal at market rates, spot and forward, between themselves and with resident and nonresident customers for approved transactions.	x	Domiciliary Accounts may be funded by residents with foreign exchange derived from external sources, but not with foreign exchange purchases in the second-tier foreign exchange market.
Pakistan	Managed floating	Authorized dealers are permitted to cover their requirements of specified currencies in foreign exchange abroad. They may also cover their permitted transactions in specified currencies against U.S. dollars or Pakistan rupees, either spot or forward, with their agents in the countries concerned.	x	Not permitted.
Philippines	Independently floating	Authorized banks are permitted to deal in prescribed foreign currencies.	x	Subject to authorization given generally for export-oriented enterprises, or in relation to private inward remittances.
Singapore	Pegged to currency composite	No restrictions.	--	No restrictions.
South Africa	Independently floating	Authorized dealers are permitted to trade in foreign exchange and, subject to certain limitations, conduct forward exchange operations.	x	Not permitted.

Table 5 (concluded). Summary Features of Exchange Systems of Selected Developing Countries, end-December 1986

Country	Exchange rate arrangement	Restrictions on commercial banks' foreign assets/liabilities	Restrictions on outward capital transfers	Restrictions on residents' holdings of foreign currency deposits with domestic banks
Sri Lanka	Managed floating	Commercial banks may establish a Foreign Currency Banking Unit, which may accept time and demand deposits in any designated currency from nonresidents and approved residents; they may also extend loans and advances in these currencies to nonresidents and approved residents.	x	Nationals resident abroad may open and maintain nonresident foreign currency accounts for ten years from the date of taking permanent residence in Sri Lanka.
Thailand	Pegged to currency composite	Authorized dealers are permitted to conduct foreign exchange operations.	x	Not permitted.
Turkey	Managed floating	Commercial banks are free to conduct foreign exchange transactions according to their needs. In addition, banks must hold liquid foreign assets against certain commitments. Ratio of foreign currency assets to foreign currency deposits plus overdrafts subject to minimum.	x	Not restricted.
United Arab Emirates	Limited flexibility against U.S. dollar	Commercial banks are free to enter into foreign exchange transactions at rates of their own choosing.	--	Not restricted.
Zimbabwe				

Source: Annual Report on Exchange Arrangements and Exchange Restrictions, 1987.

1/ Member maintains system of dual exchange markets involving multiple exchange arrangements. The arrangement shown is that maintained in the major market.

2/ The exchange rate is maintained within margins of 5 percent on either side of a weighted composite of the currencies of the main trading partners.

3/ The exchange rate is maintained within margins of 2.25 percent.

... No information.

It is most important that the exposure of the central bank in "making the market" be limited a priori, and that a clear plan should exist for phasing it out over a specific brief period (say, one year), if the central bank's participation did not lead to a viable market that could be transferred to the commercial banks. Reference was made to biases that could exist at the outset in the evaluation of risk by potential participants. Presumably, with the ongoing operation of the market, and the focus that it would receive, expectations would become quickly more rational. Should the central bank exposure limit be reached before a market clearing rate had been established (with little but transactions costs separating the buying and selling rates), then the viability of the market would be reassessed and a decision could be made whether or not to continue the arrangements.

A key institutional reason in many developing countries for the lesser attention paid to hedging of export receipts is the channeling of export sales and receipts through an official marketing board. Decisions on producer pricing at the outset of the planting season must take into account several uncertainties, of which exchange rate risk is one. In a number of developing countries, producer prices have been kept at levels that have been too low to stimulate investment in export industry, in part through maintenance of an overvalued spot exchange rate. When the rate is expected to be adjusted, often to correct such overvaluation, it is important that exporters' implicit forward sales of receipts to the marketing board reflect what in many instances will be a forward premium payable to the exporters. Export prefinancing arrangements, often through the marketing boards, should also take into account such premia.

It is clear from the experience also that the setting of the mid-point rate for the reverse spread would be crucial in the initial stages. Here again, the optimal starting point for development of a forward market would depend very much on the financial environment in the particular country. In countries with interest rates and spot exchange rates in severe disequilibrium, it would be necessary to proxy the covered interest parity condition with shadow pricing. For example, a simple approximation to parity might be made by setting the forward premium on the U.S. dollar at the present domestic rate of inflation minus the Eurodollar interest rate. (A premium higher than this might be warranted by the greater scarcity of capital in developing countries.). In any event, both the rate and the margin payable from the fund would be adjusted continuously to attract customers to both sides of the market. In countries with equilibrium spot exchange rates and interest rates, the covered interest parity condition could be used directly as a reference for setting a start-up value for the mid-point forward rate. In most developing countries, charging forward premia (and paying premia on forward surrender of exchange receipts) would lessen, but not remove, the possibility of heavy continuing losses to the budget. Interest parity alone, proxied or used directly, may not provide an adequate indication for this purpose. Where the spot exchange rate disequilibrium is large, as evidenced by the parallel

market exchange rate or by extensive restrictions that are also effective, the premium may need to be increased beyond the calculated interest parity level (the so-called "peso problem"). However, there may be limits to the extent that this can be done, without signalling an impending devaluation of the currency. In such circumstances, the underlying disequilibrium would need to be corrected, before an attempt would be made to reintroduce the forward cover arrangements on a more realistic basis, or optimally to go directly to a forward market in the private sector.

Another question is whether the central bank should take a direct role in making the market or should operate the scheme through the commercial banks as agencies. It would be important that the central bank allow only a small margin to the commercial banks to operate the scheme because, through the funding arrangements, it would initially be taking the risk itself. Transactions costs are relatively low, and in countries where the demand for forward contracts is small, the central bank's forward transactions with the commercial banks might be restricted to one or two business days per week to minimize such costs. (The commercial banks would be free to transact among themselves at any time.) At the outset, the market might also be made only against the intervention currency and further hedging be performed in the major markets against that currency. ^{1/} In time, more currencies could be introduced depending on the volume of transactions that developed. Toward the end of the transition period, when the use of the funding as an interim device has finally established an equilibrium rate at which transactors are attracted to both sides of the market (and the reverse spread has been eliminated), the central bank could withdraw from the arrangements and leave them to the commercial banks to operate. As was noted above, the very adverse experience with forward guarantee schemes operated and funded through central banks argues that this step should be taken as soon as possible.

An alternative arrangement to having the central bank make the markets with the commercial banks would be for the central bank to provide the subsidies from the fund to the commercial banks, who would then set the rates and administer the market directly themselves. The central bank would play only a funding and advisory role under this approach. While it would enable the commercial banks to assume more quickly a pivotal role in making the forward market, the feasibility of such an approach would differ from country to country. In some countries, the potential for abuse of the transitional government funding might be such that extensive official monitoring of each individual transaction would be required, and the arrangements would become essentially those described in the preceding paragraph. In others, the absence of the necessary expertise in the private banking

^{1/} This may also be the most efficient permanent arrangement for a small country.

sector might require relatively strong official participation in the initial stages.

Another alternative would be for the central bank simply to broker forward transactions between nonbank participants, with or without subsidization. Here again, the issue would be one of feasibility. With subsidization, this would be the strongest form of centralization of the forward arrangements--one that would help little in bridging to market arrangements, because the commercial banks would not have a role, and the government would also be exposed to risk. Without subsidization, the commercial banks would continue to have no role, but the government would not be exposed to exchange risk, because it would simply match transactors, for a small fee. It is unlikely that the latter form of arrangement would "spark" development of a forward market in many countries, but it could warrant introduction on an experimental basis in some.

An important aspect of the central bank's activities in the interim period, and perhaps continuing beyond that period, would be to disseminate information to all potential participants and to conduct training courses in the uses and operation of the forward markets. To the extent necessary, this could involve technical assistance from international organizations, or from banks in major financial centers through their local branches. The central bank may also take a lead in establishing a technical committee of market makers to enhance market arrangements and promote training and professional standards (e.g., the Singapore Foreign Exchange Market Committee established in 1966). An important feature of the transition is that it would involve the active monitoring of domestic monetary and financial conditions relative to the international markets, in order to maintain the continuous realism of the forward premia or discounts.

The institution of such a forward market will also have some implications for the operation of domestic monetary and spot exchange rate policies. Sudden and large step movements in these instruments would be destabilizing to the forward markets and could abort them in their early stages of development. A more stable approach to monetary and exchange rate policy would therefore be necessary to provide a suitable environment for the arrangements. However, from the experience it is also clear that highly disequilibrium exchange rates and interest rates probably preclude transition to forward exchange rates on commercial terms. The conclusion must be, therefore, that the Central Bank would need to establish quickly, and to maintain, broad realism of both interest and exchange rate policies for the market to be viable.

There is the further question of the particular form of instruments that would be appropriate in the early stages of development of a forward market in a developing country. The sequence of events to date in both developed and developing countries suggests that traditional forward markets would be the most appropriate starting point. The experience in industrial countries has been that futures markets have

taken longer to develop than forwards markets, requiring a relatively large volume of transactions maturing on each day of the financial year. Futures have also tended to be more expensive to operate, being generally used as a "warehousing" device in advance of a swap transaction. Options markets are relatively complex arrangements, and some of the dealer strategies required to utilize them optimally require a substantial technological input. Options have the advantage of including information on exchange rate volatility in addition to the expected exchange rate; but, because exchange rates in developing countries have typically been subject to one-way adjustment, the concept of volatility has had little meaning, and the expected rate dominates the calculation of the forward exchange rate. Options transactions also involve standard forward contracts in many of their variant forms. Following the cultivation of depth in the forward market, an options market could be developed (as has been the case in Singapore and Thailand).

Because of the resources that will be required for training in the early stage of the market, it may be preferable to focus available resources on the more important cover transactions, namely the trade-related transactions. This would also help to ensure that the availability of foreign exchange corresponds to any restrictions on its use, either through the import licensing system or exchange restrictions on current international transactions. It would generally imply restrictions on available maturities to within six months. Margin requirements against the opening of forward contracts depend on the arrangements for checking creditworthiness that exist in the individual countries. An indication of the appropriate margins may be had from requirements for the opening of letters of credit, which also reflect the creditworthiness of the applicant and the availability of institutional checks.

Development of a forward market is not a panacea for inappropriate financial policies. In some instances, the authorities have wished to promote access to available foreign credits to support the overall balance of payments. Domestic importers eligible for such trade credits have not wished to use them, because domestic currency interest rates are relatively low, taken in conjunction with the perceived exchange risk attached to the repayments. Removal of the risks with the provision of a forward cover scheme might move the effective interest rates into rough competitiveness. However, lower than equilibrium interest rates generally go hand in hand with rising inflation and depreciating spot rates, and the central bank must therefore charge a fee for the provision of the cover to reflect the likely future depreciation. Although it might appear that the competitiveness of the foreign financing could be retained by the subsidization of the forward cover, this is an illusion if the subsidy is then monetized, worsening the disequilibrium.

Such a strategy for developing forward arrangements, as described above, is open to any developing country whose arrangements do not

already involve a market-determined forward rate. Either fixed or managed forward arrangements could evolve in this way; with the managed market-approximating arrangements, the transition might be quicker. As has been examined above, the existence of exchange controls does not preclude the formation of a forward market; the evolution of markets to date, however, points to the need for a realistic spot exchange rate policy.

V. Conclusions

In response to increased exchange rate variability, there has been a rapid growth of forward exchange markets in recent years. Forward foreign exchange systems in developed and developing countries remain diverse, but as in the spot markets, there has been a convergence towards greater flexibility and freedom of access.

In the industrial countries, all but Iceland now have forward exchange markets in which the rate is determined by the market. Forward markets that have been liberalized in several countries in the 1980s have matured quickly. However, restrictions on various aspects of forward transactions remain in some countries--the most common of which are the limitations to commercial or "underlying" transactions and corresponding forward maturities. There is a close correspondence between these remaining restrictions on forward transactions and those on spot capital transactions. In addition to liberalization, developments in the 1980s have also been marked by very rapid innovation--particularly in the currency options market, where the tailoring to particular risk situations and customer preferences has brought about a wide range of instruments. As with credit markets, the influx of instruments has led to some concern that the arrangements for prudential and management supervision may have become less adequate. Despite these rapid changes, the traditional FOREX products--spot and forward contracts--remain the staples of the market.

Arrangements in developing countries are typically more centralized. They fall into three broad categories: market determined (a few), market approximating (in which the interest parity condition or an approximation of it is used), and (more commonly) fixed or managed rates at noncommercial or intentionally subsidized terms. Active forward exchange markets have emerged mainly in those countries which have advanced financial systems and/or relatively free exchange systems. In those countries in which the interest parity condition has been utilized to approximate a market-determined forward rate, varying degrees of precision and success have resulted. The major difficulty has been that application of the covered parity condition does not ensure that the official agencies providing the cover will not incur losses. In most developing countries, forward premia have been set by administrative fiat, without recognition of market realities. Consequently, central bank losses from risk exposure have been extremely large in some countries--in some cases representing multiples of the monetary base.

These experiences suggest strongly that central banks need to be wary of participating in nonmarket cover arrangements. Although such arrangements may be entered into when there is relative exchange rate stability, the potential for unpredictable shocks, or for slippages in fiscal and monetary management under different administrations, means that future stability cannot be counted on. However, because of the important benefits to be derived from forward markets, it is not desirable that the government simply withdraw without making adequate provision for private sector arrangements to be developed.

There are several variants of market determined systems which could be envisaged. An auction market could be devised for forward transactions--but is unlikely to be practical, because the supply of forward exchange probably may not be accurately enough determined ahead. No country at present operates such a system. The possibility also exists of the central banks passively brokering transactions, without taking an exposed position themselves. Here again, such markets have not emerged, probably owing to the unfamiliarity of exporters and importers with such markets. It may also be the result of bias in risk appraisals by exporters and importers unfamiliar with the market that would preclude a coincidence of wants at specific maturities. Parallel forward markets have emerged in a few countries. They exist mainly to cover risks in the parallel spot market, but could provide some indication of a clearing forward rate for the official market.

An alternative to forward cover is the provision of foreign exchange deposit accounts, which exist in many developing countries. These accounts may either be for convertible foreign exchange per se, or for foreign exchange denomination of deposits without a transferable claim on a foreign asset. The disadvantage with both accounts as a hedging facility is that they tie up liquidity, relative to the use of forward exchange contracts. Questions of the exposure of commercial banks to exchange risk, beyond their ability to be involved prudently or at unrealistic regulated rates, also arise with the deposit facilities.

On the other hand, forward exchange markets operated in the private sector exist in a significant number of developing countries. In these cases, it is clear that the environment provided by exchange systems and domestic financial systems has been important in promoting, although not necessarily determining, the flexibility of the forward arrangements. In some cases, the markets have emerged more or less spontaneously, but in others they have been 'cultivated' by the central bank. To achieve further development of markets, it is useful to consider arrangements that may be grafted on to the existing official cover--whether these involve simple guarantees or more market-oriented criteria for setting premia. However, because of the potential for large destabilizing budgetary effects, any support in the form of exposure by the central bank to "make the market" should be clearly limited a priori in amount and defined as short-term in nature.

A major difficulty with many of the subsidized schemes examined above, as starting points for development of a market, is that they have been solely for provision of cover to importers and have not disseminated information on the forward market to exporters. Any official support should therefore be directed to both sides of the market. For this purpose, a facility could be set up at the central bank to provide cover at market-clearing rates that would be established by a search procedure. The optimal starting point for the forward rate (mid-point) would depend very much on the financial environment of the particular country. In countries with interest rates and spot exchange rates in significant disequilibrium it would be necessary to proxy the covered interest parity condition with shadow pricing of interest rates and, possibly, spot exchange rates. (For example, by setting the forward premium at the present domestic rate of inflation minus the Eurodollar interest rate.) Both the rate and the margin payable from the fund would be adjusted continually to attract customers to both sides of the market. However, where there is a large spread between the official and parallel exchange rates, it would be necessary to increase further the premium beyond the calculated level to reflect the risk that large exchange rate adjustments could occur. A limit to the extent to which this could be done would be to avoid signalling an impending devaluation of the spot exchange rate.

In developing the market, it would clearly be preferable that commercial banks as much possible handle the transactions, and that the central bank withdraw both its support for, or regulation of, the rate as early as possible. In the initial stages, the training requirements would probably be considerable because of the technology required. Experience in the industrial countries suggests that outright forward contracts for commercial cover would be the most desirable point at which to commence operations. In any event, options often involve forward contracts, and both options and futures markets require a large volume of transactions to be efficient. Futures and options markets may well emerge later, as in some of the more advanced developing country markets.

As the last stage of its development, the market could be extended from underlying commercial transactions to forward transactions of a purely financial character, a process that is taking place in most of the few industrial countries that have retained regulated forward systems. Such development of the market would proceed in parallel with the liberalization of remaining restrictions on international capital transactions. Benefits of these purely financial transactions, in addition to those mentioned above for commercial transactions, are that they permit stabilizing speculation, and would allow the domestic financial institutions to retain market share in the international financial markets. Otherwise, there would be a tendency for this form of transaction, and also some of the more sophisticated money market transactions that they accommodate, to move abroad.

Development of a forward market is not a panacea for incorrect financial policies. In fact, cultivation of the market will require that realistic financial policies be adopted and maintained more or less continuously.

Forward Exchange Systems in Industrial Countries*

Australia

Trading banks and authorized nonbank financial institutions are permitted to engage in foreign exchange transactions, and may deal among themselves and with their customers at mutually negotiated rates. Dealers may hold foreign currency balances (spot and forward) or incur foreign currency liabilities (spot and forward) within limits established by the Reserve Bank for each dealer. In addition, there is a foreign currency hedge market in which dealers match the currency hedge requirements of their customers at market-determined rates. Nonresidents may transact in this market, although it is a nondelivery market with all settlements effected in Australian dollars.

A parallel forward exchange market developed in the 1970s as a result of restricted access to the official forward market in which only U.S. dollar contracts related to commercial transactions could be traded. In this interbank hedge market, all transactions could be covered but balances were settled in Australian dollars only. In addition, the Sydney Futures Exchange was established in March 1980, trading U.S. dollars and pounds sterling.

On October 31, 1983 the Reserve Bank of Australia withdrew from the official forward market. It ceased to quote forward margins and to provide forward contracts to commercial banks to cover their daily net positions. Since then, the commercial banks have had to match their net forward positions by corresponding spot transactions. The Reserve Bank establishes a ceiling on the overall foreign currency position of each dealer. Actual net positions, however, have rarely exceeded 20 percent of the aggregate approved level though.

The restrictions on access by nonbanks to the official forward market were lifted on June 25, 1984. Any transaction may now be covered in the official market. As a result, the importance of the nondelivery hedge market has been greatly reduced.

Austria

Forward transactions are permitted up to 18 months. They have to be related to an authorized transaction in the case of residents. Forward premia and discounts are left in principle to the interplay of market forces. The maximum maturity was raised from 12 months on November 1, 1986.

* Source: Annual Report on Exchange Arrangements and Exchange Restrictions, various issues, and other information provided by national authorities.

Belgium-Luxembourg

In Belgium-Luxembourg there are two exchange markets, the official market and the free market. Foreign currency acquired in one market by banks may be sold in the other.

Nonbank residents may make forward purchases and sales of convertible currencies in the official market through authorized banks, provided that any foreign currency purchased is used for the authorized settlement of obligations within 15 working days from delivery; exchange not used within that period must be resold in the official market. Profits resulting from forward contracts not used to cover authorized inward or outward payments through the official market must be surrendered to the Treasury.

Any resident or nonresident, including banks, may deal in the free market. Forward transactions, whether by banks or nonbanks, are uncontrolled and do not require a permitted underlying transaction. There is normally no intervention in forward exchange in either market.

There have been no major regulatory changes in the 1980s.

Canada

Forward exchange facilities exist for negotiating forward exchange contracts against all leading currencies in the domestic foreign exchange market and in leading international foreign exchange markets. Commercial banks deal in forward exchange with both residents and nonresidents. Forward exchange contracts may be negotiated to cover both commercial and financial transactions. There are no limits regarding contract maturities. All forward exchange transactions are negotiated at free market rates, and it is not the practice of the authorities to intervene in the market.

There have been no major regulatory changes in the 1980s.

Denmark

Forward transactions involving purchases of foreign currencies against sales of foreign currencies may be concluded freely with domestic and foreign banks. Forward transactions that involve Danish kroner may also be concluded, but not for more than three years. Forward premiums and discounts are generally left to the interplay of market forces. Forward transactions that involve resident and nonresident purchases of foreign currencies against sales of Danish kroner must cover contractual payments for goods and services or payments on authorized loans and credits. There are no restrictions on forward transactions that involve resident and nonresident purchases of Danish kroner against sales of foreign currencies, other than the three-year limit on maturity.

A small step towards liberalization of the forward exchange market was taken on May 1, 1983, when the maximum maturity of forward cover on foreign currency debt service obligations was extended to three years from two years.

A major liberalization went into effect on January 1, 1984. Forward exchange operations not involving Danish kroner were completely deregulated and forward sales of foreign currency against Danish kroner were deregulated for maturities of up to three years. At the same time, forward covering of transactions in financial and commodity futures was permitted.

Finland

Authorized banks may deal among themselves, with residents, and with nonresident banks, in U.S. dollars and in other convertible currencies. Nonbanks may obtain forward cover for authorized transactions only. Forward premiums and discounts quoted by authorized banks reflect interest rate differentials in various currencies. The Bank of Finland provided backup cover for U.S. dollar forward contracts to commercial banks at officially quoted rates until April 1980. An official quoting of ruble forward rates by the Bank of Finland was discontinued in May 1983.

France

Authorized banks in France and Monaco, which may also act on behalf of banks established abroad, are permitted to deal spot and forward in the exchange market in France. Authorized banks may also deal spot and forward with their correspondents in foreign markets in all currencies. The Banque de France does not intervene in the forward exchange market.

Nonbank residents may deal in the forward exchange market with respect to specified operations only. The scope of these transactions was reduced on March 25, 1983, when forward cover relating to foreign currency transactions in commodity markets was prohibited for commodity futures and reduced to a maximum maturity of eight days on spot dealings. Beyond this, forward purchases of foreign currency were only permitted to cover a limited number of merchandise imports for a maximum period of three months. The forward sale of foreign currency has always been unrestricted.

Since 1985 there has been a considerable relaxation of the restrictions on transactions of nonbank residents in the forward exchange market. On March 2, 1985, forward cover was permitted for up to six months on all imports of goods invoiced in ECU. On April 15, 1986 forward cover of up to three months was permitted on all imports of goods invoiced in currencies other than ECU as well.

On May 21, 1986 the maximum allowable maturity of forward purchases of foreign currency was extended to six months. Forward cover was permitted for all imports including services. The right to cover commodity market transactions denominated in foreign currency in the forward exchange market was re-established. This permission encompassed operations in the commodity futures markets and arbitrage between the commodity exchanges of Paris and abroad. Companies were also allowed to cover their foreign currency debt service obligations.

On July 4, 1986 the limits on the maturity of forward exchange purchases relating to imports and debt service were lifted entirely.

A further easing of controls occurred on May 21, 1987. At this time, future outlays for direct investments became eligible for forward cover, and the procedures for managing exchange risk were simplified. Companies are no longer required to furnish proof of an underlying transaction before obtaining forward cover, and they may extend or terminate forward contracts as the exchange risk varies.

Germany

Forward exchange contracts may be negotiated freely by both residents and nonresidents in all leading convertible currencies, both in the domestic foreign exchange market and at major international foreign exchange markets. This applies both to commercial and financial transactions. There are no officially fixed rates in the forward exchange market. All transactions are negotiated at free market rates.

There have been no major regulatory changes in the 1980s.

Iceland

There is at present no forward market.

Ireland

An independent forward exchange market did not develop in Ireland until 1979, when the parity link between the Irish pound and the pound sterling was severed. Until the end of 1980 the Irish central bank provided forward cover to commercial banks in order to foster development of the market. At present, the market is left largely to the commercial banks, but the central bank still intervenes intermittently. These interventions are intended to influence banks' liquidity positions, though, and not the forward exchange rate.

Access to the forward exchange market is strictly regulated. Forward cover is permitted only for trade related transactions. Forward contracts must correspond in all aspects to the underlying commercial transactions. The minimum allowable maturity is 21 days, and the maximum 12 months. Forward cover must be effected within 15 days of

assuming a foreign currency risk. This limit was reduced from 30 days on March 21, 1983, along with a tightening of the documentation requirements.

Italy

The monetary authorities do not, in principle, intervene in the forward exchange market; forward premia and discounts are normally left to the interplay of market forces. Forward cover is freely permitted only for commercial transactions, and cover in respect of financial transactions requires authorization. On April 14, 1986 the maximum maturity of forward exchange transactions that authorized banks are allowed to engage in was extended from 12 months to 18 months. At the same time, residents were granted the right to buy currency options from authorized banks for all transactions involving goods and services.

Japan

Forward exchange contracts may be negotiated against foreign currencies quoted on the Tokyo exchange market and in other major international foreign exchange markets. There are no officially set rates in the forward market. Forward exchange transactions are based on free market rates. Japanese foreign exchange banks may negotiate freely forward exchange transactions among themselves and with nonresident banking institutions.

Japanese banks were barred from trading in foreign currency futures at the newly-established London International Financial Futures Exchange as well as at the Chicago International Monetary Market on October 1, 1982.

On February 8, 1984, commercial banks concluded a self-restraint agreement to limit speculative forward exchange dealings after the planned deregulation of the forward market.

Deregulation of forward exchange trading became effective April 1, 1984. Forward transactions by nonbank residents no longer need to be related to underlying commercial transactions (real demand principle).

Absolute limits on banks' spot and forward exchange positions were abolished on November 1, 1984. Limits are now related to banks' equity.

Since December 21, 1984, banks have been allowed to deal directly with each other in foreign exchange (instead of involving a broker) and foreign exchange brokers have been allowed to deal directly with overseas partners.

Japanese financial institutions were permitted to trade in overseas financial futures and options markets as of May 22, 1987.

Netherlands

Authorized banks are freely permitted to buy and sell convertible and inconvertible currencies, both spot and forward, against convertible currencies and inconvertible currencies; they are free to deal with residents and nonresidents, whether banks or nonbanks. Forward exchange contracts are not limited as to delivery period, nor is an underlying transaction required. Residents may conclude forward transactions with authorized banks for any period. The intermediation of authorized banks is not obligatory in those forward currency transactions in which the guilder is not involved.

There have been no major regulatory changes in the 1980s.

New Zealand

Authorized foreign exchange dealers are permitted to conclude freely with their customers forward exchange contracts to buy or sell foreign currencies in exchange for New Zealand dollars, irrespective of the purpose for which the funds are required or the sources from which they are obtained, and subject only to prudential exposure limits agreed between the dealer and the Reserve Bank of New Zealand. These forward contracts may be either for a fixed term or for optional delivery dates.

The Reserve Bank does not maintain margins in respect of forward exchange transactions. Authorized foreign exchange dealers are free to set their own rates of forward transactions with their customers.

General access to the forward exchange market for residents and nonresidents was established in 1979. Until August 26, 1983, the Reserve Bank of New Zealand quoted official forward premiums and provided back-up cover to commercial banks.

Norway

Forward premia and discounts are left to the interplay of market forces. Forward transactions with nonbank residents by authorized banks and foreign exchange brokers must have a commercial basis.

On July 9, 1984 the Norges Bank extended general authorization to commercial banks to write foreign currency options for nonbank residents. Option contracts can be employed under the same rules as applied to forward transactions.

Spain

Authorized banks are allowed to operate in foreign markets for spot and forward transactions related to commercial operations, as well as to amortization of financial credits. Forward cover may be provided to residents for all permitted foreign exchange receipts, import payments, current invisible transactions, and amortization payments. Forward

contracts may not exceed 12 months, and forward purchases and sales of foreign currency are restricted to currencies admitted to the Madrid foreign exchange market and the ECU. The terms of the forward contract must coincide with the terms of the commercial or financial transactions that are being covered. The forward position of an individual bank at the close of each day must not reflect a net buying or selling position in U.S. dollars in excess of US\$1 million; in French francs, deutsche mark, Swiss francs, Italian lire, and Japanese yen in excess of US\$0.25 million; and in each of the other convertible currencies in excess of US\$100,000. In addition, most commercial banks can freely purchase foreign exchange in the spot market to cover a forward contract 12 months prior to the maturity of contract.

The present regulations governing forward exchange trading have been in effect since April 1, 1980. Permission to engage in forward transactions with nonresidents was given to commercial banks on January 1, 1981. On June 15, 1982, the banks were allowed to cover their forward positions in the spot market six months before the due date. The original period had been 15 days. In 1986 the limit was raised to 12 months.

Sweden

Forward rates are left to the interplay of market forces. There are no taxes or subsidies on purchases or sales of foreign exchange. Authorized banks may conclude forward exchange transactions with residents other than banks (on each occasion when a forward transaction is allowed, currency options may be concluded alternatively) in foreign currencies against Swedish kronor covering current and authorized payments for (1) unlimited periods with respect to receipts, and payments for imports, freight, and charter services; (2) periods not exceeding 12 months with respect to repayment of loans abroad for refinancing of credits granted in Swedish kronor in connection with Swedish exports; and (3) 6 months with respect to other payments. Forward transactions may be concluded only to cover payments for which an agreement exists. However, export firms may make forward sales for settlement on the envisaged date of payment or, when tendering, on the expiry date for tendering. Authorized banks may without exceptions conclude with residents forward transactions in any foreign currency against another foreign currency.

Authorized banks may buy from and sell to other authorized banks, foreign banks and nonresidents, forward, any foreign currency against another foreign currency or Swedish kronor.

On October 20, 1981 the prohibition of forward transactions with foreign banks in the currency of a third country was lifted.

Forward exchange transactions between authorized banks and nonresident nonbanks were permitted in March 1985.

Switzerland

There is an active forward exchange market in Switzerland. Both residents and nonresidents may freely negotiate foreign exchange contracts with banks and in all currencies, both in respect of commercial and financial transactions. There are no official fixed premium and discount rates applicable to forward exchange contracts. All forward exchange transactions are negotiated at free market rates.

Limits on forward sales of Swiss francs to nonresidents were lifted on March 11, 1980.

Until June 15, 1981, a gentleman's agreement between the Swiss National Bank and commercial banks was in effect, by which commercial banks agreed to refrain from transactions of an obviously speculative nature against the Swiss franc.

A currency option scheme under which exporters were able to purchase currency options from the Swiss National Bank to cover up to 40 percent of their export proceeds for up to two years forward was discontinued on November 30, 1981.

Effective April 1, 1985, the Federal Government ceased to provide exchange risk insurance to exporters.

United Kingdom

Banks are allowed to engage in spot and forward exchange transactions in any currency, and they may deal among themselves and with residents and nonresidents in foreign notes and coin at free market rates of exchange.

There have been no major regulatory changes in the 1980s.

United States

There is a free forward exchange market. Commercial banks offer forward exchange facilities to both residents and nonresidents. This applies both to commercial and financial transactions. There are no limits on contract maturities. Forward exchange rates fluctuate in response to market conditions.

There have been no major regulatory changes in the 1980s.

Forward Exchange Systems in Selected Developing Countries*

1. Exchange Rate Guarantees and Officially Managed
Forward Cover at Noncommercial Terms

Argentina

a. Real exchange rate insurance scheme

Introduced in August 1986, this scheme was designed to compensate exporters of specified products for declines in the real price of exports, including changes in export taxes and rebates, that might accrue between dates of contracting and shipment. In the case of contracts containing a price readjustment clause, the reimbursement rate would be set at 100 percent. In the case of contracts not containing a price readjustment clause, 90 percent of the decline in the real price would be reimbursed. However, the Argentine authorities do not expect that any payments will need to be made under the scheme, because of the policy of avoiding a real appreciation of the austral.

b. Exchange rate guarantees for private external debt

In June 1981, the Central Bank introduced a scheme under which private sector borrowers could obtain exchange rate guarantees for new loans contracted, or old loans extended, for a period of at least 540 days. A fixed premium, with an intentional subsidy, was charged for this exchange rate insurance during the first 180 days of the contract. For the remainder of the contract, the premium was set in relation to interest or inflation differentials vis-à-vis the U.S. dollar; in the event, this provision also resulted in a large subsidy to domestic borrowers. About US\$5 billion in guarantees were contracted under this system before it was terminated in December 1981. In July 1982, immediately after a large devaluation of the peso, another scheme was introduced under which private sector debtors could obtain guarantees on loans outstanding prior to the devaluation, provided that they obtained at least a one-year extension of the term of the loan. The guaranteed rate was the predevaluation rate adjusted for subsequent inflation differentials, although even more generous terms were offered subsequently. Loans covered by guarantees issued in 1981 could be rolled over under the new scheme. By the time this scheme was closed in October 1982, more than US\$10 billion, or two thirds of the debt of the private sector, was covered by an exchange rate guarantee.

The first maturities on loans covered by exchange guarantees issued in 1981 fell due in December 1982, by which time the average guaranteed

* Source: Annual Report on Exchange Arrangements and Exchange Restrictions, various issues, and other information provided by national authorities.

rate on such loans was one tenth of the actual official rate. Since the Central Bank neither had the foreign exchange to cover the repayment of these loans nor was willing to permit the monetary expansion which would have resulted from renewal of the loans by the private sector at the current exchange rate, it issued regulations requiring that all loans covered by guarantees issued in 1981 be rescheduled on maturity, according to specified minimum terms. The foreign creditor was given the option of either (a) accepting Government of Argentina securities denominated in U.S. dollars with specified grace and maturity periods, or (b) renegotiating the loan directly with the private sector on comparable terms; in the latter case, U.S. dollar-denominated securities would be issued in guarantee. Under either option, the private sector debtor would pay to the Central Bank the domestic currency required to cancel the loan at the guaranteed rate. In June 1983, the same mandatory rescheduling provisions were extended to loans covered by the 1982 guarantees.

By the end of 1983, US\$4.4 billion in loans covered by exchange guarantee had fallen due, and the debtors had paid to the Central Bank the domestic currency required to cancel the loan and guarantee contracts. However, most of the related U.S. dollar-denominated securities were not taken up until 1984 owing to delays in reaching agreement with creditors on the option to be taken. A further US\$3.1 billion in loans covered by exchange guarantee fell due in 1984-85. The obligations due to commercial banks were rescheduled as part of a refinancing package, by means of the issuance of U.S. dollar-denominated notes; the obligations to other creditors were refinanced separately. Loans covered by guarantees that fell due in 1986 were rescheduled by means of the issuance of similar notes with a ten-year maturity. Obligations due to commercial banks were rescheduled as part of the 1987 rescheduling agreement, while obligations to other creditors were to be refinanced separately.

Bangladesh

a. Forward facilities at regulated terms

Such facilities with regulated premia are available at authorized banks as follows: for periods of up to six months for export proceeds and import payments; for three months for remittances of surplus collection of foreign shipping companies and foreign airlines; and for settlement in the Asian Monetary Unit (AMU) of transactions under the Asian Clearing Union. The authorized dealers are not permitted to pay any premium for purchases of forward exchange above the spot rate. For commercial forward sales, they are allowed to charge taka 0.08 per U.S. dollar equivalent over their spot selling rate at all maturities up to six months; at the end of December 1986, this amounted to a premium of 0.3 percent. When the designated dealers sell foreign exchange forward for imports under official loans, credits, or grants, they are allowed to charge 5 percent in addition to usual commissions and charges. The Central Bank provides forward cover to the authorized dealers at a

premium also fixed at taka 0.08 per U.S. dollar equivalent over its spot selling rate. Because of the regulated premium, which is low in relation to international interest differentials, the dealers cover all their authorized forward exchange commitments with the Central Bank. The regulated premium has in recent years been smaller than the rate of depreciation of the taka against most of the currencies in which forward facilities are available, and private sector participants will usually have profited from taking such cover while the Central Bank will have incurred losses. (Appendix Chart II.1 and Appendix Table II.1.) Data on such losses are not available.

b. The Exchange Rate Fluctuations
Burden Absorption Scheme (EFAS)

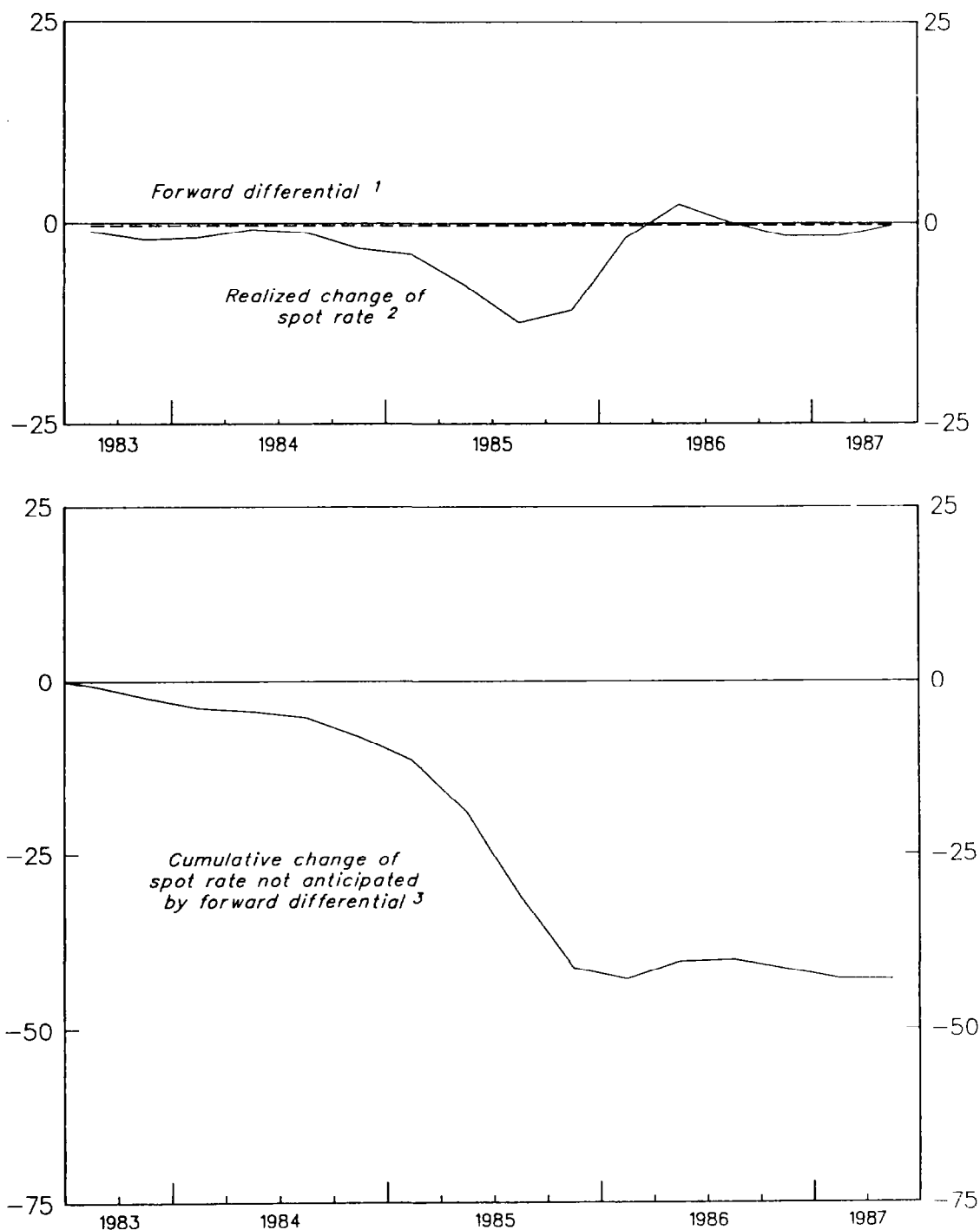
The solvency of the EFAS, which was introduced in July 1983, is guaranteed by the Central Bank. The scheme is composed of two parts. Under the first, the Central Bank will provide exchange rate guarantees to projects in which foreign currency loans had been or will be disbursed between July 1983 and June 1988. The scheme is available to both public and private sector borrowers at an annual charge of 2.5 percent of the outstanding amount of the loan. Under the second part, lending institutions are permitted to convert part of exchange losses on foreign currency loans outstanding at end-June 1983 and on which overdue repayments exist, into preferred shares or debentures. In April 1986, it was announced that only loans disbursed by the three development finance institutions would be eligible for cover under the EFAS. In fact, however, few enterprises had subscribed to EFAS as of December 1986.

Costa Rica

At the end of 1980, a fixed exchange rate was replaced by a flexible exchange rate system. In order to alleviate the financial burden on both the private and public sectors of the resulting sharp depreciation of the colon, the Central Bank issued, beginning in mid-1981, exchange guarantees at the previous official exchange rate of ₡ 8.60 per U.S. dollar for a number of foreign exchange transactions. These transactions included (1) for the public sector, foreign currency expenditures of the Central Government, together with imports of petroleum, medicine, and wheat; and (2) for the private sector, unpaid 1980 imports, debt repayment of registered capital, pre-export financing of coffee, and student remittances.

A large proportion of the guarantees took the form of U.S. dollar-denominated certificates of deposit (CDs) issued by the Central Bank against local currency deposits converted at the previous official exchange rate. These CDs were to be redeemed in equal semiannual installments over three years, with the first installment falling due in October 1981. As of June 30, 1982, however, the Central Bank had been unable to make any payments, either in principal or in interest, and the amount of CDs outstanding was US\$325 million. The subsequent increase

CHART II.1
BANGLADESH
FORWARD EXCHANGE RATE DIFFERENTIALS vs. REALIZED
SPOT EXCHANGE RATE CHANGES AGAINST U.S. DOLLAR



Sources: IFS; data provided by the Bangladesh authorities; and staff calculations.

¹ End of quarter six months forward differential (percent per half year) advanced by six months. Negative value indicates forward discount.

² Change of spot rate over preceding six months. Negative value indicates depreciation of the taka vis-à-vis U.S. dollar

³ Percent from third quarter 1983.



Table II.1. Bangladesh: Spot and Forward Exchange Rates Against the U.S. Dollar

	Central Bank			Authorized Dealers			Central Bank	Dealers	Interest Rates		
	Spot Buying	Rate Selling	Forward Selling <u>1/</u>	Spot Buying	Rate Selling <u>1/</u>	Forward Selling	Premium (Annual)	Premium (Annual)	Taka <u>2/</u>	U.S. Dollar <u>3/</u>	Interest Diffe- rential
3/31/83	24.4800	24.5200	24.6000	24.4487	24.5826	24.6626	0.653	0.649	12.00	9.47	2.31
6/30/83	24.4800	24.5200	24.6000	24.4487	24.5826	24.6626	0.653	0.649	12.00	9.48	2.30
9/30/83	24.7200	24.7800	24.8600	24.6887	24.8426	24.9226	0.646	0.642	12.00	10.39	1.46
12/31/83	24.9700	25.0300	25.1100	24.9387	25.0925	25.1725	0.639	0.636	12.00	9.95	1.86
3/31/84	25.1700	25.2300	25.3100	25.1387	25.2925	25.3725	0.634	0.631	12.00	10.41	1.44
6/30/84	25.1700	25.2300	25.3100	25.1387	25.2925	25.3725	0.634	0.631	12.00	11.83	0.15
9/30/84	25.4700	25.5300	25.6100	25.4387	25.5925	25.6725	0.627	0.623	12.00	12.19	-0.17
12/31/84	25.9700	26.0300	26.1200	25.9387	26.0925	26.1725	0.692	0.611	12.00	10.36	1.49
3/31/85	26.4700	26.5300	26.6100	26.4387	26.5926	26.6725	0.603	0.599	12.00	10.54	1.32
6/30/85	27.9700	28.0300	28.1100	27.9387	28.0926	28.1726	0.571	0.568	12.00	8.55	3.18
9/30/85	29.7200	29.7800	29.8600	29.6887	29.8426	29.9226	0.537	0.535	12.00	8.33	3.39
12/31/85	30.9700	31.0300	31.1100	30.9387	31.0926	31.1726	0.516	0.513	12.00	8.19	3.52
3/31/86	30.2700	30.3300	30.4100	30.2387	30.3926	30.4726	0.528	0.525	12.00	7.91	3.79
6/30/86	30.2700	30.3300	30.4100	30.2387	30.3926	30.4726	0.528	0.525	12.00	7.11	4.57
9/30/86	30.2700	30.3300	30.4100	30.2387	30.3926	30.4726	0.528	0.525	12.00	6.27	5.39
12/31/86	30.7700	30.8300	30.9100	30.7387	30.8926	30.9726	0.519	0.517	12.00	6.14	5.52
3/31/87	30.7700	30.8300	30.9100	30.7387	30.8926	30.9726	0.519	0.517	12.00	6.38	5.28
5/24/87	30.8700	30.9300	31.0100	30.8387	30.9926	31.0726	0.517	0.515			

1/ The buying rate for forward exchange is identical with the buying spot rate.

2/ Interest rate for deposits with deposit money banks.

3/ London Interbank Offer Rates on 6-months U.S. dollar deposits (period averages).

in the amount outstanding to US\$373 million at the end of 1983 reflected mainly the capitalization of interest. Since most of these CDs were issued at the exchange rate of ¢ 8.60 per U.S. dollar, they gave rise to potential exchange losses equal to the difference between that rate and the prevailing banking exchange rate, which was ¢ 43.15 per U.S. dollar at the end of 1983. Such potential losses amounted to more than ¢ 12 billion--roughly equivalent to the Central Bank's total liabilities to the private sector--at the end of 1983.

Apart from the potential losses arising from the issue of CDs, the amount of exchange subsidies actually paid by the Central Bank is estimated at around ¢ 4 billion in 1981 and ¢2 billion in 1982, of which ¢ 0.9 billion and ¢ 1.4 billion, respectively, accrued to the public sector. The losses in 1981 and 1982 taken together were equivalent to the total outstanding currency issue at end-1982. The value of exchange subsidies declined to ¢ 0.5 billion in 1983 (¢ 0.4 billion to the public sector), and all transactions with access to foreign exchange at the previous official rate were virtually eliminated in that year.

Monetary policy during 1981-83 was largely directed at neutralizing the expansionary impact on domestic credit of the large exchange losses incurred by the Central Bank. For this purpose, the Central Bank relied heavily on the placement of stabilization bonds with the private sector (the amount outstanding rose from ¢ 0.3 billion at end-1980 to ¢ 5.2 billion at end-1983) and the absorption of excess commercial bank reserves. The interest cost of these operations has resulted in further large operating losses for the Central Bank after 1982.

Egypt

In exceptional circumstances, the central bank may provide forward exchange cover in U.S. dollars for commercial transactions to a limited number of public sector enterprises, at a premium of 3 percent over the spot rate in the "official" market. In practice, the central bank does not do so.

India

The Exchange Credit Guarantee Corporation of India Ltd. (ECGC) administers an official insurance scheme that provides forward exchange cover for exports of engineering goods, turnkey and civil construction contracts and service contracts where payments are to be received in installments deferred beyond 12 months. The cover is offered in French francs, deutsche mark, Japanese yen, pounds sterling, Swiss francs, U.S. dollars, and UAE dirhams from the date of a bid up to 15 years after the award of a contract.

Indonesia

Since January 1979, Bank Indonesia (BI) has made available to banks and other financial institutions forward cover in the form of foreign

exchange/rupee swaps at preferential forward premia on foreign exchange for specified purposes. The swap entails a spot sale of foreign exchange to BI, matched by a forward purchase at a price more favorable than that ordinarily available from commercial banks. The facility was initially available to cover import transactions and short-term borrowing, but since January 1983 the swaps have been provided to cover bona fide offshore borrowing only. Until October 1986, the volume of swaps was subject to ceilings applying both to the total volume outstanding and to individual financial institutions. The ceilings were then eliminated, while the terms on which the swaps were offered were made less advantageous.

BI initially set charges on swap contracts at 2.5 percent per annum, with banks free to set the premia charged on the corresponding transactions with their clients. In 1981-82, however, the demand for swaps increased sharply as speculation against the rupee intensified and interest differentials and the forward premia charged by banks widened. Thus in October 1982 BI imposed a limit of 2 percent per annum on the margin above the BI premium that banks could charge on any forward transaction backed by a BI swap. In February 1983, this limit was reduced to 0.25 percent; and at the same time BI raised its swap charges to a range of 4.25-4.75 percent, depending on maturity. (BI swaps have maturities of 30-180 days, but are renewable.) BI swap charges were raised again in March 1983, to a range of 4.75-5.75 percent. The volume of swap contracts outstanding subsequently fell sharply, from about US\$2 billion in March 1983 to about US\$1 billion in July, partly on account of a narrowing of interest differentials and commercial forward premia following a devaluation of the rupee. After 1983, however, the demand for BI swaps again increased, and the ceilings referred to above were frequently binding. In 1984 and 1985, quarterly data show that the volume of swaps outstanding ranged between US\$2.3 billion and US\$2.6 billion. In October 1986, BI raised the minimum charge on the swap facility to 8 percent per annum (comparable with uncovered interest differentials vis-à-vis the U.S. dollar) and reduced the maximum fee to be charged by banks to 0.125 percent. (Chart II.2 and Appendix Table II.2.) At the same time, the ceilings on the volume of swaps were eliminated. Nevertheless, in early 1987 total swaps outstanding rose sharply to US\$3.1 billion.

Israel

An exchange rate insurance scheme was introduced in 1981 to enable exporters to obtain cover against unfavorable movements in real exchange rates. The scheme, administered by the Foreign Trade Insurance Company (FTIC), covers exporters' value added. In return for a premium based on the value added of his exports, an exporter receives cover against any real appreciation of the sheqel in relation to an export-weighted basket of the currencies of Israel's five major trading partners (the U.S. dollar, pound sterling, Netherlands guilder, French franc, and deutsche mark). The premium rate is established on the basis of average

expected inflation in the partner countries and the relationships among the forward exchange rates of the currencies constituting the basket. The scheme is intended to be self-financing, since although exporters would receive payments from the FTIC if the real depreciation was less than expected, they would make payments to the FTIC if it was greater. In practice, however, the scheme has operated at substantial losses: these amounted to US\$312 million in fiscal year 1984/85 and US\$276 million (1.3 percent of GNP) in 1985/86. These losses are charged to the Government budget. As of August 1985, compensation to insured exporters has been subject to a limit of 11 percent of value-added.

Kenya

Commercial banks are authorized to enter into forward exchange contracts with their customers for up to six months at premia or discounts administratively set by the Central Bank. Since the beginning of 1985, there has been a zero discount on forward sales of shillings, but a sizeable premium on forward purchases. Forward cover is permitted for trade transactions only. Commercial banks may also cover their forward exchange contracts in outside markets; they are not permitted to hold uncovered positions. In recent years, total forward purchases of foreign exchange amounted to, on average US\$44 million per month, while forward sales were virtually nil.

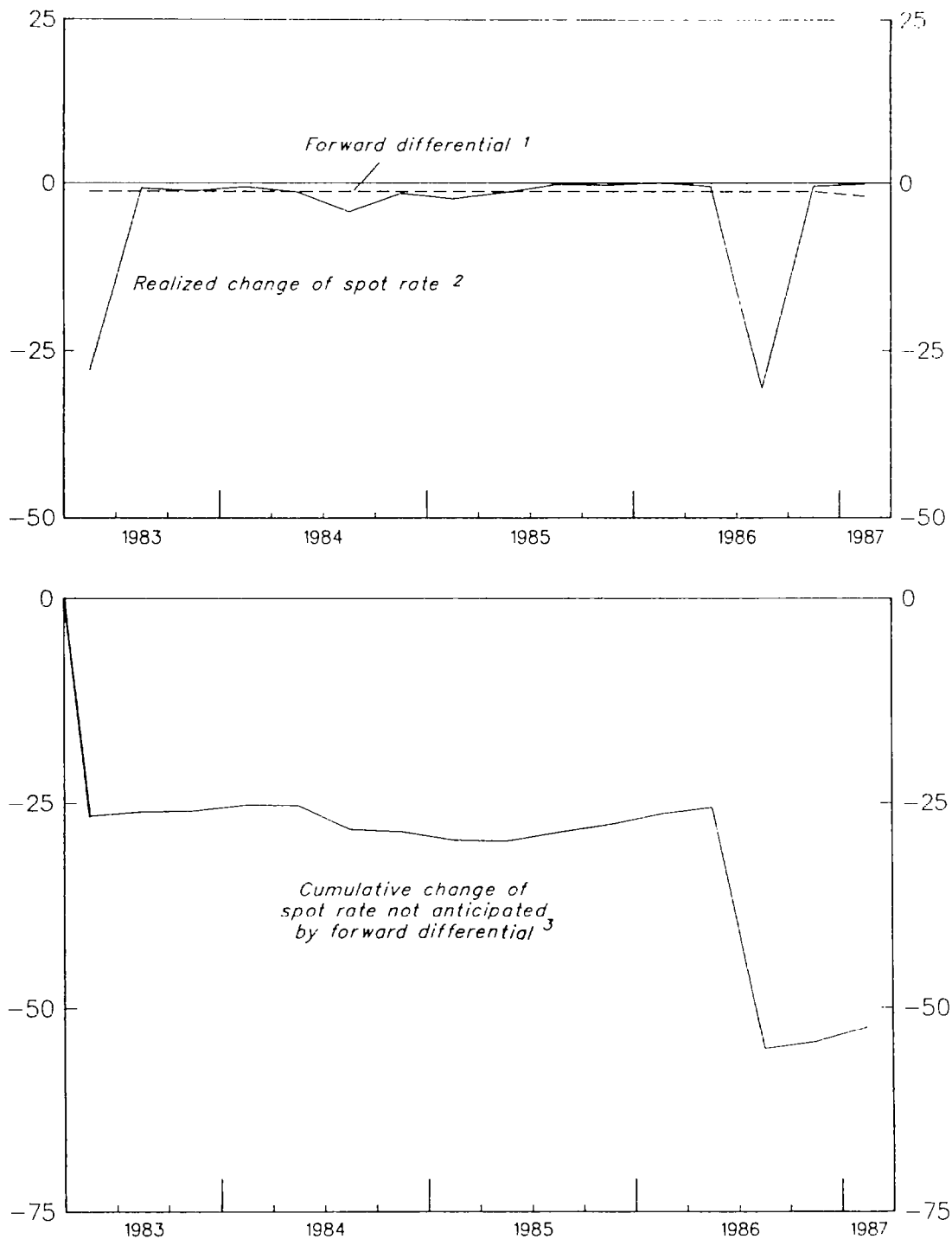
Malta

Before June 1981 commercial banks provided forward cover usually for up to six months, to exporters and importers at commercial terms. Forward rates quoted were based on interest differentials, and the banks covered their own forward positions through balances abroad. Meanwhile the Central Bank provided foreign exchange cover for importers, also usually for up to six months, under a bulk buying scheme operated by the Government. The Central Bank's forward rates were obtained by applying a fixed percentage charge--which was, in effect, an insurance premium--to each spot rate. In calculating the charge, the Bank took into consideration such factors as the cost of providing the facility and the opportunity cost of maintaining funds in the currencies concerned during the period of the forward commitment. Forward contracts pertaining to the sale of a currency by the Bank were normally covered by earmarking a portion of the Bank's external reserves in that currency for the duration of the contract.

Under a new system introduced in June 1981, the commercial banks are obliged to cover with the Central Bank any forward contracts entered into with their customers in the principal currencies. Any contract concluded between a bank and a customer should thus be accompanied by a similar contract between the bank and the Central Bank. The forward facilities offered by the Central Bank to the commercial banks are intended to provide cover for firm contractual commitments of a current nature, i.e., payments/receipts pertaining mainly to merchandise trade, but also other current account transactions. Capital transactions are

CHART II.2
INDONESIA

FORWARD EXCHANGE RATE DIFFERENTIALS vs. REALIZED
SPOT EXCHANGE RATE CHANGES AGAINST U.S. DOLLAR



Sources: IFS; data provided by the Indonesian authorities; and staff calculations.

¹End of quarter three months forward differential (percent per quarter) advanced by three months. Negative value indicates forward discount.

²Change of spot rate over preceding three months. Negative value indicates depreciation of the rupiah vis-à-vis the U.S. dollar.

³Percent from 2nd quarter 1983.



Table II.2. Indonesia: Interbank Swap Transactions
Against U.S. Dollars, 1983-87 1/

(In percent per annum)

	Forward premium in swap margin <u>2/</u>	Euro dollar interest rate	<u>Cost of borrowing rupiah through interbank</u>		
			Swap	Money market <u>3/</u>	Difference
1983					
March	-5.3	9.7	15.0	17.9	-2.9
June	-5.3	10.0	15.3	10.5	4.8
September	-5.3	9.5	14.8	10.6	4.2
December	-5.3	10.0	15.3	13.7	1.6
1984					
March	-5.3	10.9	16.2	16.4	-0.2
June	-5.3	12.3	17.6	14.0	3.6
September	-5.3	11.3	16.6	46.8	-30.2
December	-5.3	8.7	14.0	9.6	4.4
1985					
March	-5.3	9.2	14.5	13.2	1.3
June	-5.3	7.8	13.1	9.2	3.9
September	-5.3	8.2	13.5	10.2	3.3
December	-5.3	8.1	13.4	11.5	1.9
1986					
March	-5.3	7.5	12.8	15.2	-2.4
June	-5.3	7.0	12.3	12.7	-0.4
September	-5.3	6.1	11.4	12.9	-1.5
December	-8.0	6.8	14.8	14.8	--
1987					
March	-8.0	6.6	14.6	13.7	0.9

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

1/ Representative three-month swap effected through foreign exchange banks and nonbank financial institutions at the end of the month.

2/ Bank Indonesia foreign exchange swap margin.

3/ Rupiah interbank rates; average of rates at which transactions were conducted, weighted by volume of each transaction.

excluded. The Central Bank assumes all the exchange risk entailed in its forward contracts with the commercial banks. The forward rates quoted daily by the Central Bank are for up to six months; one year quotations are also issued on request. In August 1983 (the latest date for which data are readily available) the Central Bank's six-month forward rate against the U.S. dollar represented a forward premium on the lira of 1.8 percent per annum, compared with an uncovered interest differential of more than 5 percent at that time in favor of U.S. dollar-denominated six-month deposits. The forward rates quoted by the commercial banks should vary from the Central Bank's rates only by the banks' handling charges and profit margins. When adjustments to the rates are effected, the Central Bank immediately communicates the revised rates to the banks. The Central Bank has continued to provide forward cover directly to government departments and various parastatal bodies in respect of imports.

Mauritius

Forward exchange facilities in pounds sterling, French francs, and U.S. dollars are made available by the Bank of Mauritius for a limited number of transactions: for firms operating in the Export Accessing Zone and for banks engaged in foreign borrowing for on-lending to the sugar sector. The maximum period for forward cover is six months; the forward rates are based on a uniform margin of 3 percent per annum.

Morocco

A forward exchange cover facility was established by the authorities effective June 1, 1979; the facility is available for exports as well as imports of items benefitting from special customs arrangements

Pakistan

All foreign exchange transactions by the public (including forward transactions) must be conducted through authorized dealers and money changers at rates established by the central bank. Authorized dealers may enter into forward exchange contracts for private commercial transactions, generally for up to six months, and they may cover their permitted transactions in foreign exchange markets abroad, or with their agents in the countries concerned. In addition, the central bank provides official forward cover to authorized dealers. The central bank's forward margins were kept unchanged in absolute terms for more than 20 years up to April 1987. On May 3, 1987 the central bank's buying rate for U.S. dollars up to six months forward was the same as its spot buying rate, while its buying rate for U.S. dollars between 6 months and 12 months forward implied a forward discount on the dollar of 3 percent per annum at the longest maturity. Its selling rate, however, for 6- and 12-month maturities, implied a forward premium on the U.S. dollar of 3 percent per annum. Meanwhile, there was an uncovered

interest differential in favor of rupee bank deposits vis-à-vis euro-dollar deposits of about 7 percent, which would be the order of magnitude of the forward premium on the U.S. dollar if covered parity held.

There is an official exchange rate cover scheme for private sector debtors administered by the central bank. Upon payment of annual fees ranging from 3.0 percent in the case of the pound sterling to 7.9 percent for the Swiss franc, the exchange risk on foreign currency loans and suppliers' credits will be covered by the central bank. (Before a revision to the scheme in May 1987, the fee was 3 percent for all currencies.)

Turkey

In April 1984, a foreign exchange risk insurance scheme (FERIS) was introduced, to encourage the private sector's utilization of foreign loans for export-oriented projects by providing insurance against exchange risk for both interest and principal. Private investors had been reluctant to make use of such resources as those provided by the World Bank because an exchange risk. FERIS is administered by the central bank, but is a financially independent entity; it is intended to be self-financing over its lifetime, although there was originally provision for subsidies from the budget. Under the scheme, if a foreign loan was on-lent by, say, the Turkish Development Bank to the private sector, with cover by FERIS, the private sector borrower would be charged a domestic interest rate equal to the interest rate on the foreign loan, plus a projected inflation differential between Turkey and the appropriate foreign comparator, plus a 4 percent management fee charged by the development bank minus a 7 percent subsidy from the Interest Rate Difference Rebate Fund (IRDRF) of the Budget. The resources accruing to FERIS from the charging of interest on this basis would, it was expected, enable FERIS to cover the difference between the lira cost of maturities and the lira cost of the loan at the time it was contracted. In 1985, the authorities announced that the 7 percent subsidy would henceforth apply on a selected rather than general basis. Only limited use has been made of the scheme.

2. Official and Managed Forward Exchange Facilities at Quasi-Commercial Terms

Argentina

Between December 1981 and May 1982, in an attempt to conserve its reserves, the Central Bank undertook 180-day foreign currency swap arrangements with banks and other private sector borrowers in Argentina, and by the end of 1982 there were US\$1.4 billion of such swaps outstanding. The Central Bank did not have the reserves to unwind these operations as they fell due, and after mandating several short-term rollovers it announced in June 1983 that all loans covered by swap

contracts, apart from certain trade-related swaps undertaken at end-1982, could be rescheduled on specified terms. However, the scheduled principal repayments on the rescheduling were subsequently postponed by means of 180-day rollovers. In 1985 new terms for the rescheduling of swap obligations falling due in that year were announced in accordance with the commercial banks rescheduling of private sector obligations. Similarly, the 1987 agreement with creditor banks provides for the rescheduling of swap-related obligations. It is estimated that US\$0.7 billion of swap obligations would be rescheduled under the agreement.

People's Republic of China

Forward exchange transactions are permitted only in connection with underlying trade transactions. Forward exchange facilities are provided by banks, and forward exchange rates are published for 15 currencies. Rates are quoted for one to six months, but transactions can be renewed for a further six months. China does not use a system of forward premiums and discounts, but instead applies forward charges to the respective spot rates. Forward charges reflect interest rate differentials and trends in international markets in the currencies concerned.

Hungary

Official forward exchange rates are quoted by the National Bank in respect of the convertible currencies for which spot rates are quoted on a daily basis. Forward rates are formed by adjusting the official spot rates by percentage differentials set by the Bank for various maturities between 7-30 days and 360 days. The Bank is prepared to buy (or sell) currencies forward from (or to) enterprises having foreign exchange receipts (or expenditures) arising from foreign trade.

India

Exchange rates for forward purchases of U.S. dollars, pounds sterling, deutsche mark and Japanese yen, based on the latest available rates and trends in international markets, are announced daily by the Reserve Bank. The Reserve Bank stands ready to purchase these currencies, and the currencies of certain member countries of the Asian Clearing Union (ACU), forward (as well as spot), but to sell only pounds sterling and ACU currencies spot. On December 30, 1986 the Reserve Bank's rates were US\$7.64 per Rs 100 for buying spot and US\$7.61 for buying three months forward. The implied forward discount on the rupee of 1.6 percent per annum was roughly consistent with the uncovered interest differential vis-à-vis the U.S. dollar.

Authorized dealers are permitted to enter into forward exchange contracts in convertible currencies at exchange rates announced by the Reserve Bank for trade-related and certain service-related transactions. Maturities of such forward contracts can be no longer than six months, but they may be extended on a roll-over basis depending

on the circumstances. In addition, forward exchange cover may be offered for specified foreign currency loans approved by the Reserve Bank for imports of capital goods. Cover for the full amount of debt service is permitted on a roll-over basis provided the loans have been contracted at a fixed rate of interest, with payments to be made in one currency. When a floating rate of interest is applicable to a loan, authorized dealers may enter into forward exchange contracts for the principal amount of the loan, and for the current period interest payments. In the case of multiple currency loans, authorized dealers may enter into forward contracts with respect to only one repayment installment at a time, including interest payable at the next rollover date. Contracts for forward sales of foreign exchange to foreign airlines, shipping companies, or their agents are permitted up to the net amount of surplus, subject to the Reserve Bank's approval, for up to two months from the date on which the application for approval of remittance has been submitted.

The Reserve Bank provides forward cover to authorized dealers by purchases of sterling for up to nine months' delivery initially (extendable up to 12 months), purchases of U.S. dollars up to 12 months, and purchases of deutsche mark and Japanese yen up to six months. The contracts are on a monthly option basis, i.e., with options to deliver on any day within the month in which the contract is due for delivery. The Reserve Bank also purchases, on a similar basis, from authorized dealers the currencies of the ACU member countries other than Nepal.

Mexico

The Trust Fund for the Coverage of Foreign Exchange Risk (FICORCA) was established by the authorities in 1983 to enable the Bank of Mexico to help the private sector deal with the settlement of payments arrears to foreign suppliers, as well as to provide a framework for the refinancing and forward exchange coverage of the private sector's external debt. The following facilities were made available:

a. In February 1983, to facilitate the settlement of obligations of the Mexican private sector to foreign suppliers outstanding as of December 20, 1982 and due before June 30, 1983, the Bank of Mexico made arrangements whereby private sector debtors, by depositing with FICORCA the peso equivalent of payments due, would obtain a guarantee of conversion into U.S. dollars at the controlled market exchange rate on the date that the deposit was constituted. If the foreign creditor agreed to be paid by the transfer of these deposits to his name, FICORCA would make the foreign exchange available to the creditor according to a specified schedule of payments extending from September 1983 to March 1985.

b. In August 1983, a similar facility was established for the settlement of obligations falling due between July 1 and December 19, 1983, with payments scheduled for March 1984.

A total of US\$0.5 billion in private arrears to foreign suppliers without foreign official guarantee were identified under schemes (a) and (b), of which US\$0.2 billion were settled in 1983 while the remaining balance was settled in the first quarter of 1984.

c. Also in 1983, FICORCA provided forward exchange to cover the repayment of external obligations of the Mexican private sector guaranteed by official lending agencies abroad, the restructuring of which was then being negotiated. The agreed minute explicitly incorporated the concept that the authorities would guarantee the transfer of foreign exchange for the repayment of obligations if the debtor paid the peso equivalent of the obligation. About US\$1 billion of private debt which had received such guarantees was restructured on this basis.

d. In April 1983 another scheme was announced to facilitate the restructuring of private external debt. The scheme enabled domestic firms which had obligations outstanding as of December 20, 1982, and which refinanced these obligations at specified minimum terms, to obtain from FICORCA forward cover at special terms for the foreign exchange needed to make the rescheduled service payments. FICORCA would assume only the obligation to deliver the foreign exchange to the domestic borrower on the basis of a repayment schedule agreed between the debtor and creditor; the external obligation would remain with the debtor. The scheme envisaged four alternative procedures for settlement, depending first on whether forward cover applied to principal alone or to principal and interest, and second on whether the debtor used borrowed resources provided by FICORCA.

(1) Foreign exchange cover provided for principal payments only; no borrowed resources. For this option, the minimum maturity of the refinanced loan should be six years, with at least three years' grace. The Mexican debtor would continue to pay interest directly to the creditor using foreign exchange converted at the controlled market rate. With regard to amortization, the debtor would deposit with FICORCA a peso amount equivalent to the external obligation converted at an exchange rate at which the peso would be more appreciated than at the prevailing rate in the controlled market, the rate being more favorable to the debtor the longer the maturity of the restructured loan. These deposits would not bear interest, and it was expected that the interest earned on these funds by FICORCA would offset the cost of the exchange rate discount, i.e., it was expected that the interest rate available to FICORCA would exceed the rate of depreciation of the peso in the controlled market.

(2) Foreign exchange cover for principal payments only; the debtor uses resources borrowed from FICORCA. The only difference from option (1) is that in order to place the peso deposit, the debtor would take a loan from FICORCA on which interest would be charged at market rates.

(3) Forward cover for both principal and interest payments; no borrowed resources. For this option, the minimum maturity of the refinanced loan should be eight years, with at least four years' grace. The debtor would again deposit with FICORCA a peso amount, but this would have to be equivalent to the external obligation converted at the controlled market rate--the preferential rates would not apply--and the deposit would bear interest at the current LIBOR.

(4) Forward cover for both principal and interest payments; debtor uses resources borrowed from FICORCA. This fourth alternative was similar to the third, except that FICORCA would provide the domestic financing for the local currency deposit of the domestic debtor, as in the second alternative.

Under any of these four options, during the period of negotiation with the foreign creditor, the domestic debtor could place a provisional deposit with FICORCA for the equivalent of the principal in pesos at the controlled market exchange rate. These deposits would bear interest at domestic market rates; and the debtor would be compensated, at the time of settlement of the forward cover contract, for any difference between domestic and foreign interest rates in the period between the initial deposit and the settlement of the contract.

The deadline for registering private debt restructuring operations under FICORCA was November 5, 1983. As of that date, US\$11.6 billion had been registered; 94 percent of the total was registered under option (4).

e. In January 1984, a new forward cover scheme for loans contracted by the private sector. In order to have access to forward cover under this facility, the private debtor was required to sell the proceeds of the loan in the controlled exchange market at the prevailing exchange rate. A credit in local currency equivalent to the value of the foreign loan would then be granted by FICORCA, converted at the controlled market exchange rate. No special exchange rates would apply. The scheme was similar to option (4) above. Virtually no operations had been registered under this scheme through mid-1984.

More recently, Mexico and its commercial bank creditors have agreed on terms and conditions under which payments on the private debt covered by the FICORCA schemes would be restructured. Such payments were projected to exceed US\$2 billion a year after 1987, before this restructuring.

Philippines

a. Forward cover for private sector debtors

In 1985, the Private Corporate Sector Foreign Currency Debt Repayment Program was introduced, to provide corporate debtors and their foreign creditors with flexible options for arranging repayments and rescheduling, with forward exchange cover provided when required. Applications for entry into the program, which is administered by the Central Bank Foreign Exchange Cover Corporation (CBFEC), had to be submitted between November 1, 1985 and May 1, 1986. To be eligible for the program, debt had to have original maturities falling due between October 17, 1983 and December 31, 1986.

The program offered four options to the parties involved. The third and fourth of these options entailed the provision of forward cover by CBFEC; both of these options were predicated on a rescheduling agreement between debtor and creditor. Under the third option, CBFEC would enter into a forward contract with the debtor whereby the debtor would pay to CBFEC peso amounts equivalent to the rescheduled maturities converted at the exchange rate prevailing on the date that the eligible debt was effectively entered into the program, plus quarterly fees equal to the product of the current domestic interest rate and the peso value of the outstanding debt, and CBFEC would deliver the foreign exchange to make the rescheduled principal and interest payments to the creditor. Debt would be considered rescheduled for this third option if the maturity date was extended by at least six months.

The fourth option was designed for corporate debtors in severe financial difficulties. To be eligible for this option, the debtor would need to agree with the creditor a rescheduling over at least seven years, with at least three years' grace. CBFEC would extend a national peso loan to the borrower equal to the peso equivalent of the debt in question, converted at the exchange rate prevailing on the date that the debt was effectively entered into the program. Subject to CBFEC's receipt from the debtor of the service payments on this national peso loan, CBFEC would remit the service payments on the foreign loan directly to the creditor on behalf of the borrower, the foreign loan having been assumed into the restructured debt of the Central Bank. No data for the costs of this program are available.

b. Central bank swaps

Swap arrangements between the Central Bank and commercial banks formed an important instrument of monetary policy in 1982 and 1983, being used to defend the official reserves, control bank liquidity, and influence the allocation of credit. In early 1983, it was announced that the amount of swaps outstanding would not be allowed to increase from their end-1982 level; but this policy was subsequently relaxed, and by the end of 1983 outstanding swaps had increased to US\$1.5 billion (from US\$1.4 billion at end-1982), equivalent to more than 4 percent of

GNP. Outstanding swaps subsequently declined steadily, and at end-March 1985 stood at US\$1.3 billion.

Central Bank losses on swap arrangements and the provision of forward cover have formed a significant expansionary influence on reserve money (see Table). At the end of 1982, the Central Bank's accumulated losses on swaps and forward cover were equivalent to about 2 percent of GNP. Over the following two years, as the peso depreciated, the accumulated losses rose sharply to the equivalent of more than 6 percent of GNP. In November 1983 the Central Bank attempted to stem the losses by linking the fee charged for forward cover, which had hitherto been fixed at 15.5 percent, to domestic money market interest rates. In addition, to limit the impact of swap losses on reserve money, the losses were almost entirely blocked from September 1983. Nevertheless, large net sales of Central Bank securities were needed to offset the monetary impact of the losses arising from the Central Bank's forward exchange operations.

South Africa

Authorized dealers are permitted, subject to certain limitations, to conduct forward exchange operations, including cover for transactions by nonresidents. Although banks have been encouraged to make a forward market outside the Reserve Bank, their dealings are restricted by a number of financial limits imposed on them (or on their clients) for purposes of exchange control, monetary policy, and general banking supervision. In these circumstances, the forward exchange operations of the Reserve Bank have played a major role. The Reserve Bank has provided forward cover facilities, in U.S. dollars only, since 1980. Such cover is given to authorized dealers for maturities not exceeding 12 months at a time in the form of rand-U.S. dollar swap transactions, with a margin based on an interest differential between the U.S. dollar and the rand. Also, up to the end of 1986 the Reserve Bank provided forward cover contracts in U.S. dollars for longer maturities for governmental and other public sector institutions.

In order to limit the Treasury's risk arising from the provision of forward cover, the Bank allocates a quota to each authorized exchange dealer for the maximum amount the dealer can buy from or sell forward to the Bank by means of swaps. Nevertheless, the Bank has usually been left with large imbalances between its forward purchases and sales, and has suffered large losses on account of the depreciation of the rand. As of March 1986, the cumulative loss from the forward cover facility since its inception at the end of 1980 amounted to some Rs 8 billion, equivalent to about 150 percent of the stock of reserve money. The authorities planned to terminate their forward cover facility for private sector transactions by August 1986, but following the reintroduction of the dual spot exchange market, the withdrawal from the forward market was postponed so that possible disruptive effects on the dual market would be avoided.

Zimbabwe

Forward exchange contracts are permitted only for trade transactions. There is no limit on the amount of such contracts but the maturity must be between three to six months. The Reserve Bank is prepared to cover forward transactions and quote fixed discount or premium rates for major currencies. At the end-March, 1987 about 50 percent of outstanding forward liabilities of the Reserve Bank was denominated in U.S. dollars, followed by the South African rand, Swiss franc, deutsche mark, and pound sterling are the most important currencies of denomination. The Reserve Bank purchases foreign exchange at the spot preferential telex transfer rate quoted to authorized dealers less 0.35 percent for three months contracts; thereafter an additional 0.10 percent for each month beyond three months up to 0.65 percent for a six month contract. Sales of foreign exchange take place at the spot preferential telex transfer rate plus 0.65 percent for three months contracts and an additional 0.30 percent for each additional month up to 1.55 percent for six months contract. Authorized dealers are expected to quote to their customers their own telex transfer (sight rates plus or minus the margins applied by the Reserve Bank of Zimbabwe).

At end-March 1987, outstanding forward liabilities in foreign exchange of the Reserve Bank amounted to about 12 percent of 1986 imports (f.o.b.). With contracts having maturities of three to six months, this implies that roughly one third to one-half of imports were covered by forward contracts. At the same time, outstanding forward claims were only 10 percent of forward liabilities so that only a fraction of exports is covered by forward contracts. Despite the fact that forward rates by the Reserve Bank do not reflect relative interest rate differentials between the Zimbabwean dollar and foreign currencies, gross losses in the year April 1, 1985-March 31, 1986 were almost matched by gross profits, with a net loss of about Z\$3.4 million.

3. Market-Determined Arrangements in Developing Countries

Argentina

Forward exchange operations are permitted in the private sector, with maturities of up to 180 days and at rates agreed by buyers and sellers; such operations must be related to trade transactions, financial loans, or other loans for which direct sale of foreign currency is permitted. In fact, there are no known forward transactions in the official exchange market. However, there is an active market in forward exchange based on the unofficial or "free" spot market. This is thought to be used mainly for trade-related transactions; forward rates for periods up to the end of the following month are published regularly in domestic newspapers.

Brazil

The commercial banks are permitted to provide to exporters forward exchange facilities, usually for up to 180 days. The banks provide daily forward quotations for foreign currencies, with forward premia reflecting corresponding interest differentials. The forward exchange market made by the commercial banks is an active one. There is no official exchange cover facility in Brazil. Banks are subject to daily limits on bought and sold positions in foreign exchange.

Chile

In order to improve the flexibility and efficiency of the foreign exchange market, the Central Bank authorized the operation of a forward market with effect from January 1, 1986. The regulations permit commercial banks to provide a market for foreign exchange options with maturity of between 15 and 180 days. Contract rates are determined freely without intervention by the Central Bank. The regulations impose limits on banks' gross forward purchases, and on their net exposure both overall and in individual currencies.

Indonesia

Commercial banks and nonbank financial institutions are free to conclude forward exchange contracts in any currency and at any maturity, with no restriction on the kind of transaction underlying the forward contract. Forward quotations closely follow interest differentials between the rupiah and respective foreign currencies. Data on transactions in the private forward exchange market are not readily available, but the volume of transactions is believed to be smaller than under the swap facility provided by Bank Indonesia, where the forward premia on foreign exchange have frequently been significantly narrower (see Appendix II.2).

Jamaica

New regulations governing a forward market in foreign exchange to be operated by commercial banks in respect of certain commercial transactions were issued in November 1984. Commercial banks are permitted to deal in forward exchange for maturities of between one and six months; the forward rates at which they are prepared to deal are published daily. The banks are permitted to purchase forward exchange representing proceeds from nontraditional exports other than those to be surrendered to the Export Development Fund and services other than tourism. Eligibility to buy forward exchange from the commercial banks is limited to importers eligible to bid for foreign exchange at the spot auction. The commercial banks may secure and maintain foreign currency resources from their head offices or correspondent banks overseas to meet their uncovered or mismatched forward commitments. The uncovered forward commitments of the commercial banks as a whole are subject to an overall limit of US\$10 million; there is a corresponding limit of US\$30

million on the banks' net forward commitments whether or not they are covered spot, and corresponding limits for individual banks. The Bank of Jamaica reserves the right to deal in the forward exchange market with the commercial banks only, but its forward commitments are subject to a limit of US\$2 million.

Jordan

Authorized dealers are permitted to enter into forward contracts in major currencies against the Jordanian dinar for specified commercial transactions, provided that they cover such operations abroad. The maturity of the contracts may be up to one year. Each authorized dealer's forward transactions are subject to quantitative limits. For corporations or projects considered to be of vital national interest, the Central Bank may offer a forward exchange facility in respect of forward exchange cover provided by Jordanian banks.

Korea

Authorized dealers may conduct forward exchange transactions among themselves and with nonbank residents. There are no specific restrictions on the terms of forward contracting in respect of interbank transactions, but the maturity of forward contracts between dealers and nonbank customers cannot exceed one year. All forward contracts between authorized dealers and nonbank residents must be related to bona fide commercial transactions, and the contract amount must not exceed the expected receipt or payment on the transaction.

The central bank provides swap arrangements to domestic banking institutions and branches of foreign banks. Branches of foreign banks can enter into swap transactions with the central bank to secure funds for their domestic currency lending. However, it was announced on March 1, 1985 that the use of swap arrangements as a means of local currency funding by the foreign banks would henceforth be scaled down annually. At the same time, the margin requirement on swap transactions with foreign bank branches was reduced from 1 percent to 0.75 percent.

Malaysia

Commercial banks are permitted to deal forward in all currencies other than those of Israel and South Africa at rates determined by the banks themselves. The forward exchange contracts may be in respect of both commercial and financial transactions. Forward cover for the commercial banks is provided usually for up to three months either through swap facilities with the central bank or through interbank swaps. In the official facility, forward premia and discounts are roughly equal to those which the commercial banks charge their customers. Exporters of petroleum, rubber, tin, and palm oil, as well as an increasing number of importers have been the main users of the forward market. Most transactions have been against the U.S. dollar, reflecting its predominance in Malaysia's external trade and financial

settlements. Data for the swap margin in the interbank market show that the ringgit was generally quoted at a forward premium vis-à-vis the U.S. dollar between January 1982 and June 1984, reflecting uncovered interest differentials favoring U.S. dollar assets. Reflecting the decline in U.S. interest rates, a forward discount subsequently emerged, and widened in early 1986 partly on account of speculative pressure on the ringgit. (Chart II.3 and Appendix Table II.3).

Nigeria

Forward exchange transactions at market-determined rates are permitted between foreign exchange dealers and their customers. These transactions must be the counterpart of an underlying import or export transaction, and the maturity of the cover must not extend beyond six months.

Singapore

Singapore has one of the largest foreign exchange markets in developing countries, including an active forward market. Banks are free to deal spot and forward in all currencies, with no limits on maturities or underlying transactions. Foreign currency futures are traded at the Singapore International Monetary Exchange. Singapore's role as a regional financial center has been deliberately promoted by government policies, including fiscal incentives from the late 1970s and the liberalization of exchange controls which culminated in the lifting of capital controls in 1978.

The forward exchange market is a private market functioning in a similar way to the forward markets in financial centers in industrial countries. Because of the absence of impediments to capital movements, forward premia reflect interest differentials (Chart II.4 and Appendix Table II.4). A recent econometric study using weekly and monthly data for the period 1976-83 rejected the hypothesis that the forward rate for the Singapore dollar vis-à-vis the U.S. dollar was an unbiased predictor of the spot rate. This rejection of the "efficient markets" hypothesis as in other currency markets, may be a reflection of exchange risks involved in speculative cross-currency portfolio management.

In July 1984, the Singapore Monetary Exchange (SIMEX) began to trade in commodity and financial futures contracts. In August 1984, the Chicago Mercantile Exchange (COMEX) and SIMEX established a link enabling them to trade on a "mutual offset" system in certain financial futures contracts. Initially Euro-dollar and U.S. dollar/deutsche mark contracts were traded; U.S. dollar/yen contracts were subsequently added.

Sri Lanka

The commercial banks provide a forward exchange market for commercial transactions in which rates are freely determined, although

the market is highly regulated. The Central Bank of Sri Lanka provides forward cover to commercial banks in U.S. dollars for their sales and purchases of foreign exchange; the period for such cover is up to three months. Previously, the Central Bank provided forward cover at fixed discount/premium rates, irrespective of interest differentials. However, to encourage trading and money market development in general, changes were recently made to forward market operations. Since February 1987, the Central Bank began to quote buying rates taking into account interest differentials. At the same time, the Central Bank ceased the forward selling of foreign exchange, except for intervention purposes. Commercial banks now set rates on forward foreign exchange sales among themselves, on the basis of supply and demand.

Under present regulations, commercial banks are required to buy forward foreign exchange proceeds from all exporters whenever exports exceed SL Rs 500,000, whether or not exporters avail themselves of the Central Bank's export refinance facilities. They may cover such purchases by selling forward to their clients (that is, importers and shipping agents) or to other authorized dealers. However, in entering into forward contracts for the sale of foreign currency to importers, the commercial banks are required to ensure that (i) the forward contract is with a resident of Sri Lanka; (ii) the transaction relates to a genuine trade contract involving the importation of food and foodstuffs, raw materials, intermediate goods, drugs, pharmaceuticals, books and pamphlets, and specified capital goods and parts thereof; (iii) the deal is effected on an outright basis and not initially as a swap, that is, no other future repurchase is involved; and (iv) the average contract is for a period not exceeding 180 days. These regulations were intended to discourage speculation against the Sri Lanka rupee, to speed up the repatriation of export proceeds, and to discourage "nonessential" imports.

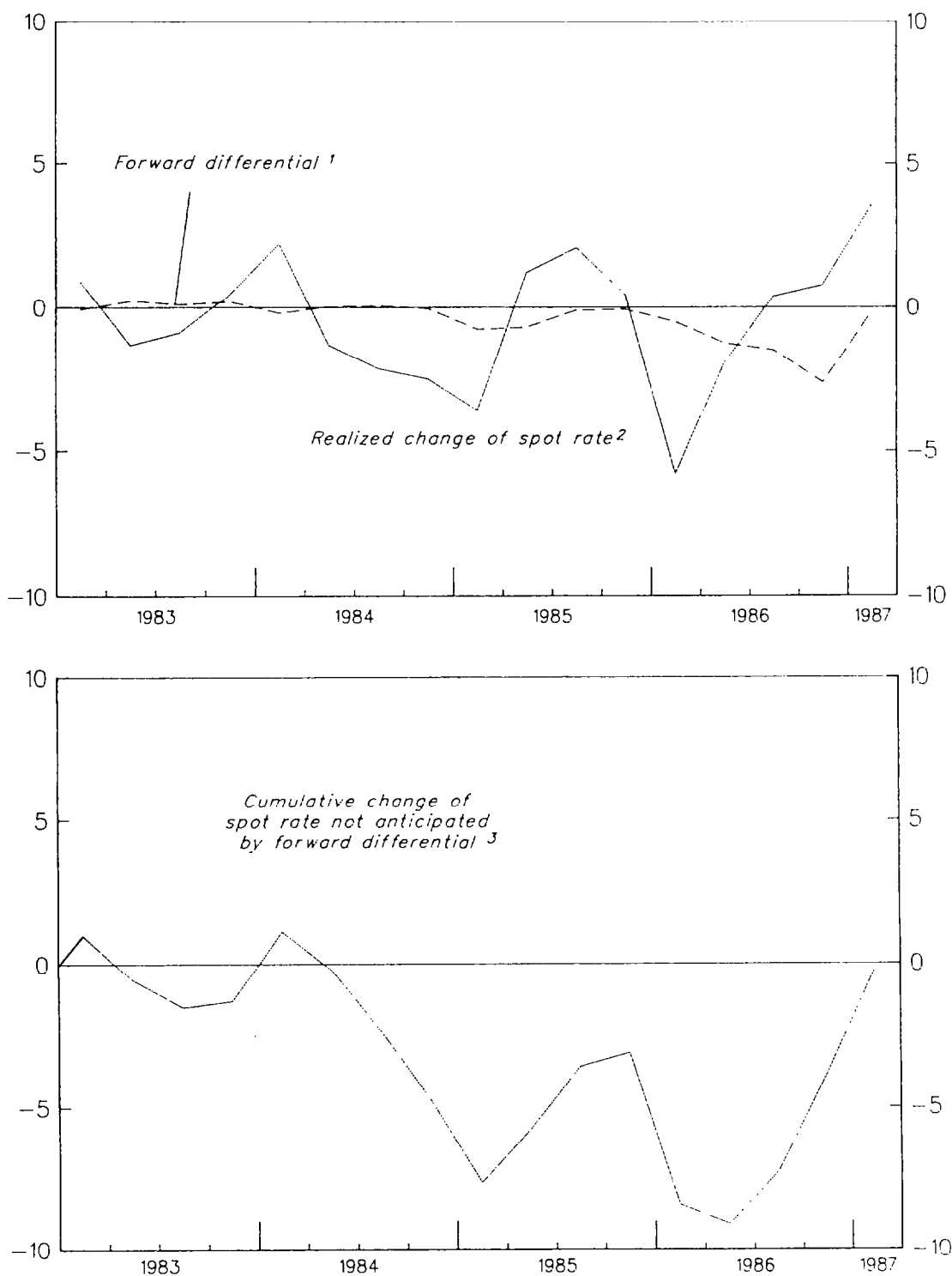
Before February 1987, the forward quotations of the Central Bank were changed infrequently and did not reflect international interest differentials. Thus at end-1986, the Central Bank's buying rate for one-month forward dollars was the same as the spot middle rate, while its selling rate for one-month forward dollars represented a forward premium of 1.4 percent per annum over its spot selling rate. Meanwhile, its buying and selling rates for three-month forward dollars represented forward premia on the dollar of 0.04 percent and 2.7 percent per annum, respectively.

Prior to that, the rules governing the market were modified in 1984. In order to discourage speculation against the rupee and to expedite the repatriation of export proceeds, the Central Bank stipulated that all export proceeds exceeding SL Rs 500,000 (roughly US\$20,000 at the average exchange rate prevailing in 1984) should be sold forward, and that the maturity of the forward contract should be no longer than six months. On the import side, the commercial banks were allowed to sell forward exchange only for essential imports and only for

CHART 11.3
MALAYSIA

APPENDIX II

FORWARD EXCHANGE RATE DIFFERENTIALS vs. REALIZED
SPOT EXCHANGE RATE CHANGES AGAINST U.S. DOLLAR



Sources: IFS; data provided by the Malaysian authorities; and staff calculations.

¹End of quarter three months forward differential (percent per quarter) advanced by three months. Negative value indicates forward discount.

²Change of spot rate over preceding three months. Negative value indicates depreciation of the ringgit vis-à-vis the U.S. dollar.

³Percent from first quarter 1983.

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Table II.3. Malaysia: Interbank Swap Transactions
Against U.S. Dollars, 1983-87 ^{1/}

(In percent per annum)

	Forward premium implicit in swap margin	Euro dollar interest rate	Cost of borrowing M\$ through interbank		
			Swap	Money market	Difference
1983					
March	0.9	9.7	8.8	7.3	1.5
June	0.4	10.0	9.6	7.6	2.0
September	0.8	9.5	8.7	8.4	0.3
December	-0.8	10.0	10.8	9.9	0.9
1984					
March	0.1	10.9	10.8	8.9	1.9
June	0.2	12.3	12.1	9.6	2.5
September	-0.2	11.3	11.5	10.4	1.1
December	-3.0	8.7	11.7	10.3	1.4
1985					
March	-2.7	9.2	11.9	9.5	1.8
June	-0.4	7.8	8.2	7.5	0.7
September	-0.3	8.2	8.5	6.5	2.0
December	-0.2	8.1	10.1	6.6	3.5
1986					
March	-4.9	7.5	12.4	9.5	2.9
June	-5.9	7.0	12.9	9.2	3.7
September	-10.4	6.1	16.5	11.8	4.7
December	-0.6	6.8	7.4	6.0	1.4
1986					
March	1.9	6.6	4.7	2.7	2.0

Source: Data provided by the Malaysian authorities.

^{1/} Representative three-month swap effected through foreign exchange brokers at the end of the month.

maturities not exceeding six months. All forward contracts were to be conducted through the banking system at freely determined rates.

Thailand

In recent years, a forward exchange market has developed among the commercial banks, encouraged by the liberalization of the financial sector and a reduction in exchange controls. All forward transactions have to be related to underlying trade transactions, and the maturity of forward contracts is not permitted to exceed six months. The Bank of Thailand introduced restrictions on the open foreign exchange positions of commercial banks in 1984. The forward premium in the baht/U.S. dollar rate, which is freely determined, has closely reflected interest differentials between the two currencies.

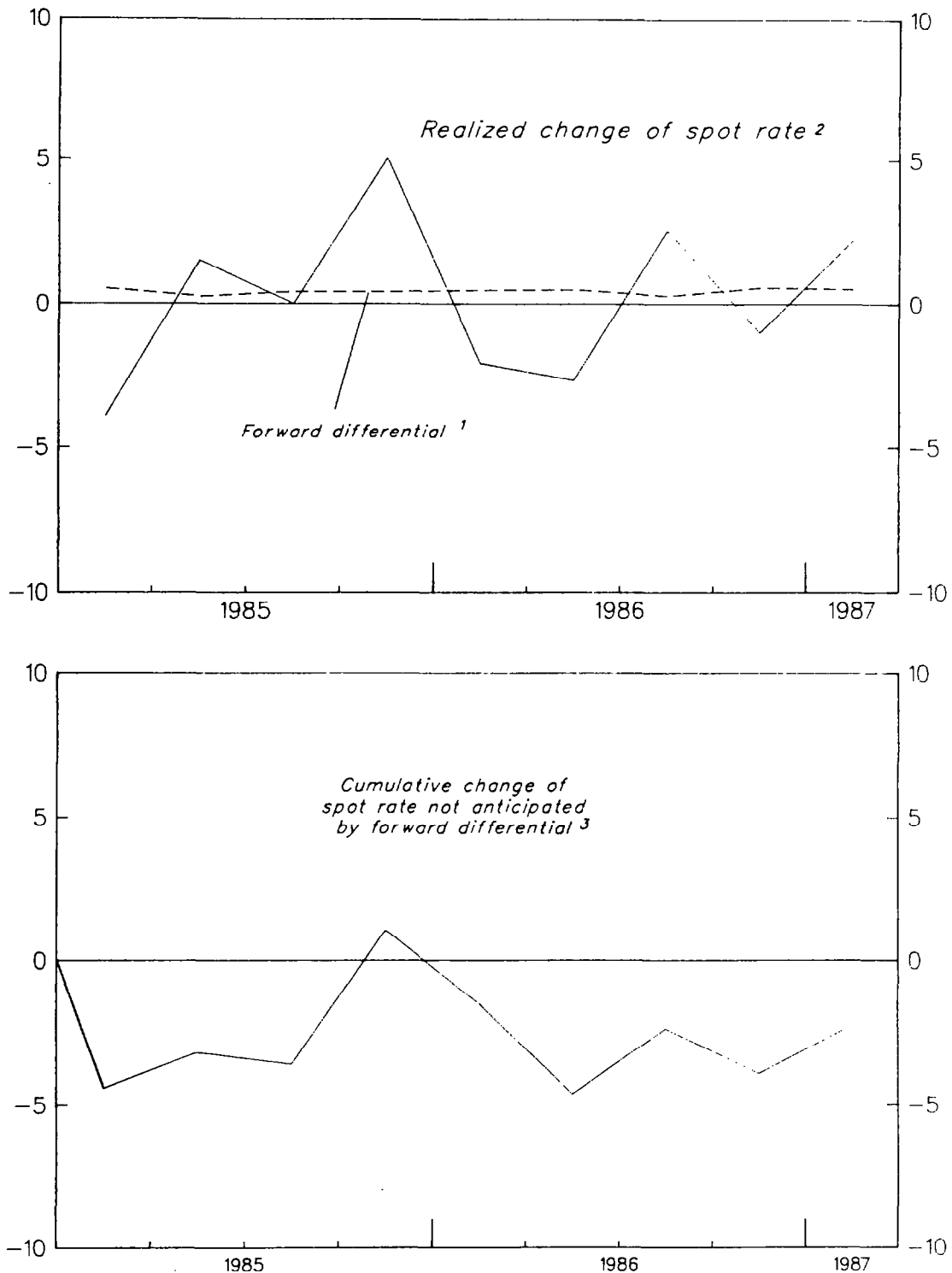
In July 1985, a Thai baht option system was introduced, permitting importers to acquire the right to purchase U.S. dollars (from a minimum of \$100,000) forward within a six month period, and, by special arrangement within nine months. The introduction of a corresponding option system for exporters is planned, as also is the introduction of options in currencies other than U.S. dollars. Also in July 1985, a private bank introduced option deals between the major foreign currencies up to six months forward.

United Arab Emirates

Commercial banks are free to enter into foreign exchange transactions, including forward contracts related to commercial and financial transactions, at rates of their own choosing. There is a swap facility at the Central Bank, which the commercial banks may use within specified limits to purchase dirhams spot and sell dirhams forward for periods up to three months. Swap facilities are not available to banks having a short position in dirhams except for the covering of forward transactions for commercial purposes.

CHART II.4
SINGAPORE

FORWARD EXCHANGE RATE DIFFERENTIALS vs. REALIZED
SPOT EXCHANGE RATE CHANGES AGAINST U.S. DOLLAR



Sources: IFS; data provided by the Singapore authorities; and staff calculations.

¹End of quarter (last month's average) three months forward differential (percent per quarter) advanced by three months. Negative value indicates forward discount.

²Change of spot rate over preceding three months. Negative value indicates depreciation of the Singapore dollar vis-à-vis the U.S. dollar.

³Percent from first quarter 1985.

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Table II.4. Singapore: Interbank Swap Transactions
Against U.S. dollars, 1982-87 ^{1/}

(Percent per annum)

Date	Forward premium implicit in swap margin	Euro dollar interest rate	Cost of borrowing S\$ through interbank		
			Swap	Money market	Difference
Dec. 1982	0.4	9.5	9.1	8.5	0.6
Dec. 1983	1.7	10.1	8.4	7.3	1.1
Dec. 1984	2.1	9.0	6.9	6.3	0.6
1985					
March	1.0	9.4	8.4	5.9	2.5
June	1.7	7.7	6.0	5.0	1.0
Sept.	1.7	8.2	6.5	6.3	0.2
Dec.	1.9	8.1	6.2	5.3	0.9
1986					
March	2.0	7.5	5.5	5.1	0.4
June	1.1	6.6	5.5	4.9	0.6
Sept.	2.3	5.9	3.6	3.0	0.6
Dec.	2.1	6.3	4.2	3.9	0.3
March 1987	2.3	6.4	4.1	3.4	0.7

Sources: Data provided by the Singapore authorities; and IFS

^{1/} Representative three-month swap effected through foreign exchange brokers (monthly average).

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