

9-1997

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Recommended Citation

Obaseki, P. J. (1997). The Need for Exchange Rates Convergence in Nigeria. *CBN Economic and Financial Review*. 35(3), 274-297.

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The Need For Exchange Rates Convergence in Nigeria

by

P. J. Obaseki*

This paper examined the relevance of exchange rates convergence in the context of a realistic exchange rate and the implementation of a successful Economic Adjustment Programme, with particular reference to external sector competitiveness and viability. The paper was unambiguous in respect of the superiority of convergence over other schemes ranging from multiple to a dual exchange rate system. A unified exchange rate system, resulting from a free interplay of market forces, eliminates waste arising from subsidies and inefficient allocation of foreign exchange. A unified rate also reduces rent-seeking behaviours that flourish under a dual or multiple exchange rate system. After an analysis of Nigeria's experience in Exchange Rate Management and the experiences of other countries, the conclusion was arrived at that three main factors: relative inflation rates, growth in money stock and rate of economic growth are crucial influences on the exchange rate. The paper observed that fiscal and monetary policies should be supportive of the exchange rate mechanism to ensure its stability. The empirical analysis attempted in the paper showed that, although fiscal operations of government exert the most significant influence on the parallel market premium, money supply and the growth rate of the GDP are also relevant. The inflation rate should be tackled on a sustainable basis to ensure that it does not grow rapidly and out of tune with those of trading partners countries. The rate of economic growth should also be stepped up to ensure sustained improvement in the exchange rate of the domestic currency. The paper observed further that a realistic exchange rate can be achieved through re-alignment on the basis of rational approaches or the application of market forces in the determination of the exchange rate, as is currently done under the Autonomous Foreign Exchange Market (AFEM). The paper ended on the note that monetary and fiscal policies should be reinforcing and in conformity with the achievement of sustainable exchange rate convergence.

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I. INTRODUCTION

In order to maximize the gains of Structural Adjustment, Nigeria has adopted many policy measures since 1986 meant to evolve a realistic exchange rate mechanism and ultimately achieve exchange rates convergence. Since 1995, exchange rate policy has been directed at the achievement of the convergence of the autonomous and parallel market rates and the ultimate convergence of the official and autonomous exchange rates. The pegged official exchange rate was expected to gradually merge with the CBN intervention rate or the commercial exchange rate after some stability has been achieved in the inter-bank market. The identification of the reasons that have militated against the attainment of exchange rates convergence in Nigeria and the appropriate measures to be put in place in order to achieve same are the issues that this paper is concerned with.

The exchange rate, when applied in conjunction with other macroeconomic policies, is expected to lead to the achievement of the goals of price stability, improved and sustained economic growth, reduced unemployment and balance of payments stability. An optimal and stable exchange rate system would help in achieving these macroeconomic objectives. The exchange rate has to be right and stable since it is an important relative price that influences other prices. When the exchange rate is not optimal, however, the achievement of these objectives becomes difficult and often impossible. For example, if the exchange rate is not in equilibrium, it allows rent-seekers and speculators to exploit the subsidy element involved. The situation is worse when a parallel market develops as a result of restrictions in the official market and the inability of the market to satisfy fully the demand for foreign exchange. Thus, the opportunity cost of transacting business in the official market is the value of the subsidy or the premium that would otherwise be lost by the official sector but gained by third party arbitraguers and speculators. The destabilizing nature of foreign exchange subsidy (premium) is the fundamental reason why unification of exchange rates is canvassed as a short to medium term objective of exchange rate management. The smaller the parallel market relative to the official market, and the higher the demand and supply elasticities of foreign exchange in the official market relative to the parallel market, the closer the unified equilibrium rate is likely to be to the official rate. However, if there is a large unsatisfied demand in the official market which cannot be diverted to the parallel market because of administrative restrictions, the equilibrium rate in a unified market would tend to be closer to the parallel market rate or could even be beyond it (Johnson et al, IMF 1985). The retention of a dual exchange rate system for a long time would be counter-productive in the long-run by undermining the objectives of exchange rate stability and structural reform of an economy. The

continued existence of dual or multiple rates would also encourage wasteful allocation of resources, thereby stunting economic recovery and growth. Foreign exchange liberalization, accompanied by appropriate demand management policies targeted at ensuring macroeconomic stability is necessary for exchange rate convergence, if the costs (subsidy) are to be reduced. This is because the burden of adjustment is often borne by the official exchange rate.

One of the broad objectives of the Structural Adjustment Programme (SAP) introduced in Nigeria in 1986 was to achieve macroeconomic stability by reducing the level of inflation, through the achievement of a stable and realistic exchange rate. Towards this end, government decided to deregulate exchange rate determination and the foreign exchange allocation system by relying largely on market forces. In this regard, various allocation mechanisms, beginning from the Second-tier Foreign Exchange Market (SFEM), the inter-bank Foreign Exchange Market (IFEM), the Dutch Auction System (DAS) to the Pro-rata System and, lately, fixing of the official exchange rate and application of a free market exchange rate for purely commercial transactions, were adopted in order to achieve the goals of policy. However, the stability in exchange rates has continued to elude the economy. As earlier indicated, the most serious problem has been the wide divergence between the official and parallel market exchange rates. All attempts to achieve convergence of these rates have resulted in further devaluation of both the official and parallel rates. As long as convergence is not achieved, exchange rate stability will prove difficult to realize and the naira would remain under considerable pressure.

In contrast, however, some African countries have made significant strides towards achieving convergence. According to the World Bank, Ghana, Uganda, the Gambia and Mauritius, by implementing well focused adjustment measures, have already achieved full unification of their exchange rates. In the Sudan and Zambia, where the process suffered from many reversals, unification has been largely achieved.

The experiences of these countries would be compared against Nigeria's experience so as to draw important lessons that would assist the country in its efforts to achieve convergence. Conceptually, exchange rates convergence refers to the evolution of a single or unified exchange rate system that is consistent with and supported by growth-oriented monetary and fiscal policies. Empirical estimations would, therefore, be attempted to establish the claims on the impact of premium on the rate of economic growth. This approach is being adopted because of the policy relevance of the subject. It is, therefore, useful to present both the qualitative and quantitative aspects of the subject. The rest of the paper is organized as follows, Part II is devoted to the examination of Selected Country Experiences with Exchange Rates Convergence/Unification, while Part III provides the Theoretical and Policy Framework for the paper. Model specification, Data Analysis, Model

Estimation and Interpretation of Results are contained in Part IV. The paper ends in Part V with Summary, Conclusions and Recommendations.

II. SELECTED COUNTRY EXPERIENCES WITH EXCHANGE RATES CONVERGENCE/UNIFICATION

This section concentrates on some countries that have experienced similar problems that Nigeria is currently facing and have been able to adopt appropriate policies to achieve exchange rates convergence, accompanied by reasonable macroeconomic stability. Selected case studies are presented below starting with a general discussion of the situation in Sub-Saharan Africa (SSA). Thereafter, exchange rate management in Nigeria is examined to draw conclusions on the extent to which policies have been directed towards achieving convergence and unification of exchange rates.

The analysis of relevant indicators in respect of some countries that have achieved some measure of convergence reflects mixed results and inconclusive direction of effects of convergence. This is probably so because of the short period of convergence and the continuous efforts geared towards ensuring that the convergence is sustained. Once enduring stability has been achieved, the effects of convergence would become more apparent. Most Sub-Saharan Africa (SSA) countries operated a dual exchange rate system in the early 1980s before they embarked on structural reforms. The official exchange rate was relatively less depreciated and hence lower than the parallel market exchange rate. Priority imports were settled at the official rate, while other foreign exchange transactions were settled at the parallel market exchange rate. Most of the reforms in the SSA countries evolved through transitional phases. The transition included movement from mechanisms where price was exogenously determined to those where price determination was endogenous. Some of the countries operated "own funds scheme" where autonomous funds were allowed to reside with the owners and were used as the owners wished. The own funds scheme was operated along-side export liberalization. In some cases, this scheme was supplemented by the liberalization of import licensing. Under the system, most imports were placed under Open General Licence (OGL). This resulted in a non-discriminatory allocation of foreign exchange. To reduce anti-export bias, the Export Retention Scheme (ERS) was applied by some countries. Under the scheme, exporters were allowed to retain all or substantial part of their foreign exchange earnings. The need for the ERS was reinforced when the gap between the official and parallel market was substantial.

Most African countries have pursued partial unification on a gradual basis, while others like Ghana and Uganda have achieved full unification. The key to successful unification has been the acceptance of the need for consistency between the unified

exchange rate and monetary and fiscal policies. Efforts at unification should be supported by tight budgetary and restrictive monetary policy. Otherwise, unification would not correspond with convergence if monetary and fiscal policies are not supportive.

In the drive to deregulate the foreign exchange market, ensure that a crisis free mechanism for foreign exchange allocation evolves and thus lay a solid foundation for exchange rates unification, foreign exchange bureaux were established in some SSA countries. The bureaux legalized some portions of the parallel market transactions and brought them under the control of the formal sector. The establishment of the inter-bank market is the final stage towards convertibility, especially for current account transactions. Although an inter-bank system is relatively unregulated, some prudential regulations are usually applied. An inter-bank market reduces anti-export bias, ensures more efficient allocation of foreign exchange, virtually eliminates the spread between the official and parallel rates and reduces the scope for parallel market activities. The double auction system, a mid-way between the auction and inter-bank system, which enables sellers and buyers of foreign exchange to submit bids and approximates an inter-bank system when successfully implemented, has been applied in isolated cases. Experimentation with the double auction system would indicate the volume of autonomous funds that may be available for operating an inter-bank system, given that the exchange rate is right and largely market-determined.

The performance of some SSA countries in their attempts to unify their exchange rates has been mixed. While some have succeeded and unified rapidly, others have recorded reversals and yet some have not got their bearing right. In the last case, attempts at unification have provoked new problems and compounded the problems that structural reforms attempted to address. Ghana, considered the most successful example in SSA in the design and implementation of trade policy, introduced a dual exchange rate system in September 1986. In February 1988, foreign exchange bureaux were legalized and were allowed to bid in auctions in December 1989. In March, 1992 the auction market was replaced with an inter-bank market. Uganda started an auction system in 1982 on an experimental basis. Foreign exchange bureaux were legalized in 1992 and in 1993, a weekly Dutch Auction System (DAS) was introduced. Both banks and bureaux participated in the DAS. The auctions in Ghana and Uganda were, however, largely donor-funded. Ghana and Uganda have continuously reformed their foreign exchange systems and at the moment are operating inter-bank systems. In Tanzania, there are no limits on foreign exchange transactions. For instance, no limits are set for Basic Travel Allowance (BTA). This creates confidence in the system. The parallel market has thus, become less important and exchange rates

have largely converged. In the Gambia, most foreign exchange resides in the private banks. These banks transact foreign exchange business among themselves with the Central Bank playing only a monitoring role. As a result, exchange rates have converged in the Gambia. Exchange rates unification has also been achieved in Mauritius, and the Sudan and Zambia that suffered reversals initially, largely due to policy inconsistencies and rapid changes in policy stance.

An illustrative scenario of how specific countries have tackled the issue of exchange rates convergence is summarized as follows:

a. Kenya

In Kenya, foreign exchange bearer certificates (Forex C-market) were introduced in August 1991 as a complementary source of foreign exchange to the official (Central Bank) source. The certificates were issued to holders of foreign exchange and they can be easily converted into cash as the need arises, without the owners of the certificates being questioned as to source. This arrangement eliminated the need to source all foreign exchange required from the Central Bank. The initiative was meant to enlarge the scope of the officially recognized foreign exchange market, tap the resources of the parallel market, encourage overseas residents to remit funds home without reprisals and, overall, to “turn black money white” i.e. to absorb all hidden foreign exchange inflows. The Central Bank’s auctions were done at controlled exchange rates while the Forex-C market was supply/demand related with average premium hovering between 15 and 20 per cent above the official exchange rate. An inter-bank market evolved under the new dispensation. A Foreign Exchange Retention Scheme (FRS) was introduced in May 1993 where 50 per cent of foreign exchange earnings of non-traditional exports could be kept at the initial stage, with the coverage extended to all exports subsequently with 100 per cent allowable retention. In 1994, the FRS was liberalized and all holders of foreign exchange were allowed to participate in the scheme. The domestic currency, the shilling, was floated in October 1993, after the merger of the official and inter-bank markets when the former was devalued by 60 per cent. The Central Bank introduced weekly foreign exchange auctions for commercial banks, while import licensing and all exchange controls were abolished. An inter-bank market has since evolved and has completely absorbed the parallel market. In addition, the inter-bank market is linked with the stock exchange.

b. Malawi

In Malawi, the authorities liberalized entry procedures in the financial sector in 1991, and abolished exchange controls in 1994 in order to revitalize the external sector. Exporters were permitted to open foreign exchange proceeds retention accounts with commercial banks where earnings up to 90 per cent could be lodged. Thereafter, the domestic currency, the Kwacha, was floated with commercial banks given freedom to determine exchange rates according to market conditions. Exchange rates were determined through weekly auctions. In 1992, Bureaux de Change were introduced and retention proceeds increased to 100 per cent. At the commencement of the new system, the Kwacha declined in value by 50 per cent vis-a-vis the dollar. An inter-bank market has evolved with demand and supply relied upon to determine the exchange rate of the Kwacha.

c. Tanzania

In the course of financial deregulation, foreign exchange transactions were liberalized in 1992 in Tanzania with the licensing of Bureaux de Change and the operation of Foreign Currency Accounts by nationals, free of any enquiry as to source of lodgement. Bureaux de Change operations in Tanzania are very liberal. Nationals are allowed to purchase foreign exchange up to \$10,000 for every trip out of Tanzania without restrictions as to number and time frame. Exporters are also allowed to retain their entire foreign exchange proceeds (100 per cent). Thus, from August 1993 some convergence has been achieved between official commercial bank and Bureaux de Change rates, as only marginal differences exist between the rates. Tanzania has also been able to evolve an inter-bank system predicated on supply and demand conditions in the market with the Central Bank only intervening to smoothen the path of exchange rate movement.

d. India

India is one developing country that has achieved current account and some form of capital account convertibility. India's strong economic adjustment policies earned the Rupee, the domestic currency, an early current account convertibility. The export sector was extensively liberalized with exporters granted concessions to operate foreign currency retention accounts. Retention limits were directly related to the degree of export orientation. Thus, export processing zones, electronic hardware and software technology units had higher retention levels. The capital market was also liberalized with foreign brokers allowed to operate on behalf of foreign investors. In addition, customs duty rates and taxes were reduced for domestic

companies. The restrictive demand management policies of India helped in no small way in ensuring the successful implementation of the foreign exchange programme. The automatic monetisation of government deficits by the Central Bank was phased out. India operates an inter-bank system where the Rupee exchange rate is determined on the basis of supply and demand.

II.2 REVIEW OF NIGERIA'S EXCHANGE RATE MANAGEMENT (1986 - 1997)

Prior to September 26, 1986 when the naira was floated in the Second-tier Foreign Exchange Market (SFEM), the domestic currency was managed under a fixed exchange rate mechanism and international transactions were subjected to extensive exchange and trade controls and regulations. With the SFEM, foreign exchange transactions were liberalized. The floating of the naira was predicated on the adoption of the Structural Adjustment Programme (SAP) in July 1986 as a vehicle for turning around both the external and domestic sectors of the economy. Exchange rate adjustment, towards an optimal level, was a major element of the SAP. With SAP, the export business was liberalized through the abolition of export licensing. Under the SFEM, exporters were allowed to hold 100 per cent of their foreign exchange proceeds in domiciliary accounts and they were allowed unhindered access to the funds therein. The SFEM was operated alongside a managed first-tier official exchange rate, while the second-tier rate was based largely on market forces. Transitional transactions and pre-SFEM transactions such as, debt service payments, public sector imports, expenditure of Nigeria's missions abroad and payments to international organizations were effected through the first-tier rate. Other private sector transactions were effected at the second-tier rate which was relatively more depreciated. Various methods of exchange rate determination; average of successful bids, marginal rate pricing, and Dutch Auction System were applied.

The first and second-tier exchange rates were merged in July 1987. An autonomous market for foreign exchange, where the banks transacted foreign exchange business among themselves, was evolved in 1988 but was discontinued in 1989 as a result of its destabilising tendencies. The autonomous rates were sharply depreciated and they fueled rent-seeking activities. The SFEM and the autonomous market were eventually merged into an enlarged inter-bank market. The inter-bank market used a number of criteria for determining the exchange rate. One or more of the numerous criteria ranging from simple average, weighted average, to monitoring developments in exchange rates of convertible currencies was applied to determine the exchange rate at different times. There was, therefore, no specific criterion for

determining the exchange rate.

The Bureaux de Change were established in 1989 to accord small users greater access to foreign exchange, widen the scope of the officially recognized foreign exchange market and make foreign exchange transactions less cumbersome and less formal for small transactors. The Bureaux de Change were also expected to gradually absorb the informal foreign exchange market as a secondary objective.

In order to further reduce instability in the Foreign Exchange Market, the inter-bank procedures were modified in December 1990, when the Dutch Auction System (DAS) was re-introduced. The DAS was first applied in April 1987, but the instability in the foreign exchange market could not be stemmed. As a result, a modal weighted average method of exchange rate determination was introduced in August 1991. Under the system, the rates tending towards the mode were used to determine the market exchange rate. The system succeeded in reducing wide fluctuations in the official exchange rate, but instability soon set in as the parallel market commenced a process of sustained depreciation, leading to the widening of the premium between the parallel and the official market. For example, the parallel market premium reached 79.2 per cent in February 1992, compared with 35.5 per cent in 1991 and the internationally acceptable standard of 5.0 per cent. To arrest the drift, the CBN completely floated the naira on March 5, 1992. Under the system, the CBN was ready to sell unlimited amounts of foreign exchange provided the appropriate naira cover was provided. Initially, the parallel market premium narrowed to a level below 10 per cent. However, as a result of renewed demand pressures and speculative activities, the premium started to widen again.

The official exchange rate for the naira was administratively pegged at ₦21.9960 for most of 1993, while foreign exchange allocation was done on a pro-rata basis. As a result, the parallel market exchange rate continued to diverge widely from the official exchange rate with the Bureaux de Change exhibiting similar trends. The emerging parallel market premium was considered too large to be allowed to persist as it was a disincentive to the policy stance of achieving exchange rate stability and optimal foreign exchange allocation. Thus in 1994, the Federal Government formally pegged the official exchange rate at ₦ 21.9960 = \$1.00, re-affirmed the illegality of the parallel market for foreign exchange transactions and prevented Bureaux de Change from selling foreign exchange. All foreign exchange receipts were also centralized in the CBN. A Foreign Exchange Allocation Committee, later re-named Ministerial Allocation Committee, was set up to oversee foreign exchange allocation. The Ministerial Allocation Committee was later dissolved and replaced with a new one headed by the Central Bank. The pro-rata system of allocation of foreign exchange was continued in 1994. Initially, the manufacturing sub-sector, finished goods, agriculture and invisibles were allocated 50, 30, 10 and 10 per cent,

respectively. However, in March 1994, the manufacturing sub-sector's share was increased to 60 per cent, while that for finished goods was reduced to 20 per cent. With the setting up of the Ministerial Allocation Committee in May 1994, and the objective of allocating available foreign exchange to meet the basic needs of end-users, 15.0 per cent of available foreign exchange was set aside for priority imports and scheduled for allocation every fortnight. The remaining 85 per cent was allocated on a pro-rata basis using the earlier formula. Allocation for priority items was later raised to 20 per cent.

The re-regulation of the economy in 1994 rather than shoring up the value of the naira and stabilizing the foreign exchange market, further reduced the value of the naira and set in a self-sustaining phenomenon of exchange rate depreciation in the parallel market. The measures put in place to manage foreign exchange in 1994 failed to address the crucial issues of improving foreign exchange receipts through raising the level of non-oil exports and enhanced capital inflow. The problem of the widening parallel market premium could also not be addressed. At the end of 1994, the parallel market premium was in excess of 350 per cent. This was highly destabilizing and constituted an urgent issue for policy action. The pegging of interest rates also failed to stimulate the productive sectors of the economy. Non-oil exports production and foreign exchange earnings were not enhanced and the balance of payments remained under considerable pressure. The attempt to forcefully liquidate the parallel market by legislation instead of applying fiscal and monetary instruments of restraint also showed that the fundamental problem of foreign exchange scarcity was yet to be addressed decisively.

Against the background of persistent instability in the foreign exchange market, declining non-oil export receipts, widening parallel market premium, and sustained pressure on the external sector resulting from inappropriate policy measures adopted in 1994, and the attendant rising inflationary spiral, a reversal of policy stance was effected in 1995. The 1994 policy which centralized all foreign exchange receipts in the CBN was discontinued. The foreign exchange market which was re-regulated in 1994 was deregulated again in 1995 under a policy of "guided deregulation". The goal of foreign exchange and exchange rate policy since 1995 centered on the deliberate build-up of external reserves to improve the credit-worthiness of the Nigerian economy and its competitiveness, strengthen the naira and gradually move the currency towards convertibility. The CBN foreign exchange holdings were to be deployed to build-up reserves, finance priority public sector transactions, including debt service payments and intervene in the foreign exchange market to ensure reasonable stability. The major element of the deregulation was the re-introduction of the Autonomous Market for Foreign Exchange (AFEM). The AFEM is a channel for funding end-users' requests for

foreign exchange at market-determined rates. The banks and Bureaux de Change are the major institutions in the AFEM. While banks are eligible to deal in both official funds (on behalf of end-users) and autonomous funds, Bureaux de Change can only transact business with autonomous funds. Bureaux de Change which were barred from selling foreign exchange in 1994 became eligible again, while domiciliary accounts can now be kept with private banks as in the past, except oil companies and public sector entities which are required to continue to keep such accounts with the CBN to prevent them from influencing developments in the AFEM. The CBN monitors developments in the AFEM and intervenes when necessary to keep exchange rates within desired or targeted levels. The fixed exchange rate of \$1.00 = ₦22.00 was retained for eligible public sector transactions, including debt service payments and National Priority Projects. Transactions eligible for financing through the concessionary official exchange rate are verified by the Federal Minister of Finance. The distinguishing features of the new AFEM vis-a-vis the one that was abolished in 1989, is its enlarged institutional scope and the prohibition of inter-bank dealings with official intervention funds in the market. In the pre-1989 dispensation, the autonomous market was mainly an inter-bank market and official foreign exchange was eligible for transactions in the market.

While adopting the new foreign exchange policy, the thinking of policy makers was that since exchange rate stability could not be achieved under the subsidized foreign exchange allocation systems operated in the past, a more liberalized and market-based system could substantially reduce the parallel market premium and the demand for foreign exchange. The AFEM is expected to reduce the parallel market premium and eventually ensure the convergence of the various exchange rates in a single and enlarged foreign exchange market. It is also expected to stabilize the naira exchange rate, induce increases in non-oil export receipts and reduce excessive demand pressures in the foreign exchange market. To address the initial supply problems in the AFEM and prevent exchange rate volatility, the CBN intervenes in the market as it deems fit by selling foreign exchange to end-users through selected authorized dealers. The CBN could also buy foreign exchange from the AFEM to stabilize exchange rates as situations demand.

Other measures introduced in 1995 to ensure the smooth functioning of the AFEM are the abrogation of the Exchange Control Act of 1962 and the Enterprises Promotion Decree of 1989, and the permission granted to exporters to sell their export proceeds at autonomous rates to banks other than those in which they maintain domiciliary accounts. The 1995 policy measures were retained in 1996. In 1997, current accounts transactions were extensively liberalized with the limits on Basic and Personal Travel Allowances and remittances for educational instructions abroad removed, in addition to the lifting of the suspension on open accounts and bills for collection as modes of international payments.

III. THEORETICAL AND POLICY FRAMEWORK

III.1 Theoretical Framework And Review of Relevant Literature

A unified exchange rate system should be able to lead an economy towards the achievement of exchange rate stability and ultimately, balance of payments stability. In order to achieve the type of unification that would guarantee the desired macroeconomic balance, some minimum conditions must be observed. These include the achievement of a realistic or equilibrium exchange rate and the consistent application of restrictive demand management policies. To achieve a realistic exchange rate, the rate of domestic productivity must be stepped up, inflation would have to be curtailed, while a tight hold should be put on money supply. When the exchange rate is mis-aligned vis-a-vis trading partners' currencies, instability soon sets into the Foreign Exchange Market and the reactivation of rent-seeking behaviours encourages the development of other markets.

Although it is generally agreed that exchange rate convergence improves welfare through a more efficient allocation of resources vis-a-vis the inefficiency ascribed to a multiple exchange rate system, the application of a uniform model for determining the effect of convergence has not been conclusively fashioned out. However, there exists a number of measures that could serve as guide in the determination of the effects of convergence on an economy. There is the well known efficient market hypothesis which assumes that exchange rate is expected to follow a random walk or a near random walk as current levels relate to preceding levels and expectation based on information available. The official exchange rate failed to behave in this manner as a result of its pegging in 1993, while the parallel market exchange rate was influenced largely by speculative factors. Since prices are indexed on the basis of the parallel rates, it follows that to ensure efficiency and reduce resource misallocation, convergence should be encouraged towards the parallel market exchange rate in the first instance, while the market should be allowed to rely on available information subsequently, with the CBN intervening in the market to influence exchange rates towards the desired level.

Wide parallel market premium introduces some instability into the Foreign Exchange Market. The higher the premium, the greater the incentive to falsify export invoices and to divert export proceeds to the unofficial market (Agenor 1992:928). Although the Agenor study indicated that unification could lead to increased inflation and reduction in output when a real appreciation of the exchange rate occurs, the situation is reversed in countries like Nigeria that are net sellers rather than net buyers of foreign exchange.

The argument that multiple exchange rates misallocate resources is at the root

of the arguments for unification of exchange rates. According to Pinto (1990:322) unification would eliminate the subsidy on foreign exchange to the private sector and improve fiscal deficits for a net seller. The effects of unification according to Pinto could be examined through the identification of the determinants of the parallel market premium. Pinto's study focused on the inflation and fiscal effects of exchange rate unification for a net buyer of foreign exchange. According to him, unification would lead to reduced revenue, widening of fiscal deficit and rising inflation. This submission could be posed in the reversed form for a net seller of foreign exchange. In this sense, unification would result in increased revenue, reduced fiscal deficits through the elimination of subsidies and price stability in the medium to long-term. Furthermore, the depreciation of the real exchange rate would improve the trade balance and impact positively on the gross domestic product (GDP). The traditional argument of disincentive to exports of a multiple exchange rate system and the ultimate reduction in capacity utilization does not appear valid under the current dispensation in Nigeria. Other factors relating to government fiscal operations appear more plausible.

Pinto (1990:327) identified the determinants of parallel market premium as demand for domestic money, the financing of fiscal deficits, the rate of inflation and the terms of trade, or the ratio of price of exports to imports. Pinto's study showed further that the black market premium meant a bigger real transfer of resources from government to the private sector and the reduced income led to the reliance on inflationary fiscal operations. The disincentive effects of the premium showed in reduced non-oil exports. Generally, Pinto (1990:335) argued that inflation rises because the devaluation involved in unification eliminates revenue from purchasing export earnings at the overvalued official exchange rate which requires increased monetisation to finance a set level of government expenditure. This conclusion no longer holds in its entirety for Nigeria since the introduction of the AFEM in 1995. However, the fact remains that the subsidized official exchange rate encourages some rent-seeking behaviours that precipitate capital flight and decline in real sector activities, especially in manufacturing.

The determinants of the premium in Nigeria include the growth in the money stock, the growth in the gross domestic product (GDP), the inflation rate, the index of competitiveness (the ratio of domestic to foreign prices or the real exchange rate index), the supply of foreign exchange, movement in the trade balance, and fiscal operations of government. As a result of what is on the ground at the moment, inflation, GDP, money stock and fiscal deficit are appropriate explanatory variables for movements in the parallel market premium. The most important aspect of this paper is the establishment of some negative relationship between premium and GDP growth in order to be categorical on the welfare-reducing effect of the parallel

market premium.

It has also been established in the literature that the more liberalized an economy is, the more unified its exchange rate system and the higher the rate of economic growth. While the index of openness, total trade/GDP is expected to move directly with economic growth, this has not been established in the case of Nigeria. Ekpo (1995) applied an augmented production function approach to determine the effect of the liberalization following the implementation of Nigeria's SAP. His findings were that the openness of the economy has not promoted economic growth. The result is to be expected since the accompanying elements of trade liberalization like competitive tariffs, a realistic exchange rate and macroeconomic balance were not achieved. The situation has, however, become more comfortable in the last couple of years with relative macroeconomic stability and a more appropriate exchange rate.

With a generalized illegal parallel market for foreign exchange, an increase in the rate of domestic credit will boost domestic prices and the black market premium (Edwards, 1992:54). The effect would be unsustainable macroeconomic developments that would elicit moves towards exchange rates unification to eliminate the destabilising premium. Usually, the burden of adjustment is on the official exchange rate. Quirk (1992:138) established that a bivariate relationship exists between black market exchange rates and broad money (lagged one period) for a broad sample of 13 major developing countries for the period 1977 - 1989. Quirk further observed that while the official exchange rate remained fixed, monetary developments determined the behaviour of the private sector. Furthermore, the parallel market premium, taken as a disequilibrium variable, impacts on other macroeconomic aggregates. Studies for Latin American and East Asian countries have established the negative impact of the parallel market premium on long-run growth performance.

Kamin (1992:211) identified the rationale for operating a multiple exchange rate system and the problems that could be encountered, necessitating unification of exchange rates. When a pegged official exchange rate exists for current account transactions and a floating rate is applied for capital account transactions, domestic prices may be insulated from exchange rate fluctuations. On the other hand, the official exchange rate may become overvalued, making the economy uncompetitive. Leakages from one segment of the market to another may be difficult to prevent, and since multiple exchange rates create opportunities for sharp practices, it becomes difficult to ascertain the limits of legal activities. There is, therefore, a need to unify exchange rates and apply appropriate macroeconomic policies. Kamin, (1992:215) held the view that exchange market unification and the best means of achieving unification are somewhat academic, and that macro-

economic policies are far more important than exchange rate policies in ensuring stable prices, output and stable financial system. The importance of macroeconomic policies cannot be contested. However, sound macroeconomic policies are predicated on an optimal exchange rate that would ensure external balance. Furthermore, the problems with a multiple exchange rate system identified by Kamin do not support his conclusion. The fact remains that although multiple exchange rates may be advantageous in certain circumstances, they are prone to abuses and political manipulations which ultimately result in macroeconomic instability, especially when the official exchange rate is overvalued for a long period of time.

There is strong evidence from studies conducted by the World Bank on the long-term growth inducing effect of unification and the harmful effects of large premiums (Kiguel et al, 1994:34). In the studies, the retention of large premiums lead to macroeconomic distortions and rampant corruption. However, exchange rate unification can only be successful in establishing internal and external balance when appropriate complementary monetary and fiscal policies are put in place.

The more an economy is liberalized, the less efficacious the operation of a multiple or a dual exchange rate system. The institution of a realistic exchange rate mechanism and a competitive tariff structure, in addition to complementary monetary and fiscal policies would ensure better economic performance. This is because the authorities could apply demand management and trade polices to achieve set economic objectives without necessarily adjusting the exchange rate administratively. When the exchange rate moves out of policy target, the monetary authorities could intervene to smoothen the path of exchange rate movement. It should, however, be noted that even in systems where single exchange rate exist, there is the likelihood of leakages through speculative activities in the foreign exchange market which leads to market inefficiency (Koedijk, 1987:6). Under normal circumstances, the exchange rate would follow a random walk when expectation is zero or a near random walk when expectation is equal to a constant (Humpage, 1988:3).

Marion (1994:214) expressed the view that the classical dual rate system (DRS) introduces distortion into asset portfolios as a result of the spread between the pegged and the floating exchange rate, and the evolution of the spread overtime. The distortions are also reinforced by the inability to separate the markets (Bhandari and Decaluwe 1987, Gros 1988). The widening of the premium encourages rent-seeking behaviour. Marion applied a simple model to identify key determinants of the dual exchange rate premium. The premium in a reduced form equation depends on the rate of depreciation of the commercial (floating exchange rate), real income, and the initial stock of foreign assets at the onset of the dual exchange rate in the Marion study. This may be an appropriate model for Europe and Latin America that Marion study covered. In the case of developing countries

that are striving to establish macroeconomic balance, other variables like fiscal operations, money supply, demand and supply relationship in the foreign exchange markets are crucial in determining the level of the premium. This paper will attempt to examine the effect of the foreign exchange premium, in the case of Nigeria, the parallel market premium and other associated factors on the rate of economic growth. This is necessary to establish the need for policy reversal.

III.2 The Policy Nexus

The need for exchange rates unification is not far-fetched. It impinges on the overall objective of efficient and optimal economic management. Unification reduces the attraction of the parallel market and in fact absorbs it into the general framework of the formal foreign exchange market, thereby eliminating distortions inherent in differential rates in the foreign exchange market. Although macroeconomic balance is assumed to precede and sustain a unified exchange rate, unification reinforces stability in macroeconomic aggregates. Destablising influences of speculators and arbitraguers are reduced under a unified exchange rate system through the curtailment of rent-seeking behaviours. **When the unified exchange rate is determined at the optimal and realistic level, it promotes the inflow of foreign capital and export production, and discourages capital flight.**

An optimal unification of exchange rates leads to a **more rational deployment of foreign exchange**, thereby reducing wastes. It also makes it easier to move the economy along the path of sustainable growth and ultimate balance of payments equilibrium. Under a unified system, unproductive and distortionary subsidies would be curtailed and producers and investors would be operating in a stable environment where projections would become more useful and rewarding. Thus, decision-making would become less cumbersome and devoid of extreme uncertainties and arbitrariness. It is also easier to achieve an equilibrium exchange rate under a unified system. The initial impact of increased inflation rate and possible loss of output would be ameliorated when complementary demand management policies and supply side initiatives are applied on a sustained basis.

Although the direction of adjustment would be the depreciation of the official exchange rate or its discontinuation which effectively amounts to a devaluation, the improvement in economic conditions would gradually lead to the appreciation of the exchange rate and a decline in the inflation rate. However one looks at it, the parallel market exchange rate determines the level of the unified exchange rate in order to effectively reduce the destabilising effect of large parallel market premium. A unified exchange rate system helps to achieve better results from Structural Adjustment Programmes. Although unification is preferred to other exchange rates

systems, its implementation can only be successful when macroeconomic balance is achieved and maintained. In this regard, fiscal and monetary policies must be in conformity with the exchange rate policy.

IV. MODEL SPECIFICATION, DATA ANALYSIS, MODEL ESTIMATION AND INTERPRETATION OF RESULTS

IV.1 Model Specification

Two alternative models can be tested to establish the effect of exchange rate convergence on the economy. The first model may apply the parallel market premium as the dependent variable and attempt to capture the relative strengths of the factors inducing the premium. The second model may attempt to establish the impact of a unified exchange rate on the rate of economic growth. Thus, GDP growth or its proxy is treated as the dependent variable. Following the efficient market hypothesis which rules out wide deviations of exchange rate beyond market dealers' expectations, we can formulate the relationship of the spot exchange rate at period t, the preceding period's exchange rate and expectations based on information, as follows:

$$S_t = \alpha_0 + \alpha_1 S_{t-1} + \alpha_2 N + U_t \dots \dots \dots (1)$$

where S_t is the spot exchange rate, S_{t-1} is the preceding period's spot exchange rate, N represents information and U_t is error term, assumed to have zero mean, constant variance and uncorrelated with the explanatory variables. Since the official exchange rate has been pegged since 1993, we can reformulate equation (1) as follows:

$$S_t = S_{t-1} \dots \dots \dots (2)$$

Equation (2) means that the current spot exchange rate is the same as previous period's exchange rate in nominal terms. Information is, therefore, unimportant and the assumption of a random walk would not hold. As a result, an equation for the parallel market exchange rate is introduced to provide a better explanation of the effects of convergence or a single exchange rate system:

$$S_p = \alpha_0 + \alpha_1 S_{pt-1} + \alpha_2 M_1 + \alpha_3 M_2 - \alpha_4 FX + \alpha_5 FD + \alpha_6 GDP + u_t \dots \dots \dots (3)$$

- Where S_p = parallel market exchange rate;
- S_{pt-1} = Previous period's parallel market exchange rate;
- M_1 = Narrow money supply;
- M_2 = Broad money supply;
- FX = Supply of foreign exchange;
- FD = Fiscal Deficit
- GDP = Domestic output; and

U_t = Error term, as defined in (1). Redefining equation (3) to capture the premium yields the following:

$$S_p - S_t = \alpha_0 + \alpha_1 S_{p,t-1} + \alpha_2 M_1 + \alpha_3 M_2 - \alpha_4 FX + \alpha_5 FD - \alpha_6 GDP - \alpha_7 S_{t-1} + U_t \dots (4)$$

where $S_p - S_t$ = parallel market premium. Representing the parallel market premium with PM and dropping other exchange rate variables, we have:

$$PM = \alpha_0 + \alpha_1 M_1 + \alpha_2 M_2 - \alpha_3 FX + \alpha_4 FD - \alpha_5 GDP + U_t \dots (5)$$

Equation (5) indicates that the parallel market premium is influenced by the variables identified as M_1 , M_2 , FX, FD, and GDP. The lower the parallel market premium the more stable the Foreign Exchange Market and the better for the economy. Thus, an examination of the relative strengths of the various explanatory variables would be helpful in arriving conclusively at measures that would help ensure the convergence of the naira exchange rate. The a priori expectations are indicated by the signs attached to the explanatory variables.

The alternative model draws largely from the model of openness. The extent to which an economy is liberalized is influenced by factors such as the strength of the domestic economy, measured by the GDP or its proxy; the competitiveness of the external sector, the level of the exchange rate, domestic gross capital formation, among others. The model we shall adopt in this study takes the growth rate of GDP or its proxy as the dependent variable. The factors influencing it are identified as the index of openness of the economy (total trade/GDP), the exchange rate, (official, parallel, a measure of the equilibrium exchange rate, parallel market premium) capacity utilization in the manufacturing sub-sector, money supply and fiscal operations of government. The model is specified as follows:

$$GDPg = \alpha_0 + \alpha_1 T/y + \alpha_2 P - \alpha_3 M_s - \alpha_4 F/y - \alpha_5 PM - \alpha_6 INF + U_t \dots (6)$$

where GDPg = Growth rate of GDP;

T/y = Index of openness (total trade/GDP);

M_s = Measures of money supply;

F/y = Ratio of fiscal deficit/surplus over GDP;

P = Measure of real exchange rate, in this case the Purchasing Power Parity (PPP);

PM = Parallel Market Premium

INF = Inflation rate; and

U_t = Error term, as defined previously.

The a priori expectations are generally expressed by the signs attached to the variables. However, the exchange rate measures, the money stock, fiscal operations of government and inflation rate may exhibit unpredictable movements depending on their levels. What is certain is that openness would positively impact on growth given the right macroeconomic environment. In the same way, a wide parallel market premium would negatively impact on the rate of economic growth.

For the purpose of this study only, equation (5) was estimated.

IV.2 Data Analysis

Secondary data from 1970 to 1996 are applied in the estimation of the model. The data were sourced from CBN and FOS publications and IMF's International Financial Statistics. The series were tested for stationarity to confirm if long run relationships exist between them. This is necessary to establish whether the cointegration regression method can be applied.

Stationarity simply means that the series have turning points and that after some disturbance they return to a defined state. Such series are said to be mean-reverting. The concept of cointegration (Branger 1981, 1986, Hendry 1986, Hall 1986, Mills 1990) established the link between integration processes and the concept of steady state equilibrium. Cointegration theory assumes that even when two series are not themselves stationary, there may exist some linear combinations of the series that are stationary. Furthermore, cointegration technique arose from the need to integrate short run dynamics with long run equilibrium. Thus, it extends beyond the partial adjustment technique.

The statistical package applied in the estimation is the Microfit Software. The ordinary least squares method (OLS) is applied in the estimation. A partial correlation analysis was carried out to eliminate highly correlated explanatory variables. The regression analysis proceeded from a generalized to a specific framework through a step-wise procedure.

The cointegration technique can be applied to determine if long run relationship exists between the official and parallel market exchange rates, the parallel market premium and the GDP or its proxy, and inflation and the parallel market exchange rate.

The Unit root tests on variables to establish stationarity showed that the variables are difference stationary of order 1. Both the Dickey Fuller (DF) and Augmented Dickey Fuller (ADF) tests established this order of integration. The series are not trend stationary, but the residuals are integrated of order $I(0)$. Thus, a long run relationship exists between the variables.

IV.3 Model Estimation and Interpretation of Results

The model that was estimated has the Parallel Market Premium (PMP) as the dependent variable, with Broad Money (M2), Foreign Exchange Supply (FX), Fiscal Deficit/Surplus (FD) and Growth rate of Gross Domestic Product (GDP) as independent (explanatory) variables (see appendix).

The long run static regression was run and the a priori expectations for the

explanatory variables were satisfied. Residual stationarity was also established for the model. The introduction of an error correction term into the model, after differencing, produced different results. Foreign Exchange supply (DLFX) showed a wrong sign, while only one variable, Fiscal deficit (FD) was statistically significant. A negative relationship continued to be maintained between the parallel market premium and the growth rate of GDP.

An over-parameterised model with the 4 permissible lags for all explanatory variables was run. The results were not good enough. Only fiscal deficit lagged 1 to 3 periods was statistically significant. A step-wise regression methodology was thereafter applied to improve on the results. The final result showed that only fiscal deficit was statistically significant. This can be explained by the fact that monetary policy accommodates fiscal policy in Nigeria. Although money supply was not statistically significant, it exhibited some relationship with the parallel market premium. The growth rate of GDP showed the correct sign of inverse relationship with the dependent variable. Overall, the variables, money supply, fiscal deficit and GDP growth rate explained about 81 per cent of variations in the parallel market premium. The Durbin Watson (DW) statistic was high at 2.73, showing the absence of serial correlation. Although the rate of growth of the GDP was not statistically significant, the sign of the variable showed that the higher the rate of growth, the lower the premium and vice versa. As a result, the administration of a dual exchange rate system that automatically creates a premium constrains the rate of economic growth.

To achieve more robust results, the autoregressive error specification estimation method was applied. All the explanatory variables, money supply, foreign exchange supply, fiscal operations of government and the growth rate of the GDP had the right signs. In addition, the first three were statistically significant. As a result, all the explanatory variables are important, as critical factors in the determination of the size of the parallel market premium.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

V.1 Summary

There are various exchange rate and foreign exchange management schemes preparatory to the unification or convergence of exchange rates. Multiple or dual exchange rates (the simplest form of multiple exchange rates) are considered to impair economic growth and development. The simplest manifestation of a dual exchange rate system is the parallel market premium. With exchange rates convergence, the premium will become narrower and almost irrelevant in exchange rate analysis.

The lack of unification or convergence of exchange rates in Nigeria, through

the application of a dual exchange rate system, has perpetuated the phenomenon of a thriving parallel market for foreign exchange and the associated premium. The parallel market premium is affected by government's expenditure profile, accommodating monetary operations of the Central Bank of Nigeria, the rate of growth of GDP, among other factors.

V.2 Conclusions

The main conclusions of the paper are that fiscal operations of government exert a predominant influence on parallel market premium in Nigeria, while money supply and GDP growth rate also impact on the parallel market premium. The rate of growth of GDP exerts a negative impact on the premium. Thus, the higher the rate of growth of GDP, the lower the premium and vice versa. Higher GDP growth rate would reduce the reliance on imports and could even result in increased capacity for the economy to finance imports. This explains the inverse relationship. The implication for policy is that the existence of a wide parallel market premium, through a system of multiple exchange rates, introduces distortions as the premium is being fed through the diversion of funds which should have been used to finance economic growth and development. When the gap is closed through the implementation of a unitary exchange rate system, funds would be increasingly channelled to the productive sectors of the economy.

V.3 Recommendations

The dual exchange rate system should be discontinued. This can be achieved through the establishment of a unitary exchange rate. The most ideal route towards this is the phasing out of the official exchange rate and the channelling of all transactions through the AFEM.

The exchange rate should be monitored continuously to ensure that it is within a competitive level that would ensure the simultaneous attainment of internal and external balance. In this connection, inflation should be kept within levels at which the external sector remains competitive. Fiscal operations of government should not compromise the objective of macroeconomic and monetary stability as well as the stability of the Foreign Exchange Market. More importantly, monetary and fiscal policies should be complementary.

REFERENCES

- Agenor, Pierre Richard and Robert P. Flood (1992): Unification of Foreign Exchange Markets, IMF Staff Papers, Vol. 39, No. 4, December.
CBN, Annual Report and Statement of Accounts, (Various Issues), Lagos.
- Edwards, S. (1992): "Exchange Rate Misalignment in Developing Countries", in Approaches to Exchange Rate Policy, International Monetary Fund (IMF) pp. 45-64.
- Ekpo, A. H. (1995): "Openness and Economic Performance in Nigeria: A Time Series Analysis" in External Trade and Economic Development in Nigeria, Proceedings of the 1995 Annual Conference of the Nigerian Economic Society (NES) pp. 107-121.
- Frenkel J. A. & H. G. Johnson (1978): The Economics of Exchange Rates: Selected Studies, Addison-Wesley Publishing Company Massachusetts, pp. 3-43.
- Hooke A. W. (ed) (1983): Exchange Rate Regimes and Policy Interdependence, IMF, Washington DC, pp. 3-38.
- Humpage, O. F. (1988): "Intervention and the Dollar's Decline", Economic Review, Federal Reserve Bank of Cleveland, Vol. 24, Quarter 2, pp. 2-16.
- IMF (1984): "Exchange Rate Volatility and World Trade", Washington D.C., Occasional Paper 28, July.
- (1984): "Issues in the Assessment of the Exchange Rates of Industrial Countries", Occasional Paper 29, July.
- (1984): "The Exchange Rate System: Lessons of the Past and Options for the Future" Occasional Paper 30, July.
- (1985): "Formulation of Exchange Rate Policies in Adjustment Programs", Occasional Paper 36.
- (1991): "Characteristics of a Successful Exchange Rate System", Occasional Paper 82, July.

- Kamin, S. B. (1992): "Multiple Exchange Rates System", in Approaches to Exchange Rate Policy, International Monetary Fund (IMF) pp. 208-223.
- Kiguel, M. A. and S. A. O'Connell (1994): "Parallel Exchange Rates in Developing Countries, Lessons from Eight Case Studies", The World Bank Policy Research Working Paper 1265, March.
- Koedijk, K. G. and Mack Ott (1987): "Risk Aversion, Efficient Markets and the Forward Exchange Rate", Federal Reserve Bank of St. Louis, Quarterly Review, Vol. 69, No. 10, December, pp. 5-13.
- MacDonald R. (1988): Floating Exchange Rates, Theories and Evidence, Unwin Hyman Ltd., pp. 1-38.
- Marion, P. N. (1994): "Dual Exchange Rates in Europe and Latin America", The World Bank Economic Review, Vol. 8, No. 2, May, pp. 213-245.
- Micheaely M. (1968): Israel's Foreign Exchange Rate System, Kerer Publishing House Ltd., Jerusalem, pp. 85-115.
- Pinto, Brian (1989): "Black Market Premia, Exchange Rate Unification, and Inflation in Sub-Saharan Africa", World Bank Economic Review, Vol. 3, No. 3, September, pp. 321-338.
- Quirk, P. I. (1992): "Recent Experience with Floating Exchange Rates in Developing Countries", in Approaches to Exchange Rate Policy, International Monetary Fund (IMF) pp. 133-147.
- Williamson J. (ed) (1981): Exchange Rate Rules, St. Martins Press, New York, pp. 55-67 & pp. 298-326.

APPENDIX**SELECTED REGRESSION RESULTS**

	<u>Dependent Variable</u>	<u>Independent Variables</u>	R²	\bar{R}^2	SER	DW
Equation 1 (Static Model)	PMP =	-10.5 + 3.7LM2 - 2.5LFX - .0002FD - .01GDPG (-1.5) (1.4) (-1.1) (3.1) (-0.1)	0.54	0.46	5.5	1.93
Equation 2 (Error Correction Model)	PMP =	-5.1 + 1.3DLM2 + 0.73DLFX + .00019FD - .08GDPG (2.2) (0.2) (0.4) (5.4) (0.6) +32.4 RES(-1) (4.6)	0.75	0.69	4.2	2.44
Equation 3 (Final Stepwise Regression)	PMP =	-4.2 + 2.1DLM2 + 0.0001FD + 0.0001FD(-1) - 0.03GDPG (-2.3) (0.4) (3.1) (2.6) (-0.3) +20.9 RES(-1) (3.0)	0.81	0.76	3.7	2.73
Equation 4 (Autoregressive Error Specification)	PMP =	-32.2 + 10.4LM2 - 7.1LFX + .0001FD - 0.3GDPG (1.1) (2.1) (3.2) (2.2) (-1.3)	0.58	0.45	5.6	2.2