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# Operational Issues Related to the Functioning of Interbank Foreign Exchange Markets in Selected African Countries

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Abstract

This paper discusses the main operational issues involved in the implementation of interbank foreign exchange systems in selected African countries. The countries considered are The Gambia, Ghana, Kenya, Mozambique, Nigeria, and Sierra Leone. The paper finds that exchange rates in these markets tend to be determined through transactions between dealers and clients at the retail level, for the most part, rather than through wholesale interdealer transactions. Additionally, many factors continue to limit the full development of these markets. In particular, informational problems limiting "real time" quotes, inadequate competition in the market, and insufficient regulations to reduce exchange rate risk and encourage "true" interdealer transactions. Despite these limitations, the markets studied have improved the efficiency of foreign exchange allocation and substantially narrowed exchange rate differentials between the official and parallel markets.

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Summary

Since the mid-1980s, developing countries have increasingly adopted various forms of market-determined exchange rate systems, including interbank or auction systems or both, and foreign exchange bureaus. This paper discusses the main operational issues involved in the implementation of interbank foreign exchange systems in six selected African countries--The Gambia, Ghana, Kenya, Mozambique, Nigeria, and Sierra Leone. In contrast to the ideal case (which is approximated by transactions for the major world currencies), the exchange rates in these markets tend to be determined, for the most part, through transactions between dealers and clients at the retail level rather than through wholesale interdealer transactions. There are a number of explanatory factors: the generalized shortage of foreign exchange in the countries that leaves little or no excess foreign exchange balances for interdealer transactions, the larger spread between the buying and selling rates in dealer-client transactions compared with interdealer transactions, the newness of the market arrangements, and the lack of comprehensive prudential regulations limiting the foreign exchange exposure of dealers.

In addition, many factors continue to limit the full development of these markets. Dealers in the countries operate with an inadequate communications infrastructure, which leads to a limited flow of "real time" information in the foreign exchange markets, especially in relation to the exchange rates being quoted at different institutions. The foreign exchange markets in the countries are dominated by a small number of players and may not be sufficiently competitive to avoid the distortions that stem from oligopolistic behavior. The absence of an electronic exchange or other medium to carry out transactions and receive quotes instantaneously has hampered the ability of the central banks to regulate and participate in interbank foreign exchange markets in these countries. Most of the countries in the study have insufficient foreign exchange regulations to reduce exchange rate risk and encourage "true" interdealer transactions.

Despite these limitations, the markets studied have improved the efficiency of foreign exchange allocation. The substantial narrowing of exchange rate differentials between the official and parallel markets is evidence of progress toward eliminating market segmentation. Available data suggest an increased allocation of foreign exchange through official channels. To improve market operations, the central banks may have to be more active in educating participants about the functioning of the market, the nature of the reporting required for dealers' foreign exchange transactions, the management of foreign exchange resources, and the need to turn to other dealers instead of the central bank to reduce open positions. In order to improve their own effectiveness, central banks need to continue to develop their capabilities to monitor, intervene, and provide sound guidance through regulation and dialogue with the market.

## I. Introduction

Since the mid 1980s, developing countries have increasingly adopted various forms of market-determined exchange rate systems. These arrangements have included the establishment of interbank and/or auction systems and foreign exchange bureaus. 1/ The interbank arrangement is operated within the private sector by commercial banks and licensed foreign exchange dealers, with the participation of the central bank; while an interbank arrangement closely approximates a free market, in an auction system, the central bank conducts a one-sided market by auctioning off given quantities of foreign exchange to eligible bidders, using a variety of institutional arrangements. In some instances, foreign exchange bureaus are allowed within an interbank system, although there may be specific regulations governing their participation. Bureaus usually concentrate on retail transactions (such as those involving foreign bank notes and traveler's checks) as against wholesale transactions in foreign funds. In some countries, the move to a full-fledged interbank market has been preceded by the establishment of a bureau market to compete with the parallel market.

This paper examines the experiences of six African countries under floating interbank systems and the lessons that may be drawn concerning the practical and operational issues that arise in the successful running of such systems. Although the term "interbank" market is used to describe the system, it should be recognized that the markets in question often include foreign exchange bureaus; moreover a substantial proportion of the transactions in the market may be between the banks/dealers and their clients rather than between banks. Often the term "floating" foreign exchange arrangement is used to characterize this market.

The focus of the paper is essentially microeconomic in nature. The paper does not address the macroeconomic policy issues which also are critical in determining the success or failure of interbank foreign exchange systems. 2/ While it is difficult to separate the microeconomic issues from the macroeconomic concerns affecting the market, the paper attempts to make the case that even if a country has sound macroeconomic policies, the microeconomic issues identified have to be successfully resolved.

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1/ For recent references to these systems, see Peter J. Quirk, Benedicte Vibe Christensen, Kyung-Mo Huh, and Toshihiko Sasaki, Floating Exchange Rates in Developing Countries - Experience with Auction and Interbank Markets, IMF Occasional Paper No. 53 (May 1987).

2/ In Galbis (1993), such macroeconomic concerns as the implementation of sound monetary, fiscal, trade, and exchange policies are noted for their contribution to the successful operation of an interbank market arrangement.

The six countries in the study are The Gambia, Ghana, Kenya, Mozambique, Nigeria, and Sierra Leone. Currently, all the countries in the survey have functioning interbank markets, with the exception of Nigeria, which abolished its arrangements as of January 10, 1994. Nigeria's experience with an interbank market nevertheless is equally instructive. 1/ Although experience with interbank markets in these countries is still relatively limited, the countries have been chosen both because collectively they provide sufficient diversity in their approaches to implementing market arrangements and because there exist reasonable data and other information about the practical and operational issues faced in the markets concerned. Other African countries in various stages of implementing an interbank foreign exchange market are Malawi, Uganda, Zambia, and Zimbabwe. They are not covered in the study because of limited information and the short period of time that their interbank markets have been operating.

The paper is organized as follows. Section II defines an interbank market system based on two main criteria, which will be used to identify the existence of such markets in the six countries. In this section we also describe the main characteristics of an "ideal" interbank market so as to provide a context for the discussion of the experience of our sample countries. Section III describes the basic characteristics of interbank markets in the six sample countries, in terms of market accessibility, market concentration, foreign exchange surrender requirements, and dealer sophistication. Section IV discusses issues related to the determination of the interbank and official exchange rates. Section V focuses on the official involvement of central banks in the interbank markets. In Section VI, the relationship between external aid funds and the operation of interbank markets is considered. Section VII gives an assessment of the success of interbank market operations in the countries surveyed and provides concluding remarks.

## II. Definition of an Interbank Market in Foreign Exchange

Two main criteria can be employed in identifying the existence of an interbank market: (i) commercial banks and nonbank authorized dealers are able to negotiate exchange rates between themselves and clients in foreign exchange transactions; (ii) banks and other authorized dealers are able to engage in foreign exchange transactions among themselves at freely negotiated exchange rates. In all of the countries reviewed, the term "interbank" is somewhat of a misnomer, since in practice, most transactions are not among banks but between banks and their clients. Also, nonbank dealers, including foreign exchange bureaus, are sometimes, and to varying degrees, part of the market. We will refer to all of these institutions collectively as foreign exchange dealers, identifying them separately only

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1/ The information contained in this research is accurate up to end-December 1993.

to highlight differing regulations and requirements placed on them by central bank regulators.

All of the countries surveyed meet the first criterion in that foreign exchange dealers are generally permitted to freely negotiate exchange rates between themselves and their clients on a daily basis. Fewer meet fully the second criterion, since limited transactions among dealers are the norm. Indeed, in some countries, there are specific regulations governing foreign exchange transactions between foreign exchange bureaus and commercial banks. For example, in Mozambique, the bulk of primary sale transactions are between the largest commercial bank and the Central Bank of Mozambique. In The Gambia, transactions between dealers do take place, especially at regularly organized fixing sessions, but in limited quantities. In Ghana, genuine interbank transactions are virtually nonexistent. Commercial banks in Kenya typically transact with the Central Bank through the auction system on their own account; similarly, in Nigeria, the majority of primary sales to the interbank market take place through central bank auctions to banks who may bid on behalf of clients or for themselves. In Sierra Leone, foreign-owned banks prefer to transact with their head offices abroad instead of with any other Sierra Leonean bank because of the ease with which such transactions can be carried out. 1/

In addition to this preference of foreign-owned banks in Sierra Leone, transactions between dealers are constrained in all the countries by a number of other factors. The generalized shortage of foreign exchange in most of the countries creates a situation where few, if any, dealers find themselves with excess foreign exchange balances available for transactions with other dealers. In some countries (e.g., The Gambia) dealers can usually command a larger spread between the buying and selling rate in dealer/client transactions than with interbank transactions, given the fact that interbank transactions represent an intermediate stage before foreign exchange is finally sold to importers or other users of foreign exchange. With the long queue for foreign exchange in many countries, dealers experience little difficulty in maximizing profits from dealer/client transactions. Given the newness of the market arrangements in the countries, dealers are still somewhat uncomfortable about carrying out interbank transactions with each other, partly because of inexperience and the pressures of competition to gain market share. In addition, prudential regulations limiting the foreign exchange positions of banks often do not play an important role in encouraging interbank transactions in the sample countries. (See discussion on foreign exchange regulations in Section V.2)

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1/ Although such transactions are, strictly speaking, different from those in a market involving the sale of foreign currency against domestic currency, they are still relevant to the domestic interbank market since they reduce the number of true interbank foreign exchange transactions taking place in the market.

In deciding on a floating exchange system, some governments are faced with the situation (as in the case of Nigeria) in which the central bank is the main source of foreign exchange. In such a situation, auctions may be necessary to ensure that the central bank gets a fair rate for its foreign exchange. These auctions may take place side by side with a more traditional interbank market, which provides a market rate during those days when an auction does not take place. If the market is fairly well developed, it may not be necessary to have formal auctions in the interbank market as the central bank may be able to conduct its sales through a series of mini-auctions using an electronic exchange or other medium of ongoing market intervention.

In order to understand the key characteristics of interbank foreign exchange arrangements and to be able to learn from the experiences of the sample countries, it is useful to describe some features of an "ideal" interbank market. As a floating exchange arrangement, which allows agents to freely conduct foreign exchange transactions at any rate, an interbank market provides a mechanism for the central bank to determine its central exchange rate. This is basically accomplished by requiring authorized dealers to report their transactions to the central bank and, if possible, conducting the most important transactions in a "marketplace" (for example, auctions, exchange building, or electronic exchange) where all participants (including the central bank) can ascertain the prevailing exchange rates on their own.

In the ideal case (which is approximated by transactions for the major world currencies), interbank transactions would normally take place on electronic exchanges that would allow the central bank to know the prevailing rates instantaneously (and to influence them by intervening in the market if it considers it necessary). Interbank rates would ideally result from transactions of a standardized minimum size and would be conducted between professionals with market expertise to ensure that the prevailing rates are a significant reflection of market conditions. In addition, interbank markets should be sufficiently competitive to avoid market distortions that stem from oligopolistic behavior. To avoid distortions caused by retail transactions, such as those involving foreign bank notes and traveler's checks, interbank transactions used for determining the central rate would typically include only wholesale transactions. Finally, in an ideal interbank foreign exchange market, demand and supply conditions should reflect prevailing macroeconomic conditions, such as movements in interest rates, inflation, and trade flows.

In contrast, in situations where there are few genuine interbank transactions, reliance on dealer/client transactions to determine the "interbank" rate in the market is the norm. This may present some problems. First, transactions between dealers and clients tend not to be homogeneous. Banks tend to sell a package of products or services in exchange transactions, making pricing comparisons difficult. Second, the number of transactions tends to be large in number and varied in size, making processing of reports and the calculation of average rates difficult.

Third, mixing transactions in bank notes or traveler's checks with foreign funds deposited in accounts may create distortions. Fourth, the lack of double reporting on the buyer and seller sides of transactions (as is the case with genuine interbank transactions) makes it more difficult to monitor the accuracy of the reporting.

## III. Characteristics of Interbank Systems in Africa

### 1. Historical background

Prior to the adoption of floating exchange rate systems, each of the six countries surveyed had been operating under a pegged exchange rate arrangement. The decision to move to a more market-determined exchange rate arrangement was prompted by the realization that with a lack of official foreign reserves, the authorities could no longer support a pegged exchange rate that came under market pressure. Furthermore, a floating arrangement would eliminate the need for discrete devaluations in the management of exchange rates by central banks. The currency of Sierra Leone (leone) had been pegged from time to time to the U.S. dollar, the British pound, and/or the SDR. The Gambian dalasi was pegged to the British pound, while the Ghanaian cedi and the Nigerian naira were pegged to the U.S. dollar. The Kenyan shilling and the Mozambique metical were each pegged to a weighted basket of major currencies. In each of the countries, there had been a high degree of foreign exchange market segmentation and a substantially depreciated exchange rate in the parallel market.

Only two of the countries surveyed, The Gambia and Mozambique, adopted a pure interbank system from the outset and maintained it thereafter. The Gambia introduced a floating interbank exchange system on January 20, 1986 as part of the Government Economic Recovery Program. To facilitate the development of this market, all restrictions on current international transactions, as well as capital, were lifted. In Mozambique, the liberalization of the foreign exchange market had its genesis in late 1989 with the introduction of an export retention scheme to stem the flow of foreign exchange resources into the parallel market. A market-determined secondary rate was introduced in October 1990 to cover some nontraditional exports and mainly services. By April 1992, the official rate had been unified with the secondary rate.

The evolution of an interbank system in the other four countries differed in that they experimented first with various auction schemes as well as with legal parallel markets operated by bureaus. In Ghana, the operation of a formal interbank market was implemented in stages in tandem with an auction system that existed from 1986. Foreign exchange bureaus were formally licensed in 1988 to legitimize transactions taking place in the parallel market and in 1989 they (together with authorized dealer banks) were permitted to bid in the wholesale auctioning of foreign exchange by the Central Bank on behalf of clients and for themselves. In 1990, formal permission was granted to allow dealers (banks and bureaus) to trade in foreign exchange among themselves or with other clients, provided the foreign exchange so traded was not subject to surrender requirements. The weekly exchange auction was abolished in early 1993, and a full-fledged interbank market introduced.

In late 1986, Nigeria started with a two-tier exchange rate system as a transitional arrangement, with the first tier comprising an administered exchange rate (for oil exports and certain public sector transactions); the second-tier involved a foreign exchange market comprising both a central bank auction for commercial banks and a floating interbank exchange market. This system was fully unified in March 1992. About a year later, in February 1993, the Central Bank reintroduced the auction system for commercial banks, only to return to a quantity allocation mechanism shortly afterward, owing to the substantial depreciation of the naira in the auctions. Kenya introduced an interbank market in late 1992 but had to suspend operations for two months (owing to currency speculation) before resuming in May 1993. Subsequently, an auction system between the Central Bank and commercial banks was also introduced. In the case of Sierra Leone, auction markets were experimented with on two occasions before the country switched to an interbank market arrangement in April 1990.

Table 1 provides a summary comparison matrix of foreign exchange market characteristics in the six countries under consideration.

2. <u>Market participants and entry requirements</u>

In general, there is a relatively high degree of freedom of access to the foreign exchange markets in the countries surveyed. Market entry and the differential treatment of participants seem to be guided by a concern for maintaining competition, the need to ensure appropriate prudential regulations, and the imperative of reducing illegal transactions in the parallel market. Participation in the interbank exchange markets of The Gambia, Sierra Leone, and Mozambique is open to both commercial banks and licensed foreign exchange bureaus. In The Gambia, the interbank market began in 1986 with only three commercial banks; this number had increased to four by the end of 1993. In May 1987, major hotels were authorized to act as money changers on the condition that they sold all their purchases to a commercial bank of their choice. This was made a requirement because of the difficulty of imposing prudential regulations on these institutions. To bring about a more competitive market in foreign exchange, guidelines were established and foreign exchange bureaus were formally established in April 1990. As of end-1993, there were five bureaus. The interbank market in Sierra Leone consists of six commercial banks and seven foreign exchange bureaus. The bureaus were legally authorized by the Government in mid-August 1992. In Mozambique, four commercial banks and nine foreign exchange bureaus constitute the interbank market; four of the latter are established firms in the trade and tourism business. As of April 1993, ten additional licensing requests were under consideration.

In Kenya, the 30 commercial banks operating in the country are the only authorized foreign exchange dealers; however, only 6 of these banks appear

Table 1. Comparison Matrix of Foreign Exchange Market Characteristics

| Country | Number of Dealers | Degree of Market Control | Foreign Exchange Surrender Requirements | Rate Determination | Fixing Sessions | Central Bank Intervention | Regulations on Open Positions | Regulations on Working Balances |
|---|---|---|---|---|---|---|---|---|
| Gambia, The | 9 | One bank accounts for 30 percent of the market | Not applicable 1/ | Market-determined with no restrictions | Held weekly at the central bank with the participation of commercial banks and bureaus | Net purchaser of foreign exchange to meet international reserve targets | None | Limit of £50,000 for bureaus; varies for banks |
| Ghana | 15 | Four banks account for 80 to 85 percent of the market | At least 65 percent of all traditional export receipts except cocoa and gold to a commercial bank, all cocoa and a negotiated portion of gold receipts to the central bank | Central bank uses moral suasion to hold the exchange rate down | None | Net seller of foreign exchange based in reserve targets and perceived "need" of commercial banks | Open positions of commercial banking system limited to US $4 million | Same as open positions |
| Kenya | 30 | Six banks account for virtually all of the market | 50 percent of traditional export receipts to the central bank | Market-determined with no restrictions | None | Intervenes through frequent mini-auctions | None | ... |
| Mozambique | 14 | Commercial banks as a group account for 90 percent of the market, with one commercial bank dominating 70 to 80 percent of the market | None | Market-determined with no restrictions | None | Sells foreign exchange from import support funds. Main provider of foreign exchange. | Currently being developed for banks | Working balance limits on bureaus |
| Nigeria | 80 | The 10 largest banks control 60 to 70 percent of the market | All oil export receipts net of operating costs and 75 percent of parastatal receipts to the central bank | Market-determined, subject to a 1 percent spread between the buying and selling rates | None | Affects exchange rate through sales and purchases | ... | ... |
| Sierra Leone | 13 | Commercial banks as a group account for 90 percent of the market | None | Market-determined with no restrictions | None | Guided by reserve targets | None | None |

1/ Surrender requirements were not formally abolished in The Gambia but de facto ceased to be implemented.

active in the market. One rationale for not allowing the establishment of a foreign exchange bureau market or the licensing of other nonbank dealers is the belief that the number of commercial banks is large enough to enable the interbank market to function efficiently and competitively. In Nigeria, the formal interbank market is made up of 80 authorized dealers, all of which are commercial or merchant banks. Non-banks do not qualify for authorized dealer status. However, there are over 120 foreign exchange bureaus in Nigeria, which are only authorized to sell foreign bank notes and coins to applicants for small transactions such as travel allowances. These bureaus do not participate in the auction system or any other central bank allocation mechanism, but must obtain their foreign exchange from other sources. However, there are no restrictions on their sales. Authorized dealers are allowed to buy surplus funds from the foreign exchange bureaus and utilize such funds for eligible foreign exchange transactions.

A similar situation exists in Ghana, where the interbank market is open formally only to the commercial banks and their bureaus. Nonbank bureaus exist in Ghana, but like those in Nigeria, they have to raise foreign exchange resources themselves, usually from the private savings of the bureau operators or other Ghanaians. The bureau markets in these two countries thus closely approximate parallel markets. The limited volume of transactions in foreign funds (as against bank notes and traveler's checks) naturally constrains bureau participation in a market that is supposed to be dominated by wholesale transactions in foreign funds. This is true even in those countries (such as The Gambia) that authorize bureaus to participate in the formal interbank market.

In four of the five countries that allow foreign exchange bureaus, a license to operate a nonbank foreign exchange bureau is granted upon payment of an application fee (ranging from US$1,000 to $3,000) and relevant documentation, together with evidence of a specified minimum capital base (for example, US$5,000 in the case of Sierra Leone and US$10,000 for Ghana). The exception is The Gambia, which charges no licensing fee and has no regulation requiring a minimum capital base. Foreign exchange bureaus tend to serve mainly tourists and, as mentioned before, engage in cash-based transactions. In The Gambia, re-export trade in CFA francs is also financed mainly through foreign exchange bureaus.

### 3. Dealer sophistication

Given the relatively short period of time that these countries have experimented with interbank foreign exchange markets, one can reasonably expect an ongoing process of learning on the part of both the dealers and central banks. In the early stages of the development of the foreign exchange market, information gathering and unfamiliarity with carrying out transactions can be costly for dealers, central banks, and clients. The result can be an excessive divergence of rates among dealers, uncertainty about how to set rates, and even a reluctance to change rates frequently. In addition, as mentioned previously, inexperience can lead to dealers being hesitant to trade with each other. A central bank's ability to monitor, regulate, and constructively intervene in the market depends also on its organizational structure, the experience of its staff, and the use of modern communication and data-gathering technologies. 1/

In general, dealers in all the countries operate at rudimentary levels, although there are important differences. As one would expect, commercial banks, given their broader banking experience and branch networks, usually possess superior operational skills in the market and tend to be the dominant players. In the countries surveyed, dealers operate with an inadequate communications infrastructure, which leads to a limited flow of "real time" information in the foreign exchange markets, especially in relation to the exchange rates being quoted at different institutions. This is more pronounced in the bureau sector of the market, where variations in exchange rates quoted can be more significant. Although none of the dealers in the countries under study manage their foreign exchange positions internationally, there is an attempt in some countries to keep abreast of developments in international foreign exchange markets. For example, in Ghana and Kenya, a Reuters system links the Central Bank, the commercial banks, and even some bureaus in the former. This is helpful for the development of a local foreign exchange market, but there are still no on-line transactions among participants dealing in domestic currency vis-à-vis foreign currencies.

There is little evidence that dealers follow, or are required to follow, established rules or codes of conduct regarding trading transactions as determined by such institutions as the International Foreign Exchange Dealers Association. Although inexperience is a practical problem facing interbank markets in the countries surveyed, some countries (Ghana, for example) have employed expatriates and nationals with working experience acquired abroad. In Nigeria, for example, the increasing sophistication of dealers and the market has enabled the development of forward transactions.

### 4. Market concentration

The foreign exchange markets of the six countries are dominated by a small number of players. Not surprisingly, the bulk of transactions are undertaken by the commercial banking sector, either as a whole or in a smaller subgroup. Of all the transactions used for the calculation of the market rate in Mozambique and Sierra Leone, 90 percent have a commercial bank as one of the parties to the transaction, with the Commercial Bank of Mozambique taking up a 70-80 percent share of the exchange transactions in that country. The ten largest banks in Nigeria are responsible for some 60-70 percent of the total foreign exchange turnover in the interbank market. In The Gambia, banks account for about 90 percent of all transactions, with one bank accounting for about 30 percent of the total.

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1/ This issue of the central bank's capabilities in the market is dealt with in more detail in Section V. Here we focus mainly on dealer characteristics.

In Kenya, almost all interbank transactions are carried out by six banks. The interbank foreign exchange market in Ghana includes 12 commercial banks, of which 4 account for 80-85 percent of all transactions in the foreign exchange market.

5. Sources and turnover of funds in the market

The role of the central bank in supplying funds to the interbank market can be critical in terms of its ability to determine market developments. Just as important is the mechanism by which the central bank intervenes to supply these funds. The relative importance of private sector primary sales of foreign exchange, as against central bank sourcing of foreign exchange, differs from country to country, and depends to a large extent on surrender requirements. Foreign exchange sourcing in the interbank market is relatively concentrated in Nigeria, with 60-70 percent of all funds being supplied to authorized dealers by the Central Bank of Nigeria through quantity allocations based on the size of the dealer's capital base and, at various times, through auctions. In Ghana, it is estimated that direct sales from the Central Bank supplied about half of the funds sold to importers in the interbank market in 1991 and 1992. On the other hand, both the Central Bank of Kenya and the Central Bank of The Gambia are currently net purchasers of foreign exchange in the interbank market. In the case of Kenya, daily two-way auctions are held, guided by the Central Bank's need to build up reserves and the objectives of its exchange rate policy. In Mozambique, central bank sales are the main source of foreign exchange funds to the interbank market.

Transactions turnover in the foreign exchange markets under consideration can be significant. For example, total transactions in the interbank market of Nigeria amounted to some US$4 billion in 1992, which represented about 50 percent of all merchandise imports. About the same ratio was expected for 1993. For Mozambique, approximately US$400 million was traded in the interbank market in 1992, as compared with approximately US$900 million in merchandise imports. In the case of The Gambia, about D30 million is traded in the foreign exchange market weekly which, on an annual basis, represented approximately 90 percent of the estimated imports for the 1992/93 fiscal year.

The allocation of foreign exchange between the public and private sectors can be a major issue in interbank markets as the public sector may be perceived as possessing special advantages. In some cases, the public sector (in particular, the central government) may have a prior claim on a certain amount of foreign exchange in the market. In other cases, the central bank may make purchases on behalf of the public sector as part of its intervention strategy. In all cases, the private sector's behavior in the market is likely to be affected by its perception, not only of the public sector's demand, but how that demand is to be satisfied. The importance of government and public enterprise transactions in the interbank markets varies in the countries studied.

In Mozambique, government and public enterprise needs are met either through the interbank market or from central bank reserves. The existence of relatively large foreign aid inflows tends to make the Government a net seller to the market. In The Gambia, the use of foreign exchange resources by the Government is determined on the basis of a foreign currency budget, and according to preset limits, in order to relieve pressure on the foreign exchange market. In Nigeria, the Federal Government has a prior claim on foreign exchange deposited with the Central Bank of Nigeria from petroleum product exports. State and local governments as well as public enterprises compete with the private sector in the interbank market. The Central Bank of Kenya, purchases foreign exchange in the interbank market on behalf of the government, while public enterprises compete with the private sector for their foreign exchange needs in the market. In Ghana and Sierra Leone, the participation of the central banks in the foreign exchange markets is solely for their own account. Public enterprises, like the private sector, have to go through the market for their foreign exchange needs.

6. Restrictive trading

A majority of the countries in the group hold no restrictive trading sessions. In The Gambia, a weekly "fixing session" is held at the Central Bank, with the participation of the commercial banks and foreign exchange bureaus. The rate determined at this session is used mainly for statistical and customs valuation purposes and applies only to interbank transactions taking place at that time; it is immediately superseded by rates in the interbank market. The fixing rate is naturally linked to the outcome of previous fixing sessions and the transaction rates prevailing in the interbank market. Transactions settled by the fixing rate tend to be small relative to overall transactions in the market, but the fixing session serves some useful purposes. First, the fixing session in The Gambia has been expanded to include not only the carrying out of transactions, but also a general review of how the market has been working during the current week. The session provides a unique forum for the Central Bank to discuss and resolve operational problems affecting the market. Second, for dealers who are hesitant to trade with each other, the fixing session provides an opportunity for genuine interbank transactions to take place. The Central Bank can play a pivotal role in encouraging such transactions during this session. Dealers with excess positions are encouraged to trade with deficit dealers rather than with the Central Bank. Third, the fixing session offers the Central Bank an opportunity to intervene in the interbank market with full information regarding dealers' positions and needs at a particular point. For all these reasons, the fixing session has proved highly useful in the development of the interbank foreign exchange market, especially in the early stages.

7. Foreign exchange surrender requirements

Various surrender requirements and retention schemes are practiced in order to encourage the development of an interbank market in foreign exchange. The issues involved are: (i) the appropriate requirements regarding the repatriation of foreign exchange earnings and the surrender of such earnings to the central bank and/or the interbank foreign exchange market; and (i) whether allowing exporters or other holders of foreign exchange to establish foreign exchange retention accounts in the domestic banking system is beneficial to the development of an interbank market.

In many countries, inappropriate macroeconomic policies provide little inducement for the voluntary sale of foreign exchange earnings to authorized dealers and, as a result, exporters (and others) have been given permission to hold accounts in foreign exchange. This may or may not facilitate the development of the interbank market if macroeconomic conditions remain unfavorable, since holders may use the retained foreign exchange as a hedge against foreign exchange rate risk, thus restricting the flow of foreign exchange to the interbank market. Moreover, prudential regulations regarding the use of these accounts tend to be rather restrictive, further limiting the free use of these funds in the market. On the other hand, without these accounts, foreign exchange might never be repatriated. These accounts can also facilitate the development of the market by providing an opportunity for private earners of foreign exchange to determine, in tandem with demanders, the most efficient allocation of the scarce foreign exchange resources. In addition, the accounts do provide some convenience for importers with foreign exchange needs, while at the same time engendering some confidence in an emerging interbank market.

At end-1993, three countries in the group -- Kenya, Nigeria, and Ghana -- had surrender requirements for foreign exchange to the central bank. 1/ In Kenya, foreign exchange surrender requirements apply only to earnings of traditional exports. Nontraditional exporters are allowed full retention of their export earnings in foreign currency accounts, but a 50 percent surrender requirement applies for traditional export earnings. Authorized commercial banks in Kenya that hold foreign currency accounts can buy and sell from these accounts on their own account and on behalf of their clients. Regulations require banks to back these accounts 100 percent with foreign currency-denominated assets of the same maturity as the deposit liabilities. In Nigeria, oil export earnings net of operating costs have to be surrendered to the Central Bank of Nigeria, while non-oil earnings can be deposited in foreign exchange accounts in commercial banks. Parastatals have to surrender 75 percent of their export earnings to the Central Bank of Nigeria. In Ghana, exporters of most products have to surrender at least 65 percent of their foreign exchange earnings to a commercial bank or foreign exchange bureau, as opposed to the Central Bank, with the exception of cocoa and gold exporters. COCOBOD, a state-owned marketing board, is the sole exporter of cocoa and is required to surrender its receipts directly to the Central Bank. Each gold company is allowed to retain a negotiated

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1/ In The Gambia, surrender requirements were not formally abolished, but de facto ceased to be implemented. In Mozambique, a 50 percent surrender requirement was abolished in late 1993.

proportion of its foreign exchange for its own imports or repatriation of profits, and the remainder is surrendered directly to the Central Bank.

## IV. "Interbank" and Official Foreign Exchange Rates

Given the lack of true interbank transactions in sufficient volume in our sample of countries, the transactions used to determine the market rate tend to be those involving dealer/client transactions for the most part. For all the countries, the objective of setting up an interbank market was for the explicit purpose of allowing the official foreign exchange rate to be more market-determined. The expectation is, therefore, for the floating market rate to eventually be the official exchange rate. However, for many of the countries, there continues to exist a separate official rate linked to, but different from, the market rate. In addition, rate setting is, in some cases, affected by technological deficiencies in the market, the inexperience and low levels of sophistication of participants, the lack of a sample of "genuine" interbank transactions, the exclusion of certain transactions, and restrictions imposed by the central bank.

Owing to a lack of modern communications technologies and dealer networks, which would allow "live" quotes, dealers generally adjust their rates infrequently during the day. In addition, inadequate information flows in the market tend to lead to wide variations in rates, especially among bureaus. This informational problem reduces efficiency and competitiveness in the market and allows for the possibility of collusive practices by the larger dealers in the market. This is despite the fact that all countries require dealers to openly display current rates, or at least indicative rates, in their place of business and to report transactions data to the Central Bank on a daily basis. 1/ For many clients, the transaction costs are still too high to force a greater convergence of rates among dealers and in none of the countries has the development of foreign exchange brokerage services been apparent.

The extent to which the central bank imposes restrictions on the determination of the market rate differs from country to country. In Mozambique, the market or "secondary" rate is calculated as a weighted average of all transactions reported by dealers to the Central Bank each day. A similar situation exists in Sierra Leone, The Gambia, and Kenya, where the exchange rate is determined freely in the foreign exchange market, as a weighted average of rates posted. The Bank of Ghana uses moral suasion to hold the exchange rate down in the interbank market, which usually leads to a shortage of foreign exchange in the interbank market. Commercial banks must therefore ration the foreign exchange provided to importers or force them to queue for it. In The Gambia, commercial bank transactions with the Central Bank are included in the determination of the interbank rate. This

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1/ The only exception seems to be the case of Nigeria, where data on average buying/selling rates of foreign exchange involving true interbank transactions are not routinely reported to the Central Bank.

is also true for Kenya, Ghana, and Sierra Leone, although in Mozambique, transactions with the Central Bank are excluded from the calculation of the market or secondary rate.

In Nigeria, rates in the interbank market are subject to a 1 percent spread between the buying and selling rates. Since the bulk of the transactions involve purchases from the Central Bank of Nigeria, the selling rate in the interbank market for most transactions is closely linked to either the central bank auction rate or, otherwise, the rate fixed by the Central Bank for its quantity allocation mechanism. Foreign exchange purchased in the interbank market from autonomous sources is acquired at more competitive rates and, at the end of the day, dealers post an average rate (selling/buying) which includes transactions with the Central Bank of Nigeria.

Besides transactions with the central bank, other transactions, for example, those involving the execution of letters of credit, may not be included in the calculation of the foreign exchange market rate. In The Gambia, only actual spot transactions go into calculating the market exchange rate. In other countries, for example, Mozambique, attempts are being made to include purchases of foreign exchange associated with the opening of letters of credit in the calculation of the average exchange rate in the interbank market. In Nigeria and Sierra Leone, the applicable exchange rate for transactions executed on letters of credit terms, is the prevailing rate at which the importer purchases the foreign exchange.

In all the countries surveyed, the official rate is closely related to, or is the same as, the market-determined rate. In The Gambia, the rate for official transactions (external debt servicing and other official government transactions) determined weekly at the fixing session has generally been close to the prevailing market rates. In Nigeria, a close link exists between the Central Bank of Nigeria auction rate and the prevailing market rates, given that the bulk of the foreign exchange in the interbank market is derived from the auction. Mozambique sets its official rate within a 2 percent band of the market or secondary rate of the previous day. The official rate in Sierra Leone is determined weekly, based on a weighted average of all the transaction rates of both the commercial banks and bureaus, with a 2 percent spread between the buying and selling rates. In Kenya, the official rate is based on a weighted average of the buying and selling rates between commercial banks and their clients, which would also be in line with the rates in the auction market. In Ghana, the official rate is based on the average of the market-determined rates in the last five days.

The concept of forward markets to cover exchange risks is practically nonexistent in the countries surveyed, with the exception of Nigeria and, to some extent, Kenya. In early 1993, forward transactions in foreign exchange were introduced in Nigeria. However, data on the value and exchange rates associated with these transactions are not widely available. In Kenya, the Central Bank sells foreign exchange forward for the purchase of petroleum.

Forward transactions in the rest of the market are fairly restrictive and are related to interest rate differentials.

## V. Official Involvement in Interbank Markets

As a general rule, the ability of a central bank to regulate and participate in the domestic interbank foreign exchange market is linked closely to (i) its capacity to know what is happening in the market in real time, and (ii) its weight in the market as a buyer or seller of foreign exchange. Additional factors are the degree of development of its capacity to conduct foreign exchange operations domestically as well as the extensiveness of its operations in international foreign exchange markets. Central banks that have a presence in international markets by actively managing their international reserve position tend to have their foreign exchange departments better organized, with separate sections for dealing, research, control and payments, in order to ensure effective checks and balances. For example, the foreign exchange dealing unit would be responsible for intervening in the domestic market and for filling orders on behalf of the government. Similarly, the research section would typically establish the rules that dealers must follow in their trading, as well as conduct research to determine exposure limits of banks and other authorized dealers. The control section would ensure that rules and procedures are followed and that reconciliations are made of transactions completed. The payments unit would normally be responsible for the execution of payments, the formulation of authorization procedures, and the maintenance of the SWIFT system (Society for Worldwide Interbank Financial Telecommunication). This organizational structure is also helpful to ensure that foreign exchange transactions in the domestic market are undertaken efficiently and safely.

Some countries -- for example, Sierra Leone, Mozambique, Ghana, and Nigeria -- have organized their foreign exchange operations broadly along these lines. A major constraint, however, continues to be the absence of an electronic exchange to carry out transactions and receive quotes instantaneously. In general, central banks in the countries concerned rely primarily on frequent calls to commercial banks on an informal basis for the quotation of rates.

Two issues regarding official involvement of a central bank in interbank foreign exchange markets are of interest to market participants: (i) whether the central bank, through its foreign exchange operations, intervenes in a manner that may have an influence on the market rate. This applies to both the use of auctions of foreign exchange to the interbank market, as well as the central bank's normal open market purchases and sales of foreign exchange; (ii) the nature of the central bank's foreign exchange regulations that seek to effect some control over the behavior of market participants, specifically the use of regulations governing open positions and working balances of dealers to protect against various kinds of risks, and sometimes, monopolistic behavior on the part of authorized dealers. 1/

1. Central bank intervention

The degree and nature of central bank intervention in influencing the interbank rate varies from country to country. In the case of Mozambique, discretionary open market operations as an intervention instrument are not used by the Bank of Mozambique, given its lack of reserves, but the Bank does make regular sales of foreign exchange to the market. These sales do not influence the market directly, since it sells at the prevailing market rate of the previous day. However, the amount it sells indirectly influences market developments (and expectations) and affects the exchange rate in subsequent days.

The central banks of The Gambia and Sierra Leone do not intervene in the interbank market with a view to influencing the movements in the exchange rate. Both have tended to be net purchasers of foreign exchange from the market so as to achieve quarterly quantitative targets for the level of gross official reserves under the government's adjustment programs. For the most part, these purchases have not had an undue effect on the exchange rate. The Central Bank of Ghana has tended to be a net seller of foreign exchange in the interbank market, basing its decision on targets for reserve accumulation and the perceived need for foreign exchange among the commercial banks. This has led to a more appreciated exchange rate than that which would clear the interbank market, as the degree of need of each bank is assessed by the size of its customer base and the length of its queue, rather than the price that such banks are willing to pay for foreign exchange.

In Nigeria, the Central Bank reserves the right to intervene to affect the exchange rate through the buying and selling of foreign exchange. However, in practice, the Central Bank's role has been more direct, either through the use of foreign exchange auctions or through a regime of allocating foreign exchange to banks according to their capital base. Since March 1993, the Central Bank of Nigeria has allocated a fixed quantity of foreign exchange weekly ($60 million) to the interbank market, which is divided on a pro rata basis among all authorized dealers. The result is that the Central Bank is effectively able to fix the rate at which these funds are allocated. In Kenya, intervention in the market is achieved mainly through regular sales and purchases of foreign exchange in the market by open auctions.

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1/ Broader macroeconomic policy issues, such as the level of interest rates and the monetary stance of the central bank are of course important. Given the scope of this paper, we focus here on the microeconomic role of the central bank in the market.

2. Foreign exchange regulations

To ensure the orderly and efficient operation of interbank markets, central banks normally issue foreign exchange regulations. Some are of a prudential nature, while others are motivated by concerns regarding exchange control and the need to ensure adequate competition in the market. Typically, regulations address the allowable open positions of dealers in order to reduce individual exposure and exchange risk, and establish working balance limits to prevent a cornering of the market by any subset of dealers.

Most countries in the survey have yet to develop a comprehensive set of prudential guidelines. For example, the Bank of Mozambique has limits on the working balances and foreign exchange exposure of nonbank dealers, requiring them to sell excess foreign exchange holdings to banks, but is still in the process of developing prudential regulations for banks. There are no regulations governing open positions and working balance limits for dealers in Sierra Leone. In Ghana, the open position of the total commercial banking system is limited to US$4 million on a weekly basis. The Central Bank will, however, allow commercial banks to build up an inventory in excess of the open position limit to meet the foreign exchange needs of clients with proof of letters of credit and other documentation of foreign exchange needs. Although the average monthly demand for current account transactions in Ghana is about US$130 million, any surge in export receipts that is unmatched by an import demand of a similar magnitude would force commercial banks to unload excess foreign exchange to the Central Bank at a potentially large loss, given the tight open position limit. As a result, it has been found that commercial banks find it advantageous to keep their exchange rate "low" to establish a stock of possible purchasers so that they have a ready means of staying under their exposure limits. It should be pointed out, however, that the tight exposure limit does provide an incentive for interdealer trading, as overexposed banks have an option to sell to other dealers rather than to the Central Bank. 1/ In addition, a dealer can manage its overexposure by increasing the spread between buying and selling rates in order to discourage customers from undertaking transactions with it.

In The Gambia, each foreign exchange bureau is allocated a working balance limit equivalent to £50,000 and will be required to offer for sale any excess over the limit during the fixing session. Working balance limits for banks in The Gambia are not uniform and depend on such factors as the foreign exchange turnover of the bank (determined historically) and committed obligations. In all of the cases under consideration, working

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1/ Despite this incentive, no appreciable interdealer transactions seem to be taking place in Ghana. This may be due to the fact that the use of moral suasion by the Central Bank to keep rates low, makes the "queuing" solution the more likely response of banks.

balance limits tend not to be very binding, given the excess demand for foreign exchange in the interbank markets in these countries.

## VI. External Aid Funds and the Interbank Market

For many developing countries, external financing of the balance of payments has become an important source of foreign exchange receipts. At issue is the question of the treatment of external aid funds in relation to the interbank market. Several important questions arise. Specifically, what modalities are used to channel these funds into the interbank market? At what exchange rate are these funds transacted? Will transactions involving external aid funds affect the equilibrium interbank exchange rate? Does the practice of tying aid to imports from the donor add additional complications?

In Mozambique, all external aid funds are channeled into the interbank market at a single rate. 1/ Recently, a new procedure has been put in place that allows foreign exchange transactions associated with import aid funds to be included in the calculation of the market rate. Certain restrictions apply to the use of aid funds. No donor funds (tied or untied) can be used for imports included on the negative list. To gain access to the use of tied aid, firms have to submit applications to the Office for the Coordination of Import Programs of the Ministry of Commerce (GCPI), which confirms that the applications meet the requirements of the funds in question. The Bank of Mozambique allocates the tied funds to the commercial banks. Firms do not need to make any advance payments in local currency, except for the normal security margins applied by commercial banks when opening letters of credit.

In Ghana, receipts from aid funds are sold in the interbank market by the Bank of Ghana at existing market rates. Aid funds can be freely used as long as donors are provided with letters of credit and other documentation exceeding the value of the funds. Aid funds constitute at least 30 percent of the foreign exchange in the interbank market.

In The Gambia, there are no restrictions as such on the use of aid funds in the interbank market. Donors may require customs documentation indicating importation of goods equivalent to the amount of the aid funds and other conditions such as place of origin and procurement procedures. Transactions involving aid funds are typically carried out through the opening of letters of credit; those transactions associated with letters of credit are excluded from the calculation of the market rate. All aid fund transactions are carried out at the prevailing market rates.

1/ At one time, tied external aid funds were sold at a discount. The discount was abolished in 1993.

In Nigeria, aid funds are not channeled directly into the interbank market. However, they constitute part of the source of foreign exchange of the Central Bank of Nigeria which participates in the interbank market.

## VII. Assessment of Foreign Exchange Markets and Concluding Thoughts

A successful interbank foreign exchange market is likely to reflect both the degree to which many of the critical issues and problems discussed above have been resolved as well as the successful implementation of sound monetary, fiscal, trade, and exchange policies. For the countries surveyed, the introduction of a floating exchange arrangement was sparked by a high degree of market segmentation and different exchange rates in the exchange market and an increasing diversion of foreign exchange resources into the parallel market.

An efficient, well-functioning, interbank foreign exchange arrangement can be assessed by:

(a) the ability of the market to reduce segmentation, and consequently, to reduce differentials in the exchange rates;

(b) the increased allocation of foreign exchange through the official foreign exchange market and a market exchange rate that reflects demand and supply conditions as closely as possible;

(c) the ability of market participants to collect, analyze, and transmit information at as low a cost as possible, as well as to minimize transactions costs; and

(d) the ability of the central bank to monitor the market through effective information gathering, market intervention, and regulations.

All of the above points are, of course, interrelated. As discussed in our study, some continuing market segmentation in the sample countries has been reflected in the coexistence of official and parallel markets. Segmentation in the market is also evidenced by significant variations in rates quoted in the official floating market in some countries and the inability of dealers to provide "live" quotes. Progress toward eliminating such market segmentation may be evidenced by convergence in rates, not only between the official and parallel markets, but also among dealers. With respect to (b), the flow of larger transactions through the floating exchange market would demonstrate that the market is successful in allocating foreign exchange resources to those who need it most. In addition, (b) will only be true if the market is unencumbered and free to be responsive to demand and supply conditions. The continued divergence of foreign exchange transactions to unofficial markets would suggest that market participants are, in some way, unable to truly maximize their objectives, either because of excessive restrictions on who can participate in the market and the conditions under which they participate, or because of how rates are determined in fact.

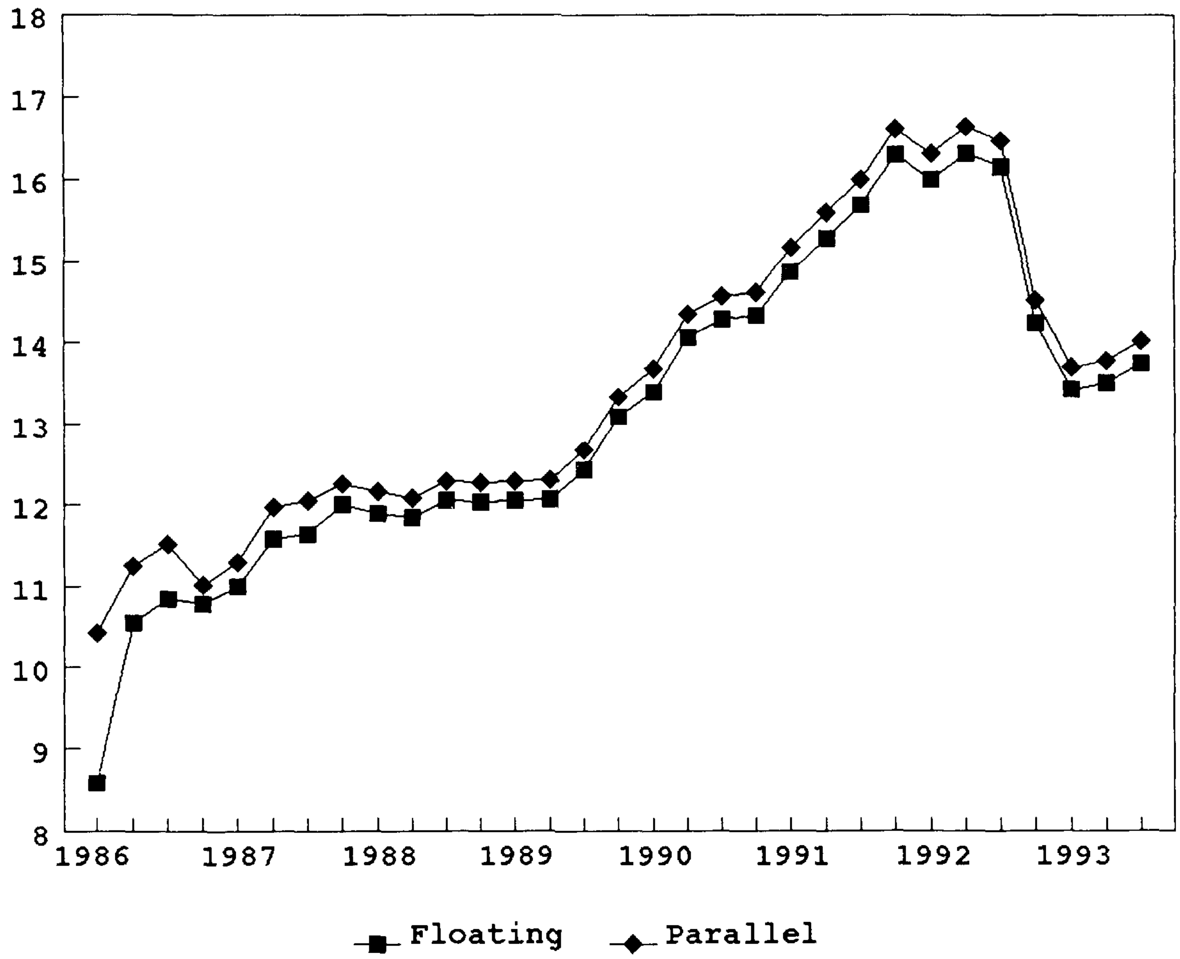
The informational problems mentioned in (c) underlie much of what has been described so far. For the exchange rate to reflect accurately a competitive situation, participants should be well aware of what is happening in the market. Also, participants should be able to make known, at as low a cost as possible, their desire to trade quantities at specific prices. This informational requirement extends to (d), that is, the central bank's ability to ensure minimum risks in the market as well as to intervene confidently in its conduct of monetary policy.

It is, of course, very difficult to provide exact quantitative measures of the extent to which these criteria are met in the different sample countries, given the limited availability of data. Nevertheless, it is possible to summarize some clear trends in the foreign exchange markets and to highlight issues that need to be addressed.

Data on the official and parallel exchange rates before and after the introduction of interbank market arrangements are shown in Charts 1-6 for all the countries concerned. As can be seen from the graphs, the differentials between the parallel and floating rates have generally narrowed with the introduction of interbank markets. In Ghana, the spread narrowed to about 4 percent in early 1993. In Sierra Leone, the spread narrowed from about 29 percent in April 1990 at the inception of the interbank arrangements to an average of 4 percent for the first ten months of 1993. In the case of The Gambia, the premium in the parallel market is estimated to be no more than 2-3 percent at present, and in Mozambique, the premiums between the parallel and the official and floating rates were around 13 percent and 11 percent, respectively, in late 1993, compared to around 58 percent in the period immediately before the introduction of the "secondary" market in 1990. The case of Nigeria is unique in that the differentials narrowed and widened again through the period of the interbank arrangement experience. For instance, in April 1992 (a month after unification of the exchange rates), the differential was about 6 percent, but it then rose to 113 percent by December 31, 1993. The case of Nigeria is instructive. The smooth operation of the market has been affected by both frequent changes in macroeconomic policy as well as an "auction" system, which was not always very responsive to market forces. The heavy reliance of the foreign exchange market on allocations from the Central Bank and the Central Bank's tendency to fix the exchange rate have led to significant divergences with the parallel rate. In the case of Kenya, data on parallel rates are not available, but there has been a clear convergence between the market and official rates.

In general, the objectives of unification of the floating and parallel rates and reduction in the variability of rates quoted are unlikely to be fully achieved unless an interbank foreign exchange market can satisfactorily ensure good communication, sufficient competition, and the development of genuine interdealer transactions. Meeting these requirements will take time in all of the countries, and necessitates the development of a more modern medium for carrying out the transactions (such as an electronic exchange), the licensing of a sufficiently large number of

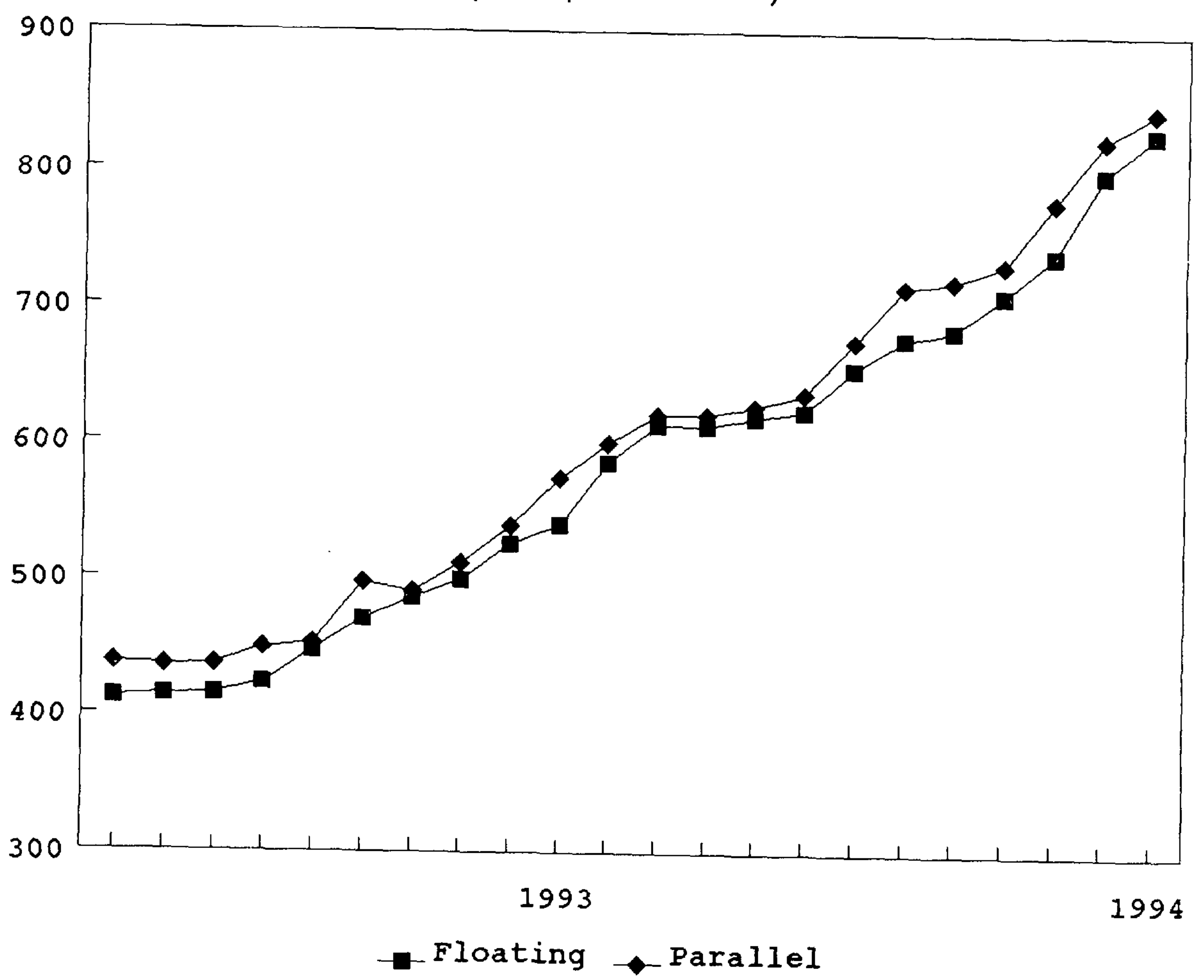
CHART 1
THE GAMBIA
EXCHANGE RATES 1/
(Dalasis per pound)




Source: The Central Bank of The Gambia

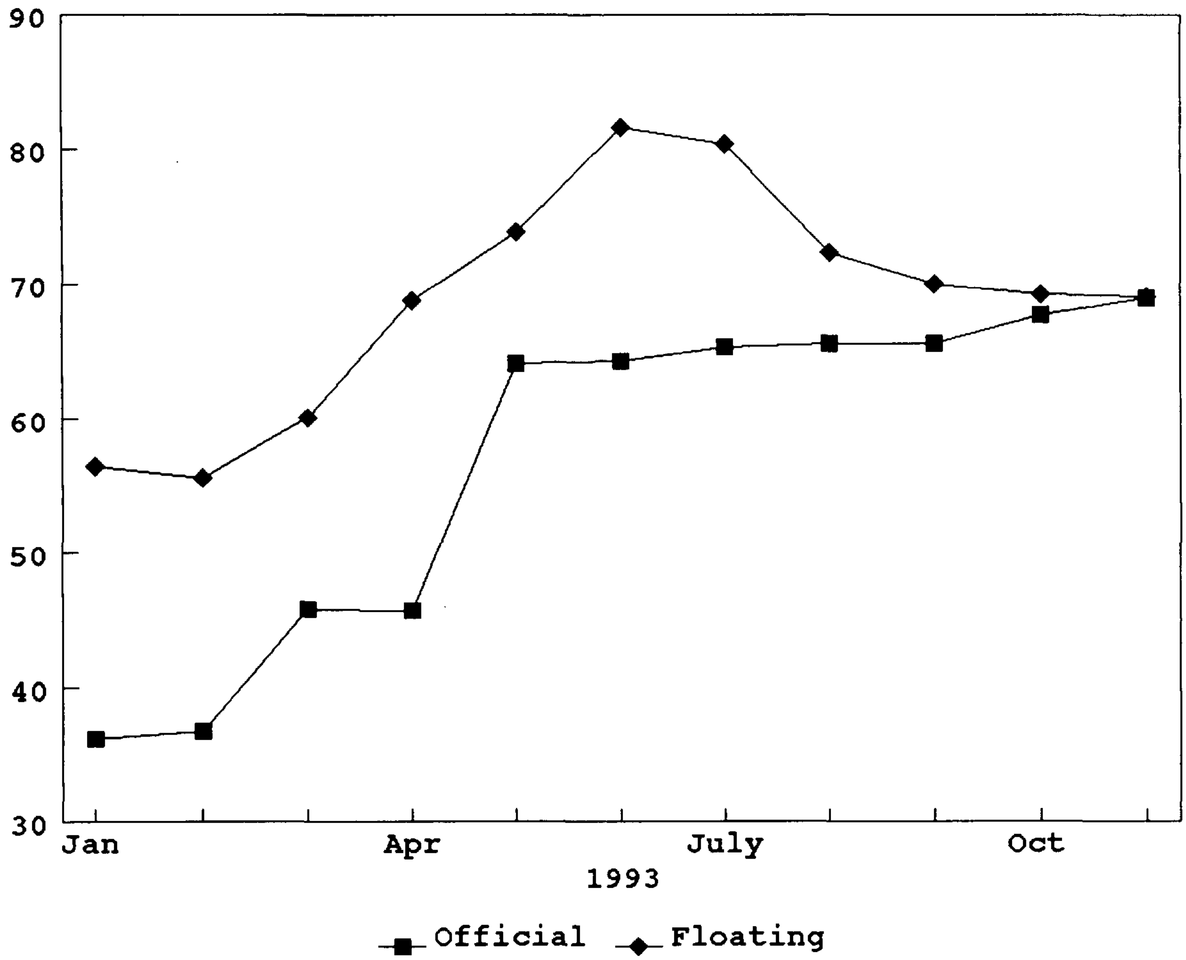
1/ Parallel market rates after June 1988 are estimates as the Central Bank no longer keeps data on the parallel market.

CHART 2
GHANA
EXCHANGE RATES
(Cedis per U.S. dollar)




Source: The Bank of Ghana

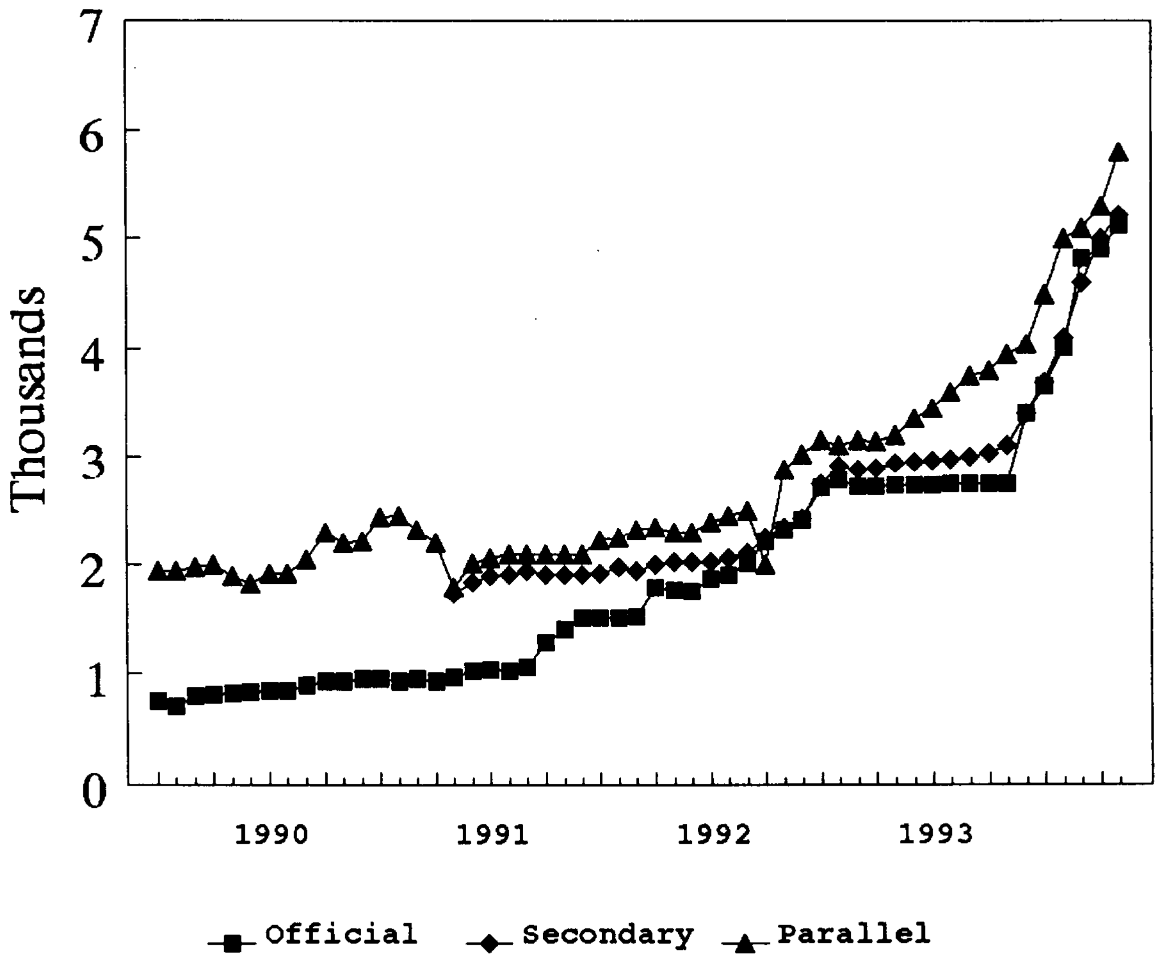
CHART 3
KENYA
EXCHANGE RATES 1/
(Kenyan shillings per U.S. dollar)




Source: The Central Bank of Kenya

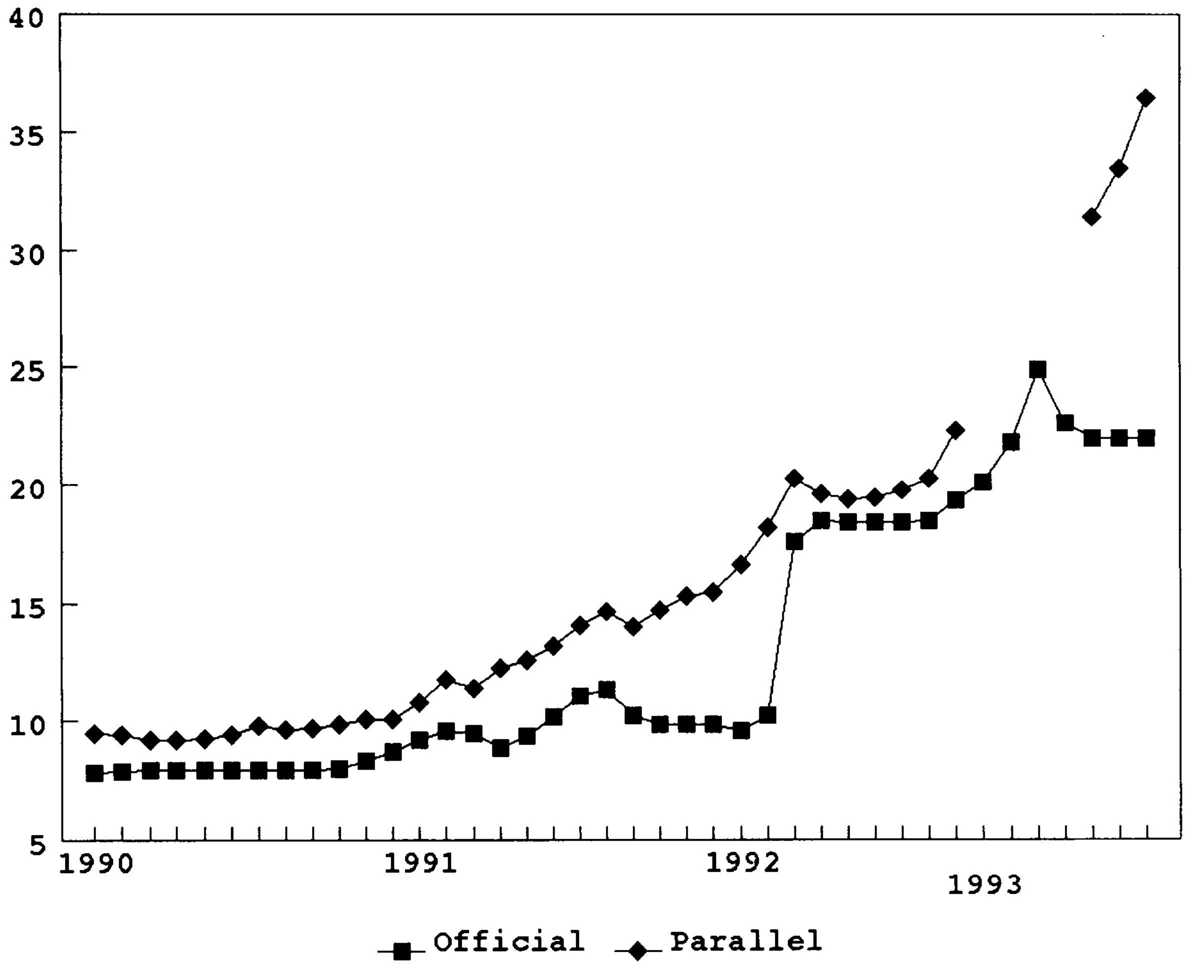
1/ The floating rate is used here as the parallel rate.

CHART 4
MOZAMBIQUE
EXCHANGE RATES
(Meticais per U.S. dollar)




Source: The Bank of Mozambique

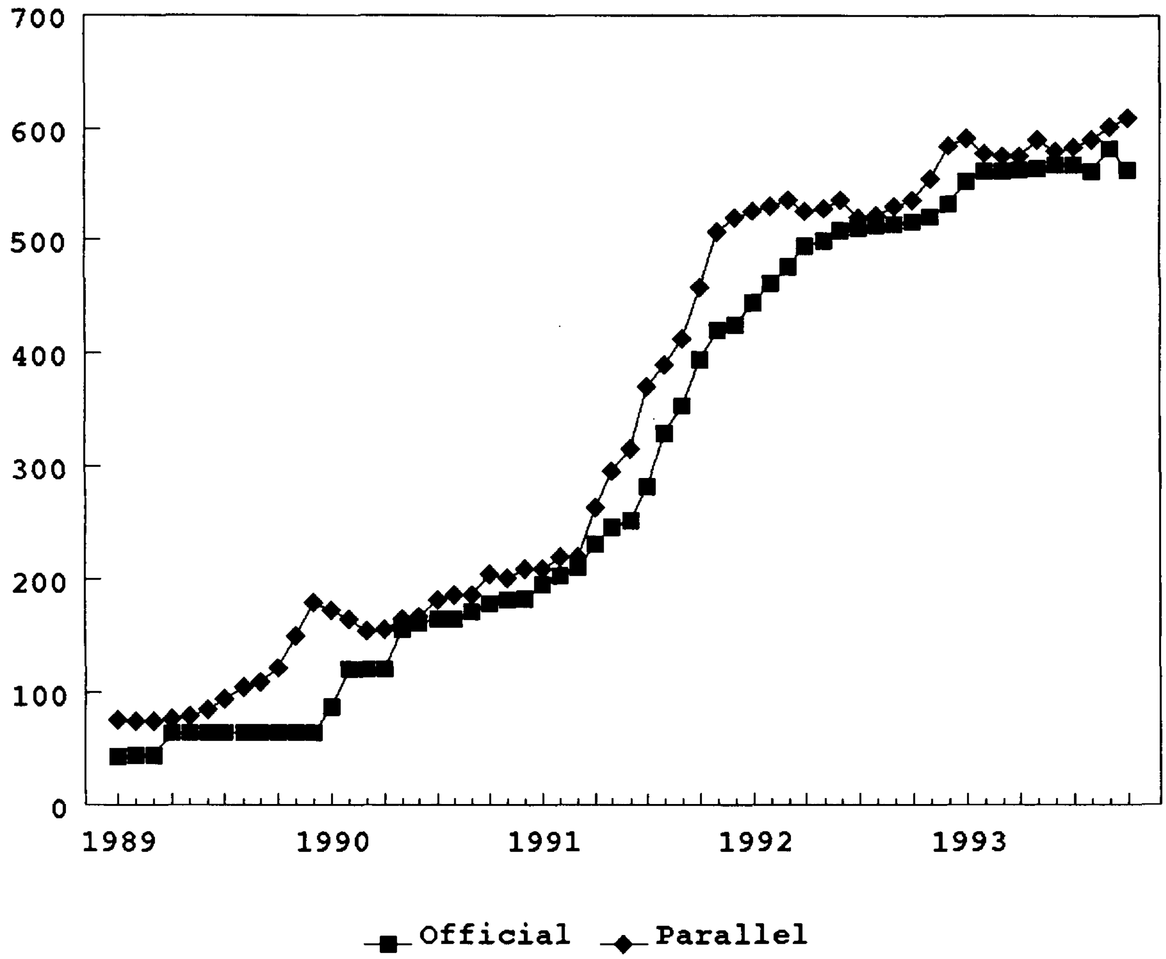
CHART 5
NIGERIA
EXCHANGE RATES 1/
(Naira per U.S. dollar)




Source: The Central Bank of Nigeria

1/ Parallel market rates are not available for the first four months of 1993.

CHART 6
SIERRA LEONE
EXCHANGE RATES
(Leones per U.S. dollar)




Source: The Bank of Sierra Leone

dealers, and a more active role by the central bank in the market. The latter can be achieved through regular fixing sessions to facilitate interdealer transactions and by the issuance of foreign exchange regulations which provide incentives for interdealer transactions such as strict open position limits.

The available data on transactions turnover in the foreign exchange markets in the sample countries suggest an increased allocation of foreign exchange through the interbank market. Although there are hardly any data on the amount of foreign transactions that were financed through the parallel market in the period before the introduction of an interbank foreign exchange system, the tendency toward convergence in the rates suggests a reduction in the size of that market. For some countries, such as Mozambique, Nigeria, and The Gambia, the turnover of foreign exchange transactions in the interbank market represents approximately 50-90 percent of the value of imports. For other countries, the ratio is considerably less. The depth of the market and the volume of its turnover can be enhanced through further elimination of surrender requirements of export receipts to the Central Bank and the encouragement of more direct transactions in the interbank market. This seems to have been the experience in Ghana, where there was a progressive increase in the proportion of foreign exchange proceeds allowed to be surrendered to authorized dealers. In addition, allowing exporters to hold retained accounts in foreign exchange in domestic banks has the potential to increase transactions in the market, though greater attention to sound macroeconomic policies may be required for these accounts to have the desired impact.

The role of the central banks in the countries surveyed has been critical in ensuring that practical and operational requirements of the markets are addressed. Inter alia, these requirements include the need to license dealers, to create a competitive atmosphere, to facilitate the flow of information to participants, and to ensure proper prudential and other foreign exchange regulations. To improve the operations of the markets, the central banks may have to be more active (without necessarily being interventionist) in educating participants about: the functioning of the market, the nature of the reporting required for the dealers' foreign exchange transactions, alternative approaches to managing foreign exchange resources and open positions, and on the need to turn to other dealers to reduce open positions instead of to the central bank. To improve their own effectiveness, central banks also need to develop their capabilities to monitor, intervene, and provide sound guidance through regulation and dialogue in the market.

The move to a floating interbank foreign exchange market in the sample countries has been a bold step forward toward ensuring that exchange rates are more responsive to the forces of supply and demand. In all of these economies, efficient exchange markets are still in their early stages, but by facing up to the challenges presented by the market, these countries are proving that there is no substitute for learning by doing.

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