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MONETARY POLICY AND DEVELOPMENT FINAKaNGi
TIIE CASE OF NIGERIA 1950-1966

Ako Ounnar Blornqvlst

A DISSERTATION

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Princeton, September 1971
Åke Blomqvist

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ABSTRACT

MONETARY POLICY AND DEVELOPMENT FINANCING:
THE CASE OF NIGERIA 1950-1966

by

Ake G. Blomqvist

This stud/ analyzes the monetary and financial system and its interaction with the real economy for the case of Nigeria, 1950-1966. Relatively simple tools from monetary and macro-economic theory are applied in order to contribute to the understanding of the rolo of monetary policy in the context of a low-income, partially monetized, open economy with undeveloped financial markets, in which the fundamental economic policy objective is to accelerate real economic growth.

The primacy of this objective implies the existence of strong pressure on the policy-makers to conduct an expansionary monetary policy for the purpose of generating a high rate of development expenditure. The study investigates whether past experience in Nigeria is consistent with the view that such a policy will significantly accelerate real growth. Before 1959, the supply of currency was regulated through the operation of the West African Currency Board, which held 100% sterling reserves against its liabilities. The monetary system's contribution to development financing was therefore limited to the growth in domestic credit of commercial banks. After

its foundation in 1959 the Control Bank extended increasing amounts of domestic credit, and commercial bank credit continued to grow rapidly. The resulting expansionary impact on the money supply, however, was partly offset by the rapid decline in foreign assets of the monetary system. This indicates the limited extent to which domestic credit expansion can take place if it is desired to maintain balance-of-payments equilibrium at a fixed exchange rate and a stable level of foreign reserves. This hypothesis is also consistent with the results of projections of the Nigerian economy which illustrate the consequences of differont assumed monetary policies; the projections are based on estimated equations describing the determination of the demand for money and the level of imports.

In spite of this, a strongly expansionary monetary policy might nevertheless be considered worthwhile if it had a favorable onough impact on real growth. The a priori discussion, however, givc3 little support to the hypothesis that inflation would succeed in stimulating non-monetary savings and capital formation; it is further concluded that the increase in savings through increased accumulation of money balances would be relatively small, due to the low money/income ratio. Tho regression results are consistent with these conclusions.

Possible techniques of monetary policy are extensively discussed. Due to the narrow market for government securities tho Central Bank must have a certain degree of responsibility for the stabilisation of government securities prices. Therefore, domestic borrowing requirements of the government becomes a crucial parameter for monotary policy with

the consequence being strong interdependence between monotary and fiscal policy. Following Friedman, the question of rules vs. discretion in monetary policy is considered with the conclusion that there is a strong case in favor of ruloa. However, in an open economy with fixed exchange rates, it is appropriate to consider domestic credit rather than the stock of money, as the control variable. On the basis of the performance of such a rule in the projection experiments, it 1B concluded that its adoption in Nigeria can be tentatively recommended.

Finally, the oligopolistic character of the banking system is discussed, and the choice of techniques of monetary policy is considered in terms of their effects on competition and efficiency in the monetary and financial system.

INTRODUCTION

A. Monetary Policy in Nigeria

The ultimate objective of this dissertation is to investigate the possibilities of bringing some simple principles of monetary analysis to bear on the problem of formulating appropriate policies for the monetary authorities in Nigeria. In the course of such an investigation, one will clearly attempt to make maximum use of the analysis that has been undertaken of the tools and objectives of monetary policy for more highly developed countries. The question then arises whether the conditions under which monetary policy are carried out in a poor country, such as Nigeria, differ sufficiently from those of more developed countries, so that a special analysis is necessary. In the following few sections, a number of reasons will be considered why this question should be answered in the affirmative.

1. Differences in the Objectives of Monetary Policy

Because of the predominance of growth as an objective for economic policy in general in poor countries, it may be argued that other "typical" objectives such as price stability, currency convertibility at a fixed exchange rate, etc., have less weight as goals of monetary policy. Whereas this can be looked upon as only a difference in degree, rather than in kind, from the analysis in highly developed countries, the difference is quite important in terms of the orientation of the analysis of effects of monetary policy measures. In poor countries, interest tends to focus on the possible impact of such measures on growth in real income, rather than on price

or exchange stability. The so-called monetarist/structuralist debate for the Latin American countries[1] is the foremost example of this type of concern, but in the African countries as well there is a debate concerning the possibilities of stimulating real growth through monetary expansion.

2. Openness of the Economy

Many of the developing countries, and certainly Nigeria, are economies of a high degree of "openness," in the sense that exports (or imports) constitute a relatively large proportion of their economic activity. Whereas there has been a great deal of analysis of the effects of fiscal and monetary policy in open economies, both under fixed and flexible exchange rates, this analysis has typically been concerned with countries where the short-term response of capital flows to changes in the rate of interest tends to be relatively strong; it has also been carried out with the "traditional," short-term, economic policy objectives, i.e., price stability and full employment.[2] For a country such as Nigeria, by contrast, it cannot be expected that capital flows from abroad will respond strongly to variations in the level of interest rates, at least not in the

[1] An early reference here is Seers, D., "A Theory of Inflation and Growth in Underdeveloped Countries Based on the Experience of Latin America," Oxford Economic Papers, Vol. 14, June 1962, pp. 173-195. For an excellent exposition of the main ideas in the controversy, see Campos, R., "Economic Development and Inflation with Special Reference to Latin America," in OECD, Development Plans and Programmes, OECD Development Centre, Paris, 1964, pp. 129-137. Reprinted in Meier, G.M., Leading Issues in Economic Development, second edition, Oxford University Press, 1970, pp. 241-247.

[2] See in particular the various articles by Mundell, reprinted in Mundell, R.A., International Economics, New York, McMillan, 1968, especially Chapters 16-18. See also Takayama, A., "The Effects of Fiscal and Monetary Policies Under Flexible and Fixed Exchange Rates," Canadian Journal of Economics, Vol. 2, May 1969, pp. 190-209, which contains a good bibliography of the literature in this area.

short run;[3] furthermore, if growth is considered as the foremost objective, even though to some extent at the expense of price and exchange stability, it may become a very difficult question to deal with the external repercussions of a monetary policy designed to stimulate real growth. In other words, the analysis must consider not only growth and domestic price inflation, but also growth and external disequilibrium. This means that monetary policy decisions are much more directly dependent on policies regarding exchange rate depreciation, tariff policy, and controls of trade and payments, than is typically the case for economies which are less dependent on international trade.

3. Undeveloped Financial Markets

The reason most often referred to why principles of monetary policy differ between poorer and richer countries, of course, is that the latter typically have a more highly developed, competitive financial system, where changes in the market for money are quickly felt in all parts of the credit market. In the less developed countries the integration between various parts of the credit market is less, so that the Central Bank cannot expect to see a set of well-defined and representative interest rates change in response to monetary policy measures, and certain policy tools, such as open market operations

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[3] The likelihood that foreign capital flows in the form of portfolio investment will fail to respond to short-term interest rate variations in low-income economies is probably due to a large extent to the exchange risk, i.e., fear of devaluation or of controls on remittance of interest earnings, on the part of foreign investors. It is therefore conceivable that a combination of relatively high interest rates and restoration of investor confidence in unrestricted convertibility at a fixed exchange rate could stimulate portfolio investment. This possibility is briefly discussed in later chapters, especially Chapter 5.

in the traditional sense, cannot be employed at all.[4] Furthermore, if the economy is only partially monetized, there are economic activities which are totally outside the sphere of the Bank's influence; and the difficulty of predicting the effects of monetary policy is compounded if the degree of monetization is changing over time. These factors necessitate a careful analysis of what tools of monetary policy are available and what their effects will be under these conditions.

For the case of Nigeria, the analysis must also take into account the fact that the commercial banking system is dominated by foreign-owned banks, which are simply branch offices of overseas banks, and which one can expect to react somewhat differently to various policy measures than would a purely indigenous banking system.

The fact that the financial system is not well integrated and not very competitive further is likely to imply that there sometimes are significant misallocations of investment funds. For this reason, one will find a great deal of concern within the monetary authorities in less developed countries with selective control measures which are designed not only to strengthen the authorities' control over the monetary system, but which also have specific objectives with respect to the sectoral allocation of credit. This is another aspect of

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[4] See, for example, the discussion in Fousek, P.G., Foreign Central Banking: The Instruments of Monetary Policy, New York, Federal Reserve Bank of New York, 1957, and also Dorrance, G.S., "The Instruments of Monetary Policy in Countries Without Highly Developed Capital Markets," IMF Staff Papers, Vol. 12, July 1965, pp. 272-281.

monetary policy which warrants more detailed treatment for the case of a less developed country than for one with better integrated credit markets.

4. The Role of Debt Management

Another factor which is partly related to the above ones, is the role that the Central Bank in a less developed country typically is assigned, as manager of the public debt. While it is a traditional function for Central Banks everywhere to act as the government's banker, in some countries decisions with respect to amounts and maturities of government securities at any given time are made by a Treasury which is largely independent of the Central Bank;[5] the Bank's sales and purchases of such securities reflect its objectives with respect to monetary policy, and the impact on borrowing terms for the government of such measures is only an incidental consideration.[6] In many less developed countries, however, including Nigeria, the Central Bank is more directly responsible for the government debt, to the point of fixing issue rates, maturities, and subsequent prices of

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[5] For an excellent analysis of the problems of debt management in this setting, see Tobin, J., "An Essay on the Principles of Debt Management," in Commission on Money and Credit, Fiscal and Debt Management Policies, Englewood Cliffs, New Jersey, Prentice Hall, 1963, pp. 143-218. See also essays by W.E. Laird and T.R. Beard in Smith, W.L., and Teigen, R.L., eds., Readings in Money, National Income and Stabilization Policy, Homewood, Illinois, Richard D. Irwin, 1965, pp. 406-415 and 416-428.

[6] In many countries, this, of course, was not so during the early fifties. Because of the large issues of public securities during World War II, it was felt necessary that marketing authorities intervene to maintain a relatively low interest burden on the public debt. Since then, however, in North America and in most of Western Europe, this objective has again become a subsidiary one. See e.g., Pesek, B.P., and Saving, T.R., The Foundations of Money and Banking, New York, MacMillan, 1968, especially pp. 433-440.

such securities. The objectives in this respect, of course, are likely to be in conflict with objectives regarding monetary expansion, prevention of excessive interest rates in the private sector, etc. In view of the narrow markets for government securities, however, it is unrealistic to expect that Central Banks in less developed countries will cease to play this part in the economy, and it becomes an interesting question how the Banks can reconcile the conflict between its role as debt manager and its other objectives.

5. Knowledge of the Economy

A final factor, related to the ones discussed above, further contributes to the need for a somewhat different approach to monetary policy in poor countries than for the industrialized ones, namely, the state of knowledge that the policy-makers have of the interaction between the monetary system and the rest of the economy. To a large extent the deficiencies in this respect are due to the absence of statistical information concerning a number of economic variables which are important information inputs into the policy-making process in industrialized countries; furthermore, much of the statistical information which is collected is quite unreliable, in the sense of probably having large observational errors, and sometimes the measurements suffer from conceptual difficulties as well.[7] Of particular importance is the fact that much of the information that is collected is available only with a very long time lag.

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[7] A vivid account of these problems is given in Clark, P.B., "The Choice of Optimal Import Substitution Patterns for Nigeria," unpublished Ph.D. thesis, M.I.T., 1967, Chapter 3.

These data difficulties create problems for policy-making in two ways. First, it means that it is difficult to obtain reliable information on the relationships between the monetary and real sectors through empirical work in economics. Because of this, policy measures will have to be carried out with a great deal of uncertainty as to their short- and long-run effects; the problem is further compounded by the fact that some developing countries, such as Nigeria, are undergoing relatively rapid structural change, both in terms of changing importance of various types of economic activity, and in terms of institutional changes. When this is so, some of the parameters determining the effects of policy measures will in general also be changing, so that new guesses with respect to these effects will have to be made frequently.[8]

Secondly, the lack of quickly available and accurate statistical information will generally lead to long lags of the "inside" type. On the one hand, there may be a long time before information motivating a change in monetary policy becomes available to the monetary authorities. On the other hand, if the information is unreliable, it may either lead to somewhat erratic changes in policy which are not warranted, but which are undertaken in response to faulty information;[9] or else, it may further lengthen the lag between the

[8] On the econometric problem of obtaining reliable information on the economy when its "structure" (in the econometric sense) is changing, see Christ, C., Econometric Models and Methods, New York, John Wiley & Sons, 1966, pp. 32-45.

[9] See the analysis in Friedman, M., "The Effects of Full Employment Policy on Economic Stability: A Formal Analysis", in Essays in Positive Economics, Chicago, University of Chicago Press, 1953, pp. 117-132.

need for a change and the time when it is undertaken, if the policy-makers have to wait for further information to confirm the initial signal indicating the need for a new policy.

As is well known, in his original discussion of inside (and outside) lags in monetary policy, Friedman argued that when such lags were long (and variable), it would be quite possible that discretionary monetary policy would typically aggravate disturbances in the economy, since under certain conditions the lags might lead to a situation where policy measures would take effect at a time when they were no longer warranted, or when different measures would be called for. On the basis of this argument, he has concluded that better results could generally be obtained by a monetary policy simply consisting of a uniform rate of proportional expansion of the money supply over time.

There has, of course, been a great deal of disagreement concerning the general validity of Friedman's conclusion in this respect,[10] and no discussion of whether it ought to be applied in less developed countries. On the other hand, on the basis of the arguments above concerning the long inside lag likely to be present in a country such as Nigeria, it appears that it would be useful to investigate the consequences of adopting a rule of the form suggested by Friedman. In fact, it will be argued in Chapter 4 that one of the most important

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[10] See, e.g., Culbertson, J., "Friedman on the Lag in Effect of Monetary Policy," Journal of Political Economy, Vol. 68, December 1960 and Vol. 69, October 1961 (pp. 617-621 and 467-477), and Friedman, M., "The Lag in Effect of Monetary Policy," Ibid., Vol. 69, October 1961, pp. 447-466.

tasks of an investigation of monetary policy in Nigeria is to find some such benchmarks for policy, even if this would not necessarily mean that the Central Bank should adopt them as inflexible rules. While this, of course, still leaves the technical problems of choice of specific policy tools, etc., it is the opinion of the present author that such benchmarks are essential in a country like Nigeria, where precise measures of the effects of discretionary policy cannot be attained, and further that the authorities should follow these guidelines quite closely. To utilize the existing, highly imperfect, information on the Nigerian economy in order to establish approximately what these policy principles ought to be, thus becomes a major question for monetary analysis of that country.

B. An Outline of the Dissertation

In the following chapters, an attempt is made to analyze the monetary system in Nigeria, and its interaction with the real sector, in order to contribute part of the knowledge that is required in order to formulate an appropriate set of principles for the conduct of monetary policy. In view of the data limitations, it is not possible to base the analysis on firm empirical information as much as would be desirable, but attempts are made as often as possible to use existing data to support the arguments.

The first chapter contains a brief survey of the structure and recent performance of the Nigerian economy. It also contains a brief historical description of the monetary system, as well as a survey of the currently available information on the monetary and financial institutions in Nigeria in recent years.

In Chapter 2, the mechanism determining the supply of money in Nigeria is analyzed in detail. One section deals with the portfolio choices of the Nigerian commercial banking system during the 1950's, with special consideration given to the fact that the system was dominated by the foreign-owned, British-based banks. Since at that time the currency authority was a completely passive institution, no questions arose regarding monetary policy during that decade. The next section, however, goes on to consider the institutional changes that took place in the monetary system during the 1960's. The main such change, of course, was the establishment of the Central Bank of Nigeria in July of 1959, but there were other important ones such as the introduction of domestic Nigerian government securities, as well as the transfer of export financing from the U.K. to Nigeria. The effects on commercial bank portfolio choices of these changes are analyzed; furthermore, the policies of the Central Bank, and their effects on the commercial bank portfolios are considered. In a final section, a discussion is carried out of the way in which the policies of the commercial banks have combined with the growth in currency (or "high-powered money," i.e., currency plus commercial bank deposits with the Central Bank) during the 1960's actually to determine the money supply. The method of analysis which seems most suitable for purposes of subsequent policy use, is to employ the concept of a credit (or deposit) multiplier; a modification of the simplest form of this concept is undertaken, however, to account for the at times very significant leakage into capital exports through the commercial banks. With this modification, the observed growth in the money

supply is systematically attributed to growth in high-powered money, together with changes in the currency ratio, the reserve ratio in the banking system, as well as changes in the propensity of commercial banks to export funds abroad. By using this method, a framework is established within which it will later be possible to conveniently analyze how changes in these parameters, whether they are autonomous or policy-induced, will affect the growth in the money supply.

Chapters 3 and 4 consider the question what the approximate long-run rate of proportional expansion of the money supply ought to be in Nigeria. In Chapter 3, a short discussion is carried out of the role that monetary expansion will be likely to play in the process of development financing. A conflict always arises from the fact that the monetary systems in less developed countries are seen as an important source of such financing, on the one hand, and have responsibility for internal and external monetary stability, i.e., the prevention of domestic price inflation and balance-of-payments crises, on the other hand. This conflict is discussed for the Nigerian case in a non-quantitative way.

To some extent, monetary expansion can be used for development financing without price inflation. The extent to which this can take place depends on the rate of expansion of the demand for real money balances; incremental demand for real money is clearly a source of real savings. One important question for monetary policy research is thus to find a way of forecasting the demand for such balances. On the other hand, the analysis of development financing through the monetary system has typically focussed on the advantages and drawbacks

of "inflationary financing," i.e., cases where a relatively high rate of price inflation has resulted.

Continuing price inflation will affect development financing in a number of ways: it may affect non-monetary sources of financing (such as retained earnings in the modern sector, government revenue, and owner-financed savings in the agricultural sector), but it may also affect the rate of growth of the demand for real money balances. The net effect on total sources of finance may be negative or positive, and is likely to depend on the degree of price inflation. These questions are discussed in an a priori manner in Chapter 3, and an attempt is also made to use available data to illustrate what the relative importance of monetary expansion as a source of finance has been in the past.

The possibilities of using the data to obtain a quantitative estimate of the appropriate rate of monetary expansion in the future, are also discussed. The analysis also deals with the problem of how to reconcile the external balance objective with inflationary financing, and policy choices in this area are briefly discussed.

In view of the data limitations, these problems cannot be approached through construction and estimation of a full econometric model; however, an attempt is made to arrive at some parameter values through a study of trends using simple regression analysis, supplemented by some pure guesses regarding other parameters. Some tentative conclusions are submitted.

Chapter 4 constitutes a synthesis of the analysis of the money supply mechanism, on the one hand, and the discussion of the appropriate

rate of monetary expansion, on the other. The effects of various rates of monetary expansion on domestic prices and the balance-of-payments are studied, on the basis of hypothetical projections of the economy over time, using different assumed parameters regarding variables which are exogenous to the present analysis, such as the rate of growth of export demand, the capital inflows from abroad, and the planned growth rate of real GDP. The sensitivity of internal and external monetary stability to small variations in the planned rate of monetary expansion, as well as to different time paths of the exogenous variables, can thereby be studied. A monetary policy rule which involves a certain degree of passive response of the money supply to fluctuations in the level of foreign reserves, and thereby contains an element of automatic balance-of-payments stabilisation, is also suggested and analyzed. The hypothetical performance of such a rule is also studied in an alternative set of projections similar to the previous ones.

Once a target rate of expansion of the money supply has been decided upon, the monetary authorities can choose between many different sets of specific policies to make the money supply grow at that rate. In Chapter 5, the criteria according to which a specific set of policies may be chosen are discussed; it is argued that the monetary authorities are concerned with the efficiency of the monetary system in terms of its functions as an intermediary between savers and investors. These functions include that of channelling of investable funds to those projects with the highest social profitability, as well as that of bringing the return on savings close to the return on investment, and also that of organizing the payments mechanism

efficiently. The performance of the commercial banks in those respects depends to a large extent on the state of competition within the financial system,[11] and thus the question is considered whether the Central Bank can influence the degree of competitiveness through its choice of policies. The related question of the allocation of funds between the public and the private sector, i.e., the problem of the management of the public debt and its relation to monetary policy, is also analyzed. In a final section, a set of specific policy recommendations concerning policy targets and ways of implementing them are submitted for further discussion.

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[11] Strictly speaking, one can be sure that increased competitiveness in banking will channel funds to more socially profitable uses only if it is assumed that other markets are tolerably competitive; this assumption is likely to be unwarranted, e.g., for the labor market. This question will not be pursued here, however, except for two brief and subjective observations. First, it is, in our view, unlikely that distortions in the financial system due to lack of competition, as opposed to policy-induced distortions designed specifically for that purpose, should happen to offset distortions in other markets. Second, to attempt to offset distortions in, e.g., the labor market, by introducing or tolerating distortions in the capital market, is probably less likely to be effective than attempts to directly remove distortions in those markets in which they exist.

CHAPTER I

The Nigerian Economy and Its Financial System

Introduction

The present chapter is divided into Parts A and B. Part A begins with a very brief summary of the sectoral composition and growth of G.D.P. in Nigeria, together with a short discussion of some important factors determining the development of the monetary situation, i.e., the government budget and the balance-of-payments. Also in Part A, an attempt is made to identify what are likely to be the most important economic policy issues in the years following the Civil War, and in particular, the question how the solutions of those policy problems are likely to affect the conduct fiscal and monetary policies.

In Part B, an overview is given of the financial system in Nigeria, and the main trends in its development. This overview, which covers both the monetary institutions and the non-monetary financial system, is meant to serve as a background for the detailed analysis of the historical development of the monetary system, i.e., the currency authority and the commercial banking mechanism, in Chapter 2.

Part A. The Nigerian Economy

1. The Recent Economic Performance

The growth performance of the Nigerian economy since 1950 and up until the time of the Civil War has been studied quite extensively by

many authors,[1] and for a detailed survey, the reader is referred to their work, particularly the useful monograph by Lewis. The purpose of the present section is only to summarize some of the more salient characteristics of its structure and performance, with special reference to those aspects which have a direct bearing on the analysis of monetary and financial policy.

Available statistics clearly confirm the fact that Nigeria, like almost all countries at her level of per capita income, still has a predominantly agricultural economy. In what probably is the most accurate estimate of the sectoral distribution of G.D.P., that adapted from official data by Lewis for 1963,[2] the share of primary production (including food production, agricultural exports, livestock and fishing, and forestry, but excluding mining) accounts for approximately 58%, whereas mining (including oil), manufacturing (including public utilities), and construction (including conservative estimates for non-concrete housing and land clearing by farmers) amounts to slightly less than 13%. If one

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[1] See, in particular, Helleiner, G.K., Peasant Agriculture, Government, and Economic Growth in Nigeria, Homewood, Illinois, Richard D. Irwin, 1966; Aboyade, O., Foundations of an African Economy: A Study of Investment and Growth in Nigeria, New York, Frederick A. Praeger, 1966; Stolper, W. F., Planning Without Facts: Lessons in Resource Allocation from Nigeria's Economic Development, Cambridge, Mass., Harvard University Press, 1966; Kilby, P., Industrialization in an Open Economy: Nigeria, 1945-1966, Cambridge, Harvard University Press, 1969; Lewis, W.A., Reflections on Nigeria's Economic Growth, Paris, OECD Development Centre, 1967; Clark, P.B., "The Choice of Optimal Import Substitution Patterns for Nigeria," unpublished Ph.D. thesis, M.I.T., 1967; Eicher, C. and Liedholm, C., eds., Growth and Development of the Nigerian Economy, Michigan State University Press, 1970.

[2] See Lewis, op. cit., p. 10.

could compute the shares of those sectors in G.N.P. rather than G.D.P., the very large factor payments abroad in the second category would make it a smaller share, and agriculture a larger one. Furthermore, since the value added per man employed is vastly greater in the second category, the degree to which the economically active population is dominated by the population in agriculture is much higher than the share of agriculture in G.D.P. as well.

If one considers the figures for the last year before the Civil War, the relative shares become significantly different, however; the *official statistics,*[3] *which are not strictly comparable with Lewis'* calculation, but nevertheless indicative of the trend, show a share for primary production in G.D.P. of about 54%, and mining, manufacturing, and construction has risen to about 18%. The increase (of 5 percentage points) in the latter category, however, can be totally attributed to the mining category, and represents the rapid increase in oil production. Since the percentage of this increase which has gone as factor payments abroad is very high, the change in the share of this sector in G.N.P. must have been considerably smaller, and furthermore, since employment in the very capital-intensive oil industry is rather small, the change in the percentage of economically active population in this sector must also have been small. Therefore, apart from the influence of oil, there probably would not have been any very great increase in the relatively slow rate at which the sectoral composition of G.D.P. in Nigeria is changing away from agriculture.

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[3] See, e.g., "Nigeria: Federal Office of Statistics," Economic Indicators, October 1969.

The dependence of the Nigerian economy on international trade is relatively high; export earnings[4] as a percentage of current-price G.D.P. have seldom fallen below 15%, and by 1966, oil exports had raised this percentage to as high a value as 19%. The corresponding percentages for imports of goods and services have consistently been 1-3 percentage points higher since about 1955.[5] However, as in the case of primary-producing, low-income countries generally, these figures alone give only an incomplete idea of the importance of international trade in the economy; imports of capital goods and industrial raw materials are in many cases indispensable for growth in the manufacturing and utilities sectors because of lack of domestic production capabilities, so that the rate of growth might be directly constrained by foreign exchange availability.[6] Furthermore, domestic savings, especially in the public sector, are importantly influenced by international trade, given that most tax revenue comes from import and export taxes (including Marketing Board surpluses).

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[4]The main components of exports have traditionally been cocoa, groundnuts, palm products, and only lately oil. Helleiner, G.K., op. cit., gives the most exhaustive treatment of the role of agricultural exports.

[5]These figures may be computed from the data given in the Appendix, Table A1.

[6]Whereas foreign exchange must be considered one important determinant of growth, the author does not take the extreme view implicit in the so-called two-gap models, i.e., that foreign exchange is either redundant or the only constraint on growth. For a clear statement of the assumptions underlying such models, see McKinnon, R.I., "Foreign Exchange Constraints in Economic Development and Efficient Aid Allocation," Economic Journal, Vol. 74, June 1964, pp. 388-409. See also Meier, G.M., The International Economics of Development, New York, Harper and Row, 1968, pp. 88-94.

As Lewis notes, in comparison with other low-income countries, the Nigerian growth performance throughout the 1950's and early 1960's has been quite good, with a growth rate of G.D.P. of 4-4.5% per annum. For the period between 1963 and 1966, official statistics put the rate at somewhat less than 4% per annum, but this is influenced to an unknown extent by the impact of the disturbances in 1966, primarily on agricultural production. Seen as a whole, however, the aggregative performance during the 1950-66 period must be considered quite satisfactory. Throughout most of the period, income growth has been based primarily on the high growth rate of agricultural export production, but during the 1960's, the manufacturing and construction sectors, and above all oil, have become large enough for their high rates of expansion to have a significant impact on aggregate growth.[7] This became increasingly important in the mid-sixties, as the growth rate of other exports than oil were showing some signs of declining even before the beginning of the war.

Throughout most of the 1950's, the export-led growth was to a large extent self-financed by the peasant farmers. Government activity, though rapidly growing, played a comparatively small part in Nigerian development, and it was not until the fiscal year of 1958-59 that total public expenditures (including Federal and Regional Governments' current and capital expenditure) reached above 10% of G.D.P.[8] (For comparison, exports at that time accounted for well over 15% of G.D.P.) The bucyant

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[7] The annual rate of growth in the large-scale manufacturing sector has been estimated by Lewis to have been as high as 15% per annum from 1950 to the mid-sixties(Lewis, W.A., op. cit., p. 12). As in many similar countries, however, it might be expected that this rate will slow down as the opportunities for "easy" import substitution become exhausted. For a fascinating account of the pattern of growth in the manufacturing sector, and the role of private foreign investors in particular, see Kilby, op. cit.

[8] See Helleiner, G.K., op. cit., Table 47, p. 204.

revenue situation resulting from increased collections of mainly export and import taxes made the fiscal situation quite favorable, and the evidence indicates that, again, until the fiscal year 1958-59, the budget was balanced or in surplus throughout the 1950's.[9] If the surplusses of the Marketing Boards are counted as public revenue, the picture of a restrictive fiscal policy becomes even stronger. The total budget surplus, however, was largest in the beginning of the 1950's, and by 1960 had become a deficit which has persisted ever since. Moreover, private investment in the trade and manufacturing sectors also grew very rapidly during the latter half of the 1950's, financed to a large extent by a capital inflow from abroad. Those two tendencies led to import surplusses throughout this half of the 1950's, and also to some decline in the huge amounts of official foreign exchange reserves which had accumulated in the early fifties.[10] By the end of 1959, however, reserves were still above LN 200 million, or about equal to the level of imports in that year.

On the whole, one may, therefore, support Lewis' conclusion that throughout the 1950's, the leading sector in Nigeria's economic growth was agricultural exports, though government expenditure and private, foreign-financed investments in trade and manufacturing were beginning to play an increasingly important part towards the end of the decade. Because the increased spending in the latter categories could be financed largely by drawing down previously accumulated foreign reserves, and by

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[9] Helleiner, G.K., op. cit., Table 46, p. 203 and 47, p. 204.

[10] In 1955, official reserves were roughly equivalent to two years' imports; see Helleiner, G.K., op. cit., p. 32.

private-sector capital inflow, the expanded spending could be met by import surpluses, so that apart from the effects transmitted from abroad of the world-wide Korean inflation in 1951-52, Nigeria enjoyed a fair measure of price stability,[11] and fairly low tariffs and complete freedom of trade and payments were maintained.

In the first half of the 1960's, as was noted above, the growth rate of non-oil exports has declined somewhat, but this has been largely compensated for by the increase in oil exports,[12] which has to some extent taken over the role as a leading sector from agricultural exports. From the point of view of the analysis of monetary and fiscal policy, however, what is more important is the very great increase in the public sector's role in the development process,[13] as well as the increase in the degree to which the private sector is seeking its sources of finance within Nigeria, particularly from the banking system, rather than from abroad. The policy of the government to seek to stimulate development by capital expenditure on different projects, as well as the desire to expand social services, etc., has led to relatively large borrowing needs, as public savings in the sense of a surplus of current revenue over and above current expenditure, have been quite small.[14] The domestic borrowing needs were further raised by the fact that the amount of

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[11] The implicit GDP-deflator increased by no more than about 2% per annum from 1950-1960 (computed from the data in Appendix, Table A2).

[12] For a good discussion of the oil sector, see Pearson, S.R., "Nigerian Petroleum: Implications for Medium-Term Planning", in Eicher, C.K. and Liedholm, C., eds., Growth and Development..., op. cit., pp. 352-375.

[13] The best source of information on this question is Helleiner, op. cit., Chapter 14, pp. 332-352; see also Hansen, L.M., "Comprehensive Economic Planning in Nigeria," in Eicher and Liedholm, eds., op. cit., pp. 192-220.

[14] See Lewis, op. cit., pp. 61-65.

foreign capital inflow, official and private, during the first half of the 1960's, was forthcoming on a far smaller scale than was foreseen in the Development Plan.[15] Therefore, the first half of the 1960's can be said to have been characterized by more ambitious attempts by the policy-makers to stimulate growth by more expansionary monetary and fiscal policies than had previously been the case.[16] As it turned out, there were great difficulties in Plan implementation, especially regarding government projects, which must have reduced the contribution of planned projects to real growth. The relatively high rate of growth of G.D.P. which was in fact recorded during the first half of the 1960's,[17] was more due to the growth of the oil industry and of the manufacturing sector, as noted before. But the consequences of the expansionary fiscal and monetary policies, in the form of an inflationary pressure spilling over into imports and reserve depletion, were nevertheless present, and by the end of 1966, as will be further discussed below, the level of reserves was quite low.

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[15] See the preface to Part III in Eicher, C.K. and Liedholm, C., where the authors quote a working paper by E. Dean: "Nigerian Plan Implementation, 1962-66," unpublished. Eicher and Liedholm, op. cit., pp. 189-191.

[16] In spite of the fact that initial Plan projections, based on a 4% target rate of growth, showed an inconsistency in the sense that projected imports exceeded projected foreign resource availability (see Stolper, W.F., op. cit., pp. 120-121), there were criticisms that the Plan was too cautious; see Aboyade, O., "A General Critique of the Plan," Nigerian Journal of Economic and Social Studies, Vol. 4, July 1962, pp. 110-115, and also Aboyade, O., Foundations..., op. cit., especially Chapter 5.

[17] The growth rate of constant price GDP implicit in the official estimates is very close to the target rate of 4%. (Computed from the data in the Appendix, Table A1).

The outbreak of the war, of course, made impossible any further attempts at systematic plan implementation, forced a great increase in government current expenditure, and temporarily dried up the flow of foreign private investment. All these factors obviously contribute greatly to inflationary pressures and to the possibility of a balance-of-payments crisis. Whether it will be possible, in the post-Civil War period to maintain the relative price stability, as well as relatively low tariffs and freedom of international trade and payments which Nigeria has had in the past, is a very important question, the answer to which depends essentially on the principles of monetary and fiscal policies which will be adopted.

2. Future Problem Areas

In this section, a brief and rather subjective survey will be given of what appears as the most important set of problems with respect to the post-Civil War economic performance in Nigeria. The areas to be discussed will be population growth and unemployment, the performance of agriculture, and, in particular, the ways in which the attempts to solve the problems in these areas are likely to affect the conduct of monetary and fiscal policies.

a. Population and Unemployment

The knowledge of both the size and growth rate of Nigeria's population is extremely limited. Apart from fertility and mortality surveys of limited coverage, which might be used to produce estimates of the rate of growth of the population at any given time, the main sources of information for discussions regarding the growth rate and the absolute size of the population are the 1952 and 1963 censuses.

The earlier one, however, is generally thought to have involved a fairly large under-enumeration, and the latter was distorted to an unknown but probably quite significant degree by political considerations which led to strong incentives to inflate the count.[18]

One could, perhaps, get general agreement on the proposition that in 1966 the population was at least 50 million, and that its natural rate of growth at that time was not much below 2.5% per annum. Moreover, while increasing per capita income and, above all, improved public health measures are certain to decrease mortality (including the high rate of infant mortality), we know of no conclusive evidence that fertility is falling, so that there is consequently no reason to expect that the growth rate will fall drastically.[19] The negative consequences of a high rate of population growth for economic development are well known, so that this remains a big problem area.

Coupled with the problem of population growth is the question of urbanization and unemployment; this problem, in turn, is also closely linked with the expansion of education, as well as government wage policies, and the apparent failure to stimulate employment by finding labor-intensive techniques of production.[20] As in many African

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[18] See on this question Lewis, op. cit., p. 9, footnote 2, where he estimates the 1962 population at about 45.5 million; Helleiner, op. cit., p. 28, states that in the 1950's, it grew by at least 2-2.5%.

[19] Eicher and Liedholm, quoting the AID data book, think it will rise. See Eicher and Liedholm, op. cit., p. 384.

[20] On these problems too, the literature is substantial and growing. See Lewis, op. cit., pp. 41-46; Callaway, A., "Unemployment Among African School Leavers," Journal of Modern African Studies, Vol. I, September 1963, pp. 351-71; Frank, C., Jr., "Urban Unemployment and Economic Growth in Africa," Oxford Economic Papers, Vol. 20, July 1968, pp. 250-274, and Ibid., "Industrialization and Employment Generation in Nigeria," Nigerian Journal of Economic and Social Studies, Vol. 9, November 1967, pp. 277-298.

countries, this is an extremely urgent social problem for which some economic solution must be found. In some African countries, and perhaps also in Nigeria, the urban and school-leaver unemployment problems have been a strong factor in expanding employment in the civil service, at a rate which must have led to a considerable decrease of productivity in that sector. (Such a decline in productivity, however, is partly hidden by the convention of measuring the government's contribution to G.D.P. at cost.) It is clear that this has been an important contributory factor to the worsening fiscal situation, and there are few signs that the problem is being solved.

b. Agricultural Exports and Food Production

There is now a rather large amount of analysis and evidence[21] regarding the responsiveness of African peasant farmers to economic incentives, and the rapid economic growth in Nigeria and in West Africa in general after the Second World War has been the result to a large extent of their efficient response to the higher prices for agricultural commodities, as well as of government policies to improve yields through introduction of better varieties, assistance with pest control (particularly for cocoa), and the provision of infrastructure, during this period. But price responsiveness, of course, not only means that output will grow when prices are favorable, but also that it will decrease when they are unfavorable. Among other things, this

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[21] See, e.g., Dean, E.R., The Supply Response of African Farmers: Theory and Measurement in Malawi, Amsterdam, North Holland, 1966; Bateman, M.J., "Aggregate and Regional Supply Functions for Ghanaian Cocoa," Journal of Farm Economics, Vol. 47, May 1965, pp. 384-401, and the classic work by Jones, W.O., "Economic Man in Africa," Food Research Institute Studies, Vol. 1, May 1960, pp. 107-134.

means that heavy taxation on production, in the form of a wide gap between producer prices and world prices, is likely to ultimately lead to decreases in output. This, therefore, puts a limit to the degree to which the Marketing Boards can be used for taxation.[22] In order to ensure that export agriculture will continue to contribute to growth in Nigeria, Eicher and Johnson recommend that the government should:

> a. ...(provide) farmers with more favorable incentives by raising the prices of exports and import substitution crops through reduced taxes.
>
> b. ...(give) direct, short-run public support to farmers producing commodities with high economic payoffs. Provincial and state production campaigns are recommended for each of the major export and import substitution crops.
>
> c. ...(provide) infrastructure support, including research, extensive credit, and other supporting services...[23]

But it is, of course, true that the latter two programs will be costly, and even more seriously, the first will reduce tax revenue, including Marketing Board surpluses. Whereas production of domestic food-stuffs is not mentioned in this list, it can be thought of as being included in the category of "import substitution" crops, since one of the

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[22] See Helleiner, G.K., "The Fiscal Role of the Marketing Boards in Nigerian Economic Development," Economic Journal, Vol. 74, September 1964, pp. 582-610.

[23] Eicher and Liedholm, op. cit., p. 366.

consequences of the failure of productivity in food crop production to increase,[24] is a larger volume of food imports. Raising this level of productivity is a task that must receive high priority, for several reasons: (a) as noted above, in order to hold down food imports; (b) in order to increase rural income and purchasing power so as to narrow the rural-urban income differential and reduce incentives for migration to the cities; (c) so as to prevent the sectoral terms of trade from turning against the manufacturing sector, thereby reducing profits and slowing down the growth rate of employment in this sector. In this context, the call for improved marketing facilities for food (i.e., in the form of better transport and storage facilities, etc.) has been made forcefully, particularly by Lewis.[25] Again, however, programs of this nature will further increase the pressure on the government budget.

c. Fiscal and Monetary Policies

There seems to be a certain tendency among economists concerned with problems of development in Africa to concentrate on problems of growth of real output in different sectors, to recommend different government policies, and to confine the analysis of the financial aspects of such programs to the observation that ways must be found to increase the share of taxes in G.D.P., or that more foreign aid will become necessary. Yet, in our view, the history of development

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[24] Lewis, op. cit., p. 31, calls food production "the stagnant sector"; as this sector accounts for some 40% of GDP. (Lewis' estimate for 1963), stagnation here has a great impact on aggregate growth.

[25] See Lewis, op. cit., pp. 31-32. Wells notes that a very small amount of funds was set aside for this sector in the Plan. See Wells, J.C., "Issues in Agricultural Policy During the 1962-68 Nigerian Development Plan," in Eicher and Liedholm, op. cit., pp. 240-266.

in Latin America after the Second World War, and the continuing and unresolved debate regarding the seriousness of the effects of rapid inflation on economic growth, tend to show that the problems of domestic finance are serious ones and may have a great impact on the success of the development effort. After all, the problem of over-valued exchange rates and its detrimental impact on growth has been extensively analyzed, and for a country to succeed in avoiding such an overvaluation, the domestic financial problems cannot be solved simply by monetary expansion. It seems to the present author important that if the African countries are to follow in the footsteps of the Latin American ones, they should at least do so with open eyes, and only after it has been made clear that there are sufficient advantages to be derived from the expansionary type of financial policies to compensate for the difficulties.

In Nigeria up until the Civil War, the use of previously accumulated *reserves, as well as official foreign aid and private* capital inflow made it possible to pursue relatively expansionary policies without much price inflation, since large import surpluses were possible, and there was no necessity to have recourse to extensive trade or payments restrictions. *As noted above, however,* the War has put great strains on the domestic and external financial situation, and it is an extremely interesting question whether the end of the War will make possible a return to financial stability. As analyzed by Lewis and Pearson,[26] the expected large contribution of

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[26] Lewis, op. cit., Chapter 9, pp. 55-65; Pearson, S.R., in Eicher and Liedholm, op. cit., pp. 352-375.

the oil industry to government revenue make the government revenue prospects quite bright; because these revenues come in the form of foreign exchange, the balance-of-payments prospects also seem good. Therefore, it would seem that Nigeria is exceptionally well placed among the African countries in terms of her chances of being able to finance the heavy expenditure requirements of the programs discussed above, in addition to being able to finance a sustained high rate of growth of manufacturing, without the pressure to embark on an excessively expansionary monetary policy. To convince the policy-makers that it is possible and worthwhile to resist this pressure, however, it would seem that economists must pay more attention to the financial aspects of development in Nigeria, than has been the tendency in the past.

Part B. The Financial System

The development of the monetary system will be analyzed in considerable detail in Chapter 2. The purpose of this preliminary section is to give a brief overview of the financial system as a whole, as a background for that and later chapters.

Seen in relation to G.D.P., the organized financial system in Nigeria is quite small. One indication is given by the ratio of the money supply to G.D.P.;[27] if money is defined in the wide sense, to include time and savings deposits in commercial banks as well as currency and demand deposits, the ratio for 1966 is slightly less

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[27] I.e., the inverse of the velocity of circulation.

than 15% , and was only about 12% in 1964. If money is defined in the narrow sense, i.e., as currency plus demand deposits, the corresponding ratios were less than 10% in both years. Those ratios are somewhat low, even by the standards of low-income countries generally.[28] Furthermore, as will be discussed later in this section, financial assets held by the public, other than money, are also relatively small.

The reasons for the relatively low degree of monetization will be further discussed in Chapter 3; here it may merely be observed that one reason, of course, is the large proportion of economic activity taking place in the form of subsistence production and consumption, without the use of money.

As was outlined in the previous section, however, the political evolution during the 1950's and 60's, from colonial status to independence, has been paralleled by an increasing role of government in economic activity, and a growing share of private investment being financed from domestic Nigerian sources. This is very clearly reflected in the change in the nature of the financial system. Essentially, this process can be seen as one of transition from a situation where Nigeria was no more than a part of the U.K. financial system, to one where she has established a certain degree of financial independence.

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[28] Kindleberger, C.P., Economic Development, second edition, New York, McGraw-Hill, 1965, gives a chart showing ratios of money supply (in the narrow sense) to national income, about 1961; out of the approximately fifty countries shown, including about 25 with per capita income below $300, only two have ratios lower than 10%. (Fig. 9.3, p. 161.)

There are several reasons why one may say that at the beginning of the period, Nigeria was just a part of the U.K. financial system.[29] First, there was no autonomous policy-making institution in the Nigerian financial sector until 1959. The currency was regulated by the West African Currency Board, the sole function of which was to issue West African pounds in exchange for sterling; in a theoretical sense (if one abstracts from transactions costs), there is no difference between such a system and one in which sterling is used directly. Secondly, at least with reference to the organized financial system, one may state that credit conditions in Nigeria were not significantly determined by supply and demand for credit in the Nigerian market, but rather by market conditions in the U.K. This was because of the pattern of financial intermediation; practically no funds were channelled directly between Nigerian asset-holders and those who wanted to invest in Nigeria. Rather, such intermediation took place via London. Savers in Nigeria either held foreign securities, or else held the debt obligations of (bank or non-bank) intermediaries which themselves held almost exclusively foreign assets. Those who had a need for outside financing of projects in Nigeria would seek such financing abroad. This was true of the government sector, the Marketing Boards, and the large expatriate trading firms, which together controlled a very large part of economic activity in the monetized sector.

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[29] For analysis of the monetary system in Nigeria at that time, see Greaves, I., Colonial Monetary Conditions, London, HMSO, 1953, and Bowlyn, W.T., and Rowan, D.C., Money and Banking in British Colonial Africa, Oxford, The Clarendon Press, 1954.

To say that under those circumstances Nigeria had no financial independence is no different from saying that, e.g., a predominantly rural state in the U.S. does not have such independence. On the other hand, we do not mean to ascribe the financial dependence merely to the fact that Nigeria maintained an open economy, fixed exchange rates, and free capital flows. It is true that for any such economy, there are limits to its financial independence set by the sensitivity of the balance-of-payments to changes in interest rates and prices.[30] In Nigeria, as will be argued, however, the dependence was enhanced by the institutional fact that the main financial institutions were operated from head offices in Britain; moreover, the institutions mentioned above as dominating the monetized sector also had their policies set from Britain, and they had ready access to the London financial markets. These latter factors would have meant that even with an institution in Nigeria having some formal control over financial markets, such an institution would de facto have been relatively powerless in influencing domestic credit conditions and economic activity.

The descriptive statistics in the following pages are meant to give a quantitative illustration of this financial dependence, but they will also *show* to what extent the situation has changed in this respect between the early 50's and the present time.

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[30] This has been particularly emphasized by Mundell, R.A.; see his International Economics, op. cit., Chapter 18, entitled "Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rate," originally in Canadian Journal of Economics and Political Science, Vol. 29, November 1963, pp. 475-85.

1. The Monetary System

a. The Monetary Authority

From 1912 to 1959, the issue of currency was handled by the West African Currency Board (hereafter referred to as the WACB). The principle of operation of this type of system is well known:[31] it essentially amounts to a completely passive policy of issuing local currency in exchange for foreign currency, in this case sterling. The coverage in sterling for WACB-currency exceeded 100%, due to the accumulation of reserve funds from the income on the Boards' investments.

In Nigeria, formal monetary independence came about in 1959, one year before political independence, with the establishment of the Central Bank of Nigeria. At first the assets used as currency backing by the Bank were mostly foreign exchange, but the fiduciary component, consisting mostly of credit to the government, grew rapidly, as will be further discussed in Chapter 2.

b. The Commercial Banks

A somewhat similar development has taken place in the field of commercial banking, although without a direct institutional change. As will be discussed later, the banks' earning assets during the early part of the period consisted almost exclusively of foreign exchange. Thus, in effect, they functioned in a way similar to the WACB, issuing domestic deposit money against the foreign assets they held. Like the WACB, their main activity in Nigeria was not to extend credit, but to perform various services, such as arranging external and internal

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[31] See, e.g., the early description in Mars, J., "The Monetary and Banking System and Loan Market of Nigeria," in Perham, M., ed., Mining, Commerce and Finance in Nigeria, London, Faber and Faber, 1948, especially pp. 190-204.

transfers of funds.[32] However, the character of the banks' activities has changed quite radically since the war. Their lending business in Nigeria has grown very rapidly, so that they now function more like financial intermediaries inside the country, rather than as one-sided deposit money providers. In practice, this means that the likelihood has increased of credit conditions in Nigeria changing in response to changes in the domestic economy, and not only for external reasons.

In spite of this development, however, it remains true that institutionally the commercial banks are still largely controlled from abroad. This continues to pose certain problems for monetary management in Nigeria, which will be discussed in detail in Chapter 2.

Table I lists the banks operating in Nigeria in 1952 and 1966, their nationalities, and the number of branches of each bank. This gives a rough idea both of the spreading of banking facilities that has taken place between these dates, and of the dominant position of the U.K. and other foreign banks in the system.

c. Assets and Liabilities of the Monetary System

Table II gives an aggregative overview of the changing nature of the portfolio of the monetary system during the last 15 years. As is indicated by our comments above, the most striking development is the decline in the relative importance of foreign assets in its portfolio.

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[32] See Newlyn and Rowan, op. cit., pp. 84-85.

Table I-1

Share of Foreign and Nigerian Banks in Branches, Loans and Advances, and Deposits

Bank Branches	1952	1966
British	29	158
Other foreign; mixed	-	17
Nigerian	57	80
Total:	86	255

Source: for 1952: Computed from Brown, C.V., The Nigerian Banking System, London, Allen and Unwin, 1966, Table II, p. 79.

for 1966: Central Bank of Nigeria, Bank Examiner's Office.

	Deposits		Loans & Advances	
	1960	1965	1960	1965
Foreign, mixed	76%	82%	68%	77%
Nigerian	24%	18%	32%	23%

Source: Based on data furnished by the Central Bank of Nigeria, Research Department. The figures are percentages of annual averages based on end-of-quarter data.

Table I-2

Principal Assets of Monetary System, Selected Dates

	(1)	(2)	(3)	(4)	(5)
	Money	Money, Incl. Time and Savings Deposits	Foreign Exchange	Domestic Assets	Other Net
1950	(41.87)	45.08	41.95	2.78	0.35
1954	(77.74)	85.87	75.35	9.29	-0.67
1958	(91.24)	109.59	75.90	30.23	3.46
1960	(107.83)	135.62	86.34	45.30	3.98
1962	(109.33)	152.15	76.06	78.02	-1.93
1964	(131.16)	188.26	62.18	130.01	-3.93
1966	(153.10)	235.10	71.73	174.49	-11.12

Col. (1): Currency with the public plus demand deposits.

(2): Col. 1, plus time and savings deposits.

(3): Foreign exchange with the currency authority plus net foreign assets of commercial banks.

(4): 1950-58: loans and advances in commercial banks; 1960-66: loans and advances in commercial banks, rediscounts and advances in Central Bank, Treasury Bills in commercial banks, government securities in Central Bank.

(5): (5) = (2) - (3) - (4).

Sources: Computed from the data in the Appendix, Table A-2.

2. The Non-Monetary Financial System

Table II indicates how the monetary system in Nigeria has become increasingly dependent on the domestic credit market in the postwar period, at least in the sense of having raised greatly the proportion of Nigerian assets in its portfolio. This trend has been paralleled by a similar one for other major holders of financial assets. Both because of its interest in terms of the emergence of indigenous Nigerian financial markets and because of its importance for monetary and debt management, we will discuss briefly in this section the more important developments in the non-bank financial sector. Instead of arranging our presentation according to institutions, we will discuss the development in terms of asset categories; this is intended to provide a more unified picture of the main tendency, which is the substitution of Nigerian for foreign assets.

a. Government Securities

Prior to 1959, government borrowing in Nigeria was either done in the U.K. market or took the form of loans to the government from particular institutions of a semi-official nature, such as the Marketing Boards and the Public Corporations. This form of borrowing did not, of course, presuppose the existence of a Nigerian capital market, or conversely, did not encourage the emergence of such a market. Since independence, however, a large volume of internal borrowing has taken place, in the form of negotiable securities floated in Nigeria. This has been accompanied by a decline or stagnation both in the volume of negotiable debt floated externally, and in the extra-market borrowing from the previously mentioned Nigerian institutions.

Ever since the first issue of Nigerian Development Stock was floated in 1959, the internally held long-term securities have grown very rapidly. Table III shows the amounts outstanding by major categories of holders during the period 1961-66.

Table I-3

Major Holders of Development Stock, Dec. 31, 1962-66

	Percentage Shares				
	1962	1963	1964	1965	1966
Savings-type Inst.	66.4	61.8	53.0	51.3	53.5
Statutory Boards/ Corporations	27.6	21.2	13.2	11.0	7.1
Regional/Local Governments	.8	.7	3.9	6.0	6.7
Central Bank	-	10.7	26.0	28.0	26.6
Others	5.1	5.6	3.8	3.7	6.2
Total:	100%	100%	100%	100%	100%
Total Outstanding, £ Nig.mill.	19.35	34.35	53.95	68.95	80.95

Source: Computed from Central Bank of Nigeria, Economic and Financial Review, various issues.

The commercial banks, included in "Others," hold only what the Central Bank describes as a "token amount."[33] The major holders apart from the Central Bank are various institutions, many of which are

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[33] On December 31, 1966, they held about £N2.5 million. See Central Bank of Nigeria, Annual Report, 1966, Table 29, p. 64.

semi-official in nature, and partly hold the stock as a matter of fixed policy. This is, of course, true for the "Statutory Boards and Corporations," but also of some institutions in the category of "Savings Type Institutions." Virtually all of the funds of the Post Office Savings Bank (which are managed by the government), amounting to about 3 million pounds, are held in Development Stock.[34] Likewise, the National Provident Fund, which is a compulsory savings scheme for workers launched in 1962, and which at the end of 1966 had assets amounting to 18.6 million pounds,[35] invests exclusively in the same stock. Together these two institutions would account for almost half of the total in the Savings Institution category, or about 27% of the total outstanding at that time. With respect to insurance companies and private pension funds, there are tax incentives and other types of legislation designed to encourage them to invest in Nigerian securities.

As we will see, in many instances it is the case that the increased holdings of governments have come at the expense of foreign exchange previously held by these institutions. We note here, however, that it is impossible to ascertain to what extent this substitution has been the result of coercion or moral suasion, since prior to the introduction of long governments, there did not exist in Nigeria suitable long-term securities for these institutions to invest in.

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[34] Source: Research Department, Central Bank of Nigeria.

[35] Ibid.

Short-term government securities were first issued in Nigeria in April, 1960. In the beginning, the quantity outstanding was limited to 10% of anticipated government revenue, but this percentage has been raised on two occasions, so that in 1962 it was 40%.[36] The outstanding quantity has risen quite rapidly. Table IV shows the average annual holdings of major categories of institutions; the "others" include Statutory Boards and Corporations, savings institutions, local governments, companies, and individuals. In the holdings of the Central Bank, we have included the Bills held by the Call Money Fund, which is managed by the Central Bank. This fund is essentially a device through which it is possible for the Central Bank to pay interest on deposits by money market institutions.

Table I-4

Major Holders of Treasury Bills, 1960-66
Annual Averages of End-of-Quarter Data, Mil. mill.

	1960	1961	1962	1963	1964	1965	1966
Commercial Banks	3.6	6.5	6.5	4.1	7.8	9.4	12.6
Central Bank	.6	2.3	6.2	8.5	7.4	8.7	15.1
Federal/ Regional Govts.	-	-	-	2.1	6.5	6.9	6.3
Others	4.8	4.4	10.3	9.5	10.3	11.5	16.5
Totals:*	9.0	13.3	23.0	24.3	32.0	36.5	50.5

*May not equal sum of columns because of rounding.

Source: Computed from Central Bank of Nigeria, Economic and Financial Review, various issues.

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[36] Brown, C.V., The Nigerian Banking System, London, Allen and Unwin, 1966, pp. 151-152.

Adding Treasury Bills and Development Stocks together, the total amounts of domestically held government securities in 1966 amount to about ₦ 121 million; this figure may be compared with a total money supply (in the wide sense, i.e., including time and savings deposits) of ₦ 235 million in that year. But a substantial share of the government securities were already held within the banking system, or directly by the government itself; the amount held by other investors was about ₦ 60 million, and if one also takes into account the amounts held by the semi-public institutions discussed above, it appears that no more than about ₦ 30-35 million were held outside the banking system or the public sector broadly defined.

b. Foreign Assets

The concept of total holdings of foreign assets in a country with free capital flows, and with many economic institutions controlled from abroad, is somewhat ambiguous, and no comprehensive estimate exists. Thus, we will not attempt here to give any measure of total foreign assets held in Nigeria. Instead we will describe how the preceding developments in the markets for money and governments has been accompanied by a large decline in the holdings of foreign assets by the banking system and other institutions.

The mechanism through which this decline worked itself out was as follows. As we have noted, the Central Bank has actively supported the creation of a market for government securities, and has urged institutions to substitute governments for their holdings of foreign assets; those assets could then be used by the government to finance imports, or to obtain Nigerian currency from the Central Bank. The latter operation is sometimes referred to as "centralization of reserves." By itself,

"centralization" need not, of course, lead to a net decline in total Nigerian foreign exchange holdings, since the capital imports of the selling institutions was intended to be balanced by capital exports in the form of increased reserve holdings by the Central Bank. But there was also the need to finance the Development Plan, and it was, in fact, intended that the foreign asset holdings of such institutions would be used to finance the Plan; this policy was often referred to as the "mobilization of external assets." Because of the resulting high level of aggregate demand that has prevailed in Nigeria during the sixties, and because of the high import requirements of the investment program both in the public and private sectors, the resources thus mobilized have been rapidly depleted, as shown in Table I-5. There has been a decline for all categories except the Central Bank, whose holdings have remained approximately constant, so that aggregate holdings for the group as a whole have gone down considerably.

Table I-5

Major Holders of Foreign Reserves, Selected Dates
£ Nig. mill.

	1950[M]	1954[M]	1958[D]	1960[D]	1962[D]	1964[D]	1966[D]
Federal/Regional Gvts.	20.9	66.1	78.7	67.3	44.0	8.1	6.3
Currency Authority	31.6	66.1	70.0	87.6	76.6	77.5	71.4
Commercial Bks.	41.7	16.4	10.6	-2.2	-	-15.5	-7.9
Others	8.5	95.1	54.3	45.8	22.3	10.9	14.6
Total:	102.9	243.7	213.6	198.9	142.9	81.0	84.4

Note: for 1950 and 1954, as of March 31; thereafter as of Dec. 31. "Others" include Marketing Boards, local governments, regional Development Corporations, P.O. Savings Bank, Nigerian Industrial Development Bank, the IMF-position, the universities, etc.

Sources: 1950-1958, Helleiner, G.K., Peasant Agriculture, Government, and Economic Growth in Nigeria, Homewood, Ill., Irwin, 1966, Statistical Appendix, Table IV-D-1, pp.541-542; thereafter, Central Bank of Nigeria, Economic and Financial Review, various issues. The 1960 figure has been adjusted to include holdings by the P.O. Savings Bank.

The transfer of export financing to the Nigerian financial system, which took place partly because the Marketing Boards no longer had easy access to the London market after the repatriation of their sterling holdings, has led to an active market for produce bills. The main participants in this market are the commercial banks, but there are also a number of specialized acceptance houses. They also deal in Treasury Bills, and like their counterparts in London, have rediscounting privileges in the Central Bank. The Bank supports the market in produce bills by rediscounting them, somewhat surprisingly at rates lower than those at which they are originally discounted;[37] at least on one occasion the Central Bank has also intervened directly by discounting bills for the Marketing Boards following the withdrawal of the commercial banks from the market. Table I-6 shows holdings of commercial paper by the banks and acceptance houses as follows:

Table I-6

Holdings of Commercial Paper, 1965-1966
Annual Average of End-of-Month Figures
£ Nig. mill.

	1965	1966
Central Bank	2.2	3.0
Commercial Banks	13.7	22.4
Acceptance Houses	.8	1.2
Total:	16.7	26.7

Source: Central Bank of Nigeria, Annual Report, 1966, Table 27, p. 60.

[37] See the discussion in Chapter 2, and sources quoted there.

Both the banks and acceptance houses participate in the Call Money Scheme, which essentially is a device through which the Central Bank can pay interest on deposits from these institutions. Formally, the Call Money Fund, which is "managed" by the Central Bank, accepts money on call, on which it pays interest. The funds are invested in Treasury Bills, i.e., a transfer takes place of bills from the Central Bank's account to that of the Fund. In our Table of Treasury Bills Holdings above, the holdings of the Fund were lumped together with those of the Bank, in accordance with the view that this is purely an internal transaction with no economic significance. The growth of the assets of the acceptance houses, however, has led to the development of a call money market outside the Central Bank, which has caused a fall in the assets of the Fund in recent years. Table I-7 shows average balances held with the Fund:

Table I-7

Averages Balances with Call Money Fund
Annual Averages of End-of-Quarter Figures
£ Nig. mill.

1962	1963	1964	1965	1966
3.3	2.7	2.7	3.5	1.5

Source: Central Bank of Nigeria, Economic and Financial Review, various issues.

c. The Long-Term Capital Market

The long-term markets are still very narrow, but some institutional change has taken place here too. The Nigerian Stock Exchange was founded in June of 1961. Both governments and industrial securities are traded there, with governments providing by far the largest share of the volume. Some flotations of common stock and various forms of

industrial bonds have taken place, but the sums involved have been relatively small. In March, 1967, there were a total of 52 securities listed, of which 19 were government stocks; the rest were either private bonds or common stock, including 18 companies registered in Nigeria.[38] Table I-8 shows trading volume for these two categories since the establishment of the exchange.

Table I-8

Trading Volume in Government Securities and Industrial Securities, Lagos Stock Exchange, 1961-66
₦ Mig. mill.

	1961	1962	1963	1964	1965	1966
Governments	n.a.	n.a.	4.87	5.91	7.19	7.61
Industrials	n.a.	n.a.	.32	1.09	.74	.59
Total:	.76	2.28	5.19	7.00	7.93	8.20

Source: Central Bank of Nigeria, Economic and Financial Review, various issues.

Apart from the Stock Exchange, the organized institutions in the long-term capital market are of an official or semi-official nature. We have already touched on the institutions participating in the market for long-term government bonds. The market for long-term debt other than governments, however, is extremely narrow; rather than trying to characterize a "market," it seems more meaningful simply to indicate a number of institutions providing long-term credit. The Federal and Regional

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[38] Source: List of price quotations, Lagos Stock Exchange.

governments have made a large number of loans either directly or through Development Corporations, Loan Boards, Agricultural Credit Corporations, Housing Corporations, etc. Some of the funds lent by the latter type of institution come from the Marketing Boards, which also to some extent engage in long-term financing of business firms. Various external aid agencies are also active in credit extension, primarily to small scale firms in agriculture and industry. In recent years, a number of semi-private institutions have also become somewhat important as sources of long-term credit. The Nigerian Industrial Development Bank, which is financed partly by a loan from the Federal Government, had a portfolio of loans and common stock of about 2.8 million pounds at the end of 1965.[39] A number of institutions of the same type as the NIDB also exist at the regional level.

3. Summary

The brief description of the Nigerian economy and its financial system in this chapter would not contain any major surprises to a person familiar with the economies of the low-income countries, especially those in Africa. With respect to the economy in general, the predominance of agriculture, including a relatively large subsistence component, the reliance on exports of primary products in international trade, and the rapid increase in the importance of government expenditure, and of the small but fast-growing manufacturing sector (based primarily on import substitution) are all fairly well-known characteristics of many of the sub-Saharan economies in Africa. So, unfortunately, is the feature of rapid population growth and the mounting urban unemployment problems.

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[39] Nigeria Year Book, 1967, p. 119.

Furthermore, many of the African governments are facing a difficult fiscal situation, in view of the strong pressures to increase expenditure, which were discussed above, and the relatively weak tax systems based primarily on taxes on exports and imports.[40]

The financial system, too, is little different from that in many other low-income countries; a low ratio of money to income (which, coupled with the relatively high ratio of trade to income, renders the monetary system quite sensitive to trade fluctuations), a high degree of pressure to use the monetary system for government financing, partly due to the extremely narrow nature of the organized financial system outside the monetary system, and a proliferation of public-sector institutions providing credit to "deserving" sectors on essentially a non-commercial basis, are features typical of many countries besides Nigeria. It should also be stressed that in Nigeria and elsewhere, the small number of banks (as opposed to bank branches) and the near-absence of non-bank financial intermediaries have combined to make the financial system a highly oligopolistic one with little effective competition; it will be argued in later chapters that this has significantly retarded the integration of the organized and unorganized markets for credit, e.g., given rise to two distinct submarkets with widely differing costs of capital.

On the other hand, in a number of important respects, Nigeria is in a better position to overcome these difficulties than perhaps most developing countries. As in most of Africa, the population problem is one of rapid growth, but not of an excessive density with the concomitant

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[40] See Due, J.F., Taxation and Economic Development in Tropical Africa, Cambridge, Mass., M.I.T. Press, 1963, Chapter 2, especially Tables 2.2 and 2.4.

land (and food) scarcity, and emergence of a powerful landlord class. Furthermore, unlike most African countries, with a population in the area of around 50 million, Nigeria at least potentially may reap the benefits of a large market, by being able to exploit economies of scale. But perhaps the most important advantage, of course, is the fact that Nigeria has her large oil reserves; this will make both the fiscal situation and, partly as a consequence, the foreign exchange situation, potentially much easier to handle. In such a situation, the possibility of conducting such a monetary policy that the problems of rapid inflation and balance-of-payments disequilibrium are avoided, would also seem quite good. It is against this background that the analysis in this study should be seen.

CHAPTER II

Determination of The Money Supply

Introduction

In this chapter, an analysis is provided of the mechanism determining the supply of money in Nigeria. In Section A, the historical background of the present monetary mechanism is briefly described, with a survey of the debate preceding the establishment of the Central Bank of Nigeria at the time of political independence. The operation of the commercial banking system and its interaction with the Central Bank is then discussed in the following two sections. First, the policies of the commercial banks during the 1950's, under the Currency Board regime, are analyzed, with special attention being paid to the role of foreign assets in the banks' portfolios. Against this background, the changes in their portfolio policies in the 1960-66 period can be analyzed, and an attempt is made to relate these changes to the policies and institutional reforms carried out by the Central Bank during that time. Finally, the determination of the money supply is considered statistically, taking into account the interaction between the policies of the Central Bank and the commercial banks, using the simple framework of the credit multiplier; in this context, attention must also be paid to the influence of the public through its choice between holdings of currency and deposit money.

A. Historical Survey

1. The Introduction of the Currency Board

Even though primitive forms of money (such as cowrie shells, gin bottles, brass rods, etc.) continued to exist well into the twentieth century in Nigeria, the international trading activities in the country had given rise to widespread use of foreign fiat money by about 1900. The money

used was primarily British, for obvious reasons.[1] There is nothing strange about the fact that several types of money could coexist; the situation is analogous to that of a modern country which is heavily dependent on international trade, where balances of foreign currency are held by those engaged in foreign trade, and where flexible exchange rates prevail between domestic and foreign currency.

In this situation, the possibility arises that the foreign currency will come to be used for purely domestic transactions, as well as for trade. The extent to which this happens will again depend on practical considerations, and also on the attitudes of the indigenous population and those of the foreigners. If the new coins and paper money compete with an unwieldy form of money previously used, or with one that fluctuates widely in value relative to other commodities, etc., there is more of a likelihood that the foreign money will replace the indigenous one quickly. Moreover, if the foreigners insist on conducting trade, or collecting taxes, using their own currency, this likelihood is increased. On the other hand, the indigenous population may be slow to accept the new currency. There may then arise a class of money-changers who act as intermediaries between the indigents and the foreigners, selling and buying the currency required to carry out transactions with them. Such money-changers appear to have been active in Nigeria at the turn of the century; British officials have recorded the going cowrie[2] price of shillings observed in the market at that time.[3]

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[1] For accounts of the early history of money in Nigeria, see especially Newlyn, W.T., and Rowan, D.C., Money and Banking in Colonial Africa, chapters 2, 3, and 5, and Mars, J., "The Monetary and Banking System and Loan Market in Nigeria," in Perham, M., ed., Mining, Commerce, and Finance in Nigeria, (pp. 177-224), London, Faber and Faber, 1948, and also the very interesting account in Jucker-Fleetwood, E.E., Money and Finance in Africa, London, Allen and Unwin, 1964, ch. 17, especially pp. 195-196 (on Nigeria).

[2] Cowries are rather small, hard, shells "of certain sea animals"; Webster's College Dictionary, 1962 edition.

[3] See Adomakoh, A., "The evolution of Currency and Banking in West AfricanCountries," Jahrbücher für NationalÖkonomie and Statistik, Vol. 174, Dec. 1962, pp. 499-512, quoted in Jucker-Fleetwood, op. cit., p. 195.

At the turn of the century the use of British money in Nigeria had assumed large proportions, and began to attract the attention of the colonial authorities. The question of a separate currency for West Africa began to be raised. The main reason adduced in favor of such a reform at the time was fear of the possibility that a monetary crisis in Britain could be precipitated through a sudden presentation of currency circulating in the colonies for redemption. The colonial administrators also pointed out that a case could be made for letting the seignorage revenues on West African currency accrue to the colonies, on the grounds of equity.[4]

The institution which was devised to deal with this situation, the West African Currency Board,[5] achieved neither of these two objectives. Since it was bound to exchange its own currency for sterling at a fixed rate, it did nothing to alleviate the risk of a monetary crisis originating in the colonies.[6] With respect to the seignorage revenues on currency in circulation, it is true that they would now accrue to the Currency Board rather than to the British monetary authorities, but as the Board was expected in practice to invest in British securities in an amount which even exceeded its currency liability, the seignorage revenues did not become

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[4] See Newlyn and Rowan, op. cit., pp.25-30. Seignorage revenue is defined as the excess of the nominal value of coins and notes over their cost of production.

[5] The countries served by the WACB were Ghana, Nigeria, Sierra Leone, and Gambia. Thus in fact those countries were joined in a monetary union at that time.

[6] Except insofar as the (unstated) alternative now would exist that in a time of crisis in the colonies, the WACB could suspend redemption of its liabilities for British currency. If this had been permitted, the WACB would of course constitute a kind of buffer insulating British currency from a colonial crisis.

available to the colonial authorities. Only to a limited extent did the colonial authorities gain a benefit; it was decided that after the assets of the Board had reached a certain percentage in excess of liabilities, would seignorage revenues over and above what was required to maintain this ratio accrue to them.[7]

The difference between the Currency Board system and the previous one, where British money was used outright, was a purely formal one. It was indeed true that the West African pound was merely "the British pound under another name." It continued to hold true that equilibration between the supply and demand for money took place via domestic price and income variations, which in turn affected the balance-of-payments and the stock of money. Thus, it is clear that this change did nothing to alleviate the potential instability problems associated with using a foreign currency as money.

Another drawback, from the point of view of the colony at least, was that the monetary system continued to provide an automatic mechanism through which the colony financed a surplus of exports to Britain over imports from there; in other words, as the demand for currency grew, the colony would consistently engage in capital exports to Britain.[8] On the other hand, whereas it is true by definition that the system implied capital exports, it does not follow that it led to net capital exports, since capital flows outside the currency mechanism could provide an offset. It

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[7] Since the Board's liabilities were non-interest bearing, but its assets carried interest and since it derived income from its transfer charges, it was able to earn a surplus over operating costs, to build reserves.

[8] This capital export, which is due to the seignorage element, did of course also exist when British money was used directly.

has also been claimed that the reliable nature of the currency board mechanism (in terms of guaranteed convertibility with sterling of West African currency) itself stimulated capital inflows outside the monetary system.

The question whether this claim was a valid one, as well as many of the other questions raised in this section, cannot be answered fully without recourse to the complex analysis of what constitutes an optimal currency area.[9] No attempt of bringing that analysis to bear on the situation in Nigeria will be made here, apart from noting that at a time when all economic policies for Nigeria were ultimately determined by the colonial authorities in the United Kingdom, there would appear to have been relatively little to gain from an "independent" monetary system. If more of the seignorage revenues would have been permitted to accrue to the colonial authorities in Nigeria, this might well have resulted only in smaller grants from the United Kingdom government to the colonies, or to larger capital exports by the colonial authorities to the United Kingdom.[10] Furthermore, with private capital flows coming primarily from the United Kingdom, it would seem reasonable to accept the argument that a high degree of integration between the monetary systems would have facilitated these flows by minimizing the exchange risks.

Whether there was a net advantage and disadvantage of the Currency Board system to the Nigerian economy during the period before independence,

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[9] This statement follows from the fact that through the Currency Board regime, the countries served by the WACB were effectively in the same currency area with the United Kingdom as well as form a currency area between themselves. For discussions of the optimal-currency area question, see Mundell, R.A., "A Theory of Optimum Currency Areas," American Economic Review, Vol. 51, November 1961, pp. 509-517, reprinted in the Mundell, R.A., International Economics, New York, McMillan, 1968, chapter 12.

[10] This is because not only the sterling reserves held by the WACB, but also those of the governments, Marketing Boards, public corporations, etc., constitute capital exports.

however, cannot be judged in isolation from the whole question of whether on balance Nigeria derived a benefit from the colonial system, and this question will not be entered into here. On the other hand, some of the arguments raised above became relevant again after the attainment of independence, when the question arose to what extent the new Nigerian monetary authority was to retain the principles according to which the Currency Board had operated; this question will be briefly considered below in section 3.

2. The Commercial Banks

Expatriate commercial banks also have been active in Nigeria throughout this century; as the use of fiat money becomes wider, opportunities arise to make a profit be offering commercial banking services, for a fee, and also to attract deposits which can be invested in interest-earning assets. Throughout the first half of the century, these assets were almost exclusively held in Britain; little direct lending in Nigeria took place, and there were no financial markets in Nigeria in which the banks could invest.[11] The services that the banks could offer were the usual ones: the possibility of transferring money without having to physically move currency; the safety and convenience of storing purchasing power without having to store currency, or having to store it abroad; the latter was likely to be expensive, since the WACB imposed a ½% transfer charge for transfers in either direction. It was also more convenient to

[11] For descriptions of the early commercial banking history, again see Newlyn and Rowan, op. cit., pp. 74-76, and 96-110, and Brown, C.V., The Nigerian Banking System, London, Allen and Unwin, 1966, pp. 23-30. We do not consider here the numerous, small, indigenous banks which were founded before 1952, when the first laws regulating banking in Nigeria were passed. Most of these banks have subsequently disappeared, but a small number of indigenous banks continued operations and have since become quite large as discussed on pp. 85-87 and 122-123.

handle international transfers through the banks than through the Currency Board, because of the banks' connections with the entire British banking system, and because they served a larger number of places in Nigeria. However, since the expatriate banks held virtually all their assets in the United Kingdom, it still held true that they were only an extension of the Currency Board system, and the money supply was almost completely determined by international transactions.

3. Establishment of a Central Bank

The debate concerning the establishment of a Central Bank in Nigeria took place primarily in the early fifties, and, of course, received part of its impetus from the increasing role of Nigerian politicians in the government of the country, and the movement toward political independence. A careful review of this debate has been undertaken by C. V. Brown.[12] The present section merely summarizes some of the main elements in the discussion.

The participants in the debate seemed to take for granted the preponderant role of international trade in monetized economic activity in Nigeria, and the dominance of foreign investment in the modern sector. When economic growth is expected to stem mainly from these two sources, it is not surprising that the primary criteria for the monetary authority would be seen as those of maintaining convertibility and facilitating international payments; these are obviously criteria on which the combination of a Currency Board and an expatriate commercial banking system will score highly. Furthermore, with full external convertibility and expatriate banks, the need for a "lender of last resort" is not very great, since

[12] Brown, op. cit., pp. 126-141.

the banks can always meet a liquidity crisis by obtaining funds from their head offices abroad. The fact that the banks have easy access to this form of liquidity also means that control of the banks through variations in domestic liquidity conditions becomes difficult to achieve. For these reasons, some advisors argued in favor of maintaining a Currency Board system for Nigeria,[13] or for the establishment of a Central Bank with limited functions, which would have only a limited authority for a fiduciary issue and which would essentially continue to issue Nigerian currency in exchange for sterling. The possibilities for stabilizing economic fluctuations of external origin through monetary policy were considered small, in view of the small importance of domestically financed private investment, and the lack of well-developed markets for financial assets in Nigeria. The possibility of extensive financing of government expenditure through the monetary system was little discussed.

Those who advocated the establishment of a regular Central Bank did so in spite of generally agreeing with the arguments above. On the other hand, it was considered important to have a Central Bank in order to strengthen the indigenous commercial banking sector, to train African personnel in banking, and to encourage the development of financial markets in Nigeria. It was repeatedly stressed that a Central Bank conducting anticyclical monetary policy in the traditional sense had to await the existence of well-developed financial markets, and that, therefore, the benefits to development to be derived from having a Central Bank would for a considerable period of time be limited to its contribution to the development of such markets.

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[13] Though it was recognised that political independence would make it more appropriate to have a separate Currency Board, rather than one shared with other territories.

In East Africa, where the same issue had arisen, the alternative chosen was that of maintaining a modified form of the Currency Board system,[14] whereas in both Nigeria and Ghana, it was decided to establish Central Banks. In Nigeria, however, the powers originally given to the Central Bank to some extent reflected the views of those who saw it as having only a somewhat limited role. The 1958 Central Bank of Nigeria Ordinance stated that the Nigerian pound was to be on par with sterling, and that external reserves were to be held in gold and sterling. Furthermore, explicit lower limits were set on the proportion of Central Bank liabilities that were to be covered by foreign assets. In these respects, there is little difference from the principle of a modified Currency Board with a certain fiduciary issue. Apart from the limitations in the above areas, however, the Ordinance provided for the normal functions of a Central Bank, such as authority to deal in government securities and foreign exchange; to be lender of last resort; to be banker to the government, etc., and also to require the commercial banks to maintain a variable ratio of certain specified liquid assets to deposit liabilities. In addition, it was explicitly specified that the Central Bank was to have responsibility for the management of the public debt, though in general the principle of the Bank being independent from the government was upheld in the Ordinance. Soon after the Central Bank's start of operations, the

[14] New regulations for the East African Currency Board were issued in 1955; they "explicitly allowed a 'fiduciary' issue", but only up to £ 10 million. This figure was subsequently raised, and by 1965, the actual fiduciary element was £45 million. In 1966, however, separate Central Banks were established in the East African countries, after a long debate. See Newlyn, W. T., Money in an African Context, Nairobi, Oxford University Press, 1967, pp. 33-35, and chapter 6.

Central Bank Ordinance was amended in a number of significant respects.[15] The amendments generally served to make the Bank more fully independent from the British monetary system, by defining the par value in terms of gold (instead of sterling) and giving the Bank the right to change the par value, as well as by permitting the Bank to count other foreign exchange than sterling as part of its currency backing. It also increased the maximum fiduciary issue relative to total liabilities. The way in which the Central Bank has made use of these powers through the first half of the sixties will be further discussed below.

4. The Changing Role of the Commercial Banks Since 1950

In addition to the question of the fiduciary issue, i.e., to what extent the economy's savings in the form of assets issued by the monetary authority can be used to finance investment at home, the extent to which the resources of the commercial banks can be used for such financing, is a significant one. During the 1950's, the commercial banks increasingly began to invest their assets within Nigeria, and their activities became increasingly important for the determination of the money supply and credit conditions generally in the Nigerian economy. The gradual change in their role during this decade will be described and analyzed in the following sections. But with the establishment of the Central Bank, the possibility arises for the authorities to deliberately control, or at least modify, the behavior of the banks, to attain the authorities' objectives with respect to monetary stability, government financing, and credit allocation in general. The ways in which the Central Bank has exercised its powers

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[15] See Brown, op. cit., pp. 144-149, and also Brown C.V., "The Recent Nigerian Banking Amendments: A Tentative Appraisal," Nigerian Journal of Economic and Social Studies, Vol. 4, July, 1962, pp. 156-164.

in that respect, and the resulting policies of the banks, will also be described and analyzed in the following sections.

B. The Money Supply: The 1950's

1. Growth in Currency and Deposit Money

In this section, the growth in the Nigerian money supply during the years 1950-59, i.e., during the last ten years of the Currency Board regime, is analyzed with special attention being paid to the changing composition of the money supply as between currency and deposit money.

At the beginning of the period, the importance of deposit money in the total was still relatively small. The ratio of currency held by the public to total money (defined here to include time and savings deposits, as well as demand deposits, in commercial banks) was .67. As the ratio of currency reserves held by commercial banks to their deposit liabilities was relatively high as well (.18 in 1950), this meant that the total currency liabilities of the WACB outstanding in Nigeria in 1950 corresponded to about 73% of the money supply there.[16]

During the 1950's, the liabilities of the Board in Nigeria showed relatively steady growth. Table II-1 shows their amounts and percentage rates of growth; the average annual rate was 7.5%.

As the Board issued West African currency only in exchange for sterling, the increases in its liabilities corresponded to a continuing capital export from Nigeria to the United Kingdom. This feature of the Currency Board system has often been regarded as one of its main disadvantages, and it is, therefore, of interest to consider the quantitative

[16] These and other figures in the text in this chapter have been computed from the data in the Appendix, Table A2, unless otherwise stated.

Table II-1

Amounts and Rates of Growth of WACB - Liabilities in Nigeria, 1950-59

	CURP & RESB	RESB	% p.a.
1950	32.8	2.7	-
1951	42.0	3.4	24.7
1952	50.4	7.6	18.2
1953	54.1	7.5	7.1
1954	56.5	8.2	4.2
1955	54.5	7.6	-3.6
1956	57.5	6.9	5.4
1957	57.9	7.0	.7
1958	59.1	6.4	2.0
1959	63.9	8.2	7.7

Col. 1: Currency with the Public (CURP) plus currency reserves held by Commercial Banks (RESB), £ Nig.mill.

Col. 2: Currency reserves held by commercial banks, £Nig.mill.

Col. 3: Annual rate of growth of amounts in Col. 1, percent p.a.

Note that the amounts in Col. 1 are approximately equal to total WACB liabilities in Nigeria.

Source: Computed from Appendix Table A-2.

importance of this capital export. The increase in currency, as a percentage of GDP, for each year in the 1950's is shown below, Table II-2; for comparison, the total surplus or deficit on trade account is shown, also as per cent of GDP. If the latter are identified with total capital exports or imports, it is seen that the capital exports due to the Currency Board system were a relatively small proportion of the total.

Table II-2

Capital Exports Through WACB Compared with Total Net Capital Exports, 1951-59

	Δ(CURP+RESB)/GDP: (1)	(X-M)/GDP: (2)
1951	1.5	1.9
1952	.7	2.6
1953	.6	2.5
1954	.2	3.7
1955	-.2	-2.9
1956	.4	-3.8
1957	.0	-5.1
1958	.2	-4.6
1959	.3	-3.1

Col. 1: Increase in foreign assets of WACB corresponding to increased total currency liability, as percent of GDP.

Col. 2: Total capital exports, measured as exports minus imports, as percent of GDP.

Source: Computed from Appendix Tables A-1 and A-2.

The simple view of the Currency Board system, i.e., that it gave rise to a permanently deflationary level of aggregate demand so as to permit the export surpluses necessary for an increase in the currency supply does therefore not appear to be supported by the data for the Nigerian case, since substantial capital flows outside the system meant that there was no direct link between changes in the currency supply and the surplus or deficit on trade account. During the years when there was a net capital outflow, it was much greater than can be accounted for by the Currency Board alone, and must be explained also be reserve accumulation by commercial banks, government, and Marketing Boards. During 1955-57, the gross outflow due to the Currency Board was more than offset by inflows on other accounts, and Nigeria was a net capital importer. To bring about the corresponding import surplus, the level of aggregate demand must have been relatively high, more than offsetting the deflationary bias of the Currency Board mechanism.[16a]

The quantitative importance of the commercial banking system increased greatly during the 1950's. Table II-3 shows the absolute amounts and percentage rates of growth of bank deposits in Nigeria during the decade; in Column 4, the growing relative importance of bank deposits for the money supply as a whole is indicated by the rapidly decreasing ratio of currency held by the public, to the total money supply.

[16a] The term "deflationary bias" is most appropriate in a Keynesian type situation with rigid prices and a fixed exchange rate. In this case, the Currency Board system might generate chronic unemployment as a consequence of the automatic export surplus. If domestic prices are flexible, however, an export surplus is compatible with full employment, but the fact, of course, remains that this surplus constitutes a constant drain on the country's real resources.

Table II-3

Commercial Bank Deposits and Currency Ratio, 1950-59

	TDEP	DDEP/TDEP	% p.a.	CURP/(CURP+TDEP)
1950	15.0	.79	-	.67
1951	20.8	.81	32.4	.65
1952	26.8	.81	25.4	.61
1953	30.1	.78	11.5	.61
1954	37.6	.78	22.4	.56
1955	44.4	.78	16.6	.51
1956	45.6	.76	2.8	.52
1957	49.9	.73	9.0	.50
1958	59.9	.68	13.0	.48
1959	65.6	.61	14.2	.46

Col. 1: Total Deposits with Commercial Banks (TDEP), Nig.mill.

Col. 2: Ratio of Demand Deposits to Total Deposits with Commercial Banks.

Col. 3: Annual rate of growths in total deposits (% p.a.)

Col. 4: Ratio of Currency with the Public (CURP) to total money supply, defined as Currency with Public plus Total Deposits.

Source: Computed from Appendix, Table A-2.

For this reason, the effects of the portfolio choices made by the banks became more and more important because of their effects on the money supply, and thereby on the economy as a whole. In the next section, the portfolio decisions of the commercial banks during the 1950's are analysed in some detail; such an analysis serves the purpose both of providing a better explanation for the observed trends in the money supply during that decade, and also of providing a background for the analysis of the changes that took place in the system with the foundation of the Central Bank in 1959.

2. Commercial Banks: The 1950's

Table II-4 gives summary annual statistics of bank portfolios throughout the 1950's. As was seen in Column 4, Table II-3, during the 1950-54 period, the rate of increase of deposits was extremely rapid. Though loans and advances also grew at high percentage rates during that period, this was mainly due to the very low initial level; in absolute terms, their growth was considerably less than half the increase of deposits and at the end of the period, the ratio of loans and advances to deposits was still as low as 25%. The rest of the deposit inflow was used for an increase in foreign assets, and in currency held by banks. We have noted above that this period was characterized by substantial export surpluses, so that the increase in foreign assets could take place simply by retaining abroad the funds that were paid into the banks for exports from Nigeria.

During the 1955-59 period, the character of the banks' portfolios changed. Foreign assets grew only slowly, whereas cash holdings remained steady or even declined somewhat. The growth in deposits was still high, though somewhat lower than during the preceding years. The expansion in

Table II-4

Loans and Advances, Foreign Assets, and Currency Reserves in Commercial Banks, 1950-59

	LADV	LADV/TDEP	FBKS	FBKS/TDEP	RESB	RESB/TDEP
1950	2.8	.09	9.2	.61	2.7	.18
1951	3.9	.13	12.7	.61	3.4	.17
1952	6.3	.12	12.1	.45	7.6	.28
1953	7.3	.14	13.9	.46	7.5	.25
1954	9.3	.19	18.9	.50	8.2	.22
1955	13.3	.30	22.9	.51	7.6	.17
1956	19.4	.43	19.1	.42	6.9	.15
1957	24.4	.49	18.5	.37	6.9	.14
1958	30.2	.53	16.8	.29	6.4	.11
1959	34.1	.52	18.5	.28	8.2	.12

Col. 1: Loans and Advances (LADV), ₦Nig.mill.

Col. 2: Loans and Advances as Fraction of Total Deposits.

Col. 3: Foreign Assets (FBKS), ₦Nig.mill.

Col. 4: Foreign Assets as Fraction of Total Deposits.

Col. 5: Currency Reserves, RESB, ₦Nig.mill.

Col. 6: Currency Reserves as Fraction of Total Deposits.

Source: Computed from Appendix, Table A-2

loans and advances now was nearly equal to the change in deposits in absolute terms.

In the next few sections, an attempt will be made to analyze the composition of the bank portfolios, and their development over time, by considering the economic factors influencing the banks in their attempts to select a portfolio consistent with their objectives with respect to profitability and liquidity. The banks' demand for currency reserves will be briefly discussed, but the principal choice to be analyzed is the one between foreign exchange holdings on the one hand, and lending in Nigeria on the other hand.

During most of the 50's, the banks operating in Nigeria were not subject to any specific liquidity requirement.[17] Yet, the proportion of vault cash to total assets was high relative to the level prevailing in more developed monetary systems. In explaining this, one must, of course, remember that during the Currency Board system, currency was the only domestic asset which would be held as a monetary reserve, as the Board did not accept deposits. But even in view of that, the reserve ratio appears high. As a further factor, one must take into account the high currency ratio in the total amount of money held by the public; it meant that transactions between the public and the banks to a large extent took the form of withdrawals and deposits of currency, rather than transfers between bank deposits. Thus, temporary deficits in the flows of funds

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[17] In the 1952 Banking Ordinance, i.e., the first piece of legislation relating to commercial banking in Nigeria, the banks were only required to maintain an "adequate degree of liquidity." See Brown, The Nigerian Banking System, op. cit., p. 34.

had to be met by the use of currency reserves rather than be settled in clearing.[18] Moreover, there were only a few Currency Board currency centers, so that the time lag in bringing cash from the Board to, say, a remote branch, could be long. At given fluctuations in the inpayments and outpayments, this also necessitated somewhat higher currency reserves than would otherwise have been required. Finally, the profitability of transferring surplus cash into foreign assets during the low season in the demand for currency by the public, was relatively low, among other things due to the transfer charge levied by the Currency Board.

The slight downward trend in the ratio of bank currency reserves to deposits, as illustrated in Table II-4, Column 6, is consistent with the hypotheses above. First, as was already noted in Table II-3, there was a relatively rapid decline in the ratio of currency held by the public to the total money supply throughout the decade. This is consistent with the idea that a greater proportion of transactions took the form of transfers of bank deposits, rather than transfers of currency through the banking system, and this would have led to a somewhat lower need for currency reserves held by the banks, since a deficit or surplus of deposits or withdrawals in an individual bank could then be settled through interbank clearing to a greater extent than before. Secondly, as shown in Table II-5, from about 1955, interest rates in the United Kingdom

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18 Suppose, for example, that a given bank branch in one day has an excess of withdrawals over deposits. If the withdrawals are in the form of check payments which the recipient in turn directly deposits in his bank account, as is likely to be the case when the ratio of currency in the total money supply is low, this excess can be settled in clearing between the head offices, and will not involve a currency drain from the branch involved. If the withdrawals are mainly in the form of currency withdrawals, which is likely when the currency ratio is high, an excess of withdrawals over the deposits must be met directly from currency reserves in the branch.

were generally higher than during the early fifties, so that the profitability of short-term transfers of funds abroad became greater. An examination of the quarterly data on bank transactions with the WACB supports the hypothesis that beginning in 1955, such transfers did take place during the low season in the demand for currency by the public.[19]

a. The Choice Between Foreign Assets and Lending in Nigeria

While the above considerations go some of the way towards explaining the high level of bank liquidity, it only focusses on currency liquidity. In order to consider the overall liquidity of their portfolio, however, the form in which the foreign assets were held must also be examined. Almost exclusively, they fell in the category "balances held with other banks abroad." Some limited "investments" overseas did exist, but this item was quantitatively insignificant.[20] Although it is not possible, for this period, to see whether the foreign bank balances were held with overseas offices of the same bank, or with different banks abroad, it appears highly likely from statistics for later periods that the bulk of them was held with offices of the same bank abroad.[21]

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[19] Up until that time, currency held by the public plus cash held by banks increased in all successive quarters. Given that only commercial banks had transactions with the Currency Board, this means that on the average, they were net sellers of foreign exchange to the Board in each quarter. During the period 1955-59, however, the above total declined in the low-season quarters, which meant that on the average the banks were net buyers of foreign exchange from the Board, i.e., were repatriating capital on a short-term basis. See further section C below.

[20] Except for 1958 and 59, when they reached £Nig. 4.4 million in one quarter, they were less than £Nig. 1 million throughout. See Federal Office of Statistics, Digest of Statistics, various issues.

[21] Since 1960, from which time monthly data are available, "balances with other banks abroad" have never exceeded £Nig. 3 million. Balances with "offices and branches abroad" have been much higher. See e.g. Central Bank of Nigeria, Economic and Financial Review, Vol. 4, December, 1966.

Table II-5

Treasury Bill Rates
in the
United Kingdom, 1950-59 (%)

1950	.51
1951	.56
1952	2.20
1953	2.30
1954	1.80
1955	3.73
1956	4.93
1957	4.80
1958	4.32
1959	3.37

Source: U.N. Yearbook of Statistics, 1958 and 1961. The Figures for 1958 and 1959 are annual averages of the quarterly data given in the 1961 Yearbook.

In general, bank balances are, of course, considered highly liquid, and so would well fulfill the function as reserves; they could at any time be used to obtain currency at a fixed price. For that reason, they might be considered liquid assets and part of bank reserves. As is clear from Table II-4, however, if reserves are defined to include foreign bank balances, it appears that an extremely high degree of liquidity and a low level of lending were maintained by the banks during the fifties. In this section, some explanations for this will be considered.

In terms of modern portfolio theory, asset managers are seen as being concerned with the expected profitability as well as expected risk of assets. Part of the explanation of the low level of lending in Nigeria could, therefore, be furnished by simply noting that typically there was only a small amount of lending which could be done under terms which were sufficiently attractive in terms of profitability and risk. One reason for this, of course, was the relatively low level of monetized activity in general, and the small scope of the modern sector with large-scale production of goods and services. Small-scale activities are obviously handicapped in terms of the possibility of obtaining bank credit by the lack of suitable security (aggravated in the small-scale agricultural sector by uncertainty of titles to land), absence of accounts, and perhaps above all, by the fact that small loans typically carry higher administration costs than larger ones.[22] A further explanation of the low level of lending in the 1950's may be found in the fact that the

[22] The experience of agencies such as the Federal Loans Board, designed to aid small businessmen with credit, as well as other similar institutions is suggestive of these difficulties. See Kilby, P., Industrialization in an Open Economy: Nigeria, 1945-66, Cambridge, Harvard University Press, 1969, pp. 321-338, where he also quotes related studies regarding entrepreneurship in Nigeria in general.

British banking tradition has typically favored short-term, "self-liquidating" loans with a tangible security, relatively more than, e.g., the German and American banks. This has meant that lending by the British banks in Nigeria, at least in the past, has heavily favored financing of domestic and international trade, but not loans for general production activities. Though data are available concerning the sectoral distribution of lending only for the last two years of the period, the following table for 1958-59 confirms the concentration on trade financing.

Table II-6

Sectoral Distribution of Commercial Bank Loans and Advances, 1958-59

	% of Total Loans & Advances			
	MMCU	AGEXP	IMPTR	MISC
1958	14	25	38	23
1959	13	20	37	30

Col. 1: Mining, manufacturing, construction, and public utilities, (MMCU).

Col. 2: Credit to agriculture, most of which for exports, (AGEXP).

Col. 3: Imports and domestic trade, (IMPTR).

Col. 4: Miscellaneous.

Source: Computed from annual averages of semi-annual data given in Central Bank of Nigeria, Economic and Financial Review, Vol. 2, March 1964.

It may be noted in this context that the same factors which restricted the volume of lending generally also led to a certain de facto discrimination against lending to Nigerian businessmen. While the large trading firms were foreign-owned, the small firms with deficient accounting, lack of security, and relatively small-scale loans, were generally the

ones run by Nigerian businessmen. This led to frequent complaints on the part of unsatisfied borrowers, and as will be further discussed below in Chapter 5, the provision of credit to small-scale economic activities (including farming) remains one of the important and largely unsolved problems of the Nigerian financial system.[22a]

Another factor contributing to the low level of lending especially at the beginning of the period, was the fact that much of the international trade and production in the large-scale sector was in the hands of foreign corporations, or was carried out by institutions (such as the Marketing Boards) which had easy access to credit directly from the United Kingdom. Thus, while the credit needs of these sectors would have met the standards of credit-worthiness set by the banks in Nigeria, they did in fact meet these needs in the United Kingdom.[23] This pattern is consistent with the idea that during the early 1950's, the financial system in Nigeria should be seen as merely a part of the United Kingdom. financial system; financial intermediation took the form of Nigerian savings being exported there, and correspondingly, investment in Nigeria was financed from the United Kingdom.

Finally, another partial explanation of the high foreign exchange component in the bank portfolios is provided by the fact that there were no developed markets in Nigeria for assets that could have served as

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[22a]The role of the indigenous banks in this context will be briefly touched upon below in Section d.

[23]Note also that under the Currency Board regime there was no risk of devaluation, so that there was no exchange risk involved in borrowing abroad to finance asset holding in Nigeria.

secondary reserves (such as government securities and other highly liquid assets). This meant that if the banks wanted to hold such secondary reserves, they had to take the form of foreign assets. As long as convertibility at par was guaranteed through the Currency Board system, there was virtually no risk involved in this type of operation in terms of exchange fluctuations or payments restrictions.

While these considerations explain why the Nigerian banks would generally be expected to have an incentive to hold some amount of foreign assets, they do not account for the fact that their foreign assets were held in such a seemingly liquid form. The reasons for that must be sought in the fact that the banks were subsidiaries of banks operating in the U.K. An explanation of bank behavior in this situation must clearly take into account that for such banks, portfolio decisions are made so as to lead to an optimal portfolio for the bank as a whole, rather than for the branch taken by itself.[24]

In this section we will analyze the problem of portfolio selection as it appears to a bank which operates as a branch of an international bank, and contrast its portfolio problem with that of an independent bank in Nigeria. As was noted in Chapter I, the banks controlling the bulk of total deposits in Nigeria during the 1950's did indeed fall in the former category.

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[24]Normally, in monetary analysis one attempts to explain portfolio choices in terms of rates of return on alternative assets. The problem with an international bank holding balances with branches or head offices overseas, is that there is no explicit return on such balances, because there is no "market" for them. Analogous problems arise with vertically integrated industries operating in several countries, as for example oil, or aluminium.

b. The Portfolio Choice in an International Bank

At one level of analysis, the portfolio policy of the bank can be seen as formulated by the expatriate manager of the Nigerian branch, acting independently. Following the analysis of Tobin et.al.,[25] the manager can be assumed to be concerned with the bank's profits, and with the "riskiness" of its portfolio, and the solution to the portfolio selection problem is a portfolio which attains some optimal combination of expected profitability and risk. The expected risk of the portfolio depends on the expected variability in the prices of investments, the risk of default on interest and principal on loans and advances, etc. Tautologically, one could then say that the large proportion of foreign bank balances followed from the managers' favorable evaluation of the risk and return characteristics of such balances relative to loans in Nigeria. But the question then arises; when such bank balances are held with the overseas head office of the same bank, what are the risk and return characteristics? From the point of view of the manager in Nigeria, the risk is likely to be very low, and the return will be the internal rate of interest with which branch managers are credited for balances held with the head office. By varying such a rate, the head office might thus induce variations in the flows of deposits from overseas branches.

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[25] I.e., the traditional Tobin/Markovitz portfolio analysis. See Tobin, J., "Liquidity Preference as Behavior Toward Risk," Review of Economic Studies, Vol. 25, February 1958, pp. 65-86, and Markovitz, H., Portfolio Selection: Efficient Diversification of Investments, New York, Wiley, 1959.

But from the point of view of the head office, or alternatively, the bank as a whole, the question whether to make use of deposits in Nigeria will depend on simply whether this is warranted in view of the bank's desire to select an optimal portfolio for the bank as a whole, i.e., when aggregating assets of the head office and all branches. Therefore, balances held with the head office simply represent a share in the total portfolio of the international bank, so that from the point of view of the bank as a whole, the risk and return characteristics of such balances are identified with those of its aggregate portfolio. When looked at in this way, it becomes meaningless to try to explain what appears to be the high degree of liquidity of the Nigerian banks during the 1950's.[26] The relevant consideration would have been the liquidity of the international bank as a whole.

As has often been pointed out, if one accepts the premise that the international banks attempt to optimize their portfolios by transferring deposits internationally in response to changing profitability, it becomes likely that lending in Nigeria is highly sensitive to variations in interest rates and credit conditions overseas, especially in the U.K. where the head offices are located. Exactly how sensitive it will be, however, will depend partly on the degree of autonomy that the banks give to their branch managers. In actual fact, it appears that

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[26] This point appears to have been insufficiently emphasized by some earlier investigators. See Brown, C.V., "The Supply of Bank Money in Nigeria," The Banker's Magazine, November, 1960, and December, 1960, pp. 301-310 and 397-402, and Gray, C.S., "Credit Creation for Nigeria's Economic Development," Nigerian Journal of Economic and Social Studies, Vol. 5, November 1963, especially pp. 286-299. See also Greaves, I., Colonial Monetary Conditions, London, H.M.S.O., 1953, especially pp. 45-46 on the banks reluctance to transfer funds from the head office for purposes of lending expansion.

the decision-making in the international banks has been decentralized to a considerable extent, i.e., that the branches had a high degree of autonomy. In the present case, decentralization implies that the managers of the Nigerian branches are left substantial freedom to select the assets in their portfolios, subject to ground rules laid down by head office policy. These rules would then be formulated in such a way as to insure that the resulting portfolio is optimal from the bank's point of view. When considering the actual formulation of such rules, however, it must be taken into account that there are internal administrative costs involved in making them complicated, and subject to frequent changes. Furthermore, if the rules are changed often in such a way as to induce substantial transfers of assets from one category to another, the transaction costs of such transfers will begin to become important, and because of the relatively large transfer charge on international transactions imposed by the Currency Board, this would have been an important consideration with respect to the choice between foreign and Nigerian assets. For these reasons, it can be expected that the ground rules to which the branch managers were subject would be relatively simple, and would only be changed at infrequent intervals.

Not very much is known about the precise rules under which the branch managers in Nigeria were operating during the fifties. From the frequent references to the limited number of "credit-worthy borrowers," however, it is clear that the managers were expected to apply relatively strict standards with respect to security requirements, as well as duration of the loan, so that the expectation, implicit or explicit, that borrowers meet the requirements imposed under normal (British) banking

practise became one of the rules through which portfolios decisions were influenced from abroad.[27] These requirements were probably not explicitly changed during the 1950's, though Brown claims that the bankers, in his impression, were "bending over backwards" to increase their lending to indigenous Nigerian borrowers.[28] As was shown above, Table II-6, however, throughout the 1950's, bank lending mostly took the form of financing of international trade on a short-term basis, and since most such trade was in the hands of large-scale international trading firms, one may safely assume that the lending expansion in the late fifties could take place without any significant relaxation of these requirements. During conversations between the author and officials of the expatriate banks in 1966-67, the officials (rather vehemently) denied that any changes in the requirements had taken place either during the 1950's or the 1960's.[29]

A second important method employed by the head offices to influence the lending of the Nigerian branches consisted in influencing their lending rates and the rates they paid on time and savings deposits. This

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[27]See the description of bankers' attitude in this respect in Brown, Nigerian Banking System, op. cit., p. 91.

[28]Partly as a result of the ubiquitous criticism in West Africa that the expatriate banks tend to discriminate against indigenous businessmen. See Brown, loc. cit. On the possible reasons for this, in terms of lack of security, lack of accounts, etc., on the part of prospective borrowers, see Newlyn and Rowan, op. cit., pp. 81-82.

[29]The possible problems that those relatively inflexible requirements are creating with respect to the appropriate allocation of credit in Nigeria, will be further discussed in chapter 5.

could be done in several ways. The head office could have credited the Nigerian branch with an accounting rate paid on balances with the head office, leaving the Nigerian branch manager free to establish whatever lending and deposit rates he wished. The interest rates in Nigeria would then have been established through competition between the branches in Nigeria. Alternatively, the head offices could establish directly the interest rates that the branches would charge, leaving them to accept whatever level of deposits, and whatever level of lending would result from those rates. This alternative would imply considerably less interest rate competition between the banks in Nigeria, but would be consistent with the oligopolistic pattern in British banking, whereby interest rates are typically set with reference to the Bank rate, and interbank competition takes other forms.

There is practically no quantitative information on interest rate charges in Nigeria during the 1950's, but it appears quite clear that rates in Nigeria were closely linked to the U.K. Bank Rate, lending support to the second hypothesis above, i.e., that interest rates in Nigeria were determined with direct reference to rates in the U. K.[30] While this points to lack of competition between the banks operating in Nigeria, it must also be remembered that as long as lending in Nigeria was essentially limited to borrowers who also had access to the U.K. market, it is unlikely that rates in Nigeria would have been very dif-

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[30] This seems to have been the impression of most observers of the Nigerian banks during the 1950's and before. See Newlyn and Rowan, op. cit., pp. 84-85, Brown C.V., "The Supply of Bank Money in Nigeria," op. cit.; See also the Committee on the Working of the Monetary System, (The Radcliffe Report), London, H.M.S.O., 1960, Minutes of Evidence, Questions 4355-4359, 4409-4413, and Principal Memoranda of Evidence, Vol. 2, pp. 64-65 (Statement by the British Overseas Banker's Association: African Members).

ferent from those in the U.K., even if there had been vigorous competition in the Nigerian financial system.

If one now hypothesizes that the Nigerian branch managers were free to make any amount of loans they wished, subject to the constraints with respect to creditworthiness and interest rates discussed above, it would have followed that the level of deposits in the Nigerian branches would have had no influence on the level of lending in Nigeria; an increase in bank deposits in Nigeria would have given rise only to capital exports, as long as the demand for credit remained unchanged. Conversely, the only way in which bank lending could change would have been through a change in the demand for credit, the supply being regarded as infinitely elastic at externally given terms. This view, however, neglects the influence of transaction costs, and the related possibility that a distinction was made between "local" and "foreign" deposits. It will be argued in the next section that this distinction had an important role in influencing the portfolio choices of the Nigerian branch managers, and that the lending expansion in the banking system in the late 1950's (and also the early sixties) is partly to be explained by the changing proportions of "local" deposits in the total.

c. The Role of "Local" Deposits

As was mentioned above, the West African Currency Board imposed an arbitrary transfer charge of ½% on transfers of funds in either direction, i.e., both from Nigeria to the U.K. and vice versa. One clear effect of such a charge, as was also discussed above, was to make it profitable for the banks to hold, on the average, somewhat higher reserves in Nigerian currency than they otherwise would have done, since the cost of overcoming a short-term liquidity deficit by using foreign

exchange would have been quite high. With respect to portfolio decisions in general, the effect of the transfer charge (like that of any other transaction cost) was to substantially lower the rate of return on short-term transfers of funds abroad, to or from Nigeria, whereas for investments with longer holding periods, the effect tended to vanish.[31] As was briefly argued above, this helps to explain the seasonal pattern of Nigerian bank portfolios in the 1950's. An interesting question, however, is whether in the long run, the transfer charge had any effect on the banks' portfolios, particularly on their willingness to acquire domestic Nigerian assets (i.e., at this time loans and advances in Nigeria). It will be argued below that the answer should be in the affirmative, in the sense that it gave the banks some incentive to limit their lending in Nigeria to the amount of their "local" deposits,[32] i.e., deposits made in Nigeria and not in London, and furthermore, that the low level of lending in the early fifties was at least partly due to a shortage of such "local" deposits. It can be argued that in spite of the large foreign exchange components in the banks' portfolios, the banks are most likely never to have undertaken any major transfers of funds to abroad on their own initiative (with a few insignificant exceptions in the form of the seasonal transfers discussed above in footnote 19, p. 68).

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[31] A short-term portfolio adjustment is profitable if $H > \frac{t}{r}$, where H is the expected holding period in years, t is the transaction cost in percent, and r is the difference in the annual return between the proposed investment alternative and the existing asset respectively.

[32] Or, put less strongly, that an expansion of lending over and above local deposits would take place only if the return on such lending were sufficiently higher than the return which would be obtained abroad, to compensate for the transfer cost.

These conclusions can be drawn from a consideration of the particular way in which the transfer charge was administered. The charge was paid by the banks to the Currency Board only when the banks actually bought foreign exchange from or sold it to the Board. The banks themselves, on the other hand, imposed the same ½% charge on all transfers by customers, whether this involved a transaction with the Board or not. The banks thus had an incentive to net out, to the greatest extent possible, their sales and purchases of foreign exchange. But the only way in which the total amount of currency in Nigeria (including bank cash) could increase, was t ough the banks selling foreign exchange to the Board. Since the total amount of currency outstanding[33] did in fact increase from year to year, this meant that on the average the banks were always net sellers of foreign exchange to the Board, so that even with the prevailing low level of lending, the Banks did not have to acquire foreign assets from the Board in order to transfer funds to abroad; this transfer took place automatically as deposits accumulated in the form of foreign exchange paid in London.[34] For this reason, any substantial lending expansion in Nigeria would always have required a transfer cost to the banks, so that in fact the transfer charge led to a certain bias not only against frequent portfolio shifts, but also generally against lending in Nigeria. This also helps explain the fact that the banks favored lending for imports, since in that case, the funds that the banks pay out to the borrower will be in foreign

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[33] I.e., currency with the public plus currency held by banks.

[34] In payment for exports or intra-firm transfers of funds, etc.

exchange. An expansion of such lending would not require purchase of foreign exchange from the Currency Board, but could be accomplished simply by drawing on existing foreign balances, without paying any transfer charge.

As was noted in Footnote 3 above, the question whether this bias against lending in Nigeria was quantitatively important must be answered on the basis of information about the difference in the return on lending in Nigeria and the return on the alternative asset (in this case the return to the bank as a whole on head office balances), as well as the expected holding period and the size of the transactions cost. However, even a relatively short expected holding period and small rate difference would be sufficient to compensate for a transfer charge of ½% in either direction. Suppose, for example, that a 6 months' loan is contemplated. In that case a 2% differential in annual return would be sufficient to compensate for the cost of a 2-way transfer. With longer expected holding periods, an even smaller rate differential would be sufficient.

Thus, on <u>a priori</u> grounds, it may be hypothesized that the transfer charge by itself had a relatively limited importance as an obstacle to mobility of funds for lending in Nigeria. In an indirect way, however, the transactions costs may have been significant because of their influence on the particular form of the decentralization of decisions in the international banks. The desire to avoid those costs provide part of the explanation for what appears to have been a policy whereby the branches in Nigeria strived to maintain their lending within the limit of "local deposits," i.e., deposits made in Nigerian currency and not in sterling. From the point of view of the individual bank

transfer costs would, of course, be avoided if lending in Nigeria could be financed entirely through the inflow of funds in this form. There is some evidence that this rule was, in fact, followed. Brown[35] relates that expatriate bankers had said they were "unable to expand their overall level of loans and advances with the present level of deposits" in 1960, and then proceeds to show that during the latter years of the 1950's, the banks had in fact been highly liquid, if foreign bank balances are included among liquid assets. If one takes the statement to refer to "local deposits," on the other hand, the bankers' statement is more consistent with the evidence.[36]

Furthermore, it can be shown that the changing portfolio composition of the banks in the later part of the period is consistent with this rule. It was seen above that during the early fifties, the lending activity in Nigeria was very low, whereas during the 1955-59 period, there was a rapid increase in loans and advances; at the same time, the foreign exchange assets of the banking system remained stagnant, or even declined somewhat. If it could be shown that this lending expansion was

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[35]Brown, C.V., "The supply of Bank Money in Nigeria," op. cit.

[36]The Radcliffe Report (Principal Memoranda of Evidence, Vol. 2, op. cit.) contains a memorandum by the British Overseas Bankers' Association (pp. 64-65), in which it is stated that deposits with the Currency Board were made to meet the need for cash reserves in the overseas bank. If a branch manager permitted a significant lending expansion over and above local deposits it is reasonable to assume that he would have had to justify specifically the increased need for transfers from London with the head office, i.e., seek head office approval for the lending expansion. On the other hand, if the expansion would be financed on the basis of local deposits, such approval would not be required. The greater autonomy in the latter case might have some psychological significance for branch managers cherishing their autonomy. See also the support for this in the observations of Greaves, I., in op. cit. pp. 45-46.

financed largely by an increase in the banks' net sales of foreign assets to the Currency Board, the hypothesis that they were significantly limited in their lending by the availability of local deposits, could be rejected. But it is seen above (comparing Tables II-1 and II-4) that the annual increase in foreign assets of the Currency Board was somewhat lower than before, and constituted only a small fraction of the expansion in loans and advances during the 1955-59 period, so that the lending expansion was financed mainly through an increase in the proportion of local deposits.

On the above grounds, it is reasonable to hypothesize that one effect of the transfer charge in the form in which it was imposed during the 1950's, was to reinforce the tendency of the banks to limit their lending in Nigeria to within the funds accruing locally. But this would then also mean that in spite of the close links that the Nigerian branches maintained with the U.K. market, in terms of interest rates and establishment of credit standards, the managers of these branches did have some real autonomy in their portfolio decisions, with respect to the funds derived locally. Not only does this partly explain the change in the portfolio pattern between the early and late 1950's, but the greater autonomy in this respect probably also constitutes an important part of the explanation why the commercial banks in Nigeria were willing to undertake the rapid conversion of their funds into practically all Nigerian assets after the establishment of the Central Bank, with interest rates in the U.K. apparently having little impact on this process.

d. The Indigenous Banks

So far, the analysis has been conducted only in terms of the expatriate banks operating in Nigeria. During the early 1950's, however, a large number of indigenous Nigerian banks were formed, and some of them maintained fairly large operations throughout the decade. We will not discuss in any detail the history and operations of these banks here, as an extensive discussion is available elsewhere.[37] Here it should only be noted that these banks relied mainly on domestic deposits, and that their holdings of foreign exchange were small. Thus, to some extent, the growth in the ratio of loans and advances to deposits was due to the portfolio policies of these banks, though this cannot be established statistically, due to the absence of disaggregated data for the commercial banking system during this period. However, it is unlikely that their lending activities ever reached much over 1/3 of that of the expatriate banks, and their share in deposits was even smaller. For the first year when separate statistics are available, the share of deposits in the indigenous banks was 26% (1959), and their share of loans and advances was 27% (1956). Brown, quoting a "private source," gives a table for total loans and advances of Nigerian banks; we compare this with total loans and advances for the entire commercial banking system at corresponding dates in Table II-6A.

In spite of their relatively small size, the indigenous banking system constituted an important early instance of Nigerian entrepreneurship, and they clearly fulfill a useful function by alleviating, to some

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[37] See Rowan, D.C., "Native Banking Boom in Nigeria," The Banker, Vol, 96, March 1951, pp. 244-49, and Newlyn and Rowan, op. cit., chapter 5.

Table II-6A

Share of Nigerian Banks in Total Loans and Advances, 1956-59 (%)

	Share of Nigerian banks
1956	27
1957	22
1958	28
1959	35

Share of deposits in 1959: 26%

Source: Computed from Brown, op. cit., p. 66, and Appendix, Table A-2, for 1956-58. For 1959, the figures are averages of end-June and end-December figures released by Central Bank of Nigeria, Research Department.

extent, the problem of discrimination in bank lending against Nigerian businessmen. This was especially the case during the 1950's when their requirements regarding security, etc., seem to have been considerably less stringent than those of the expatriate banks. On the other hand, a substantial part of their resources seem to have been tied up in loans to directors of the banks, to firms owned or managed by the directors, and to political parties,[37a] so that the number of Nigerian businessmen who benefitted from their activities was rather limited.

C. The Money Supply: The 1960's

With the establishment of the Central Bank in 1959, the supply of currency in Nigeria, of course, was freed from the direct dependence on the foreign assets of the monetary authority, and a fiduciary issue became possible. As is seen in Table II-7, however, this reform did not lead to any great change in the rate of expansion of currency outstanding; in fact, the average growth rate of currency with the public and bank reserves was 7.2%, which is almost identical with the 7.5% growth during the 1950's. For two reasons, however, it would be misleading to say that the relatively low rate of expansion of currency outstanding represented a restrictive policy by the Central Bank during 1960-66.

First, as indicated in Column 3, the currency ratio continued to decline, so that the relatively slow rate of growth in currency held by the public was accompanied by a considerably higher rate of growth of deposit money, and therefore, of the money supply as a whole. As will be discussed in Section D. 2, given the decline in the currency ratio,

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[37a] See Brown, op. cit., pp. 65-73

Table II-7

Liabilities of the Central Bank
and the Currency Ratio, 1960-66

	CURP+RESB	RESB	CURP/MOTS	%
1960	74.2	9.1	.48	15.0
1961	80.2	8.4	.49	7.7
1962	79.7	9.2	.46	-.1
1963	82.1	8.8	.45	2.9
1964	90.2	9.6	.43	9.4
1965	98.8	10.9	.41	9.1
1966	106.0	10.4	.41	7.0

Col. 1: Currency with the Public plus reserves of the commercial banks (including currency, deposits with the Central Bank, and Call Money at the Central Bank), £Nig.mill.

Col 2: Reserves of commercial banks, defined as above £Nig.mill.

Col. 3: Currency with the public as a share of total money supply (including time and savings deposits with commercial banks).

Col. 4: Annual percentage growth rate of amounts in Col. 1.

Source: Computed from Appendix, Table A-2.

and the portfolio policies of the commercial banks during the period, the expansion in Central Bank liabilities would have had to be several percentage points lower in order to maintain the same rate of growth of the aggregate money supply as during the 1950's. This, of course, is another way of saying that Central Bank policy was quite expansionary in the sense of letting commercial bank credit grow fast enough to substantially increase the rate of growth of the money supply even though currency and bank reserves grew no faster than during the 1950's.

Second, as was discussed in Chapter I, Bank policy can be said to have been expansionary in the sense of permitting a large decline in Nigeria's foreign exchange reserves. The rate of growth which took place in total domestic credit from the banking system, was quite high, which resulted not only in a higher rate of growth of the money supply than before, but also in a very rapid decline in the degree to which the money supply was backed by foreign assets.[38]

In the following two sections, the policies of the Central Bank which has brought this about will be analyzed in more detail, beginning with a discussion of its own portfolio choices, and continuing with an analysis of how it has used the methods at its disposal to affect the portfolios of the commercial banks.

1. Currency Conversion and The Fiduciary Issue

The Central Bank of Nigeria formally began its operations on July 1, 1959. As was noted above, it was given the full powers of a Central Bank from the beginning, in contrast with the situation, e.g., in East Africa, where there was a gradual transfer of responsibility for the monetary system from a Currency Board to the new Central Banks.

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[38] See Table I-2, Chapter 1.

The first task faced by the Bank was to replace the West African currency circulating in the country with its own.[39] This process took place over a period of more than three years; legal tender status was withdrawn from the West African currency in 1962. As the Central Bank acquired West African currency in exchange for its own, corresponding amounts of foreign exchange were transferred from the West African Currency Board to the Bank. During its first 8 months of operations, essentially the only asset on the Bank's balance sheet was foreign exchange transferred in this way.

Though the first major issue of long-term government securities, so-called Development Stock, took place already in May, 1959, the Central Bank did not acquire any long governments until 1961. On the other hand, Nigerian Treasury Bills were introduced in 1960. The first issue took place in April of that year, but Treasury Bills appear among the Bank's assets already in March.[40] This is a reflection of the fact that the issue to the public is made by the Bank, rather than the Treasury. Thus, Bills may appear in the Bank's portfolio before the public has had the opportunity to subscribe. Starting in April, 1961, the Bank also began to absorb long-term governments, and its holdings have grown with each successive issue.

Total direct credit to the government from the Bank, which is the sum of the two above items, shows a somewhat irregular time pattern over the first three years of operation, and by the end of 1962, are shown as

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[39] For a detailed description of this operation, see Brown, Nigerian Banking System, op. cit., pp. 149-156, and Gray, op. cit., p. 259-261. Gray also has an interesting discussion regarding revisions of estimated WACB currency in circulation on the basis of the rather large difference between anticipated and actual re-purchases.

[40] See, e.g. Central Bank of Nigeria, Economic and Financial Review, Vol. 4, December, 1966, p. 27.

no larger than 1.5 million Nigerian pounds, though in March of that year, they had been as high as 10 million. Since 1962, however, there have been relatively large increases, and, as is seen in Table II-8, on the average during 1966, they corresponded to 35% of total currency and bank reserves.

The Central Bank has also engaged in considerable lending to the commercial banks, through its advances and rediscounts. The terms on which Treasury Bills could be rediscounted have consistently been fixed through a rediscount rate only ½% above the issue rate. While the Bank is not committed to this policy by statute, it has been clear from pronouncements in its Annual Reports and elsewhere that it considers it part of its job to encourage the markets for government securities through favorable rediscounting terms, and intends to continue the practise. As a result, the commercial banks have found it riskless and profitable to invest in Treasury Bills even for short periods, and to make use of the rediscounting facilities quite extensively.[41]

Furthermore, in 1962, a policy was instituted under which the financing of agricultural exports[42] was transferred to Nigeria. While the the intention that they would be financed by commercial bank credit (the commercial banks formed a consortium for this purpose), and through the newly formed acceptance houses,[43] the Central Bank undertook to

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[41] With the rediscount rate ½% above the issue rate, it would pay to invest in a 6% Treasury Bill, even if it had to be rediscounted after as short a time as 1 month.

[42] I.e., credit to the Marketing Boards to finance purchases from farmers of export crops.

[43] See Brown, Nigerian Banking System, op. cit., p. 121, regarding the consortium; see also Olakanpo, O., "The Money Market in Nigeria," The Banker's Magazine, September 1963, pp. 167-76 on the history of the acceptance houses, and the introduction of the produce bills in the Nigerian market.

Table II-8

Major Assets of the Central Bank of Nigeria, 1960-66

	GVTS	GVTS/LB	FCEN	FCEN/LB	RADV	RADV/LB
1960	2.0	(.03)	73.6	(.99)	.4	(.01)
1961	4.8	(.06)	75.8	(.95)	2.1	(.03)
1962	6.4	(.08)	71.4	(.89)	4.6	(.06)
1963	10.9	(.13)	64.4	(.78)	9.5	(.11)
1964	19.7	(.22)	64.4	(.71)	9.4	(.10)
1965	25.5	(.26)	69.0	(.70)	7.9	(.08)
1966	37.0	(.35)	69.7	(.66)	5.4	(.05)

Col. 1: Total government securities, LNig.mill.

Col. 2: Government securities as fraction of total liabilities.

Col. 3: Foreign assets of Central Bank, LNig.mill.

Col. 4: Foreign assets as fraction of liabilities.

Col. 5: Rediscounts and advances in Central Bank, LNig.mill.

Col. 6: Rediscount and advances as fraction of liabilities.

Note: LB equals currency plus deposit liabilities of the Central Bank.

Source: Computed from Appendix, Table A-2.

support this market as well, by announcing that it would rediscount the Produce Bills at given rates. Partly because the terms for this rediscounting have been very favorable, partly because on occasion the Central Bank has engaged in direct discounting of Produce Bills, its holdings of such Bills have also occasionally grown to large amounts.[44]

While credit to the government and other domestic credit are portfolio components over which the Bank can exercise some discretionary control, this does not hold for the remaining major asset category, foreign exchange. There the Bank's holdings are determined by its obligation to purchase and sell foreign assets at prices which are set within narrow limits by the exchange rate that it is defending. From Table II-8, it is seen that its foreign assets have slowly declined; during 1966, they were down to 70 million on the average, or corresponding to about 22% of that year's imports.

Given that the Bank has little discretion over them, the level of foreign assets is rather to be seen as an effect of economic policies, rather than as a tool of Bank policy. Indirectly, however, the Bank has to some extent tried to influence its foreign reserves. First, it has exercised some of its moral-suasion power over public and semi-public institutions to hold their reserves in the form of Nigerian rather than foreign securities; this is the so-called policy of centralization of reserves referred to in Chapter I. From Table I-5 , it was seen that this process had been nearly completed for most such institutions at the end of 1966. From the point of view of monetary policy, reserve

[44] In Table II-3, they are included in column 2.

centralization is expansionary, as it represents an acquisition of assets by the Central Bank which is paid for by issue of currency or deposits with the Central Bank. The fact that most of the institutions used their increased money balances to acquire government securities does not alter this conclusion; it simply means that the increased money balances were put at the disposition of the government to finance increased expenditure. The fact that most of the centralized reserves were subsequently used to finance an import surplus, is partly a result of this expansionary policy, as was noted above.

From the above account, it is clear that in terms of its contribution to development financing during the first half of the sixties, the Central Bank's role was quite active, particularly if one takes into account its role in the mobilization of external assets. It is interesting to note that even during 1965 and 1966, when the Central Bank according to its own pronouncements, was intent on a restrictive monetary policy, the development of its own portfolio was no less expansionary than during the previous years of the decade. As will be discussed later, this illustrates the somewhat ironic fact that de facto the Central Bank has not had as much control over its own portfolio as over the behavior of the commercial banks. On the one hand, this has been due to its obligation to maintain exchange convertibility, and, on the other hand, to the obligation that the Bank has felt to help finance the government's development expenditure by adopting a policy of supporting government securities. While it can be contended that this expansionary policy to an extent was intentional, in the sense that the resulting drain on Nigeria's foreign exchange assets represented a planned drawdown, this is of course a once-and-for-all event, and in the future the Bank must find ways of controlling more closely its own portfolio.

2. Policies Affecting The Commercial Banks

It was seen above in Table II-7 that there was a rising share of commercial bank deposits in the total money supply in the 1960's as compared with the 1950's. As will be further discussed in later sections, this meant that the commercial bank portfolio choices became increasingly important in the determination of the money supply. But the existence of the Central Bank, with its authority to regulate the activities of the banks, also meant that there now were possibilities of influencing their asset choices for purposes of monetary control.

The Bank could attempt to exert such influence in a number of ways: by imposing rules on minimum or maximum holdings by the commercial banks of certain assets, for example in the form of liquid asset ratios, or in the form of lending restrictions; by trying to manipulate availability and interest rates on assets in Nigeria; by varying the terms on which rediscounting were possible; and by controlling the terms on which foreign exchange transactions could take place. The policies of the Central Bank during 1960-66 in these respects will be briefly surveyed in this section.[45]

a. Liquidity Requirements

As in other countries, the Central Bank Ordinance in Nigeria gives the Bank the authority to impose liquidity requirements on the commercial banks, and to impose certain sanctions on banks that fail to meet this requirement. Ever since this regulation became applicable, the ratio has been set at 25%, but the definition of assets which may

[45] The sources for this account, unless otherwise indicated, are Central Bank, *Annual Reports*, 1960-66.

be included has been changed: the 1962 amendment gives the Central Bank the authority to specify from time to time what assets the banks may include in the category of liquid assets.[46]

The amended definition of what assets may be counted include (a) currency, (b) balances at the Central Bank, (c) net balances with Nigerian banks and money at call in Nigeria, (d) Federal Government Treasury Bills, (e) approved Nigerian bills of exchange and promissory notes, (f) net foreign bank balances, (g) foreign assets at call, foreign Treasury Bills and bills of exchange. The categories for which the Bank has discretion with respect to their inclusion are (e), (f), and (g), and the Bank has, in fact, exercised its discretion with respect to (f) and (g) on several occasions. The extent to which the commercial banks have been permitted to use their foreign assets to fulfill the liquidity requirement has been set as a specific maximum percentage of total deposits, and this percentage has been successively lowered until it was set to zero in 1966. It was clear that when the percentage was reduced in 1964 and 1966, the Bank regarded the measure as part of a restrictive policy. This indicates that the commercial banks were expected to be reluctant to sell their foreign assets to the Central Bank in order to continue to meet the liquidity requirement,[47] and that

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[46] Central Bank of Nigeria Ordinance 1958, section 40, and Central Bank of Nigeria (Amendment) Act, 1962, also quoted and discussed in Brown, op. cit., pp. 34-36.

[47] Since the Central Bank was obligated to buy foreign exchange at a fixed price, a commercial bank in need of eligible liquid assets could always sell foreign exchange to the Bank. Therefore, the liquidity of the commercial banks would not be reduced by making foreign bank balances ineligible, unless they were reluctant to do so.

they were expected instead to try to decrease their lending in Nigeria to avoid having to do this. Towards the end of the period, however, the effectiveness of this restriction cannot have been great as the net foreign assets of the commercial banking system as a whole were very small anyway.

The question whether Nigerian Bills of Exchange (category (c) above) would be included became important starting from 1963, when commercial banks began to hold large amounts of produce bills, i.e., bills issued by the Marketing Boards to finance agricultural exports. Though the Bank does not explicitly clarify this in its published statistics, it is clear from a comparison of available data on commercial bank liquidity ratios and assets, that these bills have been eligible to count as liquid assets.

b. The Transfer Charge

The Central Bank has also attempted to make use of its transfer charges for foreign exchange in order to influence commercial bank portfolios. Though there is now no formal transfer charge, the Central Bank is free to vary its buying and selling rates within the limits around the official par value at which it is obliged, through its membership in the IMF, to defend the exchange rate. Through explicitly quoting fixed buying and selling rates, the Bank is, in fact, in a position to impose a transfer charge of the same type as that prevailing under the Currency Board system. In May of 1961, these transfer charges were changed from the ½% in both directions at which it had been maintained during the Currency Board regime; they were set at 1/8% for inward transfers and to ¼% for outward transfers. (Put differently, the Bank changed its buying rate for sterling from 99½ to 99-7/8%, and its selling rate from 100⅛ to 100¼%.) This move was undertaken in order to remove the

arbitrary transaction cost prevailing for purely traditional reasons under the Currency Board system, and was also meant to encourage the banks to hold more of their foreign exchange reserves with the Central Bank, in line with the objective of centralising reserves; the asymmetry between the buying and selling rates had the objective, however, of favoring a capital inflow over outflow.

In late 1964, the Central Bank's selling rate was again changed to 100½%, as part of a series of restrictive policy measures taken at that time. The objective of this change was to discourage short-term capital outflows through the banking system, and extension of credit for imports.

While the reduction in transfer charges on foreign exchange transfers through the Central Bank increased the international short-term mobility of funds in and out of Nigeria, it is not immediately obvious how it affected the rate of domestic credit expansion, nor what net effect on capital flows would be likely to follow from changes in the transfer charges. The question of these effects, together with the problem of treatment of foreign exchange for purposes of meeting the liquidity requirement, will be further discussed below in Section f.

c. Interest Rate Policy

Central Bank measures aimed at influencing the level of interest rates in Nigeria would also have an impact on commercial bank portfolios, and would thus be potential instruments of control. There are several ways in which this set of instruments could work. First, there is a tradition in the British banking system of setting "prime" lending rates with direct reference to the discount rate of the monetary authority; as was stated above, the expatriate banks in Nigeria followed this tradition

during the Currency Board regime, when their "prime" lending rates were set with reference to the discount rate in the Bank of England. The banking legislation in Nigeria reflects this principle, in the sense that commercial bank lending rates are expected to be set with reference to the Nigerian discount rate.

Second, the Central Bank, in its role as debt manager, has a strong influence on yields of government securities. Nominal issue rates are given by the Bank at the time of issue; and since the Bank issues only what can be sold at par, absorbing the balance itself, the nominal rate also becomes the effective issue rate. With respect to long-term government securities, the Bank subsequently pegs their price at par,[48] so that the nominal and effective rates remain the same.[49] For Treasury Bills, the same principle of issue at par applies; but the Central Bank does not subsequently engage in explicit pegging. Its use of the rediscount rate for Treasury Bills, however, amounts to setting a floor under their prices as well. As was noted above, it is clear from the statistics that throughout the 1960's, the Bank has routinely fixed its rediscount rate at about ½% above the prevailing issue rate.[50] The Central Bank has also undertaken to support the market in the

[48] The Central Bank has not formally stated that this is its policy; in Brown, op. cit., p. 160 n., it is stated that the Bank will not prevent price to go above par. According to the quotations on the Lagos Stock Exchange, however, no issue has gone above par during the 1960's. See also the next footnote.

[49] The fact that this leads to situations where issues with the same time to maturity, but with different nominal rates, both are transacted at par, has not prevented the successful implementation of this policy; because of the non-competitive nature of parts of the market (notably the semi-public institutions holding Development Stock), arbitrage has been only partial.

[50] Annual Report 1966, Chart on p. 66.

agricultural export bills mentioned above, by standing ready to discount them at given rates. These rates have been quite favorable; the so-called Produce Paper Refinance Rate has consistently been below the rate at which these securities were originally discounted in the commercial banks (and up until 1965, below the rediscount rate for Treasury Bills).[51] The following paragraphs give an account of the way in which the Bank has varied its terms of support for governments and produce paper, and how this has affected interest rates in commercial banks.

Data showing interest rates in Nigeria exist for the period 1961-66. Up until 1963, the Treasury Bill rate in Nigeria closely followed the corresponding rate in the U.K., whereas the rediscount rate was set ½% above the Bill rate.[52] Towards the end of 1964, the Central Bank decided to implement a restrictive credit policy; from the Bank's own wording of the intentions it had, and the severity of the quantitative guidelines that it established for the commercial banks, one may infer that it wished to bring about a strongly restrictive policy. It is interesting to see to what extent this intention was matched by corresponding action with regard to interest rates. From the data it appears that the Bank was very cautious in its actions. The issue and discount rates on Treasury Bills were raised by 1% from 3½ to 4½%, and

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[51] The commercial banks have thus been able to discount commercial paper, and then immediately rediscount it, at a profit, with the Central Bank. While one might expect that this opportunity should have exerted a downward influence on the rates at which the banks would discount Marketing Board paper, this does not appear to have been the case. This provides another example of the realatively non-competitive nature of the Nigerian financial system.

[52] See Diagram 2, p. 89 in Brown, op. cit.

from 4 to 5%, respectively. The "produce paper" refinance rate was raised from 3-3/4 to 4½% (and subsequently 5%).[53] These measures resulted in the commercial banks raising their rates on first-class advances, and on Marketing Board paper by ½%. These increases appear quite modest when they are seen in the context of a strongly restrictive policy. Furthermore, it is interesting to note that they were considerably less than the rate increases that took place at about the same time in the U.K., as part of the restrictive policy implemented there.[54] Moreover, the 15 million pound issue of Development Stock in 6-24 years maturities took place at 5-6% which was about the same as they had been before the period of restrictiveness. The Central Bank also had to absorb more than 3/4 of the issue. Essentially the same pattern was repeated in March, 1966, when 14 million pounds were issued. Thus, by the end of 1966, there had been little evidence of attempts to influence credit conditions by bringing about interest rate variations in Nigeria.

d. The Call Money Scheme

In addition to its operations in the markets for governments and produce paper, the Central Bank has also attempted to influence the commercial bank portfolios by instituting the so-called Call Money Scheme in 1962.[55] This is a device whereby banks and acceptance houses can invest funds "on call," i.e., subject to immediate withdrawal, at a fixed rate of interest. Since the Scheme is managed by the Central

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[53] The rate at which this paper was rediscounted by the commercial banks and acceptance houses, was raised from 5½ to 6%. See Annual Report, 1966.

[54] During 1964, the U.K. Bank Rate was raised in two steps from 4% to 7%, and the Treasury Bill Rate rose from 3.72 to 5.47%. See IMF, International Financial Statistics.

[55] See Brown, op. cit., pp. 162-163; Olakanpo, O., "The Money Market in Nigeria," op. cit.

Bank, and its funds routinely invested in Treasury Bills from the Central Bank's portfolio, it is more or less equivalent to interest payments on commercial bank reserves. By varying the Call Money rate, the Bank can obviously exercise some effect on the commercial banks' portfolios, and this rate was also raised, along with the discount rate and issue rates of government securities, when a contractionary policy was desired in 1964.

e. Moral Suasion

In 1964 and 1966, the Central Bank also made use of more direct methods of controlling the commercial banks, both in the form of exercising "moral suasion," and by imposing direct ceilings on the permitted rate of domestic credit expansion by the banks. The "moral suasion" took the form of asking the banks to be particularly restrictive with categories of loans where the Central Bank regarded expansion as especially undesirable, viz., loans to finance imports and loans to financial institutions, which meant particularly hire-purchase companies. In its Annual Report for 1966, the Bank notes that in that year, the continuing restrictive policy was quite successful, with commercial bank lending staying well within the permissible limits. As has been noted, however, at that time, the banks had run down their foreign reserves to very low levels, and it will later be argued that their overall liquidity position was quite tight, so that the banks might have wanted to be more restrictive in their lending even apart from the guidelines.

f. Summary

Summarising the above account of Central Bank policies during the 1960-66 period, one can distinguish two relatively separate phases. First, during the period 1960-64, the Central Bank's chief objectives

seem to have been primarily to strengthen the Nigerian financial system by actively supporting the markets for government securities, produce paper, and by the introduction of the Call Money Scheme.

As a result of these policies, together with the growing credit needs of the government and Marketing Boards, a relatively rapid expansion of the fiduciary issue took place. At the same time, the Bank's foreign reserves were declining. As this was considered as part of a planned repatriation of Nigerian foreign assets in order to finance internal development, however, the Bank did not attempt to slow down this process by restrictive policies. The second phase, beginning by the latter part of 1964 and continuing through 1966, can be characterized by continued rapid growth of the fiduciary issue, but at this time, Nigeria's foreign reserves were becoming a concern to the policy-makers, so that the Bank began attempts to put a restrictive set of policies into effect. While these policies included a slight tightening of the liquidity requirement imposed on the commercial banks, as well as a certain increase in discount rates and the pegged rate on government securities, the main tool used to bring about a slow-down in commercial bank lending was a direct ceiling on the permissible rate of credit expansion. This policy, which involved setting an upper limit to the annual rate of credit expansion for various categories of borrowers from each individual bank, and which is equivalent to a 100% marginal reserve requirement for those banks which would otherwise have enough deposits to extend their lending beyond this limit, represents a relatively crude response to a crisis situation. It therefore seems fair to say that the Central Bank's ability to control the commercial banks through indirect policies had not yet been put to a real test by the end of 1966.

Below, in Chapter V, the discussion will return to the question whether it is appropriate to continue relying on such direct controls in the future, and advantages with alternative direct and indirect ways of influencing the banks will be analyzed.

3. Commercial Bank Portfolios: the 1960's

The changing nature of the Nigerian financial system and the increasing demand for bank credit as a result of the growth of the modern sector in Nigeria is clearly reflected in the portfolios of the commercial banks during 1960-66. While the banking system continued to be dominated by the expatriate banks, and international capital flows were still taking place on a relatively large scale, the above factors led to a situation where the Nigerian branch managers were assuming much more control over their portfolios than was the case during the fifties, and where towards the end of the period almost their entire portfolio was held in Nigerian assets.

a. The Expansion of Lending

Table II-9 illustrates the growth during the 1960-66 period in bank deposits and Loans and Advances, respectively. It is seen that the shift in the composition of deposits away from demand deposits and toward time and savings deposits, which had begun during the late fifties, continued to take place during this period, and in 1966, the share of demand deposits in the total had reached as low as 41%. From data on the ownership of deposits published by the Central Bank,[56] it can be seen that this shift represents, on the one hand, increasing use of time

[56] See Central Bank of Nigeria, Economic and Financial Review, Vol. 4, December 1966.

Table II-9

Deposits and Loans and Advances in Commercial Banks, 1960-66

	TDEP	DDEP/TDEP	%	LADV	LADV/TDEP	%
1960	70.5	.61	7.2	40.0	.57	16.1
1961	73.2	.54	3.7	45.8	.63	13.5
1962	81.6	.47	10.9	60.4	.74	27.8
1963	89.9	.48	9.7	77.7	.86	25.1
1964	107.7	.47	18.0	93.2	.86	18.1
1965	124.9	.43	14.8	108.1	.86	14.8
1966	139.6	.41	11.1	119.5	.85	10.1

Col. 1: Total deposits in commercial banks, £ Mig.mill.
Col. 2: Demand deposits as fraction of total deposits.
Col. 3: Annual growth rates of total deposits (% p.a.).
Col. 4: Loans and advances in commercial banks, £ Mig.mill.
Col. 5: Loans and advances as fraction of total deposits.
Col. 6: Annual growth rates of loans and advances (% p.a.).

Source: Computed from Appendix, Table A-2.

deposits primarily by business firms, and, on the other hand, rapidly growing holdings of savings deposits by individuals. While the growth in aggregate deposits during 1960-66 was as high as during the 1950's, Loans and Advances (L&A) grew even faster during the first 4 years of the period, and by 1963, the ratio of L & A to deposits is seen to have reached as high as 86%.[57] As discussed above, the decline in the rate of lending expansion, and the stagnation of the loan ratio observed in 1964-66 should be seen in the context of the restrictive policies implemented by the Central Bank during that period; but it will be argued below that even in the absence of such restrictive policies, the lending expansion would have been likely to slow down, and that the loan ratio is unlikely to continue increasing at the previous high rates in the future.

It is likely that the increase in the proportion of Nigerian loans in the banks could take place without any major change in the rules imposed by the head offices on the Nigerian branch managers. The growth of the Nigerian economy gave rise to an increase in the amount of funds that could be lent to borrowers who would be considered creditworthy by the same standards as before. Partly, this stemmed from the growing role of the international trading firms (who would be considered credit-worthy by any standards) in productive activities in Nigeria, as well as from the increase in international trade.[58] At the

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[57] Loans and advances exclude government securities and loans made overseas, but include holdings of produce bills.

[58] For a documentation of this process, see Kilby, P., Industrialization, op. cit., pp. 59-73. The "Nigerianization" of the wholesale and retail trade probably increased loan demand, given that the new firms had less capital resources of their own than the expatriate trading firms, as well as by creating new lending opportunities in the manufacturing sector.

same time, after independence, many institutions which had previously held their assets and obtained their credit in the U.K. began to make use of the Nigerian banks instead. This was true not only for the government, but also for the Nigerian statutory boards and corporations,[59] chief of which in this context were the Marketing Boards. The fact that their financing was transferred to Nigeria has been previously noted. Also, with the relatively tight credit conditions prevailing in the U.K. during the sixties, many private international firms found it worthwhile to make increasing use of the Nigerian banks for their regular credit needs as well. To some extent, this was reinforced by the fact that with an independent monetary system in Nigeria, the possibility of exchange losses, through devaluation or payments restrictions, now existed for those firms using overseas credit to finance asset holding in Nigeria; this risk could be reduced by making more use of Nigerian banks. Finally, as is further discussed below, it is also likely that for a variety of reasons the expatriate banks made efforts to lessen the degree of discrimination against Nigerian borrowers by becoming somewhat more flexible in terms of their requirements regarding security, proper accounting, etc. For these reasons, there was thus a growing number of credit-worthy borrowers in Nigeria, both in the areas of international trade and in general production activities.

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[59] Apart from the Marketing Boards, the statutory corporations include the Electricity Corporation, the Airways, Broadcasting, Coal, External Telecommunication, and Railway Corporations, as well as the Ports Authority. There were also Regional Statutory Corporations. See Nigeria Year Book, 1967, pp. 199-203.

The Central Bank has made available fairly detailed statistics of the composition of L & A by category of borrower. A summary of these statistics is given in Table II-10. It is evident from this table that the transfer of an increasing share of export financing from the U.K. to Nigeria has been the quantitatively most important factor contributing to the lending expansion, whereas the share of import financing[60] and domestic trade has declined somewhat. But it is also seen that the share of mining, manufacturing, and construction, while still not as large as import and trade financing, has increased, relatively speaking, even more than export financing; from the disaggregated statistics underlying Table II-10, it can be seen that lending to the manufacturing sector alone has increased about tenfold between 1959 and 1966, and alone accounted for about 14% of average total lending in the latter year.

In addition to the simple explanation that lending could grow because the number of credit-worthy borrowers increased, i.e., that the "effective demand" increased, there are also a number of factors which contributed to the willingness of the banks to commit funds in Nigeria, in other words, there was a shift in the supply function. To the extent that the branches were expected to try to make use primarily of locally derived funds for their lending, the fact that the fiduciary issue of currency was growing rapidly, and that foreign reserves were falling, meant that the growth in deposits during this period to a

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[60] The Central Bank has referred, somewhat plaintively, to import financing as "the main pre-occupation of commercial banks in Nigeria"; p. 17, Annual Report 1966.

Table II-10

Sectoral Distribution of Commercial Bank Lending, 1960-66
In % of Total Lending to Private Sector

	MMCU	AGEXP	IMPTR	MISC
1960	15	19	38	38
1961	16	19	35	30
1962	16	22	40	22
1963	18	27	37	18
1964	18	32	30	20
1965	19	35	25	21
1966	24*	38	23	15*

*Change in classification in 1966 led to transfer of some items from MISC to MMCU.

Source: Annual averages of quarterly data from Central Bank of Nigeria, Economic and Financial Review.

Col. 1: Mining, manufacturing and construction.
Col. 2: Loans to agriculture, mostly for exports.
Col. 3: Loans for imports and domestic trade.
Col. 4: Miscellaneous

large extent took the form of local deposits. As was discussed above, during the 50's, deposits accruing in the form of foreign exchange were large relative to deposits in Nigerian currency, so that a significant lending expansion at that time would have required transfer by the banks of funds from abroad to Nigeria, whereas the fact that they were mostly local deposits during the 60's meant that lending could expand without such transfer. In other words, the "automatic" capital export through the banks no longer took place to the same extent.

Furthermore, the availability in the 1960's of interest-bearing, highly liquid assets in Nigeria (not only in the form of Treasury Bills, but also as Call Money with the Central Bank) meant that there was less pressure on branch managers in Nigeria to repatriate temporary surplus funds, which also contributed to the decline in the average foreign exchange component in the banks' portfolios. It may also, of course, have enhanced the willingness of the Nigerian banks to increase their lending to the extent that the bankers felt more liquid when their reserves were held in Nigeria rather than abroad; this would be consistent with the hypothesis that they had more autonomy with respect to local funds than with respect to those funds held in London.

The relatively liberal rediscounting policies of the Central Bank also contributed to the increased attractiveness of Nigerian assets. While the banks had always had access to rediscounting facilities, and a lender of last resort (indirectly through their head offices), such facilities were now available in Nigeria. The policies of the Central Bank made Treasury Bills virtually as liquid as currency. More importantly, the Bank's support of produce paper made this a highly liquid (and profitable) asset as well. The fact that they could rely on re-

discounting produce paper at favorable terms meant that there was little danger in building up their own holdings of such paper to very high levels relative to deposits. The fact that the inward transfer charge was reduced to a very low level relative to the 1950's also meant that the extra cost of meeting a temporary liquidity deficit through borrowing abroad were smaller than before, and from the quarterly data, it can be seen that the short-term capital inflows to finance lending in the high season were very significant.

Ceteris paribus, all the above factors would tend to lead to an increased willingness of commercial banks to expand the proportion of their assets held in Nigeria. Another factor, the effect of which is not immediately obvious, was the change in the situation with respect to the exchange risk. Under the Currency Board system, the banks could have confidence both that the Nigerian pound would remain on par with sterling, and also that there would be unlimited convertibility between the two currencies. As Nigeria assumed formal monetary independence and as a discretionary monetary authority replaced the Currency Board, this could no longer be taken for granted. The question then arises how these forms of exchange risk would be likely to influence the portfolios of the international banks. Obviously, if there had been strongly held expectations of a devaluation of the Nigerian pound, or expectations of payments restrictions in lieu of devaluation, the banks would have stood to benefit from a negative net position in Nigerian assets, i.e., they would have had an incentive to export funds. While there was some concern over the decline in Nigeria's foreign exchange reserves toward the end of the period under consideration, it did not become serious enough to create expectations of devaluation or tight

payments restrictions. Furthermore, since most of the banks were British, and the position of sterling was somewhat less than strong during this period, it was not clear that this factor would necessarily have worked against investment in Nigerian assets at that time. For these reasons, it is not likely that concern over the foreign exchange risk did put much of a brake on the lending expansion in Nigeria by the international banks during the early 1960's. However, the safest position if one wishes to avoid exchange losses, is to have zero net positions in any currency, i.e., in this case to have liabilities denoted in Nigerian funds equal to assets held in Nigeria.[61] As will be seen below, on the average during 1964-66, the banks were close to a zero net position, and a further significant increase in the loan ratio would, therefore, again put the banks in an unbalanced position in this respect, this time, however, in the form of a net position in Nigerian funds. Unless the banks can be sure that the Nigerian pound will not be devalued and that free convertibility will be maintained, it is unlikely, in the author's view, that they are willing to put themselves in this position.[62]

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[61] This is because a zero net position isolates an asset holder from a devaluation of either currency.

[62] Developments since 1966, i.e., the devaluation of the British pound and the continued decline in Nigeria's official foreign exchange reserves, further reinforce this view. It is ironic, however, that with the benefit of hindsight, the banks would have profited greatly from a net position in Nigerian assets financed by debts in the U.K. At the time, however, it was probably difficult to predict whether or not Nigeria would follow the U.K. in the devaluation.

One final factor which has had some influence on the banks is their desire to improve their "public image" in Nigeria. It is clear that the position of a small number of foreign-owned banks which dominate the commercial banking system, is a politically sensitive one. As noted above, there have in the past been numerous complaints that the standards of credit-worthiness imposed by the banks have been such as to effectively discriminate against Nigerian businessmen, in favor of the large international firms, and the banks are quite aware of these charges. Some observers claim that the expansion of Nigerian assets in the banks' portfolios partly represents a concession to the pressures exerted on the banks to end this discrimination, though the bankers are adamant in their claims that they continue to apply established standards of credit-worthiness in their lending.[63]

It is, of course, very difficult a priori to judge the degree to which such political considerations have played a part in bank policies, though some of the factors discussed in the preceding pages would indicate that substantial lending expansion certainly would have taken place even if there had been no such political pressure. While it is quite likely that the banks have indeed made more attempts to find credit-worthy Nigerian borrowers as a result of it, the increase in loans due to this change most probably has been very small compared to the overall expansion in loans. On the other hand, the debate on this issue draws attention to the fact that the normal practices of commercial banking probably does lead to an undue[64] emphasis on credit to large

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[63] The source is the author's conversations with banking officials.

[64] In the sense that investment opportunities which are socially profitable, but where security is lacking, will not be undertaken.

borrowers with ample security, a bias which may be particularly serious in a less developed country. This question will also be further discussed below, Chapter V.

b. Interest Rates

Since 1962, published information is available on lending rates and deposit rates in commercial banks. With respect to lending rates, the Central Bank since 1962 has published series for "first-class advances," produce paper discount rates, and "other lending" rates.[65] Before 1962, the first-class advances rate remained within 1½ and 2% of the U.K. Bank Rate, and was changed twice in response to changes in the latter; at that time, the Central B nk was still setting the rediscount rate with close reference to the U.K. Bank Rate as well. In the 1962 Banking Ordinance Amendment, however, it is stated that commercial bank lending rates are to be "linked" to the Nigerian rediscount rate (rather than the U.K. one). The effect of this change, judging from the published statistics, seems to have been to make commercial banks set their lending rates more independently of the U.K. rate, as was intended; on the other hand, the variations in the Nigerian discount rate have not been closely followed by changes in published bank lending rates either. At the time when the Amendment became effective, the first-class advances rate was quoted at 7% (which was 2.5 percentage points above the U.K. and Nigerian discount rates), and it remained at that level until the end of 1964, in spite of a discount rate of 4% prevailing in both the U.K. and Nigeria in 1963. Toward the end of 1964, the U.K. Bank Rate was increased twice,

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[65] See Economic and Financial Review, various issues. This is also the source for information on deposit rates discussed below.

until at the beginning of 1965 it stood at 7½; the Nigerian rediscount rate, on the other hand, was only raised to 5% in December, 1964. As was discussed above, a number of other restrictive policy measures were implemented by the Central Bank at that time. The commercial banks, however, only increased the first class advances rate by ½ percentage point to 7½%, at which level it has since remained.[66]

The Central Bank also publishes ranges of rates for produce advances and "other advances"; the former has been very close to the first-class advances rate,[67] whereas the latter has been given as 7½ - 10% throughout the 1962-66 period covered by the statistics. The rates paid on time and savings deposits all follow roughly the same pattern as the lending rates, remaining unchanged from mid-1962 till the end of 1964, when they were raised by ½ percentage point, and then again staying unchanged through 1966. They have, however, been much lower than the lending rates, with the rate on savings deposits consistently remaining 4 percentage points below the first-class advances rate, and with rates on time deposits with a maturity over 1 year being only ½ percentage point higher.

The small degree of variation in the rates, and the wide range of lending rates quoted, makes it difficult to draw any conclusion about any changes that took place in the degree of restrictiveness of bank lending during this period, or indeed whether on the average there were significant changes in lending rates. As is well known, an increasing degree of restrictiveness such as the Central Bank was trying to induce

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[66] This pattern tends to confirm the hypothesis stated above regarding the increased autonomy of the Nigerian branch managers relative to their head offices, and the U.K. credit market generally.

[67] It is given as 7-8% until the end of 1964, and as 7½-8½% after that time.

during 1964-66, might be reflected in changing requirements for credit-worthiness rather than significant changes in stated lending rates for given classes of borrowers. This type of credit rationing is the more likely to take place the less vigorous is the competition between banks; and undoubtedly, competition in the Nigerian banking system with its highly oligopolistic nature is quite imperfect.

On the other hand, the apparent low variability in the stated lending rates would imply that the traditional direct link between interest rates in the U.K. and in Nigeria, has been broken. This definitely represented a break with previous practice, and indicates that the Central Bank has achieved at least some degree of success in its attempt to create a credit market less dependent on the U.K.

c. Liquid Assets

During the 1950's, the only form in which the commercial banks could hold reserves was currency or foreign assets. As has been noted, above, during the 1960's, a variety of alternative types of liquid assets have become available in Nigeria. In this section, the changes in this component of the banks' portfolios will be analyzed. Liquid assets will here be computed as the sum of: net foreign assets, investments in Nigeria, and "cash and cash items."[68] This definition does not correspond to the definition used by the Bank for purposes of defining legal reserves. A comparison between the definition used here and that employed by the Central Bank will be undertaken below, however.

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[68] The bulk of "investments in Nigeria" consists of Nigerian Treasury Bills, for which statistics are separately given. "Cash and cash item" (the Central Bank's phrase) consist of cash holdings, balances with the Central Bank, and Call Money at the Central Bank. See Economic and Financial Review, various issues.

In Table II-11, it is seen that in spite of the high level of L & A, the commercial banks maintained a fairly high level of liquid assets relative to deposits, even towards the end of the period when the loan ratio rose to about 85%. It is shown, however, that L & A plus liquid assets make up considerably more than 100% of deposits during the last 4 years of the period; almost all of the excess is made up of a surplus of capital accounts and "other liabilities" over "other assets" (where the latter include the value of bank premises, etc.) To a large extent, this item represents an increase in capital accounts primarily reflecting an increased allocation of capital by the head offices of the expatriate banks to the branches in Nigeria, and therefore corresponds to a capital inflow not shown in the foreign asset component of the bank portfolios.[69] In view of the once-and-for-all nature of such an adjustment, however, it cannot be expected that further capital inflow in this form will continue to contribute to an increase in the loan ratio.

With respect to the composition of liquid assets, it is seen in Column 2 that by 1966, net liquid foreign assets[70] had come close to zero, and on the average during that year, over 95% of all liquid assets held by the banks were Nigerian assets. Whereas the cash component did not change a great deal during the 1950's and 60's, "investments in Nigeria," which consists almost entirely of Treasury Bills, are seen to have accounted for a significant share of the portfolio during the 60's.

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[69] By the end of 1960, the "capital accounts" item in the aggregate statistics for commercial banks, which include "capital allocated by head offices of foreign banks to branches operating in Nigeria", was slightly over £ 3 million. By the end of 1964, it had risen to £ Nigerian 15 million.

[70] I.e., excluding foreign liabilities on capital account.

Table II-11

Liquid Assets of Commercial Banks, 1960-66

	RBKS	FBKS	TBKS	RBKS/TDEP	LAC	LADV/TDEP
1960	24.6	12.8	2.7	.35	(n.a.)	(.57)
1961	21.8	6.8	6.5	.30	(n.a.)	(.63)
1962	20.4	4.7	6.5	.25	(.31)	(.74)
1963	16.6	3.7	4.1	.18	(.31)	(.86)
1964	15.2	-2.2	7.8	.14	(.32)	(.86)
1965	20.1	-.3	9.4	.16	(.32)	(.86)
1966	24.7	1.7	12.6	.18	(.38)	(.86)

Col. 1: Total reserves of commercial banks, including currency, deposits with Central Bank, foreign exchange, and Treasury Bills, £Nig.mill.

Col. 2: Foreign exchange assets, £Nig.mill.

Col. 3: Investments in Nigeria, £Nig.mill.

Col. 4: Total reserves as fraction of total deposits.

Col. 5: Liquid asset ratio as computed by the Central Bank.

Col. 6: Loans and advances as fraction of total deposits.

Source: Computed from Appendix, Table A-2, and (Col. 5) computed as annual averages of quarterly data from Central Bank of Nigeria, Economic and Financial Review.

The reason for this is partly that Treasury Bills were now used by the banks instead of currency or foreign exchange, as assets in which to invest during the low season;[71] Treasury Bills, as noted above, have the advantage over cash of being interest-bearing, and, compared with foreign assets, of not being associated with a transaction cost in the form of a transfer charge. Finally, as has already been discussed, the degree to which foreign assets can be counted as liquid assets when computing legal reserves has been restricted, so that the banks at times have been forced to sell foreign assets to the Central Bank in order to acquire Nigerian liquid assets; this certainly has stimulated the demand for Treasury Bills. This also helps explain why the commercial banks have not held any significant amounts of long-term government securities, in spite of the fact that the interest rates on them have been somewhat higher than on Treasury Bills, and even though the Central Bank's pegging operations have removed the risk of fluctuations in their capital values. While the bankers maintain that it is a matter of policy for them not to hold long-term securities, the fact that the Central Bank has not permitted them to be counted toward legal reserves has meant that there has been no incentive to hold them when the banks have been close to the minimum legal reserves.

Figures for the "liquid asset ratio," computed by the Central Bank in accordance with the statutory definition of what assets may be counted toward fulfilling the legal reserve requirement, are available since the beginning of 1962. As the definition used by the Bank is not

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[71] This is quite evident from the seasonal pattern in the monthly data.

the same as the simple one used above, the figures in this series (see Column 5, Table II-11) will differ from those computed in Column 4. It is seen that for the early part of the period, the Central Bank's ratio is considerably higher than the one resulting with the simple definition used here. Part of the reason for the difference, especially in the early part of the period, is that the Central Bank included net foreign bank balances in liquid assets, up to a certain specified proportion of deposits, but did not subtract "loans and advances" from foreign banks, not even loans from the head offices to their branches in Nigeria. Thus, the international banks could increase the liquidity of their branches by the simple bookkeeping operation of extending a loan to the branch, and increasing its balance by the same amount.[72] The importance of this possibility was reduced, however, when the maximum portion of the liquidity requirement that could be filled by foreign assets was reduced from 7½% to 3% at the end of 1964, and was abolished in 1966. On the other hand, while the Central Bank is not explicit on this point, it appears that most Bills discounted by commercial banks have been permitted to count as legal reserves, which, of course, has been the main explanation for the high ratio in the later years of the period.

For the years 1964-66, Table II-11 indicates that in spite of the high loan ratio in these years, the commercial banks have had a legal liquid asset ratio well above the required ratio of 25%. In view

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[72] See Brown, C.V., op. cit., pp. 113-114n. He complains that up until 1963, the Central Bank never explicitly stated the basis on which it computed the liquidity ratio, i.e., what assets could be included. This practice was still followed through 1966, with the exception of the rules regarding the extent to which liquid foreign assets would be counted, as noted in the text. The latter, however, were nowhere defined. It is difficult to understand why the Central Bank cannot explicitly state the basis of its computations.

of the fact that liquid assets for legal purposes have been considerably higher than net liquid assets as computed above, and in view of the stability of the loan ratio since 1963, one might, therefore, conclude that the legal reserve requirement has been less effective as a restriction on lending than the banks' own evaluation of their liquidity position. The most significant effect of the legal reserve requirement until 1966 probably has been to make the banks increase their holdings of Treasury Bills at the expense of foreign assets (especially since at that time short-term interest rates in the U.K. were higher than the Bill rate in Nigeria), and to enhance their willingness to hold produce paper (as evidenced by the fact that their discount rate on such paper only rose to 7½-8½% while the U.K. Bank Rate was as high as 7%).

It should be noted, however, that the figures in Column 5 are annual averages. If the monthly figures, which are also published by the Central Bank, are considered, it is found that the legal liquid asset ratio at times has been down to values as low as 27% in this period. Furthermore, it should be recalled that the figures here are aggregated for the banking system as a whole. It is, therefore, possible that, even though the banking system as a whole is well above the legal reserve requirement, there have been individual banks who have been effectively constrained by the requirement. In a highly developed money market, such inequalities between banks are typically offset by short-term interbank loans, i.e., banks with liquidity shortages can meet them by short-term loans from banks with surpluses of liquid assets. It cannot be taken for granted, however, that the money market in Nigeria is yet sufficiently developed to ensure that

such equalization is generally achieved.[73] That few transfers of liquid assets take place is confirmed by the published figures indicating inter-bank lending; the liability side of the aggregated portfolio data lists loans from "banks in Nigeria," and this item seldom reaches as high as 1.5 million pounds, even in the high season.

d. The Indigenous Banks: 1960-66

As was noted in Table II-6, the indigenous (i.e., Nigerian-owned) banks accounted for 26% of bank deposits and 35% of bank lending in 1959. During the 1960-66 period, their deposits and lending activities have continued to grow, but only at a somewhat slower rate than those of the international banks. In 1965, the deposits of the indigenous banks constituted slightly less than 20% of the total; their share in the commercial bank lending activities, however, had declined to 23%,[74] so that the growth in their lending had been more than offset by the increasing activities in Nigeria of the international banks. Part of the reason for that was that at the beginning of the period, the

[73] A problem in this context is the apparent difference in degree of liquidity of indigenous banks and international banks; the former have consistently had loan ratios in excess of 1 in each quarter since 1963, whereas the latter have had lower ratios. (See the following section). A short-term inter-bank loan market in Nigeria would, therefore, tend to be characterized by continuing lending by international banks to their indigenous competitors; the international banks themselves, on the other hand, stand to benefit less from such a market, both because their liquidity generally is higher, and because they can meet short-term liquidity shortages from their head offices. In this situation, the prospects for a well-developed inter-bank loan market do not appear very promising.

[74] The discussion in this section is based on unpublished data released to the author by the Central Bank.

indigenous banks already had a loan ratio as high as 82% (compared with about 55% for the international banks), so that to a greater extent than for the foreign banks, their lending has had to be restricted by the growth in deposits. Available figures for loans and deposits broken down by the two categories of banks can be used to compute the loan ratios for each year from 1960-66 inclusive; for the indigenous banks, they show a high of 1.44 in the third quarter of 1963, and they have not been below 1 since 1962. Since these banks do not have as ready access to liquid assets from abroad as the international banks, it is clear that their liquidity position must have been very strained throughout the period, especially in view of the 25% legal reserve requirement, and in view of the fact that direct Central Bank advances to commercial banks have been negligible.[75] The special problems which can arise for monetary policy through this inequality between the portfolios of indigenous and international banks will be further discussed in Chapter V.

D. Control of the Money Supply

The objective in studying the portfolio behavior of commercial banks, of course, is to gain some knowledge of the possibilities for predicting and controlling their behavior for purposes of monetary policy. In this section, consideration will be given to methods through which the Central Bank of Nigeria would be able to forecast, with some accuracy, the effects of monetary policy measures through a quantitative analysis of the interaction between the Central Bank, the commercial

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[75] It should be remembered, however, that Loans and Advances include, inter alia, Bills Discounted, which can be counted as liquid assets. This could explain how such a high lending ratio could be observed while the legal reserve requirement was in force. While the Central Bank has not officially said so, it is believed among banking officials that some banks have at times had a liquidity position falling short of the required one.

banks, and the rest of the economy, in determining the supply of money.

In its own analysis of the determination of the money supply in its publications, the Central Bank primarily uses an aggregative balance sheet for the monetary system as a whole, and attributes changes in the money supply to changes in the various components on the asset side, i.e., foreign exchange of the Central Bank, commercial banks, net credit to the government and private sectors, etc.[76] Whereas this type of analysis clearly provides some ex post information regarding the determination of the money supply, it is of little help for forecasting and control; in order to predict the money supply, a separate prediction would be needed for each major asset category.

It would clearly be more efficient if one could carry out predictions while exploiting any systematic relationships that exist between the various components on the asset side. But some such relationships do, of course, exist: aggregate commercial bank lending must be related in some way to aggregate deposits with the banks; and total bank deposits can be expected to be systematically related to the total money supply. If one attempts to use these relationships in explaining the determination of the money supply, one is led directly to the model of the simple credit multiplier.[77]

1. Use of The Multiplier Concept

In this section, brief consideration is given to the ways in which the multiplier concept can be used as a tool in the process of

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[76] See, e.g., Annual Report 1966, pp. 14-15.

[77] For an exposition of the static model of the credit, or deposit, multiplier, see any textbook on money and banking. See also below pp. 127-128.

monetary policy-making. It will be argued in Chapter IV that one of the primary objectives for the monetary authorities in Nigeria is to find in advance a target rate for the expansion of the money supply in each year, and to implement appropriate policies so that the actual rate in fact conforms approximately to that target.[78] But, using the tautological definition of the multiplier, one can write the money supply as:

$$(2.1) \qquad M = HPM \cdot m$$

where M is the money supply, HPM is "high-powered" money, and m is the value of the multiplier. Usually, high-powered money is taken to be the sum of currency held by the public plus commercial bank reserves with the Central Bank; this is approximately equal to the total liabilities of the Central Bank. In this case, it is shown in the text-book analysis of the multiplier that its value is directly determined by the ratio of currency with the public to the total money supply, and the ratio of bank reserves to bank deposits.

The proportional rate of change of the money supply can be written, using logarithmic differentiation of (1), as:

$$(2.2) \qquad \frac{dM}{dt}\frac{1}{M} = \frac{d\,HPM}{dt} \cdot \frac{1}{HPM} + \frac{dm}{dt} \cdot \frac{1}{m}$$

Thus, prediction of the percentage change of the money supply is reduced simply to predicting the percentage change in HPM and in the value of the multiplier,[79] and this is likely to be a considerably more efficient

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[78] I.e., that policy should be conducted on the basis of a rule of the Friedman type. See M. Friedman, A Program for Monetary Stability, New York, Fordham University Press, 1959, pp. 90-92.

[79] For cases where this framework is used to study money supply variations in the U.S., see Cagan, P., Determinants and Effects of Changes in the U.S. Money Stock, New York, National Bureau of Economic Research, 1965, and Friedman, M., and Schwartz, A. J., A Monetary History of the U.S., 1867-1960, New York, Princeton University Press, 1963 (for NBER).

method than separate prediction of each asset category on the aggregate balance sheet of the monetary system as a whole; it may also be easier to forecast the effects of monetary policy measures on HPM and on the value of the multiplier, than on the separate assets on the balance sheet.

But in addition, it is also argued in Chapter IV that as well as having an objective with respect to the growth in the aggregate money supply, the Bank is also concerned with the particular way this increase is brought about; certain targets may exist with respect to credit to the government, the level of foreign reserves in the banking system,[80] and credit to the private sector. These subsidiary targets, however, may make it impossible for the Bank to let the changes in its own portfolio, and thereby changes in HPM, be determined solely on the basis of the target regarding the growth in the money supply as a whole. Therefore, it will also be necessary for the Bank to be able to predict and control separately the variations in the value of the multiplier, in order to reach this target.

In the following sections, the question of the most appropriate definition of the multiplier as an analytical tool for the formulation of monetary policy in Nigeria will first be considered, and the parameters which have determined the multiplier over time will then be studied using the data for the 1950-66 period which have been analyzed in the previous sections.

a. The Definition of the Credit Multiplier

In order to consider the usefulness of the credit multiplier

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[80] Changes in the level of foreign reserves may themselves be related to the change in the money supply. The resulting interaction problem is extensively discussed in Chapter 4.

concept for the Nigerian case, a brief discussion will be given of the assumptions underlying its use as a predictive tool for the situations when it is usually employed; it will then be argued that some of these assumptions are not met in the Nigerian case, so that the multiplier concept may have to be modified accordingly in order to be useful there.

First, if it can be assumed that at a given time the public desired to hold currency and deposit money in fixed proportions, and further, that banks wish to divide their portfolios between reserves and loans only, also in some fixed proportion,[81] the ultimate effect of a given injection of currency into the system, e.g., through a Central Bank purchase of government securities, can easily be computed. If the original purchase is denoted by ΔH, the public will retain $\Delta H \cdot c$ as currency, where c is the desired ratio of currency to deposit money, and $\Delta H \cdot (1-c)$ will be deposited with the commercial banks. If the banks want to hold reserves to deposits in the ratio r, they will now be in a position to make increased loans in an amount

$$\Delta H(1-c)\,(1-r), \tag{2.3}$$

and this amount of currency is again paid out to the public as the funds are spent by the borrower. The public will further increase its currency holdings by $\Delta H \cdot c(1-c)\,(1-r)$, and another increase in bank deposits of $\Delta H \cdot (1-c)^2(1-r)$ will take place, giving rise to a further loan expansion, etc. As the series will converge, the final expansion in deposits will be given by the well-known expression:

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[81] These are, of course, the assumptions of the simplest static textbook analysis. "Reserves" are here defined as currency held by banks, and deposits with the Central Bank.

$$\Delta D = \Delta H(1-c)\,[1+(1-c)(1-r) + (1-c)^2(1-r)^2 + \ldots(1-c)(1-r)^n\ldots]$$

(2.4)
$$= \Delta H\ \frac{(1-c)}{c+r-rc}\ .$$

The corresponding expression for the final increase in currency held by the public is:

(2.5) $\Delta C = \frac{c\Delta H}{c+r-rc}$,

so that the total expansion of the money supply is:

(2.6) $\Delta H.\frac{1}{c+r-rc} = \Delta D + \Delta C = \Delta M$.

On the assumptions that, (1) the Central Bank initially expands its assets by ΔH, and subsequently holds its assets constant during the ensuing credit expansion, and (2) that the ratios r and c stay constant, this multiplier will exactly predict the resulting change in the money supply. Given Central Bank knowledge or predictions of r and c, it therefore follows that it can determine the money supply by creating an appropriate amount of HPM.

In a commercial banking system such as the Nigerian one, however, where the banks hold significant amounts of foreign exchange in their portfolios, this reasoning may be misleading. Since the Central Bank is obliged to purchase foreign exchange at a fixed rate, it is always possible for the commercial banks to, say, expand their level of lending, while maintaining a given reserve ratio, by selling foreign exchange to the Central Bank. Therefore, if the Central Bank were to try implementing a restrictive policy, for example by only permitting a small amount of government Bank borrowing in order for HPM to grow only slowly, it would

be possible for the commercial banks to bring about a higher rate of growth of HPM by forcing, as it were, the Central Bank to acquire more foreign exchange.

A similar difficulty arises when the Central Bank engages in operations to support the prices of government securities. In this case too, if the commercial banks already hold certain amounts of government securities, a Central Bank attempt to restrict the growth rate of HPM, and thereby of the money supply, may be offset by commercial bank sales of government securities which the Central Bank would have to purchase in order to prevent their prices from falling. This would tend to raise the supply of HPM, and of the money supply as a whole.[82]

The difficulty that arises with the use of the initial form of the credit multiplier as a policy tool in these two cases is due to the fact that an original planned change in the supply of high-powered money may be partially offset as a result of the subsequent reactions by the commercial banks;[83] in the first case, when the banks sell foreign exchange to the Central Bank, this will increase the supply of high-powered money, and in the second case, the induced sales of government

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[82]This problem existed in both the U.K. and the U.S. during and immediately after W.W. II, when the Central Banks were attempting to reduce the interest payment on the public debt incurred during the War; the result was sometimes described (quite accurately) as "monetization" of the public debt. See, e.g., Pesek, B.P., and Saving, T.R., The Foundations of Money and Banking, New York, MacMillan, 1968, pp. 433-441 for a discussion of U.S. policy in this respect.

[83]If r and c stay constant, an observed increase in the supply of HPM will, by definition, give rise to an observed change in the money supply which is correctly predicted by the traditional multiplier. The point is, however, that the observed change in HPM is the net result of a larger initial change (which may have been undertaken for policy reasons) and subsequent induced changes, partially offsetting the original one. Unless these induced changes are accounted for, a prediction based on the initial increase in HPM will be wrong.

securities to the Central Bank has the same effect. Thus, it is assumption (1) above that is violated; changes in high-powered money might be only partly autonomous, partly induced by the preferences of the commercial banks as opposed to the policy intentions of the Central Bank. In both cases, the result is due to the fact that the Bank's policies imply a "monetization" of assets other than currency and reserves, so that foreign exchange and government securities held by commercial banks in fact play a role similar to that of "reserves" in the simple analysis.

In view of these considerations, it seems reasonable to search for an alternative definition of bank reserves and a corresponding redefinition of the reserve ratio and the multiplier concept, which would be more directly useful as a policy tool than the traditional one. This new measure would have to include the "monetized" assets referred to above.[84]

Before proceeding further, it may perhaps be useful to clarify the discussion above by an example. Suppose that there are three types of assets in the banking system, viz., currency, government securities and loans. Suppose further that the prices of government securities are fixed by the Central Bank, so that the Bank must purchase any amount that is offered for sale. Assume also for simplicity that the non-bank public holds no government securities.

Suppose now that the commercial banks wish to hold 10% of their deposits as currency, and a further 10% as government securities, and

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[84] This redefinition will affect both the commercial bank reserve ratio, and the measure of HPM. It is easy to show that these changes will be such as to leave the multiplier identity unchanged.

also that the public wishes to hold 50% of their money balances in the form of currency. If reserves are defined to include only currency, the value of the multiplier will be:

$$m^* = \frac{1}{r^* + c - r^* c} = \frac{1}{.10 + .50 - .05} = \frac{1}{.55} = 1.82$$

If reserves are defined to include government securities, as well as currency, the multiplier will be:

$$m = \frac{1}{r + c - rc} = \frac{1}{.20 + .50 - .10} = \frac{1}{.6} = 1.67$$

Consider now a case where the Central Bank lends 10 units of currency to the government, which is subsequently spent in the economy; i.e., HPM is increased by 10. On the basis of the multiplier m*, the money supply will increase by $m^* \cdot 10 = 18.2$, deposits by 9.1, and reserves by .9. This, however, neglects the fact that the commercial banks now have a lower ratio of government securities to deposits than before. When the banks try to restore this ratio, they will, by assumption, purchase government securities for currency in the Central Bank. But this will, of course, offset part of the original increase of 10 in HPM. The final increase in HPM, and therefore in the money supply, will be smaller than 10 and 18.2, respectively. In the next paragraph, it will be seen that the ultimate increase will be about 9.1. However, if government securities held by commercial banks are included in reserves (and in HPM), the predicted increase in the money supply will be $m \cdot 10 = 16.7$. Currency held by the public will increase by approximately 8.3, and currency held by commercial banks by .83; therefore, total currency outstanding will only increase by about 9.1, i.e., somewhat

less than the original 10. But the commercial banks will increase their holdings of government securities by about .83 as well, and the total increase in HPM is 9.1 + .83, which, except for the rounding error, is identical with the original 10, since the induced purchases of government securities for currency by the commercial banks does not affect HPM. The inclusive measure of this variable is, therefore, unaffected by the form in which banks hold their reserves, and the change in the money supply is correctly predicted by the original change in HPM through the government deficit, times the multiplier. The inclusion of foreign exchange in reserves would yield completely analogous results.

The particular definition of reserves and HPM which will be chosen here is the same one as was used in Section C3 to analyze commercial bank liquid assets, i.e., bank reserves will be defined as currency held by banks, investments in Nigeria (i.e., government securities), and net foreign assets. The ratio of reserves, defined in this way, to total deposits, is given for 1950-66 in Table II-13. When this modification is undertaken, it is also necessary, of course, to redefine high-powered money in such a way that it will include in bank reserves the total amount of assets enumerated above. With the resulting multiplier concept, growth in HPM will be regarded as taking place as a result essentially of accumulation of foreign exchange in the monetary system as a whole, i.e., including the commercial banks and the Central Bank, as a result of government borrowing from the monetary system as a whole, and as a result of Central Bank lending to the non-government sector (in practice, to the commercial banks and the Marketing Boards); on the other hand, it will be unaffected by the decisions of the

commercial banks regarding the form in which they wish to hold their liquid assets, i.e., whether in the form of currency, deposits with the Central Bank, foreign exchange, or Treasury Bills. Changes in MPM will, therefore, be more directly related to fundamental economic variables such as the balance-of-payments surplus or deficit, and total domestic borrowing by the government, which the commercial banks cannot control. On the other hand, changes in the commercial bank reserve ratio, defined in the inclusive way, will result only when the banks change the proportion of liquid assets to loans in Nigeria, but will not change when they undertake substitutions of one type of liquid asset for another, through transactions with the Central Bank. Changes in the money supply attributable to a change in the reserve ratio, with the supply of high-powered money being given exogenously, will, therefore, be a more accurate reflection of the impact of commercial bank portfolio policies on the money supply than would be the case if reserves were defined in the traditional way.

In the following section, this multiplier concept will be used to study the effects of commercial bank portfolio policies on monetary expansion in the 1950-66 period, and the possibilities for using it for purposes of forecasting the money supply will be briefly discussed. In Chapter IV, the analysis is then extended to show the use of this method in a set of numerical projections, illustrating the effects of different monetary policy principles.

2. Growth in The Money Supply and Changes in the Multiplier

The information necessary to analyze the growth in the Nigerian money supply using the framework suggested in the previous section has largely been provided in earlier sections in Chapter II; the currency

ratio during the 1950's is given in Table II-3, and for the 1960-66 period in Table II-7. The reserve ratio of the commercial banks for both periods has also been discussed, and the values can be found from Tables II-4 and II-11.[85] If the form of the multiplier suggested in the previous section is to be used, however, the required measure of high-powered money no longer corresponds to the traditional definition; i.e., currency held by the public plus cash reserves held by banks. Instead, HPM must be defined so as to correspond to the redefined measure of bank reserves, i.e., to include foreign exchange, investments, and traditional reserves of commercial banks, as well as currency held by the public.

In Table II-12, the annual growth rate of this measure of HPM is indicated in Column 3, and for comparison, the growth rate in the traditionally defined quantity of HPM is also given in the far right-hand column.[86] During the 1950's, when the only difference between the two measures was commercial bank foreign assets, the growth rates were, on the average, almost identical. In other words, the rate of growth of bank foreign exchange assets was about the same as that for total currency liabilities of the WACB. During the 1960's, however, the banks' foreign exchange has been declining, and the increase in commercial bank investment in Nigerian Treasury Bills has not been sufficiently rapid to prevent the rate of growth in HPM to be somewhat slower than

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[85] Following the reserve definition used here, they are computed as the sum of reserves in the traditional sense, net foreign assets of banks, and "investments in Nigeria", i.e., government securities.

[86] With the adjusted measure including foreign assets of banks, it is, *of course*, true that it starts *from a larger base in* 1950 than the traditional measure, but in the multiplier computation, this is offset by the higher initial reserve ratio.

Table II-12

Quantity of High-Powered Money, 1950-66

	HPM	HPM*	%	%
1950	41.9	(32.8)	-	-
51	54.7	(42.0)	26.5	(24.7)
52	62.5	(50.4)	13.4	(18.3)
53	68.0	(54.1)	8.5	(7.1)
54	75.3	(56.5)	10.2	(4.2)
55	77.3	(54.5)	2.6	(-3.6)
56	76.6	(57.5)	-.9	(5.4)
57	76.3	(57.9)	-.3	(.7)
58	75.9	(59.1)	-.6	(2.0)
59	82.4	(63.9)	8.2	(7.8)
1960	89.7	(74.2)	8.5	(15.1)
61	93.6	(80.2)	4.2	(7.7)
62	90.9	(79.7)	-2.9	(-.6)
63	89.9	(82.1)	-1.1	(2.9)
64	95.7	(90.2)	6.3	(9.4)
65	107.9	(98.8)	12.0	(9.1)
66	120.3	(106.0)	10.8	(7.0)

Column 1: High-powered money, including foreign assets and investments of commercial banks, ₦ Nig.mill.

2: High-powered money, traditional definition, ₦ Nig.mill.

3: Growth rates of high-powered money, inclusive definition, % p.a.

4: Growth rates of high-powered money, traditional definition, % p.a.

Source: Computed from Appendix, Table A-2

during the 1950's, and also slower than that of currency plus bank reserves when the latter are defined in the traditional sense.

As has been evident from the discussion of commercial bank lending above, the growth in the aggregate money supply has been considerably faster than that of high-powered money. From Table II-13, where the series for the currency and reserve ratios are reproduced for convenience, it is seen that the value of the multiplier (Column 3) has been rising throughout the period. Employing the method of analysis described in Friedman and Schwartz, the growth in the money supply can now be attributed to the changes in HPM, and changes in the parameters of the multiplier.[87] First, the proportional rate of growth of the multiplier is derived as a function of the changes in the reserve and currency ratios:

$$(2.7)\quad \frac{dm}{dt}\,\frac{1}{m} = \frac{d}{dt}\,\log\,\frac{1}{r+c-rc} = (-1)\cdot\frac{d}{dt}\log(r+c-rc)$$

$$= -m\cdot\frac{d}{dt}(r+c-rc) = -m\left[(1-c)\frac{dr}{dt} + (1-r)\frac{dc}{dt}\right].$$

Table II-14 can now be constructed, where the growth rate in the adjusted measure of HPM is again given in Column 4, with the contributions to monetary growth from the changes in c and r, computed as above, given in Columns 2 and 3.

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[87] I.e., using the relationship discussed above:

$$\frac{1}{MO}\,\frac{dMO}{dt} = \frac{1}{HPM}\cdot\frac{dHPM}{dt} + \frac{1}{m}\,\frac{dm}{dt}\quad,$$

See also Friedman and Schwartz, op. cit., Appendix B, pp. 794-795.

Table II-13

Currency and Reserve Ratios, and Values of Credit Multiplier, 1950-66

	c	r	m
1950	.67	.79	1.07
51	.65	.78	1.08
52	.61	.74	1.11
53	.61	.71	1.13
54	.56	.72	1.14
55	.51	.69	1.18
56	.52	.57	1.26
57	.50	.51	1.32
58	.48	.41	1.44
59	.46	.41	1.47
1960	.48	.35	1.51
61	.49	.30	1.55
62	.46	.25	1.67
63	.45	.18	1.82
64	.43	.14	1.97
65	.41	.16	1.97
66	.41	.18	1.95

Column 1: Currency with public as fraction of money supply.

2: Bank reserves, broadly defined, as fraction of total deposits.

3: Values of credit multiplier.

Source: Computed from Appendix, Table A-2.

It can be seen from the table that the sources of growth of the money supply have been quite different in different sub-periods of the 1951-66 interval. During 1951-55, the growth of HPM resulting from the accumulation of foreign exchange in the banking system, was the main source; the average annual logarithmic growth rate in the money supply for those years is about 14.1%, and HPM grew by 12.2%. Thus, the declines in the currency and reserve ratios accounted for only about 1.9% together. During 1956-59, on the other hand, HPM grew at an annual average rate of only 1.6%, whereas the money supply grew by about 7.1%. The major expansionary factor during this period was the decline in the commercial bank reserve ratio, which on the average accounted for a 4.6% annual monetary expansion. Thus, the commercial bank expansion of domestic credit to a large extent offset the deflationary impact of the reserve losses on growth of the money supply.

During the 1960-66 period, the money supply grew at an annual rate of 9.5% on the average, whereas HPM grew by 5.4%; the decline in bank reserve ratios accounted for, on the average, 2.9% annual growth. It is useful, however, to distinguish the years 1965-66, during which time the Central Bank was applying a restrictive policy, from the rest of the period. During the years of a "passive" monetary policy,[88] 1960-66, HPM grew by only 3.0% per annum, because of the continued decline of foreign assets in the banking system, but the money supply grew by 8.8%, largely due to the declining reserve ratio, which on the average

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[88] The characterization is the Central Bank's own. See Annual Report, 1966, p. 13.

Table II-14

Components of Monetary Growth, 1951-66

	MOTS, %	c, %	r, %	HPM, %
1951	27.4	.4	.6	26.5
52	15.9	.9	1.6	13.4
53	9.8	.2	1.1	8.5
54	11.3	1.5	-.4	10.2
55	6.1	1.7	1.8	2.6
56	5.3	-.5	7.0	-.9
57	4.8	1.2	4.0	-.3
58	8.3	1.9	7.4	-.6
59	10.1	1.9	-.0	8.2
1960	11.2	-2.0	4.8	8.5
61	6.5	-1.6	4.1	4.2
62	4.8	3.8	4.2	-2.9
63	7.0	2.1	6.4	-1.1
64	14.3	3.5	4.8	6.3
65	12.2	2.5	-2.2	12.0
66	10.0	1.1	-1.9	10.8

Column 1: Annual growth rate of money supply, % p.a.

2: Contribution to monetary growth of change in currency ratio, given by: $(-m)\,(1-r)\,\frac{dc}{dt}$, % p.a.

3: Contribution to monetary growth of change in reserve ratio, given by: $(-m)\,(1-c)\,\frac{dr}{dt}$, % p.a.

4: Growth rate of high-powered money, % p.a.

Note 1: $\frac{1}{MOTS}\frac{d\,MOTS}{dt} = \frac{1}{HPM}\frac{d\,HPM}{dt} + \frac{1}{m}\frac{dm}{dt}$ = (Col. 1) = (Col. 4) + (Col. 2 + Col. 3)

Note 2: The values of c and r used in the formula were taken as the averages of the values in the corresponding years and those in the previous years. This is slightly different from the method used by Friedman, but agrees with Cagan's treatment.

would have produced a 4.8% rate of monetary growth. During 1965-66, by contrast, the money supply grew by 11.1% per annum; i.e., at a higher average rate than during the earlier years of the 1960's. This however, was entirely due to the 11.4% annual growth in NFM, whereas the net effect of changes in the currency and reserve ratios was negligible. Therefore, one may say that the restrictive policies were mostly directed toward the commercial banks, whereas the increases in government securities and foreign assets in the banking system produced a monetary growth rate which was even somewhat higher than in the previous years.

3. Summary: Forecasting the Money Supply

In this section, the possibilities for short-term forecasting of the Nigerian money supply using the above multiplier framework, will be briefly discussed. Such a forecast involves two steps: first, a forecast of the change in the quantity of high-powered money, and second, a prediction of changes in the currency and reserve ratios. The chief determinants of changes in high-powered money are variations in foreign exchange of the monetary system, government securities of the monetary system, and also other domestic assets of the Central Bank (i.e., rediscounted produce paper and advances to commercial banks). Because of the definition of high-powered money that is being used here, the distinction between foreign assets and government securities held by the Central Bank or the commercial banks is not essential. Forecasts of foreign assets can, therefore, be based on predicted levels of exports and imports and non-monetary capital flows, without regard for the question whether the resulting changes in foreign reserves will

take place in the commercial banks or the Central Bank. Forecasts of this nature are often formulated by the government's economic planning unit in the form of foreign exchange budgets, so that the monetary authorities would not need to make separate forecasts.

If variations in the holdings of foreign reserves held outside the banking system are thought to be important, they must, of course, be taken into account as well. But, contrary to the situation in the 1950's, the policy of "centralization of reserves" has been in force during the 1960's, and foreign reserves held outside the banking system have been less important.

For government securities, the changes in holdings of the monetary system can be predicted as the residual of total domestic government borrowing over the amounts sold to investors outside the *monetary system*; predictions of total *government* borrowing can be obtained from government budget forecasts, but purchases by investors outside the monetary system must be separately forecast. The data for recent years, however, show that purchases of governments by non-bank investors have been relatively small compared with changes in the government holdings of the monetary system,[89] so that errors in predicting outside purchases would be relatively unimportant.

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[89] See data on holdings by various investors in Economic and Financial Review, various issues. As will be argued in greater detail in Chapter 5, because of the dominant influence of government borrowing on the money supply, it is essential for an effective monetary policy that the Central Bank have some control over the total of such borrowings. The various institutional arrangements which could be used to ensure some measure of such control, will be extensively discussed in that Chapter.

Forecasting the currency ratio could be done using a full-fledged analysis of the relative changes in demand for currency and deposit money respectively, or, more simply, by some form of trend extrapolation, as is done in the projections in Chapter IV. Generally, the ratio can be expected to continue its decline, as the modern, large-scale sector continues to grow more quickly than the rest of the economy, and as banking facilities become accessible to a larger proportion of the population, both because of urbanization and because banking facilities are extended to new areas.[90]

Changes in the reserve ratio, finally, will, of course, be heavily influenced by Central Bank policies affecting the portfolio choices of the commercial banks; these policies themselves must be formulated on the basis of forecasts of the other factors affecting the money supply, and in the light of some given target rate of monetary expansion. The instruments which can be used to influence the reserve ratio are the general tools of monetary policy; i.e., reserve requirements, discount policies, policies with respect to interest rates, such as the discount rate, issue rates on government securities, etc., as well as direct lending restrictions and milder forms of "moral suasion." The "forecasting" problem in this context consists in predicting what the actual effects of such measures will be on commercial bank reserve ratios.

The multiplier concept as an analytical tool in the formulation of monetary policy, therefore, constitutes a systematic method whereby forecasts of exogenous variables effecting the money supply can be

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[90] For an extensive analysis of this problem, see Khazzom, J.D., The Currency Ratio in Developing Countries, New York, Praeger, 1966, especially Chapter 7.

combined with predictions of the effects of specific policy measures in order to test the consistency of the latter with a pre-assigned target of monetary policy given by, e.g., a certain desired rate of expansion of the money supply. The basis on which this target should be chosen is analyzed in the following chapter, and with this background, the problems of forecasting and controlling the money supply which have been briefly outlined in this section are extensively discussed in specific quantitative terms in Chapters IV and V.

CHAPTER III

Growth and Monetary Expansion

Introduction

In this section, the question where monetary policy fits into the overall strategy of LDC's in general, and Nigeria in particular, to bring about a more rapid rate of economic development will be considered. It has often been said that the basic objective of monetary policy in LDC's should be to make the "maximum contribution to economic development." It is hard to disagree with that statement; on the other hand, it leaves open the question just what type of monetary policy would give the maximum contribution.

The essential point of disagreement, of course, has always been whether an expansionary policy, with the accompanying likelihood of a high rate of price inflation, will be successful in stimulating development. In spite of the long academic debate on this question, particularly for the case of Latin America, it cannot be said that there has been much of a consensus as to the answer.[1] This unsettled state of affairs,

[1] The literature here is quite voluminous. The best overview of the problem is probably given by the articles in Meier, G.M., ed., Leading Issues in Economic Development, second edition, Oxford University Press 1970, pp. 229-250; there is also an annotated bibliography. Of the articles there, the ones by Johnson, H.G., "Is Inflation the Inevitable Price of Rapid Development or a Retarding Factor in Economic Growth?", Malayan Economic Review, Vol. 11, April 1966, pp. 22-8, and by Campos, R.O., "Economic Development and Inflation with Special Reference to Latin America," in Development Plans and Programmes, OECD, Paris 1964, pp. 129-37, are particularly valuable. See also Baer, W., and Kerstenetzky, I., eds., Inflation and Growth in Latin America, Homewood, Illinois, R.D. Irwin, 1964. Among the articles there, the one by Dorrance, G.S., "The Effect of Inflation on Economic Development," pp. 37-88, summarizes much of the thinking about inflation in the IMF, and the article by Harberger, A.C., "Some Notes on Inflation," pp. 319-351, provides a very useful analytical framework.

unfortunately, has in many LDC's led to a situation where guidelines for the long-run conduct of monetary policy are lacking, and where attempts at inflationary stimulation of development alternate with severe contractionary policies to cope with the unintended effects on the price level and the balance-of-payments. The experience in Ghana throughout the 1960's is a case in point, as well as the recent experience of Indonesia; in both countries, severe contractions have recently been brought into effect to cope with price inflation and foreign exchange shortages. But apart from alleviating these problems, the contractionary policies have also had the effect of worsening the unemployment problems, and markedly slowing down real growth. If Nigeria is to avoid problems of this nature, it is essential that some knowledge be available on the consequences of an expansionary policy to stimulate development, and the conditions under which it would be appropriate, and the discussion in this chapter is directed to this question.

A. Growth and Monetary Stability in Nigeria

As was discussed above in Chapter I, Nigeria has in the past had a record of a high degree of price stability, as well as unrestricted convertibility of the currency at a fixed exchange rate. Up until the establishment of the Central Bank, convertibility, and indirectly also price stability, followed directly from the Currency Board mechanism,[2]

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[2] Whereas the Currency Board system does not guarantee a stable rate of monetary expansion, or even domestic price stability, the 100% foreign asset currency backing necessarily ensures currency convertibility. Deposit money would also always be convertible, except in the unlikely occurrence of large-scale bank failures, but this would represent an absence of convertibility of deposit money into currency rather than lack of external convertibility.

and presented no particular policy problem. With the establishment of the Bank, however, it was open to the policy-makers to use their monetary independence to try to stimulate economic development by a more expansionary policy; it is therefore of interest to see what the views of the authorities were in the early sixties in this respect. The general directives given to the economic planners in charge of formulating the 1962-68 Development Plan were "authoritatively spelled out to mean achieving a growth rate at least as high, and preferably higher than that achieved in the past decade, with, at the same time, avoidance of inflation; maintenance of the international value of the currency and avoidance of a balance-of-payments crisis..."[3] The latter objectives were also repeatedly stressed in subsequent budget speeches. In response to these directives, the planners attempted to formulate an aggregative framework with the highest possible growth rate consistent with the objectives relating to internal and external price stability, as well as with estimated investment productivity and foreign exchange availability; this growth rate turned out to be about 4% per annum. It was hoped that this could be achieved with a gross investment ratio (i.e., Gross Fixed Investments over GDP) of about .15. The consistency of this investment target with expected foreign exchange availability, and with expected public and private savings behavior, was also tested.[4] Forecasts were made of government current and capital expenditure, and on the basis of

[3] See Lyle M. Hansen, "Comprehensive Economic Planning in Nigeria," in Eicher, C.K., and Liedholm, C., eds., Growth and Development of the Nigerian Economy, Michigan State University Press, 1970, p. 193.

[4] See Hansen, L.M., op. cit., pp. 193-197, and Stolper, W.F., Planning Without Facts, Cambridge, Mass., Harvard University Press, 1966, pp. 109-120.

past private savings performance and expected capital inflow, it was deemed reasonable that the .15 investment ratio could be achieved, without the necessity of having recourse to large-scale domestic credit expansion.

In this case, therefore, monetary expansion and inflation were not expected to play a significant role in stimulating the growth performance. Instead, monetary (and, it was sometimes stated, fiscal) policy was to be used to achieve the objectives with respect to price stability and avoidance of a balance-of-payments crisis.[5] In the light of the experience in some other countries, these policy principles would appear to be quite conservative, and some observers also criticized the Plan for what they considered its lack of ambition[6] and advocated more expansionary policies. However, since the monetary and fiscal policies to be followed were never systematically spelled out beyond general statements of the type given above, it was not clear precisely what they were to be, and in particular, how the policy-makers would react to a slower rate of growth than that which had been planned for, or to difficulties in financing planned projects.

The records for the Plan period, insofar as they are available, indicate that the performance in Nigeria with respect to the income growth objective has not been very different from what was expected,

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[5] Okotie-Eboh, Chief F.S., The Mobilization Budget, Federal Ministry of Information, Lagos, April 1962, quoted in Gray, C.S., "Credit Creation for Nigeria's Economic Development," Nigerian Journal of Economic and Social Studies, Vol. 5, November 1963, p. 290. Gray's article also contains a lengthy discussion of the projected rate of deficit financing. See pp. 284-286, and ff.

[6] See Aboyade, O., Foundations of An African Economy, New York, Praeger, 1966, especially pp. 188-199.

and a reasonable degree of price stability and balance-of-payments equilibrium had been maintained, up until 1966. While the direct capital inflow from abroad had fallen considerably short of expectations, this was largely compensated for by the capital inflow in the form of a drawdown in foreign exchange reserves. As has been discussed above, such a drawdown was foreseen, but it proceeded at a somewhat higher rate than was expected in the Plan.[7] Since this meant that the degree to which the growth process was financed with the use of all types of external resources was about equal to what was planned, there was no unforeseen pressure on the public and private savings performance. Moreover, as long as the monetary authorities found themselves in the relatively comfortable position of being able to afford a rundown in foreign reserves, it was possible to pursue a relatively expansionary policy without jeopardizing internal price stability or the external value of the currency throughout most of the period; it can in fact be argued that it was the existence of the very substantial cushion of foreign exchange reserves in the early sixties that led to the relatively optimistic expectation that the planned rate of growth could be achieved while maintaining a stable value, internally and externally, of the currency. Since about 1966, however, and especially after the Civil War, Nigeria no longer has a substantial amount of foreign exchange reserves to fall back upon, whereas the growth objective is as urgent as before. This is likely to mean that the contribution of the import

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[7] Regarding the plans in this respect, see the evidence quoted by Gray, C.S., op.cit., pp. 280-83, and also p. 307. It was the intention to maintain reserves equivalent to at least 4 months' imports.

surplus to the total resources available for capital formation will decrease, so that the pressure to increase the amount of domestically raised resources for this purpose will be greater than before. This may, in turn, result in an increased propensity for domestic deficit financing. At the same time, the fact that foreign exchange reserves are depleted will necessitate a set of monetary and fiscal policies much more closely geared toward the external stability objective than before, if indeed the policy-makers will maintain their rigid objective in this respect. It has, therefore, become more important than before to investigate to what extent an expansionary policy can be used to stimulate domestic savings, capital formation, and growth in Nigeria, and whether such a policy is consistent with the objectives relative to price inflation and balance-of-payments stability.

There are a variety of ways in which it is claimed that monetary expansion can affect the growth performance of an economy, but generally the primary link between money and growth is seen as existing through the direct and indirect effects of money on savings and thereby on capital formation. In order to investigate what the relationship is between those two variables for the Nigerian case, the first part of Chapter III is devoted to a brief survey of the principal sources of development financing in Nigeria in the past, with special emphasis on the role of savings in the form of increased holdings of money. The second part contains a discussion of the various effects that an increased rate of monetary expansion would be likely to have on the Nigerian economy, with attention first being focussed on the effects on the savings performance; the possible magnitude of the direct contribution of the monetary system to savings is considered, and the hypothesis that an increased rate of price inflation could contribute to an improvement

in the savings performance through its effects on the share of profits and the degree of resource utilization, is also discussed.[8] Finally, the impact of monetary expansion on price inflation and the balance-of-payments is analyzed.

B. Development Finance and The Demand for Money

1. With a country's population and labor force given over time, sustained growth in per capita income requires a continually increasing productivity in the use of labor. Such increases come from several sources: training of the labor force; increased use of machinery and other forms of capital per unit of labor; application of more efficient technology to given amounts of productive resources.[9] In general, all these methods of increasing productivity will require that resources are diverted from the production of directly useful goods and services toward uses which enhance productivity. For the case of productivity growth through increases in the amounts of physical capital per head, this is obvious; labor training also generally implies that potential output is lost while labor is undergoing training, and also requires teachers and school houses, etc. Even productivity increases through adoption of more efficient technology requires some resources for producing, adapting, and

[8] Academic discussion has traditionally focussed on those indirect effects, while it may be fair to say that politicians have thought mainly of the simple form of deficit financing in which the direct contribution to capital formation of credit expansion is viewed as the most important effect. It is not clear to the present writer that this effect is necessarily less important than the indirect one.

[9] Changes in the terms of trade may also significantly influence per capita income in an open economy like Nigeria; since this effect, however, is essentially non-controllable from the point of view of Nigerian policy-makers, it will be disregarded here.

disseminating knowledge of better methods, and is sometimes complementary with physical capital, so that unless more, or different, capital is made available, new technology cannot raise productivity. The problem of development financing is to place purchasing power at the disposal of those economic agents who engage in these activities, so that the required resources can be bid away from their alternative uses.[10] Put differently, since these activities cannot be financed directly by the sale of output to consumers, funds must be secured in other ways.[11]

In the past, most capital formation in an agricultural economy of Nigeria's kind has been directly financed by the owner or user of the capital, e.g., when it takes the form of housebuilding, land clearing, or planting of crops, and such internal financing, of course, continues to be important both in the agricultural sector and also in the modern large-scale sector where investment is financed partly out of retained earnings. As economic growth proceeds, however, there are factors which are likely to lead to a growing need for external financing, i.e., the demand for funds by potential investors becomes greater than the amount of funds that can be supplied from their own savings. One such factor is the increasing transfer of

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[10] In the present author's view, the current reaction against the past over-emphasis on savings for purposes of physical capital formation is perhaps warranted. The more general problem of "savings" for purposes of "development expenditure" in the broad sense described here, however, remains a crucial one.

[11] This also points to the fact that many types of government current expenditure, though they may be in the nature of services performed directly, cannot be sold to consumers either (for example, defense, police protection, road maintenance, etc.), so that financing for such activities must also be raised in ways other than through direct sales revenue. This is why many writers have not distinguished the financing of government current expenditure, in general, from "development expenditure"; both involve the same problem from the point of view of financing, namely the necessity to reduce private consumption.

productive activity from the subsistence sector to the more modern capitalistic sector; another, and perhaps more important one, is the rapidly expanding share of government in economic activity and development expenditure. To a significant extent, these financing needs can be met via increased taxation; not only government current and capital expenditure can be financed in this way, but taxation can also be used to meet some of the need for external financing in the private (or mixed public and private) sector, through government lending to private firms, or partial government ownership of firms. All these forms of external financing exist in Nigeria in the form of institutions such as the Regional Development Corporations, agricultural credit institutions, the Nigerian Industrial Development Bank, and some of the Statutory Corporations in Nigeria responsible for transportation, coal production, electricity generation, etc.

There are a number of factors which limit the extent to which taxation can be used to finance these capital needs, however. First, the administrative costs of taxation are high in a low-income, primary-producing economy with a relatively low level of education and in which a large share of economic activity takes place without written records. In this type of situation, the range of taxes tends to be limited, with the share of revenue derived from direct taxation being low, and a few forms of indirect taxation which are easy to administer, providing the bulk of the revenue.[12] The statistics for

[12] For studies of the tax systems in Africa, see Due, J.F., Taxation and Economic Development in Tropical Africa, Cambridge, Mass., M.I.T. Press, 1963. For a useful collection of papers on the taxation problems in LDC's generally, see Bird, R., and Oldman, O., eds., Readings on Taxation in Developing Countries, Baltimore, Johns Hopkins Press, 1964.

Nigeria show that the share of current government revenue derived from indirect taxes, which mostly consist of import tariffs and export duties, has been about 55% in the early sixties.[13] But raising revenue by increasing the levels of such taxes is likely to lead to progressively severe disincentives on the production of the limited range of goods that can be taxed, which implies efficiency losses through misallocation of resources.[14]

Another source of financing capital formation which continues to be of crucial importance is, of course, foreign capital inflow. This inflow can take several forms. Of the capital flows outside the monetary system, direct foreign investment in the private sector, i.e., building of production and distribution facilities in Nigeria by foreign firms, has been by far the most important category in the past. Such capital flows can either take the form of direct imports of goods and services by the foreign investors, or more importantly, purchases of Nigerian money by the foreign investor for subsequent acquisition of Nigerian resources with which to undertake the capital formation. The same principle holds for the other principal form of foreign capital inflow, namely, loans and grants to the Nigerian government from abroad. Because such loans are often project-tied,

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[13] See Lewis, W.A., Reflections on Nigeria's Economic Growth, Paris, OECD, 1967, Table 10, p. 63. Note that the Marketing Boards' surplusses are not included in this.

[14] Import tariffs constitute an implicit tax on export production, as they depress the equilibrium relative price of foreign exchange; the resource misallocation in this case takes the form of excessive import substitution, and export contraction.

and restricted in their amounts to the foreign exchange components in specific projects, such funds will generally not be available unless finance can be found within Nigeria for the domestic component of the corresponding projects; in this case, foreign financing is, therefore, complementary with domestic financing.[15] Another form in which foreign capital inflow can take place is through foreign acquisition of Nigerian domestic securities, government or private. In practice, such capital flows have been unimportant in recent years; the proportion of Nigerian government securities held by foreigners is very small, and few Nigerian-owned firms are able to place their debt obligations abroad.[16] The only way in which Nigerian development has been financed from foreign financial markets is indirectly, through debt issues by the larger foreign-owned firms, or through, e.g., World Bank loans for specific projects.

Finally, for some projects, financing can be obtained through transfer of domestic savings to investors in the Nigerian financial system. As was outlined above in Chapter I, the range of financial instruments through which this intermediation takes place on a significant scale, is still limited. Holdings of private debt obligations such as common stocks, industrial bonds and debentures, are still very small. The two major forms in which private savings through the financial system take place are through government

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[15] This complementarity has been particularly stressed by Lewis, W.A., Reflections..., op. cit., p. 61, who stated that some projects, the foreign exchange components of which could be financed through aid, have had to be turned down because of lack of complementary domestic savings.

[16] During the colonial regime, the colonial governments were able to issue bonds in the U.K., and the Statutory Corporations also borrowed there directly. These loans, however, were then (directly or indirectly) guaranteed by the British Government.

securities and bank credit.

The growth of bank credit and its distribution among categories of borrowers has already been surveyed above in Chapter II, and it was also emphasized there that the policies of the institutions in the monetary system also partly determined the degree to which development could be financed through foreign resources; variations in the foreign exchange holdings of the monetary system represent variations in the degree to which accumulated domestic Nigerian savings, in the form of money holdings, are utilized for financing of investments in Nigeria, or for capital exports. It is important to recognize that the very rapid growth in bank lending in Nigeria during the late 1950's and early 1960's only partially corresponded to new domestic savings through the monetary system; in part, it simply represented a drawing on past savings. This distinction, and the degree to which net savings through the monetary system has been a source of development financing, will be further discussed in the next section.

Part of the reason why domestic savings in the form of government securities are of great importance in the development process has already been given above. First, in a country at a relatively early stage of development, many forms of direct government expenditure on current and capital account may be prerequisites for investments in other sectors (e.g., government expenditure on infrastructure and on education). Second, because of the relatively weak tax system, much government expenditure must be financed through borrowing. A third factor enhancing the role of government securities is the function of the government itself as a financial intermediary, i.e.,

the fact that the government acts as a lender to the private sector in many areas, as was noted above. Thus, to the extent that this takes place, government securities replace credit instruments which could otherwise have been issued directly by the borrowers themselves, and this procedure therefore constitutes a method by which government borrowing can be used to influence the allocation of credit to the private sector. This allocation objective will be further discussed in Chapter V.

2. The Data on Development Financing in Nigeria

The practical problems of forecasting the sources and uses of development finance are discussed extensively by Professor Lewis, in a way which can be extended to illuminate the role of the financial sector in general, and the monetary system in particular.[17] He constructs a flow-of-funds matrix, in which investment requirements in various sectors (agriculture, industry, power, transport, housing, public services) are estimated in an illustrative fashion; these investments represent claims on investable funds by the sectors undertaking them. He divided these sectors into farmers, businesses, non-farm households, and government. The funds in these sectors may be derived from internal savings,[18] depreciation, and from foreign capital flows; in addition, they may come from the financial institutions

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[17] See Lewis, W.A., Development Planning, New York, Harper and Row, 1966, pp. 165-175, and pp. 211-217.

[18] It is somewhat misleading to call this category "savings" as Lewis does, as that should include savings in financial form as well as internally used savings. See Lewis, op. cit., p. 216.

which are included as a separate sector in the matrix, or as loans from other sectors. Conversely, the uses of funds in a sector may include, in addition to outlays for real capital formation, loans to the other sectors (including the financial system), i.e., accumulation of financial assets.

A framework of this kind could be used in a number of ways, to test the overall financial consistency of a Development Plan, as well as to provide an overview of the intersectoral flows of funds which would take place, including those channelled through the financial institutions. In this study, we are particularly concerned with the role of the monetary system in development financing; this role can be qualitatively illustrated in the following simplified and aggregated version of Lewis' matrix.

		Uses of Funds				
		P	G	MON	FOR	SAV
Sources of Funds	P					
	G					
	MON					
	TOT.					

In the above table, the economy has been divided into the private (P) and public (G) sectors. The diagonal elements P-P and G-G contain the estimates of total expenditure on development projects within the two sectors, whereas the off-diagonal elements signify financial resources transferred between the sectors. The P-G element (with the "sources" index first, i.e., the first index refers to the sector receiving funds and the second index to the sector supplying them) represents new government lending (through development banks, etc.) to the private sector, whereas the G-P entry corresponds to increases in holdings

of government securities by the non-bank Nigerian public. The P-MON and G-MON entries show the amount of credit extended from the monetary system to the private and public sectors. The P-FOR and G-FOR elements, finally, indicate the direct inflow of funds to the two sectors, in the form of foreign private investment or lending to firms in Nigeria, and official loans and grants to the government.[19] The MON row shows net sources of funds in the monetary sector, with the most important element being MON-P, indicating increments in the quantity of money demanded by the public. With government borrowing from the monetary system being taken net of government money balances, the MON-G entry is always zero. The MON-FOR entry corresponds to movements in foreign reserves of the monetary system; this entry is negative when there is a buildup of foreign reserves, since such a buildup represents a use of domestic savings, and conversely, a decline in foreign reserves is a source of finance. The diagonal entry in this row can be taken to be equal to zero if one neglects real capital formation (i.e., construction of bank buildings, etc.) in the monetary system itself.

Summing the column entries for each of the sectors, one obtains the total uses of funds, for expenditure on investment projects, as well as for lending to other sectors (including "lending" by the private sector to the monetary system). If one subtracts from this figure the sum of the off-diagonal elements in the sector's row, one obtains as

[19] This item must be taken net of any change in foreign exchange reserves held in those sectors.

a residual the total savings (shown in the SAV column) of the P, G, and MON-sectors. If changes in paid-up capital in the banking system are neglected, this entry should be zero for the MON-sector; for the G-sector, it corresponds to the surplus of tax revenue over current expenditure.[20]

This framework could be used in a number of ways to test the financial consistency of a development plan. Because it explicitly considers the market for government securities and the monetary system, the consistency of the allocation of funds between the private and public sector can be tested against past data; this contrasts with what appears to have been the procedure in the 1962-68 Plan, where only the consistency of aggregate savings with aggregate investment were considered. The question of sectoral allocation problems will be further raised below, Chapter IV.

Data are not easily available for the various entries in this matrix for past years. For the purpose of comparing the relative importance of the main sources of financing, however, one may aggregate the private and government sectors, which produces Figure III-2, and data are available for those entries. The upper left-hand element is now equal to total public and private capital formation; the entry in the first row in the foreign resource column can be found by noting that the direct capital inflow to the private and government sectors must equal the total capital inflow, which is here taken as equal to

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[20] It is, of course, possible, as an alternative, to enter total government expenditure as the diagonal element, in which case the entry in the SAV-column for the G-sector constitutes total tax revenue.

	P+G	MON	FOR	SAV
P+G	(1)	(2)	(3)	(4)
MON	(5)	-	(6)	-
Tot.	(7)	(2)	(8)	

the trade deficit, minus the inflow through the monetary system.[21] Total domestic credit extension through the monetary system to the government and private sectors can be found in Chapter II. Once these items are computed, total savings in the government and private sectors (the upper right-hand element) can be computed in the same way as described above, i.e., as the sum of the first column minus the off-diagonal elements in the first row.[22]

In spite of the high degree of aggregation, it is still useful to separate the sources of development financing in this way. First, it becomes possible to see more accurately to what extent "autonomous" capital flows, i.e., capital flows other than those directly corresponding to reserve movements in the monetary system, have contributed to development in the past; conversely, it is of interest to consider the degree to which financing from the monetary system has contributed, and how much of this has corresponded to domestic savings in the form of increased money holdings and how much indicates simple a rundown of foreign reserves. The fact that time series information can be provided means that it is possible to establish whether the various

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[21] I.e., (3) = (8) - (6).

[22] I.e., (4) = (7) - (2) - (3).

components are stable or easily predictable. The four first columns in Table II-1 give time series data for the entries in the first row in Figure III-2: the final two columns indicate first, how large a proportion was financed through the monetary system (item (5)), and second, the extent to which the contribution of the monetary system was based on changes in its foreign reserves (item (6)); all figures are given as percentages of GDP.

It is seen from these data that the degree to which Nigeria has relied on a current-account deficit to finance economic growth has varied greatly. In the early fifties, she was a significant capital exporter, whereas in the late fifties and early sixties, balance-of-payments deficits have contributed a relatively large proportion of development financing. Since 1955, which was the first year in the period with a deficit, the deficit has represented 3.6% of GDP on the average. It is worth noting that compared with the rest of Africa, the net foreign contribution to capital formation in this period is considerably smaller than the average.[23]

The time pattern of the external component is quite irregular, but on the average there seems to have been somewhat of a decline since the peak value of nearly 6% of GDP in 1960. The following computation illustrates this trend:

Trade Deficit/GDP: Period Averages	
1957-1960:	4.6%
1961-1963:	3.5%
1964-1966:	2.6%

[23] See Kamarck, A.M., The Economics of African Development, New York, Praeger, 1967, pp. 70-71.

Table III-1

Sources of Development Financing, 1951-66

Percent of GDP

	(1)	(2)	(3)	(4)	(5)	(6)
1951	7.3	.26	.35	9.2	2.48	-2.22
1952	9.0	.39	-1.31	11.6	1.67	-1.27
1953	9.6	.24	-1.69	12.1	1.07	- .83
1954	11.1	.24	-2.72	14.7	1.18	- .94
1955	13.1	.41	3.15	10.2	.65	- .24
1956	14.7	.65	3.75	10.9	.57	+ .08
1957	10.9	.54	5.09	5.8	.52	+ .02
1958	11.8	.99	4.53	7.2	.94	+ .05
1959	12.5	.48	3.78	9.4	1.18	- .70
1960	11.5	.96	5.94	5.9	1.28	- .32
1961	12.8	1.09	4.24	8.3	.79	+ .31
1962	12.1	1.05	2.89	8.7	.55	+ .50
1963	12.6	1.36	1.91	10.1	.79	+ .57
1964	13.4	2.12	4.03	8.9	1.72	+ .40
1965	15.2	1.16	2.47	13.1	1.59	- .43
1966	15.1	1.23	1.37	13.9	1.39	- .16

Col. 1: Total capital formation, private and public sectors.

2: Increases in domestic assets of monetary system.

3: Direct capital inflow to private and public sectors, (excluding flows through monetary system).

4: Total domestic savings, private and public sectors.

5: Increases in money holdings.

6: Changes in foreign assets of monetary system, (increase -, decrease +).

Source: Computed from Appendix, Tables A-1 and A-2.

The "autonomous" component, i.e., capital flows outside the monetary system has dominated the total, and has accounted for most of the variations. The drawdown of previously accumulated foreign reserves in the monetary system during the latter part of the period is seen to have accounted for only a small part of the external component. On the other hand, the capital inflow implied in the large decrease of official and semi-official reserves held by institutions outside the monetary system, such as the Federal and Regional Governments, Marketing Boards, etc., is included in the autonomous component. As has been argued above, since Nigeria's foreign reserves were down at a level corresponding to approximately 2½ months' imports at the end of 1966, it will not be possible to draw significantly on this source in the future. While the capital inflow from the oil industry will represent an important addition to the "autonomous" component, it seems unlikely that resources from foreign capital inflows will again contribute as much relative to GDP as they did in the years around 1960, unless there are significant new mineral discoveries in Nigeria, or a dramatic change in the trends in official foreign development assistance.

From the time series, it appears that the domestic savings ratio (Column 4) has also fluctuated quite considerably over time; this holds true both when total domestic savings are considered, and also for domestic non-monetary savings.[24] For both series, the ratios

[24] Non-monetary savings can be computed as (4) - (5) in terms of Table III-1 above.

display rapid growth in the early fifties, then drop sharply in 1957, and again, on the average, gain relatively rapidly during 1958-1966. The sharp drop in 1957, however, has to be seen as being due at least partly to observational error. Since the ratios are derived using estimates of total capital formation, they result directly from an indicated sharp drop in the estimate of capital formation in 1957. But there is clear evidence that in that year, the basis on which these estimates were made was changed considerably, and that the figures for the first half of the fifties are substantial overestimates.[25] While there is no satisfactory way of correcting for this unknown bias, attempts will be made to account for it in the subsequent discussion, and it will be assumed that the break in the series does not reflect a true change in the savings proportion in that year. The rapid gain in the estimated domestic savings ratio after 1957 is clearly shown in the table below; this gain, however, took place with relatively wide year-to-year fluctuations, with the ratio ranging from 5.8% to a high of 13.9%.

Domestic Savings Ratio: Period Averages	
1957-1960:	7.1%
1961-1963:	9.4%
1964-1966:	12.0%

Source: Computed from Table III-1.

[25] The figures used in this Chapter (see the Appendix for sources) are based on those accepted by the U.N. From 1957 and onwards, they are taken from official estimates by the Federal Office of Statistics. The values prior to that are those estimated and given by Aboyade, O., Foundations of an African Economy, New York, Praeger, 1966 (see pp. 109 and 119). Aboyade's figures overlap with the official ones in 1957 and 1958, however, and are about 15% and 35% higher than the latter, respectively. There is no extensive published discussion of the official estimates; for a detailed and interesting description of Aboyade's methodology, see op. cit., Chapter 3.

Similarly, a slight upward trend was in evidence before 1957 as well.

As is indicated by Column (5), Table III-1, the component of domestic savings consisting of increased holdings of money has been relatively small, and has also fluctuated considerably; on the average, this source has contributed only about 1.1% of GDP to domestic savings, slightly above 10% of total domestic savings. Apart from the time of the export boom in the early fifties, the increase in money holdings as a proportion of GDP was greatest during the 1964-66 period, at which time overall domestic savings were also relatively high. This component, however, is too small to account for much of the variation in total domestic savings, and if it is excluded, the resulting measure of non-monetary domestic savings shows a pattern similar to that for the total. Computing the same averages as above for the non-monetary part of savings yields the following result:

Non-Monetary Domestic Savings: Period Averages	
1957-60:	6.1%
1961-63:	8.4%
1964-66:	10.4%

Source: Computed from Table III-1.

Thus, variation in savings through varying rates of saving in monetary form has been relatively unimportant in Nigeria.

In this aggregative form, the non-monetary domestic savings ratio includes government savings (i.e., the excess of tax revenue over government current expenditure), as well as private savings. As Lewis notes,[26] the revenue-raising performance of the Nigerian government

[26] See Lewis, W.A., Reflections on Nigeria's Economic Growth, Paris, OECD, 1967, pp. 55-62.

has been quite good, and tax revenue as a percentage of GDP has risen over time. On the other hand, the rate of increase in government current expenditure has also been quite rapid, and the available data indicate that as a percentage of GDP, government savings have rather declined somewhat toward the middle 1960's.

The conclusion from the evidence discussed in the last two paragraphs must, therefore, be that the upward trend in the savings ratio has largely resulted from an upward movement in the proportion of private-non-monetary savings to GDP, since on the one hand, the relative contribution of government savings to the total has declined, and because savings through increased money holdings, on the other hand, have contributed relatively little to the savings ratio.

3. The Propensity to Save in Nigeria

The upward trend in the savings proportion implies that over the period studied, the marginal propensity to consume in the private and public sectors[27] has been lower than the average. An attempt to capture this relationship can be made by regressing the savings ratio on the logarithm of real income. There were several reasons for this choice of functional form. First, since the logarithm of real income rather than its ordinary value is used in the later empirical work on the demand for money and the level of imports in order to get the

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[27] "The marginal propensity to consume in the public sector" is thought of here as the marginal propensity of the government to spend out of revenue on current expenditure as opposed to government capital expenditure.

results in elasticity form, for the sake of symmetry it was preferred to use the logarithm as an explanatory variable here as well; this will also simplify the use of the result for the projection work in Chapter 4. Second, the use of the savings ratio rather than the amount of savings as the dependent variable obviates the necessity to deflate savings by the use of some price index; use of such a deflator, which will generally have errors of observation, will add to the observational errors which may already be present in the savings series.

Performing this regression, one obtains the following result:[28]

$$(3.1) \quad \underset{}{s} = \underset{8.4}{.069} + \underset{3.7}{.123} \ln (yc) + \underset{4.5}{.068} D57 \qquad R^2 = .605 \quad DF = 13$$

where s is the savings ratio, yc is the level of real income, and D57 is a dummy variable designed to account for the change in the procedures for estimating the level of investment in that year; it assumes the value 1 in the years 1951-56, and zero in each year thereafter. At the average savings rate prevailing in 1964-66, this implies a marginal propensity to save of .25.[29]

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[28] The data in this and all of the following regressions in this chapter have been computed on the basis of the data in the Appendix. The numbers appearing directly under the coefficients are t-ratios. The term "significant" will be used, unless otherwise indicated, to mean that the hypothesis that the corresponding coefficient is zero can be rejected at the 1% confidence level, i.e., using the appropriate one-tailed t-test. Only coefficients which are not significant at this level will be indicated with an asterisk. Thus, both the coefficient for ln (yc) and D57 are significant in this regression equation.

[29] This is computed as follows. Differentiating (3.2) totally (disregarding the dummy variable) one obtains:

$d(\frac{S}{Y}) = \frac{1}{Y}(dS - sdY) = .123\ d(\log Y) = .123\ \frac{1}{Y}\ dY$. This, upon rearrangement, yields:

$$\frac{dS}{dY} = .123 + s = .243.$$

The measure of the savings ratio used above includes savings in the form of increased money holdings, as well as in other forms. In theoretical analysis, the decision regarding the choice of assets in which to hold wealth is sometimes considered as independent from the decision whether to save or to consume.[30] This treatment may be appropriate in an economy where a large proportion of savings takes the form of financial rather than real assets. In this situation, the "speculative" motive for holding money may give rise to significant variation in the share of savings held as money. In Nigeria, where a large portion of the money balances are held by people who do not have access to the organized financial system, the transactions motive will be far more important than the speculative motive, and generally speaking, the growth in the demand for money will reflect the increasing need for money for transactions purposes.[31] But savings in this form are undertaken to a large extent by different people, and for different reasons, than savings in the form of real assets, especially with these savings decisions being made by a relatively small number of people in the business sector. It could, therefore, be argued that savings in non-monetary form are independent of savings in the form of

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[30] This is implicit, e.g., in the standard Keynesian model when the rate of savings, but not the demand for money, is assumed to be independent of the rate of interest, e.g., if consumption is assumed to be uniquely determined by income. See, e.g., Ackley, G., Macro-Economic Theory, New York, Macmillan 1961, Chapter 14, especially pp. 372-377.

[31] See further the discussion of the determinants of the demand for money below, Section 4a.

accumulation of money balances. On these grounds, the discussion in the following sections will be carried out as if these two components were separately determined, and they will be separately analyzed.

If one, therefore, performs the same regression as above for the non-monetary savings ratio, the result is:

(3.2) $\underset{}{sm} = \underset{7.0}{.059} + \underset{3.5}{.118}\ \ln(yc) + \underset{4.85}{.065}D57 \qquad R^2 = .57 \quad DF = 13$

It is seen that the coefficient for real income is virtually the same as before, and the marginal propensity to save at the ratio predicted by the regression for 1966, is about .22, which is also quite close to the previous result.

These regression results, of course, are consistent with the time-honored Keynesian hypothesis regarding the relationship between the average and marginal propensities to consume, which has been supported by studies using family budget data, and studies of the short-term response of consumption to changes in income.

Some doubt has been cast on the long-run validity of this principle, however, especially when it is applied to consumption out of personal income (i.e., total income minus taxes minus depreciation and undistributed corporate profits), and it has been contended that savings out of personal income are more nearly proportional to personal income.[32] Even if this is so, however, an upward trend in the proportion of savings to total income could result from a declining share of personal income in the total, if average savings out of personal income is lower than the proportions saved in the other categories.

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[32] Friedman, M., A Theory of the Consumption Function, Princeton University Press, 1957, Chapters 4 and 5.

For a country like Nigeria, where the corporate sector is still relatively small, but where the unincorporated business sector is substantial, it may not be appropriate to focus on undistributed profits in the corporate sector only, as a determinant of savings; it is more likely that total business profits is the relevant variable, so that the distinction should be between capitalist income and labor income instead. A strong relationship between profits and total savings, of course, is the cornerstone of the famous model by Lewis,[33] and while there are no data to confirm or reject its validity in the Nigerian case, a priori thinking about the economy suggests that it is a reasonable one. Since little financial intermediation takes place in the organized financial system (other than the share accounted for by the monetary system), and since the amount of direct lending from the household sector to business is bound to be relatively small as well,[34] most of the private-sector capital formation financed inside Nigeria must have been financed from funds generated internally in the business sector.

While the conclusion that the rising savings ratio has been brought about chiefly by a rising share of profits can be no more than a conjecture in the absence of more detailed data, it is nevertheless of significance for a discussion of the future savings performance in Nigeria, and also has a bearing on the appropriate

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[33] Lewis, W.A., "Economic Development with Unlimited Supplies of Labour," The Manchester School, Vol. 22, May 1954, pp. 139-191.

[34] Except possibly in the unincorporated small business sector, where such loans may be a significant source of capital.

policy measures if one wishes to increase the savings ratio. These questions will be further analyzed in Part B of this chapter.

Before that, however, further consideration will be given to the savings component which is of main interest here, namely, savings through the monetary system, and the next section is devoted to an analysis of the determinants of the demand for money in Nigeria.

4. Savings Through Increased Money Holdings

a. The Demand for Money

In considering the future contribution to savings of increased money holdings, the often stated fact that the Nigerian economy is only "partially monetized" must be taken into account. This expression, of course, is meant to indicate the fact that a large amount of economic activity takes place without the use of money, i.e., through barter, or through production for direct consumption or investment by the economic agent himself.[35] A corollary of the partial monetization, however, is that the ratio of the stock of money to total estimated income, is not very high, or equivalently, that the velocity of circulation is quite high. This means that the absolute change in the money supply corresponding to a given percentage growth of the supply, will be smaller in relation to total income than

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[35]The importance of this factor should not be overemphasized, however. Within the agricultural sector, a large number of farmers are engaged in production of export crops, or in some crop which is sold for cash to the domestic industrial sector (such as cotton or tobacco). The growing urbanization means that growing amounts of foodstuffs are sold for money to traders, who take the produce to the city markets. Finally, there is a great deal of specialization in different foodstuffs within the rural areas, and most transactions in the rural markets take place with the use of money.

would be the case with a higher money/income ratio. Put differently, since the demand for money is small relative to income, if expansion of the money supply is to take place only in response to growth in incomes (and demand for money) at constant prices, the corresponding increases will only represent a small proportion of incomes.[36]

This factor is partially offset, however, by the fact that while not yet being highly monetized in this sense, Nigeria is presumably going through a process of monetization, in the sense that the share of economic activity taking place using the intermediary of money, is growing. This would mean that the demand for money is growing faster than income, so that the money supply could be expanded faster than real income, even if prices were to remain approximately constant.

The money/income ratios in Nigeria for the years 1950-66 are shown in Table III-2; Column 2 is included for comparison and gives the ratio when money is defined in the narrow sense (i.e., currency with the public plus demand deposits in commercial banks), whereas the values in Column 1 result when the money supply is defined to include time and savings deposits in commercial banks, i.e., the definition of the money supply which primarily is used in this study. With the narrow definition, the ratio is seen to have remained virtually

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[36] This has been stressed by Harry Johnson. See his article, "Is Inflation the Inevitable Price of Rapid Development or a Retarding Factor in Economic Growth?," Malayan Economic Review, Vol. 12, April 1966, pp. 21-28; reprinted in Meier, Leading Issues..., op. cit., pp. 229-234.

Table III-2

The Money-Income Ratio, 1950-66

	MOTS/GDP	MO/GDP
1950	.088	.082
1951	.103	..097
1952	.113	.105
1953	.115	.106
1954	.111	.100
1955	.110	.098
1956	.110	.098
1957	.111	.096
1958	.119	.099
1959	.123	.097
1960	.121	.096
1961	.122	.093
1962	.116	.083
1963	.116	.083
1964	.129	.090
1965	.138	.092
1966	.146	.095

Col. 1: Ratio of money (including time and savings deposits), to GDP.

2: Ratio of money (excluding time and savings deposits), to GDP.

Source: Computed from Appendix, Tables A-1 and A-2.

stable throughout the period. With the wider definition, the ratio has grown on the average by 1.6% per annum. This is roughly equivalent to saying that the rate of growth in the demand for real money balances has been 1.6% faster than the rate of growth of real income. Even so, as was seen above, the amount of real savings resulting from the increase in the demand for real money balances has been small relative to income. Assume real income were growing by 4% in 1966. The demand for real money, including time and savings deposits, on this reasoning would then have grown by 5.6%.[37] The corresponding real savings, given by .146 x 5.6% only represent 0.8% of GDP. Thus, the fact that there has been a downward trend in velocity has not made a great deal of difference in terms of the possibility to undertake monetary system financing of development without price inflation. This is the basic reason for the observed relatively small contribution of real monetary savings to the overall savings ratio in Table III-1.

It is to be expected that as the Nigerian economy continues to grow, the money/income ratio will also continue to increase;[38] another way of stating this is to say that the transactions demand for money will grow faster than money incomes. There are many possible

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[37] For qualifications of this statement, see the discussion on pp. 141-143 below.

[38] The procedure followed in this section, i.e. of discussing the demand for money in terms of the money/income ratio, or the inverse of the velocity of circulation, follows the treatment of Friedman; see his article, "The Quantity Theory of Money: A Restatement," in Friedman, M., ed., Studies in the Quantity Theory of Money, Chicago, University of Chicago Press, 1956.

explanations why this should be so. Monetization could be taken simply to mean that as time goes on, the share of income in Nigeria derived in the form of money will increase. In that case, the use of money is seen simply as a technological improvement over barter, and monetization is considered to be the gradual diffusion of this improvement over a larger and larger share of the economy.

Another more satisfactory explanation of the upward trend in the money/income ratio is to consider it as due to an elasticity exceeding unity of the transactions demand for real money with respect to real income; in this case, monetization is seen as the result of growth in real income. Such growth takes place, among other things, as a result of an increasing division of labor, involving production in larger-scale establishments as opposed to non-specialized subsistence production. But this type of economic transformation implies production for the market as opposed to own consumption, and, therefore, requires the use of money as a medium of exchange. One would then expect that the growth in the money/income ratio could best be explained by the growth in the share of income derived from production in the monetized sector, which in turn is likely to be correlated with increases in real incomes.

In addition to the influence of real income, the demand for money can also be expected to be somewhat affected by the yield in money relative to other competing stores of value. In industrialized economies with highly developed financial markets, the assets most often considered as competing with money are other financial instruments,

such as private and public bonds, common stocks, deposits with non-banking institutions, etc. For the demand for money to be highly sensitive to yields on such assets, it is required that a large proportion of total money holdings are in the hands of people who have ready access to the market for such assets, and in fact, that such a market is relatively active and well developed. Furthermore, as Baumol and Tobin[39] have shown, transaction costs in sales and purchases of financial instruments will be one determinant of the interest-sensitivity. If there is a fixed element in the cost of such transactions, the profitability of switching in and out of alternative assets will depend on the amount involved, as well as on the expected holding period.

In Nigeria, the influence of the above factors is likely to be in the direction of giving a low degree of interest sensitivity. As was discussed in Chapter I, the market for non-monetary financial instruments is as yet fairly undeveloped, and the total amounts outstanding are relatively small. While the existing Nigerian assets, of course, do provide relatively liquid alternatives to money holdings, the fact that the markets for them are small and localized means that the majority of money holders do not have effective access to them.

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[39] See Baumol, W.J., "The Transactions Demand for Cash: An Inventory Theoretic Approach," Quarterly Journal of Economics, Vol. 66, November 1952, pp. 545-56, and Tobin, J., "The Interest Elasticity of Transactions Demand for Cash," Review of Economics and Statistics, Vol. 38, August 1956, pp. 241-47.

Furthermore, a relatively large proportion of money holdings is in the hands of farmers and small businesses, for whom the transaction costs will be large because of the small amounts involved. Only the small number of large-scale industrial and trading firms would be likely to show significant variation in their money holdings in response to interest rate changes.[40]

For these reasons, it is unlikely that the small variations in interest rates in Nigeria during the 1960's[41] would have been sufficient to have much of an influence on the aggregate demand for money. Put in a different way, if the total demand for money is thought about as consisting of transactions balances and speculative balances, the contention here is that speculative balances are small relative to the total, and consequently that the sensitivity to interest rates on other financial instruments is small.

On the other hand, it must also be taken into account that real assets are a form of wealth which is substitutable for financial assets in general, and money in particular, and that the return on

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[40] It appears from data on ownership of deposits that a large proportion of the increase in time and savings deposits in commercial banks has been due to accumulation of such deposits by the large-scale business firms. It is plausible to conclude that this switch has taken place because of the increased rates on such deposits. With the definition of money including these deposits, however, this is not relevant to the question of the interest elasticity of the demand for money as a whole, except insofar as it suggests that similar portfolio shifts could take place from bank deposits into other financial assets if there were a shift in relative yields.

[41] See the discussion in Chapter 2, section C.

real capital might influence holdings of money.[42] This is relevant not only for those money-holders who have access to the organized financial system, but also to others, since everybody has access to some form of real capital. The return on real capital could, therefore, be expected to have an influence on the money/income ratio, and to affect somewhat the rate of monetization.

The rate of return on real assets can be thought of as consisting of the real rate of return (the "marginal physical productivity of capital"), and the expected rate of price inflation. Variations in the real rate of return can be expected to take place only slowly, as a result of real capital formation, so that the most important source of short-term variation in the relative yield on money would be changes in the expected rate of price inflation. On the other hand, if the real return on capital is at a relatively high level, a given expected rate of price inflation would only constitute a correspondingly small proportion of the total money return on real capital. It, therefore, follows that since a proportional change in the expected rate of inflation constitutes a smaller proportional change in the relative rate of return, a given elasticity of the demand for money with respect to this return would give rise to a smaller observed elasticity with respect to the expected rate of inflation.

While there is little evidence on the real return on capital in Nigeria, on a priori grounds, one may assume that in such a capital-scarce economy it would be relatively high. The observed

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[42] This has been stressed by Friedman, "The Quantity Theory...," op. cit., and also in the recent money-growth models.

rate of actual price inflation during the 1950-66 period has varied between 7.5% and -4% annually.[43] While these rather moderate rates cannot be expected to have represented very wide fluctuations in the expected return on money balances, there is still some evidence (to be discussed below) that they have been large enough to have had significant effects on the demand for money.

It should be noticed also that the high real rate of return on capital in Nigeria provides another reason why one cannot expect to observe a great deal of sensitivity of the demand for money to the interest rate on financial assets, as discussed above. For those money-holders who consider real assets, or loans in the unorganized credit market, as alternatives to money, a situation where the yields on such assets are considerably higher than the level of interest rates on financial assets, the yields on the latter will be irrelevant to their demand for money.[44] It will only be those institutions which limit their asset choice to financial assets for whom it will be important. As long as this group accounts for a relatively small proportion of the demand for money, and the organized and unorganized

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[43] Computed from the data in the Appendix. The price index which is used is the implicit GDP deflator.

[44] The author does not know of any systematic attempt to measure the level of interest rates in the unorganized credit market, or the return on real assets. From conversations with friends in Nigeria, however, it is fairly clear that, though interest rates are not stated on an annual basis, through devices such as borrowing £10 and paying £11 in a month, or forward selling of crops at low prices, interest rates on an annual basis are very high. For a general discussion of this problem, see Tun Wai, U, "Interest Rates in the Organized Money Markets in Underdeveloped Countries," IMF Staff Papers, Vol. 5, August 1956, pp. 249-278, and "Interest Rates Outside the Organized Money Markets of Underdeveloped Countries," Ibid., Vol. 6, November 1957, pp. 80-142.

markets continue to be effectively separated, the influence of financial interest rates on the money/income ratio will be limited. This, of course, does not alter the fact that in the future, when the two markets become more closely integrated and competitive, financial interest rates will become more directly dependent on the real return on physical capital, and these rates might then show a closer relationship with the demand for money. To some extent, the present non-competitive nature of the organized financial markets are caused by government policies (See Chapter II), and as is discussed in Chapter V, there are possibilities for making them more competitive by changing certain such policies.

Finally, it might also be considered that to some extent, foreign assets might serve as an alternative store of value and transactions medium in Nigeria. During the period under study, this was probably most relevant in determining the demand for non-monetary financial assets, however, since the institutions accounting for most of the activity in the markets for them were also the institutions that had most ready access to foreign securities. With free currency convertibility and relative price stability, there was little reason to hold foreign currency instead of Nigerian for transaction purposes. But if a high rate of price inflation were to prevail in Nigeria, there might also be some substitution of foreign assets (including currency), as well as of real assets, for money balances, especially under a regime of fixed exchange rates where the possibility of a devaluation or the imposition of exchange controls, might give rise to expectations of high short-term returns with no risk of loss.

This means that this effect would be most important not when nominal interest rates on foreign assets changed, but in a situation where there was a change in the expected rate of inflation.

b. Forecasting the Demand for Money Balances

In this section, some tentative results are shown of attempts to explain the time path of the money/income ratio in terms of a simple trend extrapolation on the one hand, and the factors discussed in the previous section on the other hand.

Using the data in Section 4.a, a simple regression of the logarithm of the money/income ratio on a time trend yields the following result:

$$(3.3)\quad \ln(mo/y) = \underset{77}{-2.3} + \underset{5.6}{.0156}\, t \qquad R^2 = .69,\ DF = 15$$

It is seen that over the 1950-66 period, the ratio rose on the average by about 1.6% per annum. If monetization is seen as an autonomous process, it can therefore be said that it proceeded at a relatively rapid rate throughout the period.

An explanation of the ratio in terms of the income elasticity of the demand for money involves a regression of the ratio on real income; the form of regression chosen here was that of the logarithm of the ratio on the logarithm of income which yielded the following result:

$$(3.4)\quad \ln(mo/y) = \underset{153}{-2.15} + \underset{5.6}{.322}\, \ln(yc) \qquad R^2 = .70,\ DF = 15$$

It is seen that the real income term is highly significant, as is to be expected. The result can be used to form an estimate of the elasticity of real money balances with respect to real income, as

follows. First, one may note that the ratio of nominal money balances to money income is the same as the ratio of real money balances to real income, if the same price deflator is used for money balances and income. Further, the logarithm of a ratio is the difference between the logarithms of the numerator and denominator. Therefore,[45]

$$\ln(mo/y) = \ln\left(\frac{mo/p}{yo}\right) = \ln(mo/p) - \ln(yo) \quad .$$

Rewriting the left-hand side of (3.4) accordingly, and adding ln(yo) to both sides, yields:

$$\ln(mo/p) = -2.15 + 1.322 \ln(yo) \quad .$$

From this equation it is seen that the elasticity estimate is somewhat above 1.3; therefore, the estimated significant coefficient for ln(yo) in (3.4) implies an estimate of the income elasticity which is significantly above unity.

Before continuing the analysis, it should be observed that there is little statistical difference between the results (3.3) and (3.4). An attempt to discriminate between the "trend-explanation" and the "elasticity-explanation" failed because of the high degree of collinearity between yo and t.[46] Therefore, one's choice between the two explanations must be made on the basis of his evaluation of the

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[45] "p" in the equation is recognized as the implicit GDP-deflator, with yo = y/p.

[46] See, e.g., Johnston, J., Econometric Methods, New York, McGraw-Hill, 1963, pp. 201-207 for an explanation of the effects of multi-collinearity.

economic logic underlying the respective hypotheses. On those grounds, the present author finds (3.4) the preferable one.

Finally, an attempt was made to consider whether the expected return on money balances had had any effect on the time path of the money/income ratio. In line with the discussion in the previous section, it was assumed that the most important determinant of variations in this return, and hence of variations in the ratio on this score, had been changes in the expected rate of price inflation. Since the expected rate of inflation is a non-observable variable, the question arises whether any simple measure of actual rates can serve as a significant proxy. The problem is that expected inflation is likely to be influenced by actual inflation with some form of time lag. The alternatives considered for this lag were the following. First, it was hypothesized that expected inflation was proportional to actual inflation lagged one period. Secondly, it was assumed as an alternative that the adjustment of the money/income ratio to its equilibrium value took place with a distributed lag, with the equilibrium value being determined by real income and observed price inflation lagged one period.[47] The results of the corresponding regressions were:

$$(3.5)\quad \ln(mo/y) = \underset{153}{2.1} + \underset{4.5}{.26}\ln(yc) - \underset{2.6^{*}}{.90p'_{-1}} \qquad \begin{matrix} R^2 = .77 \\ DF = 12 \end{matrix}$$

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[47] For a clear exposition of the logic underlying this formulation, see A.S. Goldberger, Econometric Theory, John Wiley & Sons, New York, 1964, pp. 274-276.

$$(3.6)\quad \ln(mo/y) = \underset{1.8}{1.0} + \underset{1.5^*}{.13}\ln(yc) - \underset{2.3^*}{.76}p^i_{-1} + \underset{1.9^*}{.50}\ln(mo/y)_{-1} \qquad \begin{matrix} R^2 = .82 \\ DF = 12 \end{matrix}$$

(*Coefficient not significantly different from zero at 1% level)

The variable p^i, the measure of actual price inflation, is given by the change in the logarithm of the GDP-deflator.

Using (3.5) to compute an estimate of the income elasticity of demand for real money balances in the same way as before, yields a value of 1.26; since the coefficient of ln(yc) in the original equation is significantly different from zero, an elasticity which is significantly different from unity is again implied. The coefficient of p^i_{-1} is significantly different from zero at the 2.5% confidence level (though not at the 1% level), and has the expected sign. Its value may be considered surprisingly high. Suppose that the value of the lagged rate of price inflation were to increase from, say, 2% per annum to 7% per annum. Ceteris paribus, (3.5) implies that the demand for real money balances would then decrease by about 4.5%. As will be discussed below, this means that real savings in the form of increased holdings of money balances are quite sensitive to past rates of price inflation.

When the lagged value of the money/income ratio is added as an explanatory variable, the estimated coefficient of p^i_{-1} is still significant at the 2.5% level. The lagged value itself, however, is not significantly different from zero at that level, and the coefficient of ln(yc) also becomes insignificant. For this reason, the hypothesis that the lagged money/income ratio has an influence on the current

one, may therefore be rejected,[48] and the simpler equation (3.5) will be used in the subsequent projections in Chapter IV.

C. Effects of Monetary Expansion on Growth and Prices in Nigeria

In the past four sections, the major components in development financing over the period 1951-66 have been analyzed, with special attention to the contribution of savings through the monetary system. The objective in the following sections is to consider the effects that a more expansionary monetary policy would have on the rate of real economic growth, as well as on the rate of price inflation and the balance-of-payments. Information on these various effects is, of course, a necessary requirement for the discussion in Chapter IV regarding what target rate of monetary expansion should be aimed for in the future.

In the first three sections, the possible contributions of monetary expansion to real growth will be considered. First, the question will be asked whether monetary expansion can be used to increase directly the amount of savings in the form of real money holdings. As was discussed in the previous sections, such savings in the past have been a relatively small component of total savings, but they may nevertheless represent an "important" part of development financing, since they are used to a large extent to finance government

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[48] The formal language of hypothesis testing is used here with considerable reluctance, given the low quality of the data, and also the limitations of the usual t-tests when the lagged dependent variable appears on the right-hand side. Perhaps it is more honest to say that (3.5) is preferred because it is simpler, because the R^2 is not much lower than in (3.6), and because the t-ratios are higher.

investment which may in certain cases (education, infrastructure) be prerequisites for development in the private sector.[49] However, using the results from the analysis in the previous section, it will be seen that the savings contribution from this source will continue to be relatively small unless the policy-makers are prepared to accept very high rates of price inflation.

Secondly, the possibility is discussed that monetary expansion and price inflation might influence capital formation and growth through bringing about such changes in the distribution of income as would favor savings. This is the time-honored theoretical case for inflationary financing.[50] The question whether it would have validity in Nigeria is first considered on the basis of a priori reasoning, but an attempt is also made to see whether the data contain any evidence that the moderate rates of inflation in Nigeria in the past have stimulated savings. No conclusive evidence to this effect can be found, however.

Thirdly, the degree of resource utilization in the economy can also be expected to be affected by the rate of monetary expansion. Whereas this type of relationship is more frequently used in the analysis of more highly developed economies in underemployment equilibria, such as are described by Keynesian-type models, there is no reason to

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[49] Put differently, there may be a problem associated with the transfer of savings from the private to the public sector, even if aggregate savings would be adequate; this is somewhat analagous to the conversion of savings into foreign exchange analyzed in the "two-gap" models; in the present case, it is suggested that there may be a "government revenue constraint" as well as a general savings constraint.

[50] For a priori discussions of this question, see the references on the first page of this chapter. For a clear and concise discussion of the possible benefits of inflation, see also Lewis, W.A., Development Planning, New York, Harper and Row, 1966, pp. 130-138.

expect a priori that an economy like the Nigerian one will always have its resources fully employed. On the other hand, the possibilities for increasing resource utilization and real income at any given time through aggregate demand expansion without price inflation or balance-of-payments disequilibrium may be quite limited. This question is discussed generally, and the statistical evidence considered, in Section 3.

Fourthly, in an economy as dependent on international trade as the Nigerian one, monetary expansion will rapidly lead to pressure on the balance-of-payments. In Section 4, the relationship between imports and incomes, as well as the sensitivity of foreign trade to domestic price inflation, is discussed and analyzed empirically.

It should be stressed again that the Nigerian data are not reliable enough for the empirical work to yield any accurate parameter estimates. The data used here, however, are the same as those the policy-making authorities have to work with, and it therefore seems worthwhile to investigate whether or not they support any of the hypotheses regarding the effects of monetary expansion that have been raised at various times. Though the results must be as weak as the data, such work at least shifts the burden of proof to those who claim that they are false.

1. Monetary Expansion and Monetary Savings

In Section B.4 above, the growth in the demand for money over time was considered, and it was found that there was some evidence of the money/income ratio depending positively on real income, and negatively on the rate of price inflation. The objective in this section is to consider to what extent a more rapid rate of monetary

expansion, i.e., a higher reliance on inflationary financing, will affect the contribution of the monetary sector to savings. As has been noted above, this is of interest not only in discussing the reaction of overall savings to monetary expansion, but may also be relevant if inflationary financing is used in an attempt to reallocate savings, e.g., from the private to the public sector.

As monetary savings depend on real income and on the lagged rate of price inflation, assumptions regarding their values must be made in order to calculate its contribution. The procedure adopted here for illustrative purposes will be to assume that the authorities are initially aiming for a given rate of real growth (first assumed to be 5%), and that they are prepared to accept a given rate of price inflation; and then to consider the rate of growth in the demand for money at that rate of inflation, at different levels of real income.

If one first assumes that the aim of the authorities is to keep the price level constant, the percentage growth rate in money income is equal to the growth rate of real income. In this case, Equation (3.5) indicates that the money supply should expand by 6.3% annually.[51] At a money/income ratio of about .15, which is the ratio predicted by Equation (3.5) for 1966, if the price inflation term is set to zero,

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[51] Using the identity: $y = p.yc$, where p is the GDP-deflator, (3.5) may be rewritten, after some manipulation: $\ln(mo) = 2.1 + 1.26 \ln(yc) + \ln(p) - .90p'_{-1}$.

Setting $\frac{d \ln P}{dt} = p' = p'_{-1} = 0$, and differentiating (3.5) with respect to time, one obtains:

$$\frac{d \ln mo}{dt} = 1.26 \frac{d \ln yc}{dt} + \frac{d \ln p}{dt} = 1.26 \times 5\% = 6.3\%.$$

this amount of monetary expansion would correspond to between .9 and 1.0% of income, i.e., this would be the contribution of monetary savings to the savings ratio.[52] This contribution to savings would rise over time as income and the money/income ratio rose. However, the increase would be small; with zero price inflation, the ratio would, after 5 years, have risen to about .161, which, when inserted in the formula of Footnote 52, would raise the savings contribution to only slightly above 1% of GDP.

Second, the case may be considered where price inflation, on the average, were permitted to proceed at 5% per annum. If real income, as before, were assumed to grow at 5%, money income would be growing at 10%, and the warranted rate of expansion of the money supply would be 11.3% per annum (see Footnote 51). Because of the price inflation, however, the money/income ratio would be lower than before; according to (3.5), it would have been about .143 at the 1966 value of real income and with 5% price inflation. The combination of this ratio with the 11.3% monetary expansion represents about 1.6% of GDP. The remaining entries in Table III-3 have been computed in a similar way.

Table III-3

Alternative Rates of Savings Through the Monetary System

	Price Inflation (% p.a.)			
	0	5%	10%	15%
Rate of Monetary Expansion:	6.3%	11.3%	16.3%	21.3%
Increase in Money Holdings/GDP:	.9%	1.6%	2.2%	2.8%

Source: as explained in the text.

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[52] This result is derived by noting that as a percentage of GDP, savings in this form would be given by:

$$(mo/y)\,\frac{d\ \ln mo}{dt} = .15 \times 6.3\% = .945\% \quad .$$

In Section B2. above, it was seen that with the policy of essentially stable prices which has prevailed in Nigeria during 1950-66, savings in this form had accounted for on the average, about 1.1% of GDP. The computations here indicate that in order to increase this by, say, 1 percentage point, through a higher rate of monetary expansion, a rate of price inflation of about 10% per annum would have to be accepted.[53] If this rate, or some lower one, is regarded as the upper limit to the tolerable price inflation, it must then be concluded that the degree to which an expansionary monetary policy can be used to finance increased development expenditure is very small. This "naive" case in favor of a high rate of monetary expansion can, therefore, essentially be rejected.[54] To avoid any misunderstanding, it should be noted that this conclusion has been reached even when the process of monetization is allowed for; one frequently hears the claim that the savings potential in the monetary system is high in a country undergoing the process of monetization. But the calculations above are based on observed trends in the demand for money in Nigeria, which include the monetization effect, so that this factor has already been taken into account.

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[53] It should be noted that this is an extrapolation from a result which was derived on the basis of changes in the price level in a range which was always below 10% per annum. Such an extrapolation is of course always unreliable, and if anything, it is likely that the decrease in the money income ratio at such high rates of inflation is underestimated using the extrapolation technique. If so, the price inflation which would have to be accepted to reach the target mentioned in the text, is also underestimated.

[54] H.G. Johnson, in his article, "Is Inflation the Inevitable Price of Rapid Development...," op. cit., reaches a similar conclusion, using similar reasoning, without considering explicitly the determination of the money-income ratio, however. See also Harberger, A.C., "Some Notes on Inflation," in Baer and Kerstenetzky, eds., op. cit., especially pp. 324-325.

The case for a high degree of monetary expansion must thus rest mainly on other, indirect effects of money on real income, and some possible such indirect effects are considered next.

2. Effects of Price Inflation on Income Distribution and Savings

Growth in aggregate monetary demand will generally not leave relative prices unchanged, and thus is likely to affect the distribution of income between various classes of economic agents. Through this effect, it will also have effects on the aggregate volume of savings. The purpose of this section is to discuss what effects one can expect on various forms of savings as a result of an expansionary monetary policy.

Monetary expansion will generally increase money expenditure on all categories of commodities, including agricultural products, consumption and investment goods and services from the modern domestic sector, and on imported goods. Except for the case of imports, this spending will in turn accrue to owners of domestic productive factors, i.e., land, labor, and capital. The hypothesis to be discussed here can be put in the form of the two-fold proposition that (1) the distribution of factor returns influences the savings performance, and (2) that a consistently high level of aggregate demand can change the distribution in such a way that the higher-saving categories of income are favored.[55]

[55] There seems to be some agreement in the literature regarding the first proposition, to judge by the wide-spread acceptance of Lewis' assumption that the savings proportion in less developed countries essentially depends on the share of profits in total income; see Lewis, W.A., "Economic Development with Unlimited Supplies of Labour," op. cit. and also Lewis, W.A., "Reflections on Unlimited Labour," Princeton Development Research Project, Discussion Paper No. 5, October 1968, and references there. Speaking of highly developed countries, however,

As was briefly discussed above, the first part of this proposition is likely to have substantial validity in Nigeria, and it was argued that to a large degree, the improved savings performance in the past was due to the increasing share of private profits, especially in the modern sector. To the extent that a high level of demand leads to an increase in the share of demand directed towards products of the modern large-scale manufacturing and service sectors, the share in income of profits and savings will probably go up. The share of profits in payments to the foreign firms, utilities, and some of the larger Nigerian firms, is relatively high because they are capital-intensive, and the propensity to consume of the persons to whom these profits go is likely to be small.[56] Furthermore, profits in public utilities and other government-owned enterprises will directly contribute to government revenue, and the share of taxes in profits on the non-government part of this sector is also quite substantial.

On the other hand, a large share of increased incomes will be spent on purchases of domestic foodstuffs from the agricultural sector,

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(footnote 55 continued) Musgrave in The Theory of Public Finance, New York, McGraw-Hill, 1959, p. 373, stresses the size distribution of income rather than the functional distribution, as the relevant one in this analysis. In view of the belief that the non-capitalist high-income groups in less developed countries have a high propensity to consume, however, the functional distribution may be more important in such countries. With respect to the second proposition, that inflation can change the functional distribution in form of profits, there is considerably less agreement. See, e.g., Johnson, H.G., "Is Inflation the Inevitable Price of Rapid Development...," op. cit.

[56] It must also be assumed that the propensity of foreign firms to reinvest their profits in Nigeria is high; if it is not, the favorable effect on savings and capital formation is correspondingly weaker.

and also on products of the small-scale, traditional non-agricultural sector. Though this spending could theoretically be subdivided into remuneration to land, labor, and capital, respectively, from the point of view of the effects on consumption and savings, this distinction is probably unimportant. It would appear likely that the marginal propensity to consume out of such incomes is considerably higher than out of profits in the large-scale sector, though a certain amount of earnings would be retained within the sectors for investment. For example, at the time when a high and growing level of aggregate demand was maintained through increasing demand for exports, a great deal of investment took place in the agricultural sector, in the form of landclearing, planting of cocoa trees and other cash crops, etc. There is no reason to believe that a similar response would not result with rising profitability of growing domestic food, though there is little evidence pertaining to this question for Nigeria. On balance, however, the proportion consumed out of this income can be expected to be somewhat higher than in the modern sector.

The above arguments further support the first part of the proposition stated initially. But the second part of the proposition, that a consistently high level of aggregate demand will redistribute income in favor of the high-saving categories, still remains open. In this context, the mechanism of wage determination in the modern sector is especially important, given that the most favorable effect on savings is likely to take place to the extent that profits increase in the modern sector. Whatever evidence is available for Nigeria indicates that it would be hard to increase profits in this sector significantly through price inflation, at the expense of a declining

share of real labor earnings. This is both because institutional arrangements in the labor market tend to make wages rise when the cost of living does,[57] and also because the prices of many of the goods in this sector cannot be raised very rapidly because they are in close competition with imports. The latter factor indicates that tariff policy in this instance is a more effective tool for influencing savings, whereas domestic inflation alone would rather tend to hurt the savings performance.[58]

The short-term response of prices of domestic foodstuffs to an expansion of monetary demand, however, can be expected to be quite rapid, as the short-run price elasticity of the supply of foods seems to be relatively low, and as there is less competition with imports, which lowers the price elasticity of demand for domestic food.[59] Therefore, there would tend to be some redistribution in favor of the

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[57] See Kilby, P., Industrialization in an Open Economy: Nigeria 1945-1966, Cambridge, Harvard University Press, 1969, p. 276; also Frank, C. Jr., "Urban Unemployment and Economic Growth in Africa," Oxford Economic Papers, Vol. 20, July 1968, pp. 250-274.

[58] Outside the large-scale industrial sector, there can also be distinguished what has been referred to as an unorganized urban sector of small-scale manufacturing and service establishments, and some evidence has been reported that wages in this sector are not as sensitive to the cost of living as in the large-scale sector. See Kilby, op. cit., pp. 276-280. In this sector, profits might, therefore, depend positively on inflation, but this relationship is unlikely to have very much significance, since the share of total savings taking place in this sector is bound to be relatively small.

[59] At least, those would tend to be one's conclusions: from observing the wide fluctuations in the food component of the cost-of-living index; see Federal Office of Statistics, Digest of Statistics, various issues.

agricultural sector, which would have less favorable effects on savings than redistribution toward profits in the modern sector. This is further enhanced by the fact that the increase in tax revenues accompanying the expansion in aggregate income would tend to be relatively small when redistribution is in favor of agriculture.[60]

It has been noted above that one way in which a high level of aggregate demand can stimulate savings is by automatically increasing tax revenues. In Nigeria, this type of relationship will not be strong for taxes based on domestic economic activity, since income taxes provide a relatively small part of total revenue,[61] and taxes on profits are likely to come to a large degree out of potential savings. A large share of government revenue, however, comes out of import tariffs, so that the high level of imports resulting from a high degree of aggregate demand would have some positive impact on savings. But it is clear that with unchanged tariff and exchange rates, this positive effect cannot be relied upon without incurring balance-of-payments problems. On the other hand, the question arises whether monetary expansion together with increasing tariffs is an appropriate policy from the point of view of increasing government revenue and savings; this question will be further considered below. It may be noted here, however, that the argument for such a policy would be

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[60] Taxation of farmers mainly takes the form of accumulation of Marketing Board surpluses and taxes on agricultural exports; farmers do not pay income tax, and there are no excise taxes on sales of domestic foodstuffs.

[61] See, e.g., Lewis, W.A., Reflections on Nigeria's Economic Growth, Paris, OECD, 1967, p. 63.

stronger the greater the possibility that domestic price inflation *per se* would tend to stimulate savings, and the *a priori* arguments in this section do not appear to favor this hypothesis.

In Section B.3 above, an equation was shown in which the estimated ratio of domestic non-monetary savings to GDP was regressed on real income, and the result indicated that there was a positive relationship. If, as was argued above, this reflects an increasing share of profits in GDP, and if the second part of the proposition on p. 191 is true, i.e., that it is possible to increase the profit share by a high level of aggregate demand, one should be able to find a relationship between the savings ratio and some index of aggregate demand pressure. Some simple tests were performed to discover whether the data contained any evidence of such a relationship, with negative results. The simplest form of the hypothesis implies that the redistribution of income toward profits results from price inflation, and the first form of the test involved adding a measure of this variable as an explanatory variable in Equation (3.2). The result was:

$$(3.7)\quad \underset{}{sm} = \underset{7.1}{.061} + \underset{2.9}{.108}\ \ln(yc) + \underset{3.38}{.066D57} - \underset{.07}{.012p'} \qquad \begin{matrix} R^2 = .61 \\ DF = 13 \end{matrix}$$

where, as before, p' is the percentage rate of price inflation. It is seen that the coefficient for the price inflation variable was completely insignificant. Alternatively, it is possible that a high degree of aggregate demand may lead to an expansion of real incomes rather than price inflation, if there are underutilized resources in the economy. There might, however, still be a redistribution toward profits when aggregate demand expands. On the basis of this argument,

the growth rate of aggregate money income was added to the right-hand side of (3.7). Again, however, the coefficient of this variable was quite insignificant.

It was also argued above that while profits in the modern sector could be expected to be a significant determinant of savings, there was reason to believe that profits in this sector would not be strongly stimulated by domestic price inflation because of competition with imports. This, however, gives rise to the alternative hypothesis that savings depend positively on the relative price of imports. While a test of this hypothesis in an aggregative form cannot be carried out for the entire sample period, i.e., 1951-66, because of the lack of aggregative data on tariffs in Nigeria, a colleague of the author's has developed a tariff index for 1954-65.[62] This index was used to construct a series for the relative price of imports during this period, and the corresponding variable was added to the right-hand side of (3.2). The result was:

$$(3.8)\quad sm = \underset{2.7^*}{.042} + \underset{.10^*}{.01}\, yc + \underset{2.4^*}{.04D57} + \underset{1.6^*}{.17pr} \qquad R^2 = .69,\ DF = 8$$

(* is not significantly different from zero at the 1% level.)

This seems to lend some limited support to the hypothesis under test, at least in the sense that the coefficient is of the expected sign. The t-ratio, however, is insignificant even at the 5% level (though it is significant at the 10% level) and it is also disquieting that when the import price term is introduced, the significance of the real income term disappears; this would imply that the marginal

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[62] See Blomqvist, A.G., and Stebbing, D.W., "A Simple Model of Imports, Incomes, and Prices in Nigeria," unpublished, 1967.

propensity to save is equal to the average, as long as the relative price of imports stays constant, contrary to the result observed in Equation (3.2). Nevertheless, the result lends some credence to the hypothesis stated regarding the dependence of savings on profits in the import-competing industries.

The essential conclusion from these tests, however, is that there is no evidence in the data of a relationship between a high level of aggregate demand and the domestic savings ratio. While it is still possible that such a relationship might manifest itself at higher and more consistent rates of price inflation than those observed in Nigeria during the period under consideration, the a priori reasoning above would seem to speak against that possibility, and the results shown certainly give no grounds to reject that reasoning.

3. Effects on Resource Utilization

It is sometimes said that aggregate demand is a limiting factor on real incomes, only in advanced economies with unemployed resources both in the form of capital and labor, whereas in less developed economies, the limit on real incomes is set by supply factors, so that an expansion of aggregate money incomes would have no effect on real income. On the other hand, many writers have pointed to the existence of large numbers of unemployed or underemployed workers, and underutilized capital in less developed economies as evidence that real output could be increased in response to increased aggregate demand.[63] At the theoretical level, the crucial issue within this

[63] Lewis, W.A., Development Planning, New York, Harper & Row, 1966, pp. 130-131. See also the useful discussion in Bruton, H.J., Principles of Economic Development, Englewood Cliffs, New Jersey, Prentice-Hall, 1965, Chapter 5, pp. 64-79.

problem, of course, regards price flexibility and market clearing. If prices are sufficiently flexible, the neo-classical model within which, by assumption, full employment of resources will always prevail, is the appropriate tool of analysis. On the other hand, if prices react to excess supply or excess demand only sluggishly, a decrease in aggregate demand may result in significant amounts of excess supply in certain markets, taking the form of underutilized labor or other productive factors.

But in the latter case, because the phenomenon of underutilized resources is typically not a gener[illegible]ggregate demand expansion cannot be expected to incres[illegible]t causing price inflation. This observat[illegible]art of the reasoning of the so-call[illegible]ich maintains that an acceptable rate [illegible]ce utilization can only be achieved at [illegible] and as will imply a relatively high rate of p[illegible]lation results from the fact that certain "structura[illegible]s," i.e., sectors with inelastic supplies of output exist in the economy, side by side with underutilized resources in other areas.[64]

In Nigeria, there is widespread unemployment and underemployment of labor, particularly in the cities. This is consistent with the fact that wages in the urban sector are quite unresponsive to market

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[64] See the excellent discussion in Campos, R.O., "Economic Development and Inflation with Special Reference to Latin America," in Development Plans and Programmes, OECD, Paris, 1964. Reprinted in Meier, G.M., ed., Leading Issues in Development, op. cit..

problem, of course, regards price flexibility and market clearing. If prices are sufficiently flexible, the neo-classical model within which, by assumption, full employment of resources will always prevail, is the appropriate tool of analysis. On the other hand, if prices react to excess supply or excess demand only sluggishly, a decrease in aggregate demand may result in significant amounts of excess supply in certain markets, taking the form of underutilized labor or other productive factors.

But in the latter case, because the phenomenon of underutilized resources is typically not a general one, aggregate demand expansion cannot be expected to increase real incomes without causing price inflation. This observation appears to lie at the heart of the reasoning of the so-called "structuralist" school, which maintains that an acceptable rate of economic growth and resource utilization can only be achieved at such levels of aggregate demand as will imply a relatively high rate of price inflation; the inflation results from the fact that certain "structural bottlenecks," i.e., sectors with inelastic supplies of output exist in the economy, side by side with underutilized resources in other areas.[64]

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forces, and are strongly influenced by a variety of factors, including unionism, arbitrarily set pay scales in the government sector, and a tendency in the private sector to pay wages similar to those paid by the government.[65] In the modern manufacturing sector, there are many industries, e.g., textiles, soft drinks, shoe manufacturing, metal products, which typically seem to be operating at considerably less than full capacity. Therefore, an increase in aggregate demand would be quite likely to lead to some increase in real output and income generated in these areas. On the other hand, there are also many sectors where prices are flexible enough so that there is little excess capacity, and so that a demand expansion quickly leads to increased prices; the most important one is probably domestic foodstuffs. The transport sector may also be an important such bottleneck; and also those activities, such as construction, where skilled labor is an important input.[66]

In a closed economy, the fact that price rigidity and under-employed resources exist in only certain sectors, whereas other sectors act as bottlenecks with less than infinitely elastic output, an expansionary policy would result in some combination of price inflation and real output expansion. In a substantially open economy such as

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[65] See again Kilby, op. cit., Chapter 9, Frank, C. Jr., op. cit., and Warren, W.M., "Urban Real Wages and the Nigerian Trade Union Movement, 1939-60," Economic Development and Cultural Change, Vol. 15, October 1966, pp. 21-36.

[66] Note also that these are sectors where competition with imports is relatively unimportant.

that of Nigeria, however, at given foreign exchange rate and tariff levels, the problem that first arises with such a policy would be the emergence of a balance-of-payments deficit. Imports would expand (and to some extent, exports would be reduced) both in response to the expansion in real income, and as a result of any price inflation that took place. But this, of course, implies that if the foreign-reserve constraint becomes absolutely binding at even a mild degree of aggregate demand expansion, such a policy cannot be used if the authorities are firmly committed to a fixed exchange rate and tariff level. On the other hand, the question whether such a commitment should be made must be answered on the basis of some form of estimate of the degree to which aggregate demand expansion can stimulate resource utilization. If the rate of monetary expansion consistent with balance-of-payments equilibrium is so low as to lead to a high degree of unemployment of resources, it might be preferable to tolerate a certain degree of price inflation, and deal with the balance-of-payments problem through tariff policy and intermittent exchange rate adjustments.[67]

An attempt will be made below to see whether the Nigerian data contain any evidence that real income could have been maintained at a higher level throughout the 1951-66 period, if a more expansionary economic policy had been pursued. Some rather inconclusive, but affirmative evidence is found. If this evidence is accepted, the most

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[67] This, presumably, would be the structuralist position. In the Nigerian case, as has been discussed before, the large initial reserves in the 1960's means that the dilemma has not arisen in a serious way, but it is likely to do so in the future.

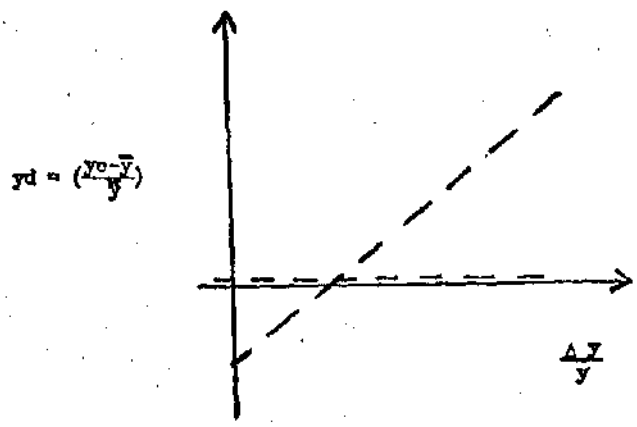
procedures that were used to construct the measure of productive capacity (see the next paragraph), there are also other reasons to expect the portion of real income variation which cannot be explained by changes in aggregate demand, to be large when one is considering Nigerian data. On the one hand, the aggregative series for real income is of low quality, and is certain to have significant observational errors. On the other hand, in an economy where agricultural output accounts for about half of the total, random fluctuations in the weather and other crop conditions are also certain to give rise to a great deal of variation in real income; moreover, with much of this production taking place in the subsistence sector, variations in this component would not be correlated with monetary demand in any case. For these reasons, it is not surprising that the real income variable shows a great deal of unexplained variations in the equations below.

In the first experiment, the growth in productive capacity in the 1950-66 period was simply assumed to follow an exponential time trend; the (constant) percentage growth rate of this measure was derived from a regression of real income on time.[69] The index of capacity utilization was then represented by the logarithmic difference between the observed and predicted value of real income; put more simply, it was represented by the percentage deviation of real income from trend.

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[69] The result of regressing the log of real income, 1950-66, on time, was: $\ln y_t = -.413 + .048t$; $R^2 = .98$; the actual values tend to be below the regression line in the second half of the 1950's, and above the line elsewhere.

The first hypothesis to be tested, therefore, was that this variable was related to the level of aggregate demand. The variable representing the latter was simply taken to be the growth rate of aggregate money income; in other words, the hypothesis was that in years when the growth in money income was above average, i.e., aggregate demand was maintained at a high level, real income would be above its trend value.[70] The diagram below clarifies the meaning of the test.



[70] The postulated relationship here is very close to that used in so-called Phillips-curve analysis, where a relationship is assumed to exist between the level of unemployment (which is inversely related with the degree of capacity utilization) and the rate of change of money wages (which may be taken to be directly related to the rate of price inflation, which in turn depends on the growth rate of money incomes, given the growth in real income). See Phillips, A.W., "The Relationship Between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957," Economica, Vol. 25, Nov. 1958, pp. 283-99.

The rate of growth of money income is measured on the horizontal axis, and on the vertical axis the percentage difference between real income and capacity.[71] A horizontal regression line (a coefficient of zero) would indicate that capacity utilization were independent of aggregate demand, i.e., that prices were perfectly flexible and that growth in real income depended only on capacity growth; because perfectly flexible prices imply full capacity utilization, this regression line would also have to coincide with the horizontal axis. In this case, an attempt to stimulate real income by raising aggregate demand, would only result in price inflation. At the other extreme, a 45° regression line (i.e., a slope of 1) would indicate a Keynesian-type system, where a given percentage change in money income would lead to an equal proportional change in real income; i.e., it would indicate complete price inflexibility.[72]

The result of the test is stated in Equation (3.9):

$$(3.9)\quad yd = \underset{2.68}{-.043} + \underset{3.03}{.61}\frac{\Delta Y}{y}; \qquad R^2 = .40,\ DF = 14$$

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[71] The origin represents the average degree of capacity utilization during 1950-66, since at the origin $y_c = y$, i.e., real income is equal to its trend value.

[72] For a priori reasons, it is clear that a linear relationship of this form cannot be valid at very high levels of capacity utilization, since there must come a point when an increase in aggregate demand will result only in price inflation, i.e., when all the resources in the economy are fully employed. The test results should, therefore, be regarded as valid only in the neighborhood of the average values actually observed.

As might have been expected, only a relatively small portion of the variance (40%) of the dependent variable is explained in the regression; but on the other hand, the coefficient of the income growth variable is 3 times as big as its standard error, which is significantly different from zero, even at the 1% level. Thus, there is some evidence that income could have been maintained at a somewhat higher level throughout, if a higher rate of monetary expansion had been permitted to take place.

The second experiment differed from the first only in the constructed measure of productive capacity; instead of assuming that capacity had grown according to a constant exponential trend, an attempt was made to construct a capacity series based on the capital formation data. Following the authors of the 1962-68 Development Plan, it was assumed that there was a simple relationship between capacity growth and the ratio of gross domestic capital formation to real income in Nigeria.[73] The data for the period 1951-66 were then used to estimate the average incremental output-capital ratio.[74] It was then assumed that the rate of growth in capacity, as a percentage of actual real income, was equal to the investment ratio multiplied by the computed output-capital ratio. Assuming that productive capacity in the initial year was equal to observed real income in that year,[75]

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[73] See, e.g., Stolper, W.F., Planning Without Facts, Cambridge, Mass., Harvard University Press, 1966, pp. 109-110.

[74] A one-year lag was assumed between capital formation and output growth, so that the percentage growth in real income between period t and (t-1) was divided by the investment proportion in period (t-1).

[75] This assumption is not crucial, since even if it is unwarranted, the computed series will differ from the "true" one only by a constant, which will only affect the estimate of the constant term in the following regression.

the constructed series for the capacity variable can then be computed iteratively, by adding successive increments. The difference between this series and observed real income was then computed for each year, and the hypothesis to be tested was that this difference would be positively related to the pressure of aggregate demand, which was again taken to be represented by the percentage growth in money income. The result of the test is given in the following equation:

$$(3.10) \quad yd = \underset{4.2}{-.066} + \underset{3.07}{.60}\frac{\Delta Y}{y} \qquad \begin{matrix} R^2 = .40 \\ DF = 13 \end{matrix}$$

The coefficient for $\frac{\Delta Y}{y}$ here is virtually identical with that in the previous equation, as is the t-ratio and the R^2 .

It is worth noting that the interpretation of these results is <u>not</u> that the long-run <u>growth rate</u> of real income could have been directly influenced by the rate of growth of money income, but that by consistently maintaining a higher rate of expansion of the latter, the <u>level</u> of real income would have been somewhat higher. At the average level of aggregate demand prevailing during the sample period, which was such as to produce a rate of price inflation of only somewhat more than 2% on the average, the coefficients for $\frac{\Delta Y}{y}$ in the regressions indicate that if this variable had consistently been 1 percentage point higher, real income would have been .6% higher in each year. But this effect might, of course, indirectly have stimulated the growth <u>rate</u> as well, by making possible higher savings; this factor will be explicitly taken into account in the numerical illustrations in Chapter IV. However, the quantitative importance of the effect in this respect is quite small, so that the estimated trade-off is

essentially one of somewhat higher level of resource utilization and real income on the one hand, and a certain rate of price inflation resulting from a consistently higher level of aggregate demand. Taken together with the relatively small amounts of additional savings which are likely to be brought about by an expansionary policy, as discussed in the previous sections, the case in favor of such a policy as a way of stimulating real income growth, does not appear particularly strong.

4. Monetary Expansion and The Foreign Sector

If a policy is followed of maintaining a high degree of resource utilization, and of generally trying to stimulate capital formation and growth through an expansionary monetary policy, the maintenance of equilibrium in the balance-of-payments will, of course, become an acute policy problem. It is increasingly recognized that a large number of less developed countries have "overvalued" exchange rates.[76] It can be argued that this simply is a symptom of the fact that such countries have chosen to conduct relatively expansionary monetary and fiscal policies in order to meet their objectives with respect to resource utilization and growth, though satisfactory policies have not been found to deal with the ensuing foreign exchange problem. While Nigeria until the present time has fared better in this respect than many other developing countries (like the Latin American ones; but also, e.g., Ghana) her present low foreign exchange reserves make it likely that the foreign exchange problem in the future will assert itself in a considerably aggravated

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[76] See, e.g., Johnson, H.G., Economic Policies Toward Less Developed Countries, New York, Praeger, 1967, pp. 74-76.

form, as argued above.

If a fixed exchange rate is to be maintained over time, a continuing upward pressure on domestic prices, in excess of the rate of increase of prices of imported (and exportable) goods means that it will become progressively more profitable to import and less profitable to export. One seemingly advantageous way of maintaining equilibrium in the balance-of-payments in this case would be to counteract this by raising tariffs; besides reducing imports, this is also likely to increase tariff revenue, which is in fact one of the most important sources of government revenue in Nigeria.[77]

The disadvantage with tariff increases as the way of dealing with balance-of-payments pressure, of course, is that it does nothing to stimulate exports, but on the contrary, by maintaining an artificially low price of foreign exchange, will discriminate against exports.[78] It is sometimes contended that this is not a serious disadvantage in a primary-exporting country like Nigeria, because the price elasticity of supply of primary exports is said to be low, and moreover, the price elasticity of demand for primary products is said to be low. The validity of these claims, however, is somewhat open to question. There have been some studies showing that world price elasticities of demand for one of Nigeria's primary exports, namely cocoa, is relatively low. For groundnuts and palm products, however,

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[77] See Lewis, W.A., Reflections on Nigeria's Economic Growth, op. cit., p. 63, where import duties are shown to account for £N60.8 million out of a total revenue of £N149 million in 1962-63.

[78] Thereby leading to efficiency losses through reducing the gains from trade. See, however, the qualifications in the text.

the elasticity may be relatively high because of competition from other oilseeds, and in the case of natural rubber, because of synthetic rubber.[79] Furthermore, since Nigeria is not the dominant world producer of any of her major exports, the elasticity of demand for Nigerian exports might be quite high. With respect to supply elasticities, there has been no conclusive evidence that they are particularly low, especially not over the long run; it would not be surprising if the long-run elasticities, especially for the tree-crops (palm products and cocoa), were considerably higher than the short-run ones, and relatively long lags in the adjustments of producers to changes in prices can be expected also for other agricultural export products.[80] These questions will not be further pursued here, however, beyond the observation that much more information is required before it can be concluded that supply elasticities are in fact low.

Furthermore, an overvalued exchange rate will diminish the possibilities of diversifying exports, i.e., of developing new types of exports other than the traditional primary products. It would thus put Nigeria in a position where she would stand to gain less than would otherwise be possible from any tariff preferences in favor of her industrial products that might result from the negotiations within the

[79] See Helleiner, G.K., Peasant Agriculture, Government and Economic Growth in Nigeria, Homewood, Illinois, Richard D. Irwin, 1966, pp. 86-87 and references cited there; also p. 115 and pp. 104-105.

[80] Marketing Board producer prices have shown a great deal of year-to-year variation, as have the prices of domestic foodstuffs. In this case, it is quite reasonable for farmers to wait for a few years, to be sure that a change in relative prices will persist, before they commit themselves to changing the pattern of planting in response to such changes; this might give rise to relatively long lags in reactions to prices. See, e.g., Helleiner, G.K., op. cit., Chapter 6, pp. 152-184, and also pp. 58-75.

UNCTAD framework, or from regional free trade arrangements. While the complex issue of the appropriate degree of import substitution as versus export-oriented industrialization will not be further pursued here, the point is that it should be resolved on the basis of specific social profitability calculations, and that the degree of import substitution which comes about as an unintended result of domestic inflationary pressure will generally not be the appropriate one.

There is also another reason why the alternative of raising tariffs in order to permit a domestic policy leading to price inflation will generally not be feasible to any large extent in Nigeria, namely, smuggling. While information regarding the extent of smuggling is necessarily very incomplete, there are many reasons to expect it to be very widespread in West Africa.[81]

The smuggling problem, of course, would make it equally difficult to maintain balance-of-payments equilibrium by using any form of licensing. In addition to the efficiency losses that it would lead to, this alternative, moreover, has a well-known great potential for creating administrative difficulties of various kinds, including the potential for aggravating corruption.[82]

For the above reasons, there are severe disadvantages with maintaining a consistently overvalued exchange rate, and commitment

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[81] Plaza, M., in Problems and Prospects of Economic Integration in West Africa, Centre for Developing Area Studies, McGill University, Press, 1968, pp. 47-54, goes so far as to say that West Africa is in effect a free-trade area already. Smuggling is not limited to products produced in the "exporting" country, but "entrepot" smuggling is also very important (from low-tariff to high-tariff countries).

[82] The blatant way in which the import licensing system in Ghana was used by politicians for the enrichment of themselves and their relatives is said to have been an important explanation of the popular acceptance of the coup in that country in 1966.

to a fixed exchange rate would provide a strong limitation on the use of inflationary financing for any length of time. Should the policy-makers choose to accept a certain degree of inflation, periodic adjustments in the fixed rates would become necessary in order to avoid these disadvantages, and the difficulties in carrying out such adjustments in an orderly fashion without creating speculative capital flights are also well known.

Another possibility of circumventing the balance-of-payments problem would be to adopt flexible exchange rates in some form. As it does not appear to the author that the adoption of flexible rates is a policy alternative which is seriously considered in Nigeria (or among LDC's in general) at the time of writing or in the near future, the discussion of this alternative will be limited to a few general observations.

If the flexible rate principle were to be adopted, the authorities would obviously be able to choose whatever rate of monetary expansion and price inflation they felt warranted, without regard for foreign exchange reserves; the criterion on which to base the choice of monetary expansion would then involve, on the one hand, the possible advantages of domestic inflation in terms of higher resource utilization and a higher rate of capital formation and growth, and, on the other hand, the disadvantages of price inflation in terms of domestic allocation of resources and distribution of income, and the possible impact on external capital flows.[83]

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[83] For an exposition of the general case in favour of flexible rates, see Friedman, M., "The Case for Flexible Exchange Rates," in Essays in Positive Economics, Chicago, University of Chicago Press, 1953, pp. 157-201. Not much has been written on this subject specially for the case of LDCs, as far as the present author is aware.

Irrespective of the rate of monetary expansion that would be chosen in this case, there are, however, some objections against flexible rates *per se*. First, as a member of the IMF, Nigeria is, of course, obliged to maintain fixed rates. If she were to withdraw from that agreement, she would lose the access to short-term external assistance which the IMF provides, and quite possibly, there would also be unfavorable repercussions, for political reasons, in terms of the flow of capital from the World Bank and other sources of official capital which support the fixed-rate principle.

Secondly, in spite of the general validity of the conclusion in recent literature that under a system of flexible exchange rates, the monetary authorities have more control over the money supply than they do under fixed exchange rates,[84] in practice it would nevertheless be true that some attention would have to be paid to external factors under flexible rates also. This would be true in particular for the case where monetary expansion were permitted to be high enough to cause a rapid and sustained internal price inflation, and as a consequence, a continuing depreciation of the Nigerian currency. This case has generally been neglected in the recent literature, because of the use of the Keynesian assumptions of unemployment and constant prices, or the assumption that devaluation or depreciation of the external value of the currency would give rise to no expectations of a further fall

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[84] See, e.g., McKinnon, R.I., and Oates, W.E., "The Implications of International Economic Integration for Monetary, Fiscal and Exchange Rate Policies," Princeton Studies in International Finance, No. 16, Princeton, N.J., 1966, and also the literature referred to in footnote 2 of the Introduction.

in the exchange rate.[85] But, if in fact, the rate of monetary expansion is maintained at a high enough level to yield a persistent depreciation of the external value of the currency, realism requires one to recognize that this would lead to expectations that it would continue, so that there would be an expected negative rate of return on Nigerian money balances relative to foreign money. Whether or not the depreciation of external value were expected to continue, there would in any event always be some uncertainty about the future exchange rate under a system of flexible rates.

For these reasons, it might be expected that private asset-holders and participants in international trade might want to hold significant amounts of foreign money, both to avoid the exchange risk in international transactions and for speculative purposes. In addition, if the fluctuations in the internal value of the domestic currency were great, and if there were a significant expected negative rate of return on domestic money balances, the use of foreign money to effect internal transactions might also become widespread. Accumulation of private foreign balances in this way might lead to significant capital exports in the case of flexible rates, even though capital exports through official reserve accumulation would be smaller.[86]

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[85] See McKinnon and Oates, op. cit., pp. 2-3.

[86] On this point, see McKinnon, R.I., "Private and Official International Money: The Case for the Dollar," Essays in International Finance, No. 7, International Finance Section, Princeton, N.J., April 1969, pp. 8-9.

Furthermore, continuing depreciation of the exchange rate would make it more difficult for Nigerian financial securities, e.g., government securities, to compete with foreign ones for savings in Nigeria. If the rate of depreciation could be correctly foreseen, this could simply be offset by adjustments in the nominal rates. In practice, however, there will be a great deal of uncertainty concerning the future rate of depreciation, and if investors are risk-averters, not only a higher nominal rate, but also a higher expected real rate of return (i.e., nominal rate minus expected rate of depreciation) might be required for investors to consider Nigerian securities competitive with foreign ones. This would slow down the growth of financial intermediation in Nigeria, and there would be some tendency for lenders to lend abroad and borrowers to seek loans abroad; but many Nigerian borrowers do not have access to the overseas markets (such as small businessmen and farmers), and they would find it more difficult to obtain credit.[87] As will be further discussed in Chapter 5, this is likely to imply a decrease in the economic efficiency of the allocation of credit.

The only way to effectively prevent those types of effects under a system of flexible rates would be to pursue such a monetary policy as to prevent a substantial downward trend in the external value of the Nigerian currency. While this means that the potential disadvantages of a high rate of monetary expansion might be severe under a system of

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[87] This problem is generally also implicitly neglected in the literature referred to, since the credit market is assumed to be fully competitive in the sense that all lenders and borrowers face a unique international real rate of interest at which unlimited borrowing and lending can take place. See e.g., McKinnon and Oates, loc. cit.

flexible rates as well as under one of fixed rates, the argument above, of course, does not throw much light on the question whether a regime of flexible rates in Nigeria would be beneficial for other reasons. Though the present author believes that some measure of increased flexibility would indeed be beneficial, provided that the problem of disapproval by the international financial community could be overcome, at the present time the commitment to fixed rates in Nigeria, as well as in most other developing countries, appears firm.[88] In the following chapter, it will therefore be assumed that Nigeria will continue to adhere to the principle of a fixed rate, and if there is a conflict between this objective and other policy objectives, this will be resolved through once-and-for-all devaluations.

5. The Data for the Foreign Sector

In this section, the Nigerian data for the foreign sector are examined, with the objective of finding approximate estimates of the relationships existing between the foreign sector and the rate of monetary expansion and price inflation. It is found that even if the response of exports and capital flows to monetary expansion are disregarded, the sensitivity of imports to monetary expansion alone

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[88] Another possibility is to introduce some form of multiple exchange rates. A scheme recently suggested by Kaldor appears particularly interesting in this situation; it would involve a dual exchange rate with "essential" imports and exports of primary products being traded at an "overvalued" rate, whereas other imports and exports would be traded at a lower rate; the latter could then be made a freely fluctuating one. Whereas this scheme obviously would also involve administrative problems, it would appear to warrant further study in view of its possible advantages for many countries where the foreign exchange problem seems to be a chronic one, and where the alternative seems to be a system of detailed control of international payments. For a description of Kaldor's scheme, see Kahnert, F., Richards, P., Stoutjesdijk, E., and Thomopoulos, P., Economic Integration Among Developing Countries, Paris, Development Centre, OECD, 1969, pp. 106-108.

is sufficiently high for the balance-of-payments to react strongly to attempts to stimulate the economy through an expansionary policy.

No attempts are made here to consider systematically the determination of exports and their relationships with money and prices. As was argued above, this is not because domestic prices do not affect these variables, but rather for the reason that the export performance is more significantly dependent on Marketing Board policies, swings in world market prices, etc., than on moderate changes in the domestic price level, and also that there are likely to be long lags between changes in those variables and exports. Therefore, exports will be taken as exogenous here, but the influence of various assumed trends in exports on the rest of the economy will be further discussed in Chapter IV.

The level of imports, on the other hand, can be expected to be determined primarily by domestic incomes, and the relative prices of imports and domestic goods. Furthermore, the response of the level of imports to changes in those variables is likely to take place more quickly than would be the case for exports.

To estimate the responsiveness of imports to incomes and prices, a measure of the relative price of imports after adjustment for tariffs had to be constructed. A measure of tariffs in Nigeria is available from a joint paper by the author and Mr. D. W. Stebbing, for the years 1954-65.[89] The relative price series for imports here was constructed

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[89] See Blomqvist, A.G., and Stebbing, D.W., "A Simple Model of Imports, Incomes and Prices in Nigeria," unpublished, 1967.

by adjusting the c.i.f. import price index (published in the GDP-accounts) for tariffs, and then dividing by the index for domestic prices. The volume of imports was then considered to be determined by real income and this relative price. The result of the corresponding regression, in log-linear form was:

$$(3.11)\quad \ln(mc) = \underset{6.8}{1.4}\ \ln(yc) - \underset{2.35*}{1.13}\ \ln(pr) + .84 \qquad R^2 = .87,\ DF = 9$$

Here mc represents imports in constant prices, and pr is the index of the relative price of imports.

The coefficient of yc is significant at the 1% level, whereas the one for pr is significant only at the 2.5% level. As might be expected, the income elasticity of the demand for imports appears to be higher than unity (i.e., the marginal propensity to import is higher than the average), in spite of the fact that growth in real income has been accompanied by a continuing policy of import substitution.[90] The implied relative price elasticity of about (-1) may appear surprisingly low, but can perhaps be considered quite plausible in a country where the competition between imports and domestic products is still relatively low for a wide range of commodities. The estimate must be regarded as very tentative, however, as the standard error is relatively high.

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[90] Though the coefficient of yc is significantly different from zero at the 2.5% level, it is not significantly different from unity at that confidence level. At the 5% level, however, it is.

On the whole, Equation (3.11) provides some empirical support for the hypothesis stated above that a commitment to fixed exchange rates and relative freedom of trade and payments is likely to give very little room for domestic monetary expansion and price inflation. The high income elasticity of demand for imports means that their growth rate will be quite high even with price stability, and, in addition, the observed relative price elasticity would mean that for every percentage point by which domestic price inflation were to exceed the rate of increase of c.i.f. prices, a little more than one percentage point would be added to the growth rate of imports. As will be shown in the illustrative projections in Chapter IV, this will imply that an extremely conservative monetary policy will be called for if the exchange rate is to remain unchanged.

6. Summary

The purpose in this part of Chapter III was to consider the hypothesis that the level and growth of real income could be significantly stimulated by conducting a more expansionary monetary policy in Nigeria without leading to intolerable rates of price inflation or balance-of-payments difficulties. Put differently, it was attempted to get some idea of the trade-off that would exist between the level and growth of income, on the one hand, and price inflation and foreign exchange difficulties on the other.

Whatever quantitative evidence is available tends to indicate that the trade-off is relatively unfavorable. The direct increase in savings which could result from an increase in the rate of monetary expansion tends to be small, because the money/income ratio is low, but also because there is some evidence that the resulting price inflation

itself lowers the ratio. Furthermore, there was no evidence that an increased rate of price inflation would lead to a higher savings rate in non-monetary form, though the relatively low rates which prevailed in Nigeria during the sample period make this result uncertain for higher rates of inflation. The qualitative discussion, however, does not indicate any compelling reasons not to accept the result as plausible. While some evidence was found that the rate of capacity utilization, and hence real income, could have been somewhat higher if a consistently higher level of aggregate demand had been maintained during 1951-66, this would be likely to have only a small effect on the growth of income, and could be achieved only at the price of consistently higher rates of price inflation. Finally, and perhaps most importantly, it was found that the high income elasticity, and significant relative-price elasticity, of the demand for imports, are highly likely to make it difficult to reconcile a more expansionary monetary policy with a fixed exchange rate and relative freedom of international trade and payments. The case in favor of such a monetary policy in Nigeria, therefore, cannot be said to be a very strong one.

In Chapter IV, the results derived in this chapter will now be used, together with some of the analysis of Chapter II, to formulate and illustrate numerically the effects of different types of policy principles followed by the monetary authorities.

Appendix to Chapter 3

Two-Stage Least Squares Estimation of Some Equations

It should in principle be recognized that the equations which have been tentatively estimated in this chapter are each part of a system of equations which could be used to describe the Nigerian economy. In the next chapter, the estimated parameters are also used to construct a very simple model of this nature which is then used for illustrative projections of the economy under various assumptions regarding monetary policy.

But it is well-known that when a stochastic equation is part of a system of equations, estimation of the parameters through the use of ordinary least-squares may be biassed as a consequence of the resulting simultaneity problem. The question therefore arises whether it would be warranted, for purposes of this study, to attempt the application of estimation methods designed to overcome this problem, such as two-stage least-squares.

The answer is not immediately obvious. While simultaneous-equation methods, of course, are designed to overcome the bias arising in such situations, relatively little is known about their small-sample properties, and the main rationale for their use is their property of consistency, which may be considered somewhat irrelevant in such small samples as must be used here. Furthermore, though this has not been proved in general, Monte-Carlo studies have shown that ordinary least-squares generally has a considerable smaller variance than, e.g.,

two-stage least-squares, and this provides an important offset to its undesirable property of being biassed.[91]

Finally, nothing is known about the relative performance of ordinary least-squares and simultaneous equation methods in a situation where the explanatory variables are subject to errors of observation; there can be no doubt that there are significant errors in the data used in the present study. While this, of course, provides no additional justification for choosing one method over another, it does mean that the choice becomes a relatively arbitrary one, and that therefore the greater simplicity of ordinary least-squares might make one favor it.

On these grounds, it was felt that it was justified to retain the original ordinary least-squares estimates in the main text, and to use the parameters so estimated for purposes of the projection experiments in the next chapter. The alternative two-stage least-squares estimates described in this Appendix should therefore be considered mainly as a rough check on the original ones, and are shown here only for purposes of comparison. As will be seen, they yielded results which were quite close to the original ones.

Retaining the same notation as in the text, the stochastic equations used in the projection model below can be written as follows (omitting the error terms):

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[91] See Johnson, J., Econometric Methods, N.Y., McGraw-Hill, 1963, Chapter 10, especially Table 10-2, p. 280.

(A.1) $\ln(mo/y) = a_o + a_1 \ln(yc) + a_2 \Delta\ln(p_{-1})$

(A.2) $yd = b_o + b_1 \Delta\ln(y)$

(A.3) $\ln(mo) = c_o + c_1 \ln(yc) + c_2 \ln(pr)$

(A.4) $sm = d_o + d_1 \ln(yc)$

where the a's, b's, c's and d's are coefficients to be estimated.

The last two equations, however, are stochastically independent from the rest in the sense that their dependent variables do not enter on the right-hand side in any of the other equations. Therefore, the problem of simultaneous-equation bias does not arise in these cases, and ordinary least-squares may be used.[92] Thus, the question of applying two-stage least-squares arises only with regard to equations (A.1) and (A.2).

The endogenous right-hand side variables in the system are $\ln(yc)$ and $\Delta\ln(y)$. Rewriting those variables in terms of the identities:

$$\ln(yc) = yd + \overline{y}$$

$$\Delta\ln(y) = \ln(mo) - \ln(mo/y) - \ln(y_{-1}) ,$$

where $\overline{y}$ is the logarithmic trend value of real income, and yd is the deviation from trend, it is seen that for these equations, the

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[92] Strictly speaking, it should be recognized that the volume of imports will influence the money supply if the latter is taken as endogenously determined. This complication will be disregarded here, and the money supply will be taken as exogenous; if this is not done, the system will become non-linear, due to the fact that the above equations are linear in the logarithms of the variables, whereas the equations determining the money supply are linear in the variables themselves.

dependent variable of each one does indeed enter the right-hand side of the other. It is also clear that the exogenous variables in the system are $\ln(mc)$, $\bar{y}$, $\ln(y_{-1})$, and $\Delta\ln(p_{-1})$.

Performing the usual two-stage least-squares estimation procedure on the two equations yields the following results, with the ordinary least-squares estimates from the text being shown for comparison:

(A.1) TSLS: $\ln(mc/y) = -2.1 + \underset{5.0}{.27}\ln(ye) - \underset{2.69}{.88}\Delta\ln(p_{-1})$

OLS: $\ln(mc/y) = -2.1 + \underset{4.5}{.26}\ln(ye) - \underset{2.6}{.90}\Delta\ln(p_{-1})$

(A.2) TSLS: $yd = -.050 + \underset{1.57}{.72}\Delta\ln(y)$

OLS: $yd = -.043 + \underset{3.03}{.61}\Delta\ln(y)$

As before, the numbers directly under the regression coefficients are t-ratios.

For the first equation, it is seen that the coefficients are virtually identical for TSLS and OLS, and the R^2's and F-ratios are also very close. For the second equation, there is a slight increase in the coefficient of $\Delta\ln(y)$ when TSLS is used, indicating some downward bias in the OLS-estimate. Not unexpectedly, however, the standard error is much greater, (as indicated by the lower t-ratio) for the TSLS-estimate, and the R^2 is as low as .16; for the OLS-estimate, it was .40. In view of the small differences between the coefficients, and the larger variance of the TSLS-estimate, it is therefore difficult to decide which of the estimates should be considered the preferred one.

CHAPTER IV

Alternative Monetary Policy Rules

Introduction

The primary objective in this chapter is to consider how the analysis and tentative empirical results in Chapter III can be used as a basis for the formulation of actual rules for monetary policy in Nigeria.

Such policy rules can take different forms. On the one hand, they may consist merely of non-specific, qualitative guidelines indicating that monetary policy should be "restrictive" or "expansionary," depending on the rate of price inflation, the balance-of-payments situation, and the rate of growth and resource utilization prevailing at a given time. Unless these guidelines (which typically are not made explicit) are put into a considerably more specific form, it is difficult to know the relative weights that the Central Bank assigns to these different objectives at any given time, and its reactions to development in the economy are difficult to predict.[1] The relative importance of these various objectives in a low-income, primary

[1] Attempts to infer those implicit weights, on the assumption that they exist and are consistently used, from the observed behavior of the monetary authorities, have been made for the U.S. and Canada. See Wood, J.H., "A Model of Federal Reserve Behavior," in Horwich, G., ed., Monetary Process and Policy, Homewood, Illinois, Irwin 1967, pp. 135-166, and references there, and Reuber, G.F., "The Objectives of Canadian Monetary Policy 1949-61: Empirical "Trade-Offs" and the Reaction Function of the Authorities," Journal of Political Economy, Vol. 72, April 1964, pp. 109-132.

producing economy, will be discussed in Part A in the light of the discussion in Chapter III.

On the other hand, some economists have advocated very strict and inflexible guidelines for monetary policies. The most well-known advocate for such a type of "automatic" policy is, of course, Milton Friedman; he has suggested that the task of the Federal Reserve system in the U.S. should be limited to ensuring that the money supply would continue to expand at a constant annual rate at all times.[2] The merit of such a rule for the U.S. will not be discussed in this chapter, but the question will be discussed whether there are advantages to be derived from employing some form of fixed policy of this kind in a low-income, open economy of Nigeria's type, or whether it is preferable to give wider discretion to the monetary authorities, so that they can pursue different policies in response to given conditions in the economy. It will be the conclusion here that the arguments in favor of some sort of rule are quite persuasive in the Nigerian case, but that the rule probably should be somewhat more complex than the simple type proposed by Friedman. The analysis of this problem will also be carried out in Part A of this chapter.

Whichever of the two alternative methods of policy-making is adopted, however, it is clearly important to have quantitative estimates of the effects of different policies on the various economic variables

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[2] See Friedman, M., A Program for Monetary Stability, New York, Fordham University Press, 1959, pp. 90-92.

of interest, i.e., the price level, the level of foreign reserves, and the level and growth rate of income. Attempts to obtain estimates of the effects of monetary expansion on those variables have been described in the previous chapter; in Part B of this chapter it will be shown that the relationships previously analyzed can be incorporated into a rudimentary aggregative model of the Nigerian economy, and an overall view of all the relevant effects of given monetary policies can be provided within such a model.

The effects of several alternative rules and types of discretionary policies will be considered in hypothetical calculations, under different assumptions regarding parameters such as the exchange rate, export and import prices, government borrowing needs, etc. A specific policy program will then be proposed in order to stimulate further discussion of this issue.

A. Rules vs. Discretion in Nigerian Monetary Policy

As is well known, Friedman based his case in favor of a fixed monetary policy rule for the U.S. on the likelihood that there were "long and variable" lags in the effects of monetary policy measures, and possibly also in the reaction of the monetary authorities to changing conditions in the economy.[3] In the presence of such lags, it can be shown that under certain conditions, a discretionary policy

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[3] See Friedman, M., "The Effects of Full Employment Policy on Economic Stability: A Formal Analysis," in Essays in Positive Economics, Chicago, University of Chicago Press, 1953, pp. 117-132 and ibid., "The Lag in Effect of Monetary Policy," Journal of Political Economy, Vol. 69, October 1961, pp. 447-466, reprinted in Friedman, M., The Optimum Quantity of Money, London, McMillan, 1969, Chapter 1.

may become destabilizing instead of stabilizing, i.e., that it may increase the amplitude and frequency of the cyclical fluctuations observed in the economy. For example, if there are long "inside" lags, i.e., if there tends to be a long time lapse between the need for a change in monetary policy, measured in some way, and the actual implementation by the authorities of such a change, implementation may come at a time when the need for a policy change has disappeared, or when a need for a different policy has arisen. With long "outside" lags, i.e., when there is a delayed and gradual reaction of the economy to the actual policy measures, the same problem may arise; even if the intended effect of the particular monetary policy was in the right direction at the time when it was implemented, part of the effect may occur during a period when a different policy is called for. In either case, it is easy to see that the result may well be an aggravation of the fluctuations that would otherwise take place, or even "policy-induced" fluctuations that would not otherwise have arisen.

1. Domestic vs. External Stabilization

Friedman's analysis of the use of monetary policy for stabilization purposes was carried out for the case of highly developed economies, in which fluctuations to a large extent tend to be generated internally, i.e., where the economy contains endogenous relationships that would give rise to or magnify cyclical fluctuations even in the absence of large autonomous disturbances originating outside the economy. In a low-income primary producing economy such as Nigeria's, the extent of such endogenous fluctuations is likely to be less important. On the other hand, the severity of fluctuations arising for autonomous reasons,

may be quite strong. One reason for this is the sensitivity to the weather and other crop conditions of the agricultural sector, which is likely to lead to relatively large fluctuations in the output and price of domestic foodstuffs, and in the output of agricultural exportables. On the other hand, fluctuations in the world prices of Nigeria's exports and imports would also be important factors influencing domestic incomes and prices, in view of the relatively high value of the ratio of international trade to domestic income. While Nigeria is fortunate in having her exports diversified between several kinds of primary products, so that her economy is less likely to suffer as large fluctuations in export revenues as the "one-crop" or "one-mineral" economies, the variations have nevertheless been sizable.[4] As was indicated above, Chapter III, these factors together have led to relatively wide fluctuations in Nigeria's real income; the standard deviation of estimated real income, after adjustment for the trend, has been about 3.6 percentage points[5] during the 1950-66 period, and even when an additional allowance is made for the portion of variation that is estimated to have been due to fluctuations in aggregate demand, the standard deviation remains as high as about 2.8-2.9 percentage points.[6]

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[4] See the discussion in Helleiner, G.K., "Peasant Agriculture, Development and Export Instability: The Nigerian Case," in Stewart, I.G., and Ord, H.W., eds., African Primary Products and International Trade, Edinburgh University Press, 1965, pp. 44-64, especially pp. 54-60.

[5] I.e., the standard error of estimate in the regression of the logarithm of real income on a time trend, has been 3.6 percentage points.

[6] This is the standard error of estimate in the regression of the logarithmic deviation from trend of real income on the aggregate demand viable, i.e., in equation (3.9), Chapter 3.

When fluctuations in the economy are mostly due to endogenous factors, as in highly developed countries, variations in the state of the balance-of-payments and the level of foreign reserves to a large extent will be caused by internally generated fluctuations. In this case, stabilization of domestic incomes and prices can be expected to reduce the variability in the state of the balance-of-payments. On the other hand, when, as is largely the case in Nigeria, economic fluctuations are caused by such autonomous factors as crop variations and changes in export or import prices, stabilization of domestic incomes and prices is often likely to induce more instability in the balance-of-payments rather than less.[7] In particular, if changes in the money supply that would occur as a result of export or import surpluses due to autonomous factors are offset by operations designed to stabilize the money supply, the tendency to develop balance-of-payments disequilibria would be greater than if they were not offset. Therefore, there would seem to be a degree of conflict between a policy of domestic stabilization and balance-of-payments equilibrium.[8]

The difficulty of reconciling domestic and external stability as monetary-policy objectives can be regarded as arising out of the fact that only one policy instrument (i.e., the stock of money) is

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[7]For example, if an expansionary policy is used to offset the effects on real income of a decline in exports, the balance of payments position would deteriorate further. Or, suppose there were an increase in import prices, leading to decreased imports and an upward pressure on domestic prices; if that were to be offset by deflationary policies, there would be more of a balance-of-payment surplus than would be the case without such a policy.

[8]Friedman did not explicitly discuss such a possible conflict, presumably because he was concerned with the U.S., where foreign trade is relatively less important. But it should also be noted that he is one of the leading advocates of flexible exchange rates; under that system, the conflict, of course, does not arise.

available to attain two separate goals. In the case where external fluctuations arise as a direct consequence of internal ones, i.e., where there are no significant exogenous shocks affecting the balance-of-payments, the goals of internal and external stability become merged, and one policy instrument is sufficient. The point made here for the Nigerian case, however, is that there are significant independent exogenous factors affecting both domestic economic activity and the balance-of-payments, and, in general, at least two policy instruments must be available if it is desired to offset the resulting internal and external instability. As monetary policy has essentially only one instrument at its disposal, it will not be sufficient to do this.

There are, of course, several different ways in which this conflict could be resolved. One alternative involves the adoption of flexible exchange rates, in which case balance-of-payments fluctuations would affect the level of that rate rather than the level of reserves. The former effect might be regarded as less serious than the latter, so that this, in a sense, could be considered as a way of eliminating one objective in order to make possible the use of monetary policy for internal stabilization. For reasons noted in the previous chapter, however, flexible exchange rates probably do not constitute a relevant alternative in Nigeria at the present time, and this alternative will not be further discussed here.

Another possibility is to consider explicitly the introduction of a second policy instrument, so that there would be equality between the number of instruments and objectives. For example, in accordance

with Mundell's[9] advice, one might consider the principle of using fiscal policy for internal stabilization and monetary policy for external stabilization. But as is discussed elsewhere, the view taken in this study is that the primary way in which fiscal policy in Nigeria has an impact on aggregate demand is through its influence on the money stock, which is considered as the main determinant of aggregate demand. If this view is approximately correct, monetary and fiscal policy cannot really be used independently, and are, therefore, not sufficient to pursue several objectives.[10]

In spite of this, however, there is one specific tool of fiscal policy which could indeed be used effectively as a second independent instrument, namely, tariff policy. This potential instrument has the characteristic that it affects not only the general level of aggregate demand, but also a relative price, i.e., the price of imported goods. It may be maintained that because of this, tariff policy used as a short-term stabilization tool would have undesirable effects on the efficiency of resource allocation, and it is perhaps for this reason that this alternative has not received much attention from the academic world or in practical policy discussions.

While the present author believes that more active use of tariff policy in this way might quite possibly be desirable in cases where the alternatives are direct restrictions on imports and payments, this

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[9] See the classic article by Mundell, R.A., "The Appropriate Use of Monetary and Fiscal Policies under Fixed Exchange Rates," IMF Staff Papers, Vol. 9, March 1962, pp. 70-77.

[10] This is in addition to the fact that Nigeria's tax system at this time may not be sufficiently developed to be used effectively for purposes of short-term stabilization policy.

question will not be further pursued here; instead, on the basis of the reasoning above, it will be assumed that in practice, there are only limited possibilities of coordinating policy instruments in such a way that both internal and external stability are simultaneously achieved. The question which of those two objectives is the most important one for monetary policy must, therefore, again be raised.

Under a policy of fixed exchange rates, the level of foreign reserves to some extent provides a buffer against fluctuations in the balance-of-payment. A high level of reserves would, in fact, permit a certain degree of independence from the balance-of-payments constraint with respect to domestic stabilization policy. Therefore, the degree to which the monetary authorities could focus on the latter objective would depend on what level of reserves Nigeria was prepared to maintain. As was argued in Chapter 3, however, the opportunity cost of holding foreign reserves in Nigeria is quite high, and the actual reserves in recent years have been quite small. It may thus be argued that it is not very likely that Nigeria would want to maintain a large average reserve level in future years in order to be able to achieve a high degree of domestic stabilization.

On those grounds, it will, therefore, be assumed in this chapter that the objective of maintaining external equilibrium while aiming to hold only relatively low levels of reserves, will be the dominant one for the monetary policy authorities in the near future. But under those circumstances, the question regarding rules vs. authority must be correspondingly reformulated so as to concern their relative suitability in achieving external rather than internal stabilization. The question of "rules vs. authority" in Nigerian monetary policy will, therefore, be discussed primarily with reference to the suitability

of those two principles for external stabilization.

2. Time Lags in Discretionary Policy

In order to analyze the "rules vs. authority" question, the problem of lags in discretionary policies in Nigeria must be considered. In terms of the "inside lags," i.e., the possible lag in the recognition by the authorities that a change in policy is called for, it is clear that if the level of the foreign reserves is regarded as the indicator of requirements to change policies, the lag is quite short. The Central Bank has direct knowledge of its own reserves, and those of commercial banks are known with very short lags. Furthermore, to some extent, the availability of foreign exchange can be forecast some time ahead; short-term forecasts of world prices of primary commodities are available in many cases, and for some commodities, crop and price forecasts can be made early in the growing season. Direct private capital flows through major firms can also be predicted, and official foreign aid for larger projects is usually known some time in advance. The receipts side of the balance-of-payments can, therefore, be predicted some time ahead with reasonable accuracy, so that on this score, the need for a change of policy would be recognized at a relatively early stage.

Short-term forecasting of the payments side might be done in a similar way. It may be possible to obtain short-term forecasts of imports and payments on capital accounts by aggregating separate forecasts of imports of individual commodities, and major items on capital account, by surveying the plans of the major firms, government foreign exchange spending plans, etc.

On the other hand, it is difficult to know whether changes in the balance-of-payments predicted in this way are mainly due to significant underlying changes in the levels of income and prices, or whether they merely constitute a random disturbance;[11] in the latter case there is little reason to try to influence imports and payments by changes in monetary policy. In order to recognize a situation where such changes are called for, information on real income and the price level would be required. As was argued above, however, real income data are unreliable, and the random variation in the data is quite substantial. Furthermore, the statistics on real income are not available to the monetary authorities until after a very long time lag; 2-3 years has been the typical lag in recent years. Money incomes and the price level, on the other hand, are regarded above as being chiefly determined by the money supply via the variable velocity of circulation. Whereas the level of the money supply is known to the authorities after a very short time, the data on the velocity of circulation and money incomes is available only after the same long lag as in the case of real income; the same holds for the price level used in the statistical work in Chapter III, i.e., the implicit GDP-deflator. Some price data are available with a shorter lag, however, namely consumer price indices for certain

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[11] The standard error of the regression equation explaining imports is as high as 9 percentage points. Therefore, the random disturbances in imports, i.e., changes not explained by observed income and price changes, may be quite large.

cities.[12] But these indices are relatively limited in coverage, and probably are still of low quality. Therefore, if it is recognized that the main criterion according to which the need for a policy change should be assessed, should be changes in the underlying determinants of the balance-of-payments, the "inside" or "recognition" lag in monetary policy may be quite long.

There can also be expected to be some "outside lags," i.e., lags in the effects of monetary policy changes on the economy and in particular, on the level of imports. First, it may take some time for a given monetary policy measure actually to change the money supply. Since open-market operations, in the traditional sense, cannot be extensively used because of the narrow and uncompetitive market for government securities, changes in the amount of Central Bank net lending to the government will depend more on government spending and revenue than on purchases and sales of government securities to the public, and it may take some time for the government to adjust these plans if a change in the fiduciary issue is desired. If regulation of the money supply is intended to take place through measures influencing the commercial banks, it must be recognized that there may be a time lag before the banks can adjust their lending volume; again, because of the small market for financial securities, adjustment in the money supply cannot be expected to come via commercial bank purchases or sales of financial securities to the public. Even if it were possible

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[12] See Federal Office of Statistics, Digest of Statistics, various issues.

to bring about more rapid and accurate changes in the money supply by employing more direct and restrictive controls than had been used until 1966, as will be argued in Chapter V, this might have harmful effects on credit and investment allocation in both the public and the private sectors, so that better control of the money supply would then be obtained only at a cost in terms of this disadvantage.

Second, there are certain lags between a change in the money supply and the effects on incomes and imports. One such lag is inherent in the process of importing: whereas decisions to import would be made relatively quickly in response to changes in incomes and prices, it takes some time before such decisions actually manifest themselves as actual imports, and settlement of import transactions in terms of actual foreign exchange payments may also come at a different time than the arrival of the goods.

Generally, however, just because changes in the money supply in Nigeria are more closely related to actual government spending, and to changes in direct commercial bank lending, than to purely financial transactions, it can be expected that the time lag between changes in the money supply and spending is relatively short. This contrasts with the situation in a country where financial markets are more highly developed; there, it is easier to bring about changes in the money supply, and conditions in the financial markets may change relatively rapidly. On the other hand, there is likely to be a longer lag between changes in the financial markets and changes in

spending, than would be the case in Nigeria.[13]

The above arguments may now be summarized, and some implications for the possibility of conducting a successful discretionary monetary policy in Nigeria may be suggested, as follows. First, even though information on foreign reserves and international transactions are available to the monetary authorities with short time lags, the low quality of information on domestic incomes and prices, i.e., the underlying determinants of foreign reserve changes, and the long time lags before they are known, make it difficult to know whether a given change in the balance-of-payments reflects basic changes in these variables, or is merely due to random fluctuations. This will either imply a long inside lag in monetary policy, or will mean frequent unwarranted policy changes. Second, while the lag between changes in the money supply and changes in spending are probably not very long, the lag in the effects of monetary policy measures on the supply of money could well be quite long, unless direct controls are used on commercial banks, with the concommitant danger of interfering with the efficient allocation of credit. Thus, on this basis, the case

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[13] In terms of the simplest Keynesian models, a change in the money supply due to, say, an open market operation, would affect the interest rate in the "bond" market, and investment might then react to this change with a certain lag. In Nigeria, the cost and availability of credit from commercial banks to the private sector, and lending to the government by the monetary system, are much more important determinants of spending than the rate on "bonds" (i.e., credit in the non-monetary financial markets). Indeed, the former types of credit will not change unless spending does, so that the time lag is short. It can be noted here that the non-moretary financial markets play a major part in the debate regarding the use of monetary policy in open economies. Changes in the rate of interest in this market, and the resulting portfolio capital flows, are thought to constitute important mechanisms whereby the balance of payments can be maintained in equilibrium. As has been argued above, portfolio investments form only a negligible part of capital flows in Nigeria, and therefore much of this debate is irrelevant in the present context. See Mundell, R.A., "Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates," Canadian Journal of Economics and Political Science, Vol. 29, November 1963, pp. 415-485, reprinted in Mundell, R.A., International Economics, New York, McMillan, 1968, Chapter 13.

for pure discretionary monetary policy appears no stronger in an economy of Nigeria's type than it does for more highly developed economies in Friedman's representation, though the reasons are somewhat different.

But if the reasoning above appears to suggest that the monetary authorities in Nigeria should aim for a relatively stable policy, i.e., not undertake frequent changes in policy, this, of course, is an intermediate step in the direction of a fixed-rule type of monetary policy, and in the following few paragraphs, advantages and drawbacks of alternative forms of rules will be discussed.

3. Effects of Policy Rules

In discussing the question of "rules vs. discretion" in an open economy with fixed exchange rates, it may first be objected that abandonment of a discretionary policy aimed specifically at stabilizing the level of foreign reserves, in favor of a fixed rule, will mean that on the average, a higher level of foreign reserves would have to be maintained, since the Central Bank would not, under a fixed rule, try to directly counteract reserve fluctuations. This would be expensive in view of the high opportunity cost of holding idle reserves. This objection is less valid, of course, if the discretionary policy is only partly successful in stabilizing reserves; in that case, a cushion of reserves must be kept to offset "policy mistakes," if a fixed exchange rate and convertibility are to be maintained, and it is not clear that the required average amount of reserves is less in this case than under some fixed rule.[14]

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[14] In fact, they may be larger. This is analogous to Friedman's demonstration that a discretionary policy may actually aggravate fluctuations in income or employment, or whatever the target variable is, if there are lags. See Friedman, M., "The Effects of a Full Employment Policy on Economic Stability," op. cit.

Nevertheless, when the opportunity cost of foreign reserves is high, if the policy-makers want to try to achieve monetary stability through a fixed rule, there would be strong pressure on them to carry out such a policy while holding as small a level of reserves as possible, consistent with the objective of maintaining a fixed exchange rate. This would imply, on the one hand, that the risk of failure with respect to the latter objective would be high, and, on the other hand, that the particular rate of monetary expansion which was to be the basis for the fixed rule, would have to be chosen very accurately, in view of the small margin of error implied by the low level of reserves. Such a choice would, therefore, require precise forecasts of the exogenous variables affecting the balance-of-payments. Some numerical illustrations of the rapidity with which reserves will react to a rate of monetary expansion which is inconsistent with stability, given these exogenous variables, will be given in Part B. This requirement must be regarded as a drawback of the fixed-rule alternative.

Furthermore, it was already suggested above that one could generally expect there to be a relatively long lag between given monetary policy measures and changes in the money supply in Nigeria. This hypothesis was based on the fact that transactions between the monetary system and the non-bank public in financial securities are small, and for a given level of foreign reserves, the money supply only changes when there is a change in net lending by the banking system to the government, or a change in loans and advances by the commercial banks. But under a fixed rule, there are likely to be relatively large variations in the level of foreign reserves, caused

by the exogenous factors discussed before, yielding large exogenous tendencies toward variations in the money supply. Because of the lags, it would probably also be technically difficult to offset these exogenous variations by policy measures, and therefore difficult to implement closely a rule of the Friedman type, where the monetary authorities were expected to maintain a *uniform proportional rate of expansion* at all times.[15] This problem will be clearly demonstrated in the results of the numerical illustrations in Part B.

To partly overcome these difficulties, while still maintaining some of the advantages of a fixed-rule policy discussed above, a modified and somewhat more flexible type of policy rule will be suggested here. This rule would be based on the idea of retaining, to some extent, the automatic response of the money supply to variations in the level of international reserves. It can be described as follows.

Suppose the authorities have the objective of maintaining currency convertibility at a given exchange rate, and that they have a certain target value for the level of foreign reserves. Monetary policy must then be conducted in such a way that this level is maintained, on the average, over some period of time, i.e., the monetary authorities would have to plan that rate of monetary expansion which

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[15] Friedman *suggests* that this *uniformity should* be maintained even when there are seasonal fluctuations in the demand for money, since he believes that the non-monetary financial system can handle such fluctuations; see Friedman, M., A Program for Monetary Stability, op. cit., p. 92. In Nigeria, for the reasons stated above, it is inevitable that the fluctuations in bank lending and in foreign exchange holdings of the banking system will result in seasonal fluctuations in the money supply, and any policy would have to allow for such fluctuations.

would be predicted to bring about neither a balance-of-payments deficit, nor a surplus.

If the policy were successful, one of the determinants of the money supply, namely the foreign reserves in the banking system, would be given. The remaining main determinants, i.e., the amount of government borrowing from the monetary system, and the level of commercial bank lending to the private sector, would then have to be such that they would yield the desired rate of monetary expansion. This would be achieved by negotiating with the government specific limits to the rate of growth of holdings of government securities in the monetary system, and by maintaining given requirements on the liquidity of commercial banks.[16]

If these rules regarding government credit and commercial bank lending were strictly adhered to, and if the forecasts of the variables affecting the balance-of-payments were accurate, then the level of foreign reserves would stay constant and the money supply would expand at the planned rate. In reality, there would be likely to be significant short-run fluctuations in the level of foreign reserves, which would lead to short-run deviations of the money supply from its target values. Over the longer run, however, the money supply could be expected to follow the target path relatively closely, provided that the relationships and parameters underlying the policy choices are reasonably accurate.

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[16] See Chapter 5 for a detailed discussion of the implementation problems.

This form of a monetary policy rule, therefore, would not have the money supply directly as the control variable; the direct control variables, instead, would be government borrowing and commercial bank lending. However, the targets in these respects would be based on forecasts of trends in the remaining determinants of the money supply, so that indirectly, the money supply could be considered the control variable. But short-term changes in foreign reserves would generally make the money supply deviate from the target rate in this case, and the system would therefore partly retain its automatic short-term stabilizing response to international transactions, which would to some extent meet the objections discussed above regarding monetary policy rules. Quantitative illustrations of the operation of a rule of this form will also be given in Part B, and it is found there that it could be expected to perform relatively well in terms of maintaining balance-of-payments equilibrium.

Some of the advantages of a fixed-rule form of monetary policy have been given above: less risk of inappropriate policies due to inaccuracies or lags in the Central Bank's information on the economy; less uncertainty in the commercial banking system arising from the possibility of frequent and arbitrary requirements that they adjust their portfolios. The resulting greater stability over time of credit conditions can be expected to lead to a more efficient allocation of credit.[17]

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[17] In Chapter 5, the particular tools which can be used by the Central Bank to influence commercial bank portfolios will be further discussed, with particular reference to the desirability that tools are chosen in such a way as to bring about the desired adjustments while interfering as little as possible with the allocation of credit; the point made in the text is that the type of policy suggested here would make it easier for the Central Bank to employ such tools, since the need for direct controls would probably be less strong, the more stable the rate of monetary expansion.

Another and possibly more important advantage arises from the institutional role of the Central Bank in Nigeria as the de facto manager of the public debt. With the type of policy suggested here, the Central Bank would have an opportunity to emphasize the direct relationship between monetary expansion and government borrowing when negotiating limits for such borrowing; if the rate of borrowing projected by the Bank is exceeded, the rate of monetary expansion is increased, with consequences for the balance-of-payments, or else private credit expansion will have to be restricted. If a given rate of government borrowing is negotiated in advance, based on an explicit weighting of these factors, it would be easier for the Bank to withstand subsequent requests by the government for further borrowing. This way of resolving the conflict between government borrowing needs and monetary stability would have the advantage, over existing methods, of integrating government revenue and expenditure planning more closely with planning monetary policy. For these reasons it therefore appears warranted to investigate quantitatively the effects of this type of monetary policy; this is the aim of the next few sections.

B. Choosing the Target Rate of Monetary Expansion

In this part of Chapter IV a relatively simple method will be suggested which permits numerical computation of the target rate of monetary expansion on the basis of alternative policy criteria, and alternative assumptions regarding variables which are considered exogenous to the analysis, such as foreign resource availability, terms of trade, and the growth rate of real output. Once such computations have been carried out, the resulting target rate can be analyzed in

terms of alternative combinations of expansion of the monetary system's holdings of government securities, private sector debt, and foreign assets, following the methods employed in Chapter II. Two alternative types of policy criteria will be considered, namely that of a fixed and given rate of monetary expansion, and also that of letting the money supply expand in such a way as to hold the level of foreign reserves approximately constant, as discussed above.

Generally speaking, the time paths of variables which are determined within the system will be partly determined by the assumed time paths of the exogenous variables, and it could be claimed that the requirement to formulate forecasts of the exogenous variables will make it impossible in practice to formulate policy rules, since precise predictions of these variables are not available. The degree of validity of this claim will partly depend on the sensitivity of the required monetary policy rules to variations in the paths of the exogenous variables, however, and it will be one objective of the projections below to investigate this sensitivity. Secondly, however, it is probably safe to assume that government economic policy in the future will be at least partly determined by some more or less explicit development plans, so that forecasts of many of the exogenous variables will be formulated as part of such a plan.[18] Even if such forecasts are not necessarily very precise, it is nevertheless of

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[18] A post-Civil War Development Plan will be in force starting in 1971, according to press reports.

interest to investigate the internal consistency between these forecasts and projected policies, and specifically to consider what type of monetary policy would be consistent with the projected courses of other variables in the economy. As in Chapter III, particular emphasis will be put here on the question whether the projected needs for development financing, especially in the public sector, can be met without violating given objectives with respect to price stability or balance-of-payments equilibrium. The issue of the allocation of credit between the public and the private sectors, and its relationship with monetary control, will also be analyzed.

The organization of this part of Chapter IV is as follows. In Section 1, the initial conditions for the subsequent projection, and the general nature of the projections, are discussed. In Section 2, the methods for projecting the variables which are regarded as exogenous, will be described in detail, and in Section 3, the results of the basic projection for the case of a fixed rate of monetary expansion will be described and analyzed. A number of alternative projections will also be made, based on different assumptions regarding the exogenous variables, or on differences with respect to the objectives regarding price stability or balance-of-payments equilibrium. In Section 4, the performance of the modified policy rule, based on a target level of international reserves, is described, also for a number of alternative assumptions regarding the exogenous variables. Section 5, finally, contains a summary and some brief conclusions.

1. Initial Conditions and Method of Projection

As initial values for the variables to be projected, the observed actual values in 1966 will be used; certain policy targets with respect

to price stability, balance-of-payments equilibrium, and growth of real income will be assumed, and the resulting time and growth of variables chosen to be endogenous will then be projected as functions of the exogenous variables.

The choice of 1966 as the original year of the projections means that a large part of the period to which the projections pertain will be past history at the present time. The main reason for the choice of 1966, of course, is that most of the data series which have been used here end in 1966, and more recent data are not easily available.[19] On the other hand, in the time period since 1966, Nigeria has been involved in a civil war, which has disrupted international trade and payments, and made heavy demands on financing of the public sector's war expenditure, and the burden of the war has generally prevented normal economic growth and plan implementation. Therefore, the data from 1966 till the present time would have relatively little value as standards of comparison with planned growth. They would also be correspondingly less valuable as additional observations for the estimation of the regression equations in Chapter III. While it would have seemed most appropriate, under those circumstances, to undertake the projections starting from the initial peacetime values, the required initial values for the variables in the first post-war year, however,

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[19] This principally applies to the data from the GDP-accounts, including the price deflator. For the monetary system, more recent data are available.

are not yet available, and so the alternative of carrying out illustrative projections starting for 1966 was chosen instead. But the methods described below can easily be used for calculations with different initial values.

The method of carrying out the projections can be generally described as follows. First, the time paths of those variables which are "truly exogenous," i.e., which are neither influenced by other variables in the system, nor controllable by Nigerian policy-makers, will be computed. This, however, leaves more variables undetermined than there are equations in the system, so that assumptions must be made regarding the time paths of some additional variables as well. Such assumptions are made in the form of policy objectives; e.g., it is assumed that the policy-makers decide that they want to maintain a stable price level (in which case this variable becomes exogenous), or will attempt to maintain a constant level of foreign reserves, or have a certain objective with respect to the growth in holdings of government securities by the monetary system, etc. When a certain number of such objectives have been defined, the equations in the system are sufficient to determine the time paths of those variables which remain endogenous, i.e., which are to be determined within the system.[20] It is now possible, however, that the policy-makers have objectives as well with respect to those variables which are regarded

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[20] This procedure is a dynamic version of that considered in the Hansen/Tinbergen analysis of economic policy. See, e.g., Hansen, B., Finanspolitikens Ekonomiska Teori, Uppsala, Almqvist and Wicksell, 1955, Chapter 1.

as endogenous; the consistency of those latter objectives with the ones defined previously can then be established by a comparison of the computed and required time paths of the corresponding variables.[21] If inconsistencies exist, changes in some of the objectives can be undertaken, until a set of consistent policies has been found.

The interdependency between policy objectives which arise in this way will be considered below primarily with reference to the following variables: the foreign exchange rate; the rate of domestic price inflation; the level of foreign reserves; government deficit financing; credit expansion to the private sector. The interdependence between objectives with respect to those variables arises because the last three are the most important determinants of the money supply, which in turn affects the domestic price level, and, consequently, the level of imports (which in turn reacts back on the level of foreign reserves). Therefore, those variables are the ones with which the monetary authorities would be most concerned, and the search for a consistent set of monetary policy rules is equivalent to a search for a consistent set of time paths for them.

The period covered by the projections will be 10 years. It is probably unrealistic to assume that there can be any accuracy in forecasts of the exogenous variables as far into the future as that, and even with any type of fixed-rule policy of monetary expansion, it

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[21] If there are more objectives than there are policy variables, the system will be overdetermined. In this case, there will arise an interdependency between the degree to which different policy goals are reached, since generally they cannot all be achieved simultaneously.

is likely that the authorities would wish to revise policies at more frequent intervals than 10-year ones, especially if the exogenous forecasts turn out to have been significantly inaccurate. This would apply also to such policy variables as the tariff level or the exchange rate. The results of the projections, therefore, should be taken progressively less seriously in the later years. Nevertheless, it was felt useful to extend the projections for as much as 10 years, on the grounds that one may be more able to distinguish the long-term consequences of given policies than if the analysis were confined to the first few years; in those years initial conditions may have a significant influence on the different variables, which would obscure the longer-term effects.

2. Projections for the Exogenous Variables

a. Foreign Resource Availability

One of the most important exogenous variables for purposes of projection and formulation of a consistent set of economic policies in Nigeria will be the availability of foreign exchange. The level of exports and capital flows to Nigeria, will determine what level of imports can be permitted without violating given objectives with respect to foreign reserves, or the exchange rate; also, any changes in foreign reserves of the monetary system as a result of fluctuations in these variables will influence the supply of money. Finally, the level of net capital inflow will determine the amount of domestic savings that would be necessary to finance the capital formation required to achieve a given target growth rate. Consistency with projected foreign exchange availability must, therefore, be one of the

main requirements of any given target for growth in real income, and if it is regarded as a policy objective to keep the level of tariffs and the foreign exchange rate constant, the permissible rate of monetary expansion and domestic price inflation will also be largely determined by the availability of foreign exchange.

For purposes of this analysis, questions regarding the influence of the domestic price level on the supply of exports will not be analyzed in detail, and it will be assumed that foreign exchange earnings from this source can be satisfactorily projected on the basis of some simple method such as trend extrapolation or forecasts of world demand for Nigeria's major export crops; the basic forecasts used here for the period 1966-75 will be similar to those described by S. Pearson.[22] His estimates are especially valuable since they incorporate, on the basis of careful analysis, the contribution of transactions (exports, capital flows, and tax revenues) associated with Nigeria's rapidly growing, foreign-owned oil industry.

Pearson makes separate estimates for exports of goods and services generally, and for the oil sector. In the present projections, the following procedure will be used. From the trade statistics, the earnings of foreign exchange from non-oil exports in the initial year of the projections can be found, and it is then assumed that those

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[22] Pearson, S.R., "Nigerian Petroleum: Implications for Medium-Term Planning," in Eicher, C.K., and Liedholm, C., eds., Growth and Development of the Nigerian Economy, Michigan State University Press, 1970, pp. 352-375.

export earnings will grow by 3.3/4% per annum, as in Pearson's estimates.[23] For oil exports, Pearson gives two projections, one implying a growth rate of 17% per annum between 1966-73, and the other corresponding to a 25% annual rate. On the basis of Pearson's detailed projections of various allocations of this revenue, however, it can be calculated that about ½ of the corresponding exports will be directly reflected in an outflow on services account (as profits and depreciation). This has been taken into account in projecting foreign exchange availability below.[24] With respect to capital inflow, a simple extrapolation of past trends will be made; as a percentage of GDP, the portion of the import surplus not financed by reserve declines can be computed from the data in Chapter III to have been about 2.5%,[25] during 1964-66, and it will originally be assumed that this proportion will remain unchanged.

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[23] The forecasting process can be thought of as involving the following steps. First, predictions must be made of trends in the volume of export production for the different commodities, possibly with the influence of planned Marketing Board buying prices taken into account; such predictions also form a part of the projections of real income growth. These volume predictions would then be combined with forecasts (possibly obtained from international sources) of world prices. (Note that world prices should not be important as determinants of volume because of the interposition of the Marketing Boards between buyer and producer). If Marketing Board buying prices are known, it will then be possible to use the price forecasts both for predicting export earnings and Marketing Board surpluses which will generally be available for development financing.

[24] With the difference that the decline of export activity during the war years will be implicitly neglected, both for oil and non-oil exports, since the projections here start in 1966. The figures of ½ is derived from a comparison of Pearson's Table 3, p. 362, and Table 6, p. 367, taking the figures in 1970-73. The import variable used in the estimation of Equation (3.11), Chapter 3, includes imports of services. The last year for which it is used in the estimation is 1965, however, and oil-related imports of goods and services had then not yet become very great. As a consequence, however, the results of this estimation cannot be used to forecast oil-related imports, as the introduction of oil production on a large scale must be said to imply a structural change in the economy. This is why, in the present calculation, projected oil-related imports are subtracted from exports rather than added to the import forecast.

[25] See the discussion in Chapter 3, pp. 161-163.

While the values of the various components of foreign exchange availability will initially be computed according to the methods discussed above, the sensitivity of the projections to variations in the values of the parameters determining the availability of foreign exchange will also be investigated; apart from such parameter variations, however, the method of projection will remain the same.

b. C.I.F. Import Prices, Tariffs, and the Exchange Rate

The level of imports will always be considered as an endogenous variable in the projections, and must therefore be determined simultaneously with the rate of monetary expansion and the other endogenous variables. The import equation, however, contains, in addition to real income, the relative price of imports as an explanatory variable. The level of this price depends, on the one hand, on the (endogenous) domestic price level, and on the other hand, on c.i.f. prices of imports, as well as on the level of tariffs and the foreign exchange rate, all of which are considered exogenous. First, an independent forecast must therefore be made of c.i.f. import prices. For the present calculations, the initial assumption will simply be that they will increase at 3% per annum.

The level of tariffs and the foreign exchange rate will be considered exogenous as well, but they are policy variables, so that their time paths generally will depend on the policy-makers objectives. The consequences of variations in the objectives in these respects will be considered below as well.

c. The Growth Target and Financing Requirements

Whatever rate of monetary expansion is chosen, in order to assess the impact of changes in this rate on the target variables of

economic policy, whether they be the domestic price level or the level of foreign reserves, the demand for money balances must be forecast. As the demand for money is considered as depending on real income, such a forecast will require a projection of the level of this variable.

The level of income could be considered either as an exogenous or as an endogenous variable; in the latter case, a relationship could be assumed to exist between the level of savings and investment on the one hand, and the rate of growth of real income on the other hand; total domestic savings could be computed endogenously, using Equations (3.2) and (3.5) in Chapter III to determine the levels of non-monetary and monetary savings respectively, and this level of savings, together with the net foreign capital inflow, could then be used to determine income growth. The level of real income could then be predicted from period to period.

In the projections here, however, this method has not been used; instead, the level of real income is regarded as an autonomous variable, and it is computed simply by assuming that it will grow exponentially at a given target rate. There are several reasons for this treatment. First, in the present author's opinion, the data on capital formation and real income are too weak for one to have any confidence in a simple relationship between the observed rates of investment and real income growth;[26] in addition, it is

[26] The authors of the 1962-68 Development Plan used such a relationship; see Stolper, W.F., Planning Without Facts, Cambridge, Mass., Harvard University Press, 1966, p. 110. Since they did not explicitly consider the determination of private savings, however, they used the relationship only for a rough consistency test of the financing requirements of the Plan. See Stolper, op. cit., pp. 115-137.

quite likely that additional factors, such as the sectoral distribution of investment, changes in the labor force, etc., will influence real income. Second, the purpose of the projections here is not primarily to forecast the actual development over time of the Nigerian economy, but rather to consider a method of formulating a set of consistent economic policies; it is, therefore, more appropriate to hypothesize that real income grows at the target rate, and to investigate whether this rate is consistent with other assumptions underlying the projection.

Suppose now that the monetary authorities have as their objective a certain degree of domestic price stability. With the target rate of growth in real income taken as given, and with a given maximum permissible rate of increase of the domestic price level, a rate of monetary expansion which is consistent with both those goals can be computed. Furthermore, if instead the policy objective is defined with respect to the level of foreign reserves and the levels of tariffs and the foreign exchange rate, the permissible rate of domestic price inflation, and the corresponding rate of monetary expansion can also be computed, as was discussed above.

The framework established in Chapters II and III can also be utilized in the present context to shed some further light on the problem of development financing. First, estimated domestic non-monetary and monetary savings, together with the assumed amounts of net capital inflow provide a measure of the total amount of investable resources in the economy. The value of this variable can be used together with estimates of the total investment requirements necessary to meet the growth objective. While this consistency

test is subject to a great deal of uncertainty because of the above-mentioned difficulties in formulating a reliable forecast of the incremental capital/output ratio,[27] it nevertheless serves the purpose of drawing attention to the question whether a given growth target is consistent with the savings performance and capital needs which would have been expected on the basis of the values observed in the past; if this is not the case, an explicit motivation for the implied changes in this respect would be called for.

In addition to providing information on the aggregative savings and investment balance, the projections also include considerations of the allocation of funds from the monetary system between the public and the private sectors. It is assumed that a certain portion of the government deficit will be covered by borrowing from the monetary system, the specific amount being given by the hypothesis that the total amount of government securities held by the monetary system will be permitted to grow by a constant proportion each year. The desirability of letting this form of borrowing be determined by a rule of this kind, from the point of view of planning monetary policy, was briefly discussed above in Part A.

The consequences of different amounts of government borrowing for monetary policy can then be investigated. The objectives with respect to the domestic price level, or with respect to international transactions and reserves, will determine the planned aggregative rate of monetary expansion, as has been discussed above; furthermore,

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[27] An estimate of this ratio is necessary for the estimation of total investment requirements.

with these objectives known, the level of foreign reserves can be projected for each time period.[28] But with foreign reserves and government securities constituting two major components in the asset portfolio of the monetary system, this means that the third major asset category, i.e., credit from the monetary system to the non-bank private sector, can be computed as a residual. If it is assumed that credit to the private sector is extended only by the commercial banks, it will be shown in the computations below that the requirement that private-sector credit grows by given, residual, amounts, can be translated into a requirement that commercial banks maintain a certain given reserve ratio. In the case where the policy-rule is modified to permit variations in the rate of monetary expansion due to foreign reserve changes, private-sector bank credit will be partly determined by these changes as well; it will be argued, however, that the monetary authorities should still be required to induce the commercial banks to maintain given predetermined reserve ratios. The different methods through which this can be accomplished will be discussed in Chapter V. For certain parameter values and policy objectives, however, it will become apparent in the computations that the degree to which the authorities would have to restrict the commercial banks through high reserve requirements would be unrealistically high. Such solutions can be considered as evidence of inconsistent objectives with respect to the allocation of funds,

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[28] Alternatively, under the "modified rule" suggested above, pp. 241-244, the foreign reserve level is set equal to a given target value.

in the sense that it would be very difficult for the Central Bank to induce the commercial banks to undertake the required changes in their portfolios without serious disruptions in the mechanism of credit allocation in the private sector.

3. A Summary of the Basic Projections

In this section, the computational procedure, together with the results of the first set of projections, will be summarized in mathematical form. The notational convention will be to denote the variables to be computed by capital letters, with the parameters determining their values being denoted by the corresponding lower case letters.

The inflow of foreign exchange at time t, X_t, is:

$$(4.1) \quad X_t = PX_o \cdot e^{px \cdot t} + OX_o \cdot e^{ox \cdot t} + FA_t$$

where PX is exports of petroleum products, OX is "other exports" and FA is the level of net foreign capital inflow. The initial values were

PX_o = £ N 46 million; OX_o = £ N 215 million.

In accordance with the argument above regarding oil-related imports, PX_o has been taken to be one-half of the reported value of oil exports in 1966.[29]

The initial hypotheses regarding the growth rate of PX and OX, as discussed above, were:

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[29] For sources of all initial data, see the Appendix, Tables A1 and A2.

$px = .17$; $cx = .0375$.

The level of net capital inflow was assumed to be determined by:

(4.2) $FA_t = fa \cdot YC_t$; $fa = .025$

where YC is the level of real income.

The levels of incomes and prices were given by the following relations:

(4.3) $Y_t = Y_o \cdot e^{y \cdot t}$;

(4.4) $YC_t = YC_o \cdot e^{[yc \cdot t + .6(y-\bar{y})]}$

(4.5) $P_t = Y_t / YC_t$;

where Y is the level of money income, YC is the level of real income, and P is the GDP-deflator, which also is the measure used for the domestic price level.

In the initial set of calculations, it is assumed that the authorities will focus on the domestic price level as their target variable and that they will let the money supply expand each year at the rate which is consistent with their particular objective in this respect.[30] The parameter y, i.e., the growth rate of money incomes will, therefore, be given by the relation:

(4.6) $\frac{1}{P}\frac{dp}{dt} = \frac{d \ln P}{dt} = \frac{d \ln Y}{dt} - \frac{d \ln YC}{dt} = y - yc$,

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[30] In other words, this calculation illustrates the operation of the first type of rule discussed in Part A, where a specific target is set for monetary expansion.

once the permissible rate of domestic price inflation is specified. In the first projection, this target rate is set equal to zero, so that $y = yc$.[31]

The adjustment: $.6(y-\bar{y})$ in the real income equation, reflects the argument in Section C3, Chapter III, that the rate of growth of money income might influence the rate of resource utilization, and hence the level of real income. With $\bar{y}$ representing the rate of growth of money income for the year immediately preceding the projection period, it can be seen from Equation (3.9), Chapter III, that, ceteris paribus, the logarithm of real income in the projection period should be increased by .6 times the difference $(y-\bar{y})$; when the transformation from logarithms back to absolute values is made, the adjustment appears in the exponent as shown.

The initial values and the parameters in the first projection were:

Y_o = ₤N 1600 million; YC_o = ₤N 1486 million;

$\bar{y}$ = .07; y = .05; yc = .05.

The rate of monetary expansion which is consistent with the price stability objective can be computed as follows. Equation (3.5) in Chapter III can be rewritten, with the present notation, as:

$$(4.7)\quad \ln (MO_t/Y_t) = -2.1 + .26 \ln(YC_t) - .9\left[\ln(P_{t-1}) - \ln(P_{t-2})\right] .$$

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[31] Because of the correction factor in the real income equation (see below) this is not, in fact, completely equivalent to price stability. In the present projection, there is a small increase in the GDP-deflator (about 1%) in the first period, but thereafter the prices remain stable.

Noting that $\ln(MO_t/Y_t) = \ln(MO_t) - \ln(Y_t)$, and adding $\ln(Y_t)$ to both sides, $\ln(MO_t)$ can be computed by substituting from the equation above into (4.7). The values of P_{-1} and P_{-2} were obtained by using an average rate of price inflation in the years immediately preceding the projection, of 2% p.a.

The resulting average logarithmic growth rate in the money supply between t=1 and t=10 is approximately 6.5%, i.e., slightly higher than the growth rate of money incomes; this, of course, reflects the result in Chapter III that the income elasticity of the demand for money is greater than unity, so that the money/income ratio tends to rise with real income. The computed equilibrium money supply at t=1, however, is£N 226.5 million, whereas the observed value of the money supply in 1966, i.e., at t=10, is £N 235 million. The difference between the actual and computed time paths would, therefore, have to be gradually eliminated by letting the money supply grow at a slower rate than 6.5% during the first few years.[32]

The next step in the analysis was to consider the consistency of this rate of monetary expansion with the objective of external stability, i.e, to find whether the export earnings and projected capital inflows would be sufficient to maintain fixed exchange and tariff rates without running the level of foreign reserves down to zero, or very low levels. In order to do this, the level of imports

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[32] For example, if it is desired to close the gap between the two paths, in three years, the money supply would have to grow by about 5.5% during those years.

must be computed. This computation involved the following steps. First, the time path of the relative price of imports at a constant exchange rate, was computed from:[33]

$$(4.8)\quad PR_t = (CIF_t \cdot TR_t)/P_t \quad ,$$

where CIF is the c.i.f.-price of imports, and TR is an index of the level of tariffs. The variables were given by:

$$(4.9)\quad CIF_t = CIF_o \cdot e^{cif \cdot t} \quad ; \quad CIF_o = 1.09,\ cif = .03;$$

$$(4.10)\quad TR_o = TR_t = .38 \quad ,$$

where the value of cif, the annual rate of increase of import prices, simply is an assumption based on past trends, and where the constant tariff level, TR, represents a policy objective. The values of PR_t over the projection period are given in Table IV-1, Column 4.

The value of imports can then be computed from Equation (3.11), Chapter III, which is reproduced here:

$$(4.11)\quad \ln(MC_t) = .84 + 1.4 \ln(YC_t) - 1.13 \ln(PR_t) \quad ,$$

where MC is the level of imports at constant prices. It may be noted that the total foreign exchange expenditure on imports is given by $MC_t \cdot CIF_t$.

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[33] Note that with the price stability objective, the level of domestic prices is given for each year.

With the exogenous parameters and policy objectives listed above, the computed solution is consistent with balance-of-payments stability. With the given exchange rate and tariff levels, reserves decline somewhat through the middle of the projection period, but then increase again toward the last years (see Table IV-1).

Reserves were computed from the relation:

$$(4.12)\quad FR_t = FR_{t-1} + X_t - MC_t \cdot CIF_t \; ; \; FR_o = ₦\ 71 \text{ million},$$

where FR is the level of foreign reserves, and where X is given above as the sum of petroleum exports, other exports and foreign aid. The series for reserves and their determinants are also given below.

Table IV-1

Basic Projection: International Sector

Year	X_t	$MC_t \cdot CIF_t$	FR_t	PR_t
0	298	296	71	1.39
1	316	321	73	1.42
2	337	343	68	1.46
3	360	366	62	1.50
4	385	391	56	1.55
5	414	418	50	1.60
6	446	441	46	1.65
7	483	477	45	1.70
8	524	510	51	1.75
9	571	545	65	1.80
10	615	582	92	1.86

Col. 1: Foreign exchange availability, ₦ Nig.mill.
2: Imports of goods and services, ₦ Nig.mill.
3: Level of foreign reserves, ₦ Nig.mill.
4: Index of relative price of imported goods, including tariffs.

Source: Projections.

To discuss the significance of these results, further analysis of the sensitivity of the balance-of-payments to different assumptions regarding the parameters and policy objectives must be carried out. It may be observed here, however, that in spite of the very marked increase in the availability of foreign exchange in Nigeria due to the petroleum exports, a 5% real growth rate is consistent with balance-of-payments stability only if the relative price of imports increases over time (see Column 4). When alternative assumptions about the relative price are made below, it will be apparent that there is very little room for domestic price inflation if balance-of-payments stability is to be maintained.

The financial consistency of the given policy objectives will next be considered. First, Equation (3.2) in Chapter III can be used to compute non-monetary savings as a share of GDP. Equation (3.2) becomes, in the new notation:

$$(4.13) \quad NS_t = .059 + .118 \ln(YC_t) ,$$

where NS is the savings ratio. Total investable resources as a proportion of GDP, I_t, are then given by:

$$(4.14) \quad I_t = NS_t + MS_t + fa ,$$

where $MS_t = (MO_t - MO_{t-1})/Y_t$ is savings in monetary form, and fa is foreign aid as a fraction of GDP. The series for these variables in the present projection are given below, Table IV-2. The aggregative savings ratio could now be compared with estimated capital requirements to test consistency in this respect.

Table IV-2

Basic Projection: Development Financing

Year	NS_t	MS_t	I_t
1	10.4	.0	12.9
2	11.0	.8	14.3
3	11.6	.9	15.0
4	12.2	1.0	15.7
5	12.8	.9	16.2
6	13.4	.9	16.8
7	14.0	.9	17.9
8	14.6	.9	18.0
9	15.1	.9	18.6
10	15.7	.9	19.2

Col. 1: Non-monetary domestic savings, % of GDP.
2: Savings through accumulation of money balances, % of GDP.
3: Total available for development financing (including foreign aid), % of GDP.

Source: Projections.

It can be noted that if the capital/output ratio implicit in the 1962-68 Development Plan is used, and with a real growth target of 5%, aggregate capital requirements would amount to 18-3/4% of GDP,[34] so that estimated savings would not be sufficient to bring about this real growth rate during the greater part of the period,

[34] The value used there was implicit in the planners' belief that a 4% per annum growth of real output could be achieved with a 15% ratio of gross capital formation to total output, implying a capital gross incremental output ratio of

$$\frac{.15}{.04} = 3\text{-}3/4 \ .$$

See Stolper, op. cit., p. 110.

but would rise above that rate towards the last few years.[35]

Finally portfolio policies of the monetary system which may be used to bring about the computed rate of monetary expansion, can be analyzed. As was argued above, interest will focus on the consequences of different rates of expansion of government securities in the monetary system. Using the definition of high-powered money formulated in Chapter II,[36] the time path of this variable is given by:

(4.15) $HPM_t = FR_t + GT_t$.

Where FR, i.e., foreign reserves of the monetary system has been computed above, and where GT is government securities held in the banking system. It is given by:

(4.16) $GT_t = GT_o \cdot e^{gt \cdot t}$; $GT_o = ₦ 49.5$ million, $gt = .08$;

i.e., it is first assumed that government securities will grow by 8%.[37] The resulting time path of HPM is given in Table IV-3. With the time path of HPM given, and with the money supply also given,

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[35] It should be remembered here, however, that the impact of the oil industry may shift the savings function. Much of the impact will come in the form of payments to government , and if the government has a larger marginal propensity to save than the average, this will raise savings. That this condition is met cannot be taken for granted on the basis of the government's past savings performance, however. See Lewis, W.A., Reflections on Nigeria's Economic Growth, Paris, OECD, 1967, pp. 61-62.

[36] It should be recalled that commercial bank reserves in the present context are defined to include all government securities and all foreign assets held by the commercial banks, and that these assets are included in the definition of high-powered money. See the discussion in Chapter 2, Section D-1-a, p. 126.

[37] As was argued above, this rate is one of the crucial parameters in monetary policy, and should be arrived at after negotiations between the Central Bank and the government.

the required time path of the multiplier expression can be computed. The multiplier is:

$$(4.17) \quad MD_t/HPM_t = 1/(R_t(1-C_t) + C_t)$$

where R_t is the ratio of reserves in the commercial banks to deposits, and C_t is the ratio of currency with the public to the total money supply. As is seen from Table II-13, Chapter II, there has been a continuing downward trend in C throughout the 1950-66 period, and it is assumed that this ratio will continue to fall. Consequently, C_t is given by:

$$(4.18) \quad C_t = C_o \cdot e^{c \cdot t}; \quad C_o = .4065, \quad c = -.02 .$$

But with the left hand side of (4.15) given for each t , and with C_t known from (4.18), Equation (4.17) can be used to solve for R_t, which yields:

$$(4.19) \quad R_t = [(HPM_t/MD_t) - C_t] \cdot 1/(1-C_t) .$$

In other words, with the assumed growth of lending to the government from the monetary system, in order to make the money supply conform to its target level, the monetary authorities must adopt such policies that the commercial banks are induced to hold the proportion of R of their deposits as reserves.

In the computation, it was found that in some years, the solutions would require the commercial banks to hold very low, or even negative, reserves. It may be observed that in such cases, however, an alternative possibility is for the Central Bank to lend sufficient funds to the commercial banks (i.e., expand HPM) in such a way that they would be able to maintain a given minimum

level of reserves, without, however, the money supply falling short of the desired level. This alternative was used in this and the following computations, and the minimum level of reserves was assumed to be 15% of deposits. The required amounts of Central Bank lending to the commercial banks are given in Col. 5, Table IV-3.

Once the reserve ratio has been computed, the volume of loans and advances to the private sector, LA, can be directly computed from the relation:

$$(4.20) \quad LA_t = MO_t\,(1-C_t)(1-R_t)\ .$$

For the original hypothetical growth rate of lending to the government by the banking system, and with the rate of monetary expansion established above, the components of the portfolio of the banking system is illustrated in the following table.

Table IV-3

Basic Projection: Monetary Variables

Year	HPM	R	FR	GVT	OM
1	127	26.7	73	54	
2	126	21.3	68	58	
3	125	15.5	62	63	
4	131	15.0*	56	68	7
5	137	15.0*	50	74	14
6	144	15.0*	46	80	18
7	151	15.0*	45	87	20
8	159	15.0*	51	94	14
9	167	15.0*	65	102	
10	202	24.5	92	110	

*Minimum level of reserves, maintained by borrowing in the Central Bank.
Col. 1: High-powered money (broadly defined), £Nig.mill.
2: Required reserves (broadly defined) of commercial banks, % of total deposits.
3: Foreign assets of banking system, £Nig.mill.
4: Government securities in banking system, £Nig.mill.
5: Other assets, net, of Central Bank (see text), £Nig.mill.
Source: Projections.

As in the case of the money supply, it is again seen that a rate of monetary expansion consistent with the price stability objective will initially require a fairly large decrease in the volume of commercial bank loans and advances, and a large increase in the reserve ratio. If it were to be decided to close the gap between the actual and required money supply over a period of a few years, however, such drastic initial changes could be avoided. The details of such a transitionary policy will not be worked out here, but it may be noted from Table IV-3 it appears that after the first few years, it is again permissible to let them decrease the reserve ratio. It would, therefore, seem the more appropriate to avoid drastic restrictiveness in the initial years, since it would then have to be followed by a sharp reversal in the direction of a more expansionary policy. Alternatively, it might be considered necessary to permit an expansion of lending to the government of less than 8% in the initial years, in order to avoid the high degree of restrictiveness on private sector lending at that time.

With the rate of growth of the money supply being given, an increase in the permitted rate of growth of government securities in the banking system, and thereby in HPM, will necessitate a more restrictive policy with respect to private-sector lending, i.e., a higher required reserve ratio.[38] The relationship between these variables is summarized, for different assumed growth rates for

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[38] As long as only these variables change, the level of foreign reserves in the monetary system will be the same in each year as in the previous case, under the assumptions of the model used here.

government securities, in Table IV-3a.

Table IV-3a

Required Reserve Ratios (%) for Different Rates of Growth of Government Borrowing

Year	R^1	R^2	R^3	R^4
1	27.5	29.6	31.7	34.0
2	22.9	27.2	31.9	37.2
3	18.0	24.7	32.4	41.5
4	15.0*	23.8	35.3	49.3
5	15.0*	24.2	40.1	60.4
6	15.0*	26.5	47.5	76.0
7	15.0*	31.2	58.4	97.0
8	15.7	38.9	73.4	above 1
9	22.7	50.1	93.2	"
10	33.5	65.7	above 1	"

*Minimum level of reserves, maintained by borrowing in Central Bank.

Col. 1: Government borrowing grows by 10% p.a.
2: " " " " 15% p.a.
3: " " " " 20% p.a.
4: " " " " 25% p.a.

All other parameters as in basic projection.

Source: Projections.

It is seen that even a growth rate as high as 15% per annum is consistent with a relatively stable reserve ratio, at least for the first 6 or 7 years of the projection period. This, however, is partly due to the decline in foreign assets which is projected

to take place in those years (see Table IV-3, Column 3), and in subsequent experiments, it was seen that even small changes in the parameters determining foreign reserves required large changes in the reserve ratio, if the rate of monetary expansion was to remain unchanged.

The procedures and results for the initial projections can now be summarized. The basic policy objectives were assumed to be: a growth rate of real income of 5% per annum, and approximate domestic price stability. Taking observed values of the various variables in 1966 as the initial ones, the following computations were carried out. First, the warranted values of the money supply in each year were computed. Second, an exogenous forecast of foreign exchange availability was established, and changes in the level of foreign reserves were projected by subtracting computed imports from available foreign exchange. It was found that at the assumed parameter values determining foreign exchange availability, the two policy objectives above were consistent with an approximately constant level of foreign reserves, at an unchanged foreign exchange rate and tariff level. Third, an assumption was made regarding the borrowing requirements of the government from the monetary system; it was assumed that such borrowing would lead to an annual expansion of government securities in the monetary system of 8%. It was found that although the required rate of monetary expansion, together with this amount of government borrowing, would necessitate a high degree of restrictiveness toward commercial bank lending to the private sector during the initial years, such lending could subsequently be permitted to expand at relatively rapid rates; the reserve ratio,

which initially would have been required to rise as high as 27% in order to make the money supply follow its warranted path, would then fall to its assumed minimum level of 15%, and the Central Bank would have to finance part of the credit expansion by lending to the commercial banks. If higher rates of expansion of government securities holdings were permitted, however, higher reserve ratios were required.

It was also shown that tentative tests could be undertaken of the consistency between overall projected savings and projected investment requirements. It was found that on the basis of past savings behavior, the assumed external capital inflow together with projected domestic savings would not initially have been adequate to finance a 5% real rate of growth, if the incremental gross capital/output ratio were hypothesized to be the same as that underlying the 1962-68 Development Plan.

4. Effects of Changes in the Assumptions

The same type of calculation as the one described above has also been repeated a number of times, with changed assumptions regarding values of some of the underlying parameters, and with different assumptions regarding the policy objectives.

It may first be observed that, in the model above, as long as approximate domestic price stability is regarded as an objective, the warranted rate of monetary expansion does not change. Therefore, in order to illustrate the effects of higher rates of monetary expansion, the first set of alternative calculations will be based on policy objectives which do not require domestic price stability.

First, it is assumed that the policy-makers are prepared to accept 2%, then 4%, per annum increase in domestic prices.

If a domestic rate of price inflation of 2% per annum is considered acceptable, the warranted rate of monetary expansion rises from about 6.5%, (the rate for the case when stable prices are assumed) to about 8.3%, and the rate of domestic savings in the form of additions to real money holdings, as a percentage of GDP, rises from about .9% to about 1.15%. At the original values of the parameters affecting the balance-of-payments, however, this rate of price inflation is not consistent with an unchanged exchange rate or tariff level. In the actual projection, it was assumed that the foreign exchange rate was adjusted by steps of 10% to prevent the level of foreign reserves from becoming negative; the first such adjustment occurs in the third year of the projection period, and a second one takes place in the seventh year. On the other hand, if somewhat more optimistic assumptions are made regarding the rate of growth of non-oil exports (4.5% p.a. instead of 3.75%), and if the "high projection" in Pearson's estimates of the growth of oil exports (corresponding to 25% p.a. between 1966 and 1973 instead of 17%) is used as a basis for projecting foreign exchange availability from this source, a 2% rate of price inflation is barely consistent with balance-of-payments equilibrium, at unchanged exchange rate and tariffs, during the first seven years of the projection.

Secondly, if a 4% per annum domestic price inflation is accepted, the required monetary expansion rises to about 10% per annum, savings in the form of real money increases rise to about 1.35% of GDP, but this rate of price inflation, of course, is again

inconsistent with balance-of-payments equilibrium at the original parameter values; a devaluation of 20% would be required in the third year, and by the eighth year, the Nigerian pound would have had to be devalued by 40% of its original value in order to prevent foreign exchange reserves from becoming negative.

In these cases, the higher rate of monetary expansion, as well as the low levels of foreign reserves in the domestic banking system, imply that domestic credit expansion could be substantially higher than before. This is demonstrated in Table IV-3b, where it is seen that the given rate of growth of government securities holdings by the banking system, which in this case was assumed to be as high as 20% per annum, is compatible with considerably more private-sector lending (as indicated by the required reserve ratios) than was the case when price stability was the objective. But this, of course, is no more than a reflection of the fact that the rate of domestic credit expansion can be increased if the policy-makers are prepared to abandon the objective of stability with respect to the balance-of-payments; if foreign reserves are permitted to decrease, domestic credit can expand more than otherwise without exceeding the given rate of monetary expansion.

A calculation was also carried out to determine the effects of the high export projections on the level of foreign reserves, if it were assumed that the policy-makers were aiming at maintaining domestic prices approximately stable; the required rate of monetary expansion, and savings in monetary form remain the same as in the initial projection, but the level of foreign reserves is higher than before: by the fourth year, it has reached 100 million Nigerian

Table IV-3b

Required Reserve Ratios,
Different Rates of Monetary Expansion

Year	R_t^1	R_t^2	R_t^3
1	31.7	25.9	20.2
2	31.9	20.1	15.0
3	32.4	$15.0^{1,*}$	$15.0^{*,2}$
4	35.3	21.1	15.0
5	40.1	27.6	15.0
6	47.5	31.5	$15.0^{*,1}$
7	58.4	33.9^{1}	24.5
8	73.4	56.0	29.4^{1}
9	93.2	76.6	46.3
10	above 1	97.0	57.7

Notes: *Minimum reserve ratio, commercial banks borrowing in Central Bank.

[1]Devaluation by 10% required to prevent foreign exchange reserves from becoming negative.

[2]Devaluation by 20%.

Col. 1: Required reserves, (%), monetary expansion 6.5% p.a.

2: Required reserves, (%), monetary expansion 8.3% p.a.

3: Required reserves, (%), monetary expansion 10% p.a.

In all cases, government securities holdings in the banking system are assumed to grow at 20% p.a.

Sources: Projections.

pounds, which is about equivalent to three months' imports in that year; thereafter, it rises rapidly and by the eighth year is greater than the total warranted money supply in that year. In order to keep the supply at its predetermined values, the commercial bank reserve ratios must be considerably higher than under the less favorable export assumptions. It is, therefore, clear that in this case, a monetary policy aiming at domestic price stability would entail an exceedingly restrictive policy towards domestic credit expansion (see the reserve ratios in Table IV-3c, Column 1), and, therefore, would be very difficult to implement.

Similarly, as an alternative set of parameter variations, it was assumed that exports would grow as originally forecast but that import prices would remain constant and that capital inflow would be only 1.5% of GDP instead of 2.5% as initially assumed. Again, the objective of price stability was assumed, so that the rate of monetary expansion remained the same as before. In this projection, there was a rapid decline in reserves, as well as a 10% devaluation in the fourth year; because of the low level of foreign reserves, however, in order to keep the money supply expanding at the planned rate, a high degree of credit expansion, and low commercial bank reserve ratios, were necessary, (Col. 2).

Thus, it is seen that the type of monetary policy which is required for domestic price stability will be very different depending on the values of the parameters affecting the balance-of-payments.

Table IV-3c

Required Reserve Ratios
Different Balance-of-Payments Assumptions

Year	R_t^1	R_t^2
1	26.7	15.8
2	25.5	15.0*
3	28.5	15.0*,1
4	38.2	15.0*
5	55.2	15.0*
6	81.0	15.0*

Notes: * Minimum reserve ratio, commercial banks borrowing in Central Bank.

1 Devaluation by 10% required.

Col. 1: Required reserves, (%), fast export growth (see text).

2: Required reserves, (%), small capital inflow (see text).

Other parameters are as in basic projection.

Source: Projections

5. The Performance of the "Fixed-Rule" Policy

The purpose of the analysis in the previous sections has been to illustrate a method whereby one could investigate the consistency of a proposed rate of monetary expansion with policy objectives regarding the permissible rate of domestic price inflation, the need for government borrowing, and balance-of-payments stability. Generally speaking, our interpretation of the results is that it would be quite difficult to carry out a monetary policy which aimed at given and fixed rates of

expansion of the money supply. There are two main reasons for that, both associated with sensitivity of the monetary system to international transactions.

The first reason is the high degree of responsiveness of the balance-of-payments to the rate of monetary expansion and domestic price inflation, which appears above. If the policy authorities wish to maintain constant exchange and tariff rates, and a reasonably stable level of international reserves, they have practically no leeway in the choice of monetary expansion rate. This, furthermore, implies that if this rate is to be fixed in advance, very accurate forecasts of the parameters affecting the balance-of-payments will be necessary; if there are even relatively small deviations in these parameters from their foreseen values, the rate of monetary expansion must be modified, or the stability objective regarding the balance-of-payments must be given up.

Second, the policy of expanding the money supply at given, predetermined, rates, requires that the short-run impact on the money supply of fluctuations in foreign reserves be continuously offset by opposite variations in domestic credit, either by controlling commercial bank reserves, or by variations in credit to the government. If commercial bank reserves are used at the control variable, the results in Tables IV-3,a-c, indicate that the year-to-year changes generally will be quite large, so that this type of policy is likely to be difficult to implement.

a. The Modified Policy Rule

The fact that the state of the balance-of-payments has been shown to be highly sensitive to the rate of domestic price inflation

would also suggest that if the objective of monetary policy were taken to be, e.g., an approximately constant level of foreign reserves, this objective would be unlikely to yield a high and variable rate of price inflation; rather, one would expect, on the basis of the projections above that such a conduct of monetary policy would lead to approximate price stability as well, or at most, a low rate of price inflation.[39] Furthermore, in a world of fixed exchange rates, the consequences of even a temporary failure to maintain balance-of-payments equilibrium are likely to be much more difficult to cope with (through devaluations, trade and payments restrictions, or tariff increases), than the consequences of a limited failure to maintain price stability. For these reasons, the projection methods described above have been modified to illustrate the operation of a flexible rule taking international reserves, rather than the money supply and domestic prices, as its target, along the lines discussed in Part A.

The precise way in which the rule was formulated is as follows. First, a set of parameters for those variables which affect the level of reserves[40] was chosen; these parameters, and the time paths of the corresponding variables would represent the policy-makers' best forecasts. The rate of monetary expansion which would maintain the level of foreign reserves approximately constant was computed. It was then assumed that the monetary authorities would choose such rates of public and private credit expansion as would bring about this rate

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[39] Depending on the development of export and import prices.

[40] I.e., the growth rate of exports, the level of import prices, as well as policy parameters such as the exchange rate and tariff level, and the target growth rate of real income.

of monetary expansion; these rates would be chosen on the assumption that the level of foreign reserves would in fact be equal to its target level. At a given rate of lending to the government, the permissible reserve ratios of the commercial banks could then be computed for each year. It was then assumed that the policy authorities would let credit to the government expand as projected, and let commercial banks maintain the planned reserve ratios even when, e.g., shortfalls in the level of reserves made this policy imply a lower rate of monetary expansion than was foreseen. Clearly, this policy involves a certain degree of "automatic stabilization," as noted in Part A above.

A number of projection experiments, similar to the ones previously outlined, were performed on the basis of this policy rule. The detailed method of calculation, and the results of the experiments, will be described in the next section. Anticipating slightly, however, it can be noted here that, by and large, this type of policy rule seemed to give good results, in the sense of managing to maintain both the level of foreign reserves and the level of domestic prices relatively steady, provided that the parameter estimates underlying the initial choice of the target rate of monetary expansion were reasonably accurate. As will be argued in the concluding section, it is therefore felt that the introduction of some variant of a rule of this general form, on a trial basis, would be a worthwhile measure in Nigeria.

b. Calculation Methods and Results

As in the previous projections, export earnings (including oil exports), foreign aid, and import prices, are taken as exogenously determined, as is the ratio of the demand for currency to the total

money stock. The time paths for those variables are, therefore, established in the same way as before.[41] The foreign exchange rate, and the level of tariffs, are regarded as policy parameters.

The establishing of an initial planned target rate of monetary expansion can be undertaken as follows. Since the objective is assumed to be the maintenance of foreign reserves at nearly constant level, the growth of foreign exchange expenditure on imports must be approximately equal to the growth in import capacity. The proportionate growth rate of foreign exchange expenditure is:

$$(4.21)\quad \frac{d(\ln(PM \cdot MC))}{dt} = \frac{d \ln PM}{dt} + \frac{d \ln MC}{dt} =$$

$$\frac{d \ln PM}{dt} + 1.4 \frac{d \ln YC}{dt} - 1.13\left[\frac{d \ln PM}{dt} - \frac{d \ln P}{dt}\right] =$$

$$1.4\ yc - .13\ pci + 1.13 \frac{d \ln P}{dt}$$

where PM is the domestic price of imports including tariffs, and where the coefficients of yc and pci and of the domestic price level change have been taken from Equation (4.11) above.[42] With pci, the rate of increase in import prices, being exogenous, and yc , the target growth rate of real income, being a policy parameter, this leaves the change in the domestic price level as the only remaining determinant of import growth.

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[41] See above, Section B.3.

[42] With the level of tariffs and the exchange rate being assumed constant, the rate of change of the domestic price of imports will be the same as the rate of change of the c.i.f. price of imports.

It is now assumed that the policy-makers are initially aiming for a constant growth rate of aggregate money expenditure,[43] differentiation of Equation (4.7) above produces, after rearrangement, the following simple result:

$$(4.22)\quad \frac{d \ln MO}{dt} - \frac{d \ln P}{dt} - \frac{d \ln YC}{dt} = .26 \frac{d \ln YC}{dt}$$

which can be rearranged into:

$$(4.23)\quad \frac{d \ln P}{dt} = \frac{d \ln MO}{dt} - 1.26\ yc\ .$$

Substitution of (4.23) into (4.21) yields the rate of growth of import expenditure as a function of the rate of monetary expansion and the parameter values, and the rate of monetary expansion has to be chosen so that this growth rate is approximately equal to the predicted growth rate of import capacity.

If the original parameter values determining the growth of import capacity are used,[44] it will initially grow by about 5%, but the growth rate quickly rises and reaches approximately 7% by the seventh year. If an intermediate value of 6.5% is selected as the value to be used, the warranted rate of growth of the money supply (assuming a 3% annual increase in import prices, as before) is slightly more than 6%; if it is taken to be 7%, the warranted monetary expansion becomes about 6.5% per annum. In the original calculation, 6% was taken as the target rate. Therefore, the target money supply at time t is given by:

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[43] This assumption, together with the constant target growth rate of real income, implies a projected constant rate of change of domestic prices over time, as discussed before. Therefore, the term $[\ln(P_{t-1}) - \ln(P_{t-2})]$ in (4.7) becomes a constant.

[44] I.e., non-oil exports are assumed to grow at 3.75%, oil exports at 17%, and foreign aid is assumed to be 2.5% of real GDP.

(4.24) $\overline{MO}_t = MO_o \cdot e^{mo \cdot t}$; mo = 6%, MO_o = £ N 235 million,

where the bar over MO_t indicates the planned, as opposed to actual, value.

The next step was to compute the warranted reserve ratios of commercial banks. On the assumption that government securities in the banking system were to grow by 10% per annum, and that foreign reserves in the banking system were equal to its constant target level, which was set at £ N 80 million, the target values of high-powered money, HPM, over time, could be computed. The warranted reserve ratio was then given implicitly by the relation:

(4.25) $\overline{MO}_t = \overline{HPM}_t/(C_t) + R_t - R_t \cdot C_t)$;

as noted above, the value of C, the currency ratio, was exogenously given over time.

If it is now assumed that the actual reserve ratio in each year is equal to the warranted one, the time path of the actual money supply, as well as of the other endogenous variables, can be computed as follows. First, a trial value for the actual level of foreign reserves in period t is selected. This permits the computation of a trial value for HPM, and, via the predetermined values of C_t and R_t, of MO_t. Equation (4.7) which describes the determination of the demand for money, can then be used to compute money incomes:

(4.26) $\ln(Y_t) = \ln(MO_t) + 2.1 + .9\,[\ln(P_{t-1}) - \ln(P_{t-2})] - .26\,\ln(YC_t)$,

noting that YC_t is exogenously given by its given target rate of growth.[45] The value of the price deflator in period t can also be computed, which in turn makes it possible to find the relative price of imports, PR_t.

Total foreign exchange expenditure could then be computed, using (4.11) and (4.12).

The actual change in foreign reserves between period t-1 and t can now be found, given the exogenously determined import capacity, so that the projected actual level of reserves in period t, FR_t, can be computed.[46] Now, this entire computation was carried out on the basis of an initially chosen, trial value for reserves. If this trial value is not equal to the actual projected value, the trial value is adjusted, and the whole process is repeated until the trial and actual values are close enough together.

The results of the initial projection, using the parameter values indicated, are presented below in tabular form. It is seen that during the beginning of the period, the actual money supply falls considerably short of the target, as a result of the fact that reserves are somewhat below the target. The reserve level remains reasonably stable, only somewhat short of the L N 80 million target, throughout.

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[45] In actual fact, YC_t was given by its target level plus or minus the correction factor discussed above, p. 260. This correction factor was small in all instances, and the details of the calculation are omitted here.

[46] Since the reserve variable relevant to the determination of the money supply is the average level prevailing throughout period t, the recursion relation used to compute FR_t was:

$$FR_t = FR_{t-1} + \frac{1}{2}DR_{t-1} + \frac{1}{2}DR_t$$

where DR_t is import capacity in period t minus expenditure on imports.

Table IV-4

Modified Policy Rule: Basic Projection

Underlying Parameter Values:

Growth rate of non-oil exports: 3.75%
Growth rate of oil exports: 17.0%
Growth rate of government securities in monetary system: 10%
Growth rate of real income: 5%
Growth rate of c.i.f. import prices: 3%
Growth rate of target value of money supply: 6%
Reserve target: ₦ 80 mill.
Capital inflow as % of GDP: 2.5%

Year	MOT	MO	RES	PS(%)	PR
2	265	239	68	-.4	1.47
3	281	258	68	.8	1.50
4	300	273	67	.7	1.54
5	317	292	66	.8	1.57
6	337	309	68	.5	1.61
7	358	339	69	1.5	1.64
8	380	358	71	.7	1.67
9	403	395	73	1.7	1.70
10	428	423	75	1.1	1.73

Col. 1: Target value of money supply, ₦Nig. mill.
2: Actual value of money supply, ₦Nig. mill.
3: Actual level of foreign reserves in banking system, ₦Nig.mill.
4: Change in domestic price level, % p.a.
5: Index of relative price of imports.

Source: Projections.

As indicated in Column 4, the domestic price level also stays approximately stable, with an average proportionate growth rate of less than 1% per annum. The average proportionate rate of expansion of the money supply is just slightly above 6% over the 10-year projection period, even though it is less than that during the first few years. In Table IV-5, Column 1, it can further be seen that the postulated 10% growth rate in government securities holdings by the monetary system can take place without very stringent restrictions on the commercial bank reserve ratio; it remains relatively constant over the period. As alternatives, it was assumed that government securities holdings by the monetary system would be permitted to increase by 15% or 20% per annum. In order to maintain a target rate of growth of the money supply of 6%, this, of course, required higher reserve ratios; Columns 2 and 3 show the time paths of this variable under these assumptions, compared with the original solution. Apart from the difference in the reserve ratios, the remaining variables had virtually the same values as before, including the level of foreign reserves and the actual growth rate of the money supply. Since the level of foreign reserves are assumed to be constant in this case, the reserve ratios do not display as erratic a pattern as in the previous calculations, so that it might be easier to devise policies whereby the commercial banks could be induced to actually hold reserves in these proportions. Furthermore, under the present assumption, the degree of restrictiveness on bank lending which is required for different amounts of government borrowing is measured in a more meaningful way than before, since the

objective with respect to the level of foreign reserves has been taken into account explicitly.

Table IV-5

Modified Policy Rule: Required Reserve Ratios (%)

Year	R_t^1	R_t^2	R_t^3
1	23.5	25.3	27.3
2	22.9	26.8	31.2
3	22.5	28.7	36.0
4	22.3	31.1	41.8
5	22.4	33.9	48.8
6	22.6	37.3	57.0
7	23.0	41.1	66.7
8	23.6	45.4	78.0
9	24.3	50.3	91.0
10	25.2	55.8	above 1

Col. 1: Government securities in banking system growing by 10% p.a.
2: Government securities growing at 15% p.a.
3: Government securities growing at 20% p.a.

Note: other parameter values are as in Table IV-4.

Source: Projections.

Next, the sensitivity of the performance of this monetary policy rule to unforeseen[47] changes in the level of import capacity, was tested. First, it was assumed that non-oil exports would grow by 3% (instead of 3.75%), oil exports by 10% (instead of 17%), and that net foreign capital inflow would only amount to 1.5% of real GDP. The main results were as indicated in Table IV-6, Columns 2 and 5.

Table IV-6

Modified Policy Rule: Alternative Projections of Money Supply and Foreign Reserves

Year	MO[1]	MO[2]	MO[3]	RES[4]	RES[5]	RES[6]
1	229	223	231	71	65	72
2	239	221	245	68	56	70
3	258	238	270	68	57	72
4	273	245	292	67	54	74
5	292	257	317	66	49	81
6	309	267	356	68	44	91
7	339	279	397	69	42	102
8	358	297	446	71	38	117
9	395	307	509	73	31	138
10	423	322	585	75	26	166

Col. 1: Actual money supply, basic projection, ₦ Mig.mill.
2: Actual money supply, slow export growth (see text), ₦ Mig.mill.
3: Actual money supply, fast export growth (see text), ₦ Mig.mill.
4: Foreign reserves, basic projection, ₦ Mig.mill.
5: Foreign reserves, slow export growth, ₦ Mig.mill.
6: Foreign reserves, fast export growth, ₦ Mig.mill.

Source: Projections.

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[47] I.e., it was assumed that the monetary policy authorities had planned the same rate of monetary expansion as before.

It is evident that the growth rate of the money supply is far less than the initial target rate, or what it would have been with more favorable export growth; the average proportionate growth is just over 3% per annum. While there is a decline in the level of reserves, it is fairly slow, in spite of the rather large change in the amount of import capacity. In other words, even if the policy authorities significantly over-estimated import capacity to begin with, the effect of the policy rule is partially to compensate for this mistake. Columns 3 and 6 show a similar picture for the case when import capacity exceeds what it would have been under the original hypotheses; they are based on the assumptions that non-oil exports grow by 4.5% and oil exports by 25%, and furthermore, that c.i.f. import prices remain constant. While reserves rise rather rapidly towards the end of the period, the increase is held down by the rapid expansion of the money supply and the associated price inflation[48] and import expansion; on the average, money grows by about 9% per annum.[49]

In another alternative projection, it was assumed that the policy-makers, on the basis of overly optimistic forecasts of import capacity, were planning for a 15% rate of annual expansion in lending by the monetary system to the government, and a 9% rate of growth of the money supply, but that import capacity would only expand as postulated in the original solution. As a result of the partial

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[48] On the average, the rate of price inflation was about 2.2% per annum.

[49] The levels of monetary and non-monetary savings were computed for these experiments as well; however, since the calculations were exactly the same as in the previous section, and the results were similar, with higher rates of actual monetary expansion leading to small increases in monetary savings, the results are not reproduced here.

stabilization mechanism, the actual growth rate of the money supply was only slightly over 6% on the average, and domestic prices rose by less than 1% per annum. In the seventh year, however, reserves fell below 30 million Nigerian pounds, and were almost down to zero by the tenth year.

It was also investigated what would happen under these assumptions if there were a devaluation of 20% at the beginning of the period. It was found that the money supply would expand by about 8% annually, and that there would be some decline in reserves during the 10-year period; this decline would be much slower than in the previous case, however, and at the end of the 10-year period, reserves were still at 55 million Nigerian pounds.

Finally, the consequences of an actual growth rate of real income of only 4% per annum, as opposed to an anticipated one of 5%, were investigated. In this case, the demand for money will grow more slowly than anticipated, leading to a tendency toward domestic price inflation. As a result of the ensuing tendency for reserves to fall below the target value, however, the money supply originally grows at a slower rate than anticipated, and reserves, therefore, remain relatively stable, and by the 10th year have reached the target of £ N 80 million.[50]

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[50] Because real income does not grow as fast as anticipated, the demand for imports, at given prices, will not grow as fast either. This also explains the low sensitivity of the required rate of monetary expansion to an under-estimate of real income growth.

6. Summary and Conclusions

In the beginning of this chapter, the question was considered whether there were any strong reasons to advocate that monetary policy-making in Nigeria be of the "rules" rather than the "authority" type, i.e., whether the monetary authorities should be limited in their policy measures to following some relatively simple rules regarding the rate of monetary expansion, or whether they should be given authority to undertake discretionary policy variations on the basis of their judgment regarding the most important policy objectives at any given time. In the opinion of the present author, the case in favor of "rules" is quite strong, for reasons cited in that discussion. The question, therefore, arose how a set of such "rules" should be formulated.

First, the alternative of letting monetary policy be determined with reference to an objective regarding the maximum tolerable rate of domestic price inflation was considered, and a method was described whereby the required path of the money for any given such objective could be computed; the interdependence between monetary system lending to the government and the degree of restrictiveness which must be brought about in commercial bank lending to the private sector was considered as well. The impact of international transactions on the supply of money also had to be taken into account, however, on the one hand, because balance-of-payments equilibrium at given values of the exchange and tariff rates is likely to be an additional policy objective, and, on the other hand, because fluctuations in international

reserves must be counteracted by the monetary authorities if the money supply is to follow a predetermined path. It was clearly demonstrated in the calculations that the balance-of-payments was highly sensitive to variations in the rates of monetary expansion and price inflation which were chosen as objectives, as well as to deviations of the parameters determining the growth of import capacity from their predicted values. If the impact of the resulting reserve fluctuations on the money supply were to be offset, the rate of private and public credit expansion would have to be closely controlled from year to year, and to the extent they were offset, monetary policy would not, of course, do anything to correct an external disequilibrium. For these reasons, it may be concluded that for an economy as open to international trade and capital flows as Nigeria is, it appears inappropriate to have the monetary-policy authorities try to follow a rule aiming for a predetermined expansion of the money supply over time.

In an attempt to meet these problems, a somewhat different rule was formulated, which involved a certain degree of "automatic stabilization" of the balance-of-payments. This rule also involved setting an appropriate target rate of monetary expansion based on forecasts of real income growth and import capacity, as well as defining the corresponding rates of growth of government borrowing from the monetary system and reserve ratios of commercial banks. Contrary to the previous case, however, the money supply was permitted to deviate from its target level whenever the amount of foreign reserves in the monetary system differed from the level desired by the authorities. Even though it was found that a substantially inappropriate initial

target rate of monetary expansion would ultimately lead to balance-of-payments difficulties in this case as well, it was found that the element of automatic stabilization built into this rule rendered the balance-of-payments much less sensitive to forecast errors regarding import capacity or real income growth than the previous one. For a planned monetary growth of 6% per annum, changes in the assumptions regarding import capacity produced actual growth rates ranging from 3 to 9%; these induced changes to a large extent offset the impact that the changes in projected import capacity would otherwise have had on the level of foreign exchange reserves. In all cases, it was confirmed that a monetary policy rule geared to balance-of-payments stability would lead to approximate price stability as well.[51]

In view of what, in the present author's views, are the strong arguments in favor of <u>some</u> form of monetary policy rule, and because of the relatively good performance in experimental calculations of the rule last described, it is concluded here that its adoption in Nigeria can be recommended. In other words, it is suggested that the basic decisions regarding monetary policy be made as follows: (1) that on the basis of forecasts of import capacity, etc., an initial target rate of monetary expansion be set, which would be consistent with balance-of-payments equilibrium; (2) that a maximum rate of expansion of government securities in the monetary system be established; and (3) that planned reserve ratios of commercial banks be established consistent with the planned levels of foreign exchange reserves, government securities, and money supply. In the next and final chapter, the question of the practical implementation of such a set of rules will be further considered.

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[51] In non of the experiments conducted did the annual rate of domestic price increase exceed 2.5% on the average over the period.

CHAPTER V

Techniques of Monetary Control

Introduction

In the previous chapter, the objectives of the monetary authorities with respect to stability of the internal and external value of money were discussed, and certain general policy principles through which these objectives could be reached were suggested. The view which was implicitly taken of monetary policy, however, was that its only fuction was to determine the quantity of money, and that the only criterion according to which the performance of the policy-makers was to be assessed, was their ability to bring about a rate of monetary expansion which was consistent with the objectives in this respect. There was no consideration of the particular methods or techniques which were used to carry this policy out.

In reality, however, it must be recognized that there are many alternative ways in which the Central Bank can control the money supply, all with different effects on the financial system. Consequently, the choice of what methods of monetary control are to be used, will also constitute an important set of policy decisions to be made by the monetary authorities. In this chapter, the policy tools which can be used by the Central Bank in Nigeria will be analyzed. Furthermore, in order to make a choice between them, some criteria according to which this choice is to be made must be discussed; this will involve an analysis of the objectives that the monetary authorities have in addition to those already considered in Chapter IV. These subsidiary objectives will refer to such things as goals with respect to the sectoral distribution of credit, goals with respect to management of the public debt, and the Central Bank's

responsibility to generally promote the development of the financial system.

A. Criteria for the Choice of Policy Tools.

In the previous chapter, two policy-determined variable combined with the endogenous effects of international transactions to determine the money supply; they were (1) the holdings of government securities in the monetary system, and (2) the reserve holdings of the commercial banks. The present discussion of the tools of monetary policy will be divided into two similar categories; i.e., the methods of monetary control which relate to lending by the banking system to the government, and those which are aimed at regulating the lending by commercial banks to the private sector.

1. Allocation of Credit Between Public and Private Sectors.

The use of variations in the terms at which the banking system lends to the government, of course, may be said to conflict with the government's need for inexpensive and plentiful development financing.[1] But, as has been shown in the quantitative illustrations above, rapid expansion of government borrowing in the monetary system must be accompanied by increasing restrictiveness with respect to commercial bank lending to the private sector, if objectives regarding price and balance-of-payments stability are to be met. Because of this interdependence between credit to the private and public sectors, the choice which is to

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[1] The reason why this conflict does not arise in as acute a form in more advanced countries has been alluded to before, namely that the government security holdings outside the monetary system in such countries are large, so that variations in the holdings of the monetary system do not affect the overall domestic borrowing possibilities as much as they would in Nigeria.

be made in this respect really amounts to one of allocation of funds between private and public investment. The question, therefore, arises whether this allocation effect should be one of the factors taken into account in a situation, say, where the Central Bank has to decide whether to restrict credit to the private or the public sector. In our view, the answer is yes.

If credit is to be cut back in order to prevent domestic price increases, or to stabilize the balance-of-payments, this means that some investment projects must be sacrificed, and economic efficiency requires that those expenditures with the lowest marginal yield be the ones that are eliminated. If, for example, the full burden of the restrictive policies generally falls on the private sector, there is no guarantee that this will be the case. The corresponding argument could be made for the case when an expansionary monetary policy would be warranted; i.e., that it would generally be efficient to distribute the resulting increase in available credit between the public and private sectors in some given proportion, rather than to the public sector alone.

If the market for private credit is sufficiently competitive, it may be assumed that the price of credit, i.e., "the rate of interest,"[2] provides a reasonable approximation of the profitability of marginal projects in this sector. While there are strong reasons to believe that various monopoly elements on both the lending and borrowing sides in the Nigerian economy make the interest on commercial bank credit a highly

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[2] Written within quotation marks because of the fact that there are many possible rates which could be taken to represent "the" rate of interest.

unreliable indicator of the marginal cost of credit in general, or of the typical yield on marginal projects in various sectors, this does not mean that there is no relationship between commercial bank lending conditions and the latter yields. For example, rising lending rates, or increasingly severe credit restrictions in commercial banks can at least be taken to imply that the yields have risen. For practical purposes, significant and sustained changes in interest rates on commercial bank private sector credit may, therefore, be taken as indications that the required marginal yield on public-sector projects should be changed in the same direction. When this required yield is raised, say, then some marginal projects would not be undertaken, and government borrowing needs would be less than they would have been at a lower required yield.[3] From a purely theoretical point of view, in order to maximize the overall return on investment, it would be required that the marginal yield on projects in the public sector should be the same as on those in the private sector. In practice, however, this is unlikely to be the case, for a number of reasons. Because of unquantifiable kinds of externalities, and because of political factors leading to a propensity to invest in prestige projects and to projects justified by their impact on the distribution of income rather than their profitability (such as subsidized low-income housing and free education, etc.), one may perhaps expect a somewhat lower and more ill-defined marginal rate of return in the public sector than in the private one.

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[3] It must of course be assumed that the investment planners are prepared to forego projects which have a lower yield than the required one. If this is not the case, i.e., if investments are largely made for political reasons, it is not meaningful to speak of an economic allocation problem in this context.

Conceptually, however, the argument made above that the rates in the two sectors should move together, i.e., that a tighter credit situation in the private sector should correspond to more stringent profitability criteria in the public sector may be considered as suggesting a criterion according to which the policy-makers should choose between alternative limits on government borrowing from the banking system, such as were discussed in the previous chapter. As was shown there, a given target rate of expansion of government securities holdings in the monetary system, together with given objectives regarding the expansion of the money supply, will determine within relatively narrow limits the allocation of bank credit between the private and public sectors. According to the reasoning here, this allocation decision should be made in such a way that, say, any tightening of credit in general is reflected by more stringent profitability standards in both sectors, and conversely, when credit was getting easier. This might, for example, involve projections of alternative government borrowing needs at different required marginal yields, and forecasts of the competitive level of commercial bank lending rates at the corresponding levels of private-sector lending.

In addition to the allocation of credit between the public and private sectors, another criterion which will influence the Central Bank's choice of techniques of monetary control, will be the cost at which the public sector can borrow. This leads into the problem mentioned in earlier chapters, regarding the role of the Central Bank as manager of the public debt.

2. Cost of Government Borrowing.

If the private sector is assumed to be competitive and to maximize profits, efficient allocation of investment funds requires that the

actual cost of credit in this sector should approximate the marginal productivity of investment in the economy as a whole. In the public sector, where investment is not undertaken primarily for monetary profits, however, it might simply be taken as a matter of policy to plan investments in such a way that the marginal projects have approximately the desired yield, so that it is not strictly necessary for efficient investment choices that the actual marginal borrowing rate for the government reflect this yield. In fact, the policies of the Central Bank of Nigeria during the 1960-66 period with respect to debt management seem to have been aimed primarily at supporting the market for government securities in such a way as to minimize government borrowing costs, and the marginal borrowing rate of the government has been set at a level which has been considerably lower than, e.g., the lending rates of commercial banks to preferred borrowers in the private sector.[4] While the rates on long-term governments have been somewhat higher than the rates paid on time and savings deposits by commercial banks, the differential has been small.

This policy has obviously been successful in terms of its objective of providing cheap credit to the government. On the other hand, it has necessitated a policy of more direct restrictions imposed by the Central Bank on commercial bank lending to the private sector than would otherwise have been required. With higher interest rates on government securities (and more aggressive marketing), these securities

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[4] See above, chapter 2, section C-2.

would have competed more effectively with bank deposits,[5] and a slower growth rate of deposits would have forced the commercial banks to adopt more restrictive lending practises or to increase loan rates, without the necessity for direct restrictions. Secondly, higher rates on governments would have made them more attractive assets for the commercial banks, making them hold more such securities, which, again, would have forced them to adopt more restrictive policies with respect to private sector lending. For these reasons, it would then not have been necessary for the Central Bank to implement to the same extent, policies such as credit guidelines, etc.

The reasoning in the previous paragraph illustrates the fact that there is a trade-off between the objective of minimizing borrowing costs to the government and the necessity to ration credit to the private sector through direct restrictions on commercial bank lending.[6] The question then arises what advantages and drawbacks are associated with using the interest rates on government securities as a tool with which to influence credit allocation.

Generally, interest payments on the public debt simply represent a transfer payment from one set of persons in Nigeria to another, and

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[5]For example, short-term government securities such as 90-day Treasury Bills can be expected to be quite closely substitutable for time deposits, which have accounted for an increasingly large share of commercial bank deposits in recent years.

[6]It should be noted that the discussion here does not concern minimization of borrowing costs through issuing an appropriate mixture of short- and long-term government securities for a given volume of government borrowing outside the Central Bank. For a discussion of these questions see Tobin, J., "An Essay on Principles of Debt Management," in Commission on Money and Credit, Fiscal and Debt Management Policies, Englewood Cliffs, N.J., Prentice-Hall, 1963, pp. 143-218. The issue discussed here concerns whether it is advantageous to try to keep borrowing costs low by having the Central Bank support the market, i.e., fixing the borrowing rate arbitrarily.

obviously such transfers do not represent a real cost to society. From this point of view, minimization of government interest cost does, therefore, not appear as very important. On the other hand, transfer payments represent a charge on government revenue, and thus will put additional strain on the government's ability to raise taxes; alternatively, higher rates will constitute an incremental borrowing need to the government. However, it should be noted that this problem does not arise for the very significant proportion of government securities held by institutions within the public sector, since their earnings directly accrue to the government in any event. This consideration is applicable to securities held by the Central Bank, the Marketing Boards and the Statutory Corporations, as well as public pension funds, the Post Office Savings Bank, etc. Therefore, the increment in required outside revenue would only arise through increased payments to government securities holders other than those organizations.

On the other hand, some government securities are held, directly or indirectly, by foreigners; the most important such category are holdings by the expatriate banks. This portion of interest payments does in fact constitute a real cost to the Nigerian economy. Therefore, if the banks and other foreign institutions can be induced to hold such assets at low interest rates, Nigeria is gaining at the expense of the foreign lenders.[7]

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[7] On the other hand, unless foreign demand for Nigerian governments is completely inelastic, higher rates would mean that more borrowing abroad in this form would be possible, which would be advantageous as long as investment in Nigeria could be undertaken at higher social profitability than the borrowing rate.

With respect to the expatriate banking system, the problem arises because bank profits accrue to foreigners instead of Nigerians. This raises the broader question whether the Central Bank should take into account the effect of its debt management policies, as well as other policies, on commercial bank profits. The answer must be yes, because the level of profits in commercial banking will be the main determinant of the flow of real resources towards investment in banking facilities, and the policy-makers obviously do have an interest in assuring that these facilities grow to accommodate the economy.

Furthermore, it was argued above that a policy of higher interest rates would also force banks to be more competitive in terms of attracting deposits from the public, and to the extent that this were reflected in increased deposit rates, profits would not necessarily increase greatly. On the other hand, when commercial bank lending to the private sector is directly restricted, e.g., through credit guidelines, the banks have no incentive to increase their competition for deposits, so that deposit rates will not increase. In this situation, there is less pressure on the banks to try to limit their lending expansion through an increase in their lending rates, so that other and less efficient methods of rationing will become more common, such as increasingly stringent security requirements, etc.[8] When the above factors are taken into account, the fact that higher government borrowing rates would increase interest payments by the government to the banks, does not appear as a weighty argument against such a policy.

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[8] See the discussion below regarding the question why the banks may prefer such methods of rationing, rather than the method of adjusting loan rates.

The factors affecting debt management and the allocation of credit between the private and public sectors can be briefly summarized as follows. First, there is the objective of ensuring that the allocation of credit from the monetary system between the public and the private sectors is economically efficient. This objective can be partially met by choosing a rate of expansion of government securities holdings in the monetary system in such a way that the marginal projects which can be financed in the public sector have approximately the same yield as those in the private sector. Second, there is the objective of meeting the government borrowing needs at low cost. This appears to have been the one most emphasized in the past, and has been successfully met. On the other hand, the achievement of this objective has to be weighed against the consequences in terms of lessening the competition for funds in the banking system that have followed from the Central Bank policies as debt manager; this has tended to yield lower rates to Nigerian depositors than would otherwise have been the case, and possibly also to less efficient ways of rationing credit among private sector borrowers. In Section B-1 below, the discussion will return to the question of the administrative ways in which the Bank's role in debt management could be modified in order to meet the criteria discussed above.

Monetary policy does not only have effects on the distribution of investment funds between the public and the private sectors, however; the efficiency with which the banking system fulfills its functions of payments mechanism, and of allocating funds within the private sector, is a factor to be taken into account in choosing techniques of monetary control. In the next two sections, the performance of the Nigerian banking system in these respects, and the possible ways it could be improved through policy measures, will be discussed.

3. Efficiency of Payments Mechanism.

An efficient payments mechanism can be described in terms of the services performed with respect to providing facilities for safe-keeping of funds, and with respect to transferring funds between transactors, between different parts of the country, as well as internationally. It is difficult to measure the efficiency with which the Nigerian banking system performs these services, and to what extent competition between the banks has made the charges for these services reflect their real cost. Whereas the very rapid rate of growth of the number of commercial bank branches tends to indicate that there is competition for funds, it is still possible that this form of competition substitutes for competition via price (i.e., deposit rates and service charges). As in all commercial banking systems, the issue is obscured, however, by the fact that the charges for services with respect to the payments function are set at subsidized levels, in order to attract funds for lending.[9] The difficulties in assessing the banks' performance in this area means that it is also difficult for the authorities to find means to control their performance directly. On the other hand, it would be possible to implement policies which would indirectly lead to greater efficiency, by strengthening competition in this area. One way would be through the foundation of a publicly owned network of commercial bank branches; another one would be

[9] This arises because of the legal restriction in bank laws in most countries, including Nigeria, which prohibits banks to pay interest rates on demand deposits. For a discussion of an alternative, see Friedman, M., A Program for Monetary Stability, New York, Fordham University Press 1959, pp. 68-76, or ibid., The Optimum Quantity of Money, London, MacMillan, 1969, pp. 1-50.

to permit the Post Offices to provide expanded banking facilities.[10] A detailed analysis of the alternatives in this respect will not be undertaken here, however.

Efficiency of Credit Allocation Within Private Sector.

The question whether the present commercial banking system efficiently fulfills the functions of allocating credit in accordance with the development priorities in Nigeria, however, is perhaps a more important one. To formulate an answer, several interrelated problems must be considered:

(1) Is there any reason to believe that the loans considered most attractive to the banks are not the socially most profitable ones?

(2) Is there sufficient competition in the financial system so that the return to deposit holders closely reflects the profitability of investment opportunities?[11]

(3) Is the banking system functioning well in terms of making use of possibilities for borrowing abroad when this is socially profitable, or to lend abroad when it is profitable to do so?

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[10] In Sweden, both these methods are currently used. There is one publicly-owned commercial bank competing with the private ones; also the Swedish Post Office has so-called "post-giro" facilities through which almost any form of payment can be effected, and which appears to work quite effectively. It should also be noted that the Post Office facilities in Nigeria are currently being used as a Savings Bank, but this bank cannot in its present form be used to effect payments through transfers of deposits.

[11] An alternative way of posing this question is to ask whether the "financial spread" closely reflects the real cost of providing banking services?

The first question is especially important in view of the oft-heard charge that there is a tendency for commercial banks to unduly favor foreign-based firms, and large-scale firms, for credit, at the expense of a small-scale Nigerian undertaking in agriculture, trade, and industry. It must be noted however, that costs of credit assessment and administration will be relatively greater for small loans,[12] and that it is typically easier for large-scale firms to mobilize the kind of security that is considered satisfactory by the foreign banks, so that the tendency to favor large-scale and foreign borrowers is largely a consequence of the banks' impersonal profit and risk criteria. On the other hand, it is quite possible that these criteria will result in groups of unsatisfied borrowers in the small-scale categories, who have investment opportunities with higher expected profitability[12a] than do those borrowers who qualify for bank credit, even if the differences in the cost of loan administration are taken into account. In some instances it will be possible for such borrowers to obtain credit in the "market" outside the organized financial system; this market is very imperfect so that the credit so obtained is likely to be at high cost. If such differences between the expected rates of return are allowed to persist, however, this is evidence that credit is not properly allocated, since society would benefit from a reallocation of credit towards investment categories with higher profitability. In addition, it is quite possible that non-quantifiable external effects make it desirable to accept a somewhat lower profitability in the small-

[12] The high administration costs and other problems with small loans are discussed in Kilby, P., Industrialization in an Open Economy: Nigeria, 1945-1966, Cambridge, Mass., Harvard University Press, 1966, pp. 311-335, and Schatz, S.P., Development Bank Lending in Nigeria, Ibadan, Oxford University Press, 1964 passim.

[12a] "Expected profitability" is taken to mean the rate of return on all investments in a group taken together. While this rate may be high for a group as a whole, it may also have a high variance, in the sense that very low and very high rates of return might occur more frequently in such a group than for a group of large scale borrowers.

scale category than in others. Such externalities include the element of managerial and entrepreneurial training in small firms, and possibly also the effect on income distribution. Those factors reinforce the disadvantages of financial discrimination against Nigerian small-scale borrowers.

There are a number of ways in which policy may be used to reallocate credit in favor of such firms; whichever particular method is chosen, however, it is clear that it must involve a restriction in the lending to other categories of borrowers, and not only increased availability of funds to the high-profitability borrowers. The Nigerian governments, both at the Federal and the former Regional levels, have attempted to make more credit available to these groups by creating a variety of institutions which lend funds to small-scale agriculture and industry.[13] To the extent that this takes place, the borrowing needs of the public sector are increased and ways must be found to restrict credit to private-sector borrowers.[14] Another method of increasing credit availability to small-scale entrepreneurs would be to create some form of government risk sharing, whereby the government would guarantee, partially or totally, credit to this class of borrowers. In this case, there would not be an increase in the credit needs of the public sector, but lending to other borrowers would decrease as banks switched their portfolios in the direction of the loans guaranteed by the government.

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[13] See Kilby, loc. cit., and Helleiner, G.K., Peasant Agriculture, Government and Economic Growth in Nigeria, Homewood, Ill., Richard D. Irwin, 1966, chapter 10, pp. 242-273.

[14] The social profitability of these type of loans should therefore be taken into account in the decision regarding allocation of funds between the public and private sectors discussed above.

The case just discussed is one where the social profitability of investment is insufficiently reflected in attractiveness of the corresponding credit extension primarily because of risk considerations, though it may also be claimed that it is partly a lack of competition in the financial system that results in the failure of these borrowing needs being met. If banks are concerned with the "riskiness" as well as the profitability of their portfolios, and if the present banks do enjoy a certain degree of monopoly power, it is quite possible for them to let this monopoly power be reflected in a relatively safer portfolio, with a given profitability, than they would have with more vigorous competition. In other words, increased competition in the banking system might result in relaxed standards of "creditworthiness" rather than in lower lending rates or higher deposit rates. Therefore, the problem of meeting credit needs of the type of borrowers discussed here could also be partially offset by increased competition, for example, by creating a publicly owned institution which could compete with the existing banks for deposits and which could make more loans to small-scale borrowers, directly or indirectly through some specialized lending institution. To the extent the existing banks lost deposits to such competition, they would be forced to cut back lending to their traditional customers, and the desired reallocation could thus be brought about.[15]

It might be noted that if such a reallocation is to take place, it is quite likely that the level of interest rates would have to rise some-

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[15] An example of this type of institution is the Nigerian Building Society, which accepts deposits from the public and lends money on mortgages. In advanced countries, there are of course many other types of such institutions as well.

what over and above the rates that commercial banks charge on loans; this would be necessary in order to induce the banks to switch into new forms of credit, and also in order to cut back the demand for credit by their "traditional," credit-worthy customers. But this suggests that if regulatory policy measures could be implemented to raise directly the level of deposit and loan rates in the banks, such an increase by itself would tend to cause some reallocation towards more productive investment. The reasoning is as follows. If the banking system is characterized by monopoly elements, and tends to utilize its monopoly power to hold a relatively low-risk, but also low-return, portfolio, an increase in interest rates would tend to curtail demand from the existing "credit-worthy" borrowers (either because they would reduce capital investment, or because they would borrow elsewhere, perhaps abroad). This would force the banks either to hold more liquid funds, thereby reducing their profits, or to be more aggressive in seeking out lending opportunities which could bear the higher interest rate (even if such loans might have somewhat higher risk). This type of policy will be further discussed in Section B-4.

The argument in the previous paragraph also has some bearing on the question whether the Nigerian financial system makes optimum use of possibilities for profitable borrowing and lending abroad, and whether the tools of monetary control used by the Central Bank might influence the performance of the commercial banks in this respect. It is first clear that the international character of the banking system provides the facilities for such flows when they are profitable. On the other hand, the fact that the financial system is not strongly competitive means that there is less incentive to make use of these facilities than would otherwise be the case. If policies were followed to permit the level of interest

rates to rise in response to the borrowing needs of the private and public sectors, there would be a number of ways in which a capital inflow from abroad could be encouraged. To some extent, more Nigerian government securities could be sold abroad. There could be some increase in the capital inflow through borrowing abroad, for lending in Nigeria, by the commercial banks, though this effect would not be likely to be very great, in view of the fact that the banks may be reluctant to expand their Nigerian assets much beyond their Nigerian deposits.[16] More importantly, it would create less of an incentive for Nigerian asset-holders to acquire foreign assets, and also would increase the incentive for those firms which have the option of doing so, to fill their borrowing needs in the developed countries, rather than in the Nigerian financial system.[17] To the extent that the social rate of return on capital funds in Nigeria is greater than the borrowing rates overseas, all these effects would be socially profitable.

The arguments made in part A can be summarized as follows. The basic criterion which has been suggested for the choice of techniques of monetary control is that it should be made so as to promote an efficient allocation of credit between the public and private sectors, as well as within the private sector. In the area of debt management, this means that some arrangement to decide on the permissible rate of government borrowing from the banking system in a rational way is required, and the principle according to which this choice should be made was briefly discussed. Further-

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[16] See the discussion in Chapter 2, section 3-a.

[17] It may be noted that firms with access to these foreign market may engage in capital flight by financing as much of their activities as they can in the Nigerian financial system.

more, with respect to the ways in which the Central Bank tries to influence the portfolio choices of the commercial banks, policy should be formulated so as to stimulate competition between the banks as much as possible, and, partly as a consequence, so as to make interest rates in the financial system come closer to the "true" economy-wide opportunity cost of credit.

In the next few sections, an attempt is made to apply these criteria in the analysis of the various specific monetary-policy tools which can be employed in Nigeria.

B. Specific Policy Tools

In spite of the rather important differences in terms of objectives and institutional environment between monetary policy as carried out in the industrialized countries and the developing countries respectively, it is customary to analyze the techniques of monetary control in the latter using the terminology and classification of techniques which has been developed for monetary policy analysis in, say, the U.S. and the U.K. This has frequently led to a rather negative set of conclusions e.g., that most types of monetary policy measures presuppose a more sophisticated financial system than is present in the developing countries, and direct controls of credit may, therefore, be the only possibility.[18]

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[18] There is a small and somewhat scattered literature on techniques of monetary management in less developed countries. For useful discussions, see, e.g., the following: Sen, S.N. Central Banking in Underdeveloped Money Markets, Calcutta, Bookland Private, 1952; Sayers, R.S., Central Banking after Bagehot, Oxford, The Clarendon Press, 1957, chapter 9; Bloomfield, A., "Monetary Policy in Under-developed Countries," in Public Policy, Vol. 7, ed. by Friedrick, C.J., and Harris, S.E., Cambridge, Massachusetts, Harvard University, 1956, pp. 232-274; Dorrance, G.S., "The Instruments of Monetary Policy in Countries without Highly Developed Capital Markets," I.M.F. Staff Papers, Vol. 12, July 1965, pp. 272-281; Fousek, P.G., Foreign Central Banking: The Instruments of Monetary Policy, New York, Federal Reserve Bank of New York, 1957. A useful general discussion is also contained in Chandler, L.V., Central Banking and Economic Development, Bombay University Press, 1962, especially chapter 2, pp. 1-19. Brown C.V., The Nigerian Banking System, London, Allen and Unwin, 1966, has a brief chapter (pp. 170-180) discussing the problem specifically for Nigeria; the discussion there is unfortunately somewhat superficial, however.

While one obviously must agree with the proposition that the degree to which the financial system has been developed must influence the effectiveness of different techniques of control, as traditionally defined, it will be argued here that traditional monetary theory, with some modifications for the institutional differences, can still provide a useful framework of analysis for monetary policy in Nigeria. In this section, the techniques of monetary control will, therefore, be discussed in terms of the usual categories, i.e., open market operations, discount policy, interest rate policy, reserve requirements, etc.

1. Open Market Operations

The text-book description of the way, say, an open-market sale of government securities affects the supply of money runs somewhat as follows. The Central Bank sells government securities to the public; the public pays for the securities with a check; in the check clearing, this reduces the commercial banking system's reserves in the Central Bank, and they will have to reduce lending to the private sector in order to rebuild their reserves to the level which they wish, or have to, hold. The sale of government securities might have some direct effect on their price, i.e., induce an increase in their effective yield, and the subsequent credit contraction will also tend to increase lending rates to the private sector.[19]

There would seem to be nothing in this description which would implythat open market operations cannot be used effectively for monetary control in less developed countries. It is often said that they cannot be used because of

[19]Similar effects will take place if the government securities are purchased by the commercial banks themselves, provided that they do not have excess reserves to begin with.

the "narrowness" of the market for government securities.[20] By the latter phrase is presumably meant that the number of buyers and sellers of government securities is small, that transactions occur only infrequently, and/or that the quantities of government securities held outside the Central Bank are relatively small. None of these factors would prevent the effects of open market operations from taking place. It may, however, be argued that the more fundamental reason why such operations cannot at present be effectively used in Nigeria is the role that the Central Bank has assumed as manager of the public debt. As was described in Chapter II, the debt management policies have implied that all government securities are traded at par, i.e., at fixed prices, with the Central Bank passively buying or selling what is offered at these prices. This policy, by definition, precludes open market operations. If they are to be possible at all, the Bank must give up the policy of fixing, once and for all, government securities prices.

The reason generally given for this price fixing arrangement is that the market for government securities must be "stabilized," again because the market is "narrow"; it is contended that in the absence of government support for the market, changes in government borrowing would induce "unacceptably" large fluctuations in the prices. This may well be correct, so that, even if some fluctuations were permitted, open markets operations would have to be small. On the other hand, once the monetary authorities have accepted the responsibility for stabilization generally, it becomes quite difficult to resist pressure from the government that stabilization should take place at a low level, i.e., that government

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[20] See e.g., Brown, op. cit., pp. 174-175, Chandler, op. cit., pp. 13-16.

interest costs should be kept low. It is when these two objectives are combined that it becomes completely impossible to use open market operations effectively, since, e.g., sales of government securities would have to take place at much lower prices than the artificailly fixed one.

In the following paragraphs, the question will be discussed whether the Central Bank's role as debt manager could be modified in order to make possible the use of open market operations in Nigeria, and also whether such operations would constitute a technique of monetary control which would have beneficial effects in terms of the efficiency criteria discussed in the previous section.

While the first step would have to be a modification of the policy of fixing the price of government securities at par, this does not necessarily mean that the Central Bank would have to abandon completely its function of stabilizing these yields. It would be possible, for example, to issue certain classes of securities whose prices continued to be fixed; the longest maturities could still be guaranteed at par, whereas the prices of the short and intermediate maturities could be permitted to fluctuate.[21] The crucial point, however, is that the amounts that the Central Bank would guarantee to stabilize at par must be limited by an explicit agreement between the government and the Bank; a possible rule

[21] To some extent, this is already being done, because the prices of Treasury Bills are not explicitly fixed. It may be noted also that the shorter the maturity, the less of a change in the price of the security is required, in order to bring about a given change in the effective yield; see, e.g., Malkiel, B.G., The Term Structure of Interest Rates: Expectations and Behavior Patterns, Princeton, Princeton University Press, 1966, pp. 50-59. This is why it probably would be appropriate to do the unpegging for short-term and intermediate maturities first.

according to which this type of limit could be determined, year by year, is the one which was suggested in Chapter IV. It should be noted that this type of agreement between the Bank and the government does not necessarily mean that the government could face bankruptcy even though guaranteed borrowing had reached the limit in a particular year; the government could still issue securities outside the agreement, even though the Central Bank would not fix their prices.[22] Alternatively, an arrangement could be made whereby the Bank would also guarantee specified additional amounts, but at higher rates of interest (i.e., the Central Bank would be ready to buy these securities when they had fallen a given amount below par).

It might be argued that permitting price fluctuations for certain portions of government debt, but not for others, would lead to a situation where, at times, it would be impossible for the government to sell any of the securities with fixed prices, i.e., when the yield on them was lower than those on the fluctuating ones. This might be true for sales to the non-bank private sector. The Central Bank, however, would be bound by agreement to hold certain amounts of the fixed-price securities, and the commercial banks could be implicitly required to hold them, by permitting them to be counted for purposes of calculating statutory reserves.[23]

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[22] For example, if only a specific amount of long-term securities were guaranteed in a given year, the government could still issue short and intermediate securities.

[23] The purpose of a reserve requirement is to restrict lending to the private sector. This purpose can be achieved equally well through a cash reserve requirement in the traditional sense or by a liquid-asset requirement which includes certain government securities. Therefore, whether or not, say, government securities can be counted as reserve assets, will be important only because it would have an effect on commercial bank profits. See further below, section B.

Furthermore, as was argued in the previous section, an increase in the interest rates on government securities would be immaterial to the extent that the securities are held by institutions within the public sector.

But if there were certain types of government securities outstanding for which the prices were not fixed, it would be possible for the Central Bank to conduct open market operations in those securities. The question, therefore, arises what the advantages are of introducting the possibility of this form of monetary control.

First, it may be noted that the "un-pegging" of part of the government debt would have certain potentially beneficial effects per se. It might, by making available a relatively safe financial asset with a competitive yield, encourage financial savings in the non-bank private sector somewhat, and would also stimulate the general development of the non-bank financial system (for example, the Stock Exchange, where at the present time the bulk of transactions are in government securities traded at par).[24] Furthermore, it might be of some psychological advantage that the interest rates at which the government can borrow would clearly be seen to depend on the amounts borrowed; this would be likely to introduce a more realistic view of the real opportunity cost of government borrowing on the part of the government officials and development planners.

Open market operations also have several advantages as a tool of monetary control. Recall first that the process of controlling the money supply, in the previous chapter, was considered as having two fundamental aspects: (1) to control the amount of borrowing by the government in the banking system, and (2) to control the proportion of commercial bank assets

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[24] See e.g., Central Bank of Nigeria, Annual Report 1966, Table 30, p. 65.

held as "liquid reserves," which were defined to include reserves in the traditional sense, but also net foreign assets, and government securities.

In practice it cannot be expected that either the volume of government borrowing from the banking system or the reserve ratio of commercial banks will be "right on target." For example, sometimes total government borrowing requirements might be greater than foreseen, and if the Central Bank did not intervene, the rates on governments would rise sharply. In that case, the Bank would want to undertake some stabilization, and would, therefore, hold somewhat more governments than planned. In that situation, the Bank might undertake open market operations so as to create an incentive for the commercial banks to hold somewhat more "reserves" than required, in order to offset the increase in highpowered money resulting from its additional holdings of governments; if the operations were so conducted as to let interest rates on governments rise, the commercial banks might increase their reserves by holding more governments than they otherwise would have. Similarly, large and temporary fluctuations in high-powered money due to variations in export earnings or capital flows could be partially offset by limited open market operations.[25] Furthermore, they might be used to some extent to offset the effect of unplanned variations in commercial bank reserves ratios on the money supply. If the commercial banks were holding excess reserves, open market purchases could be used to increase high-powered money; or if the banks were borrowing reserves in the Central Bank,[26] limited open market sales could be undertaken so as

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[25] This should not happen to such an extent that the element of "automatic stabilization" discussed in Chapter IV were offset, however.

[26] Below in section C it is argued that it is essential for the effective functioning of the commercial banking system that such borrowing facilities are available.

to offset the impact of this borrowing on high-powered money, and put upward pressure on interest rates.

As is evident from the preceding discussion, the view taken here is that, given the opportunity to do so, the Central Bank of Nigeria can use open market operations with essentially the same type of effects as they would have in a more highly developed financial system. However, because of the narrowness of the securities markets, the open market sales and purchases may have to be relatively small in quantity, so as not to lead to excessive variations in the yields; or put differently, only relatively small operations are required in order to bring about a desired change in the yield. Furthermore, the narrowness of the market makes it necessary that the total government debt issue be closely integrated with monetary policy; if it is not, open market operations will be impossible, because the Central Bank's transactions in governments is then likely to be determined more by the necessity to stabilize the market for governments than by the requirement to control the money supply.

The effectiveness of the operations from the viewpoint of monetary control depends largely on the degree to which the changes in the yields on governments do in fact have an impact on commercial bank lending to the private sector. In order to assess the desirability of this method of affecting bank lending, a comparison will have to be made with alternative methods, such as variations in required reserves. This comparison is carried out in the next section.

2. Required Reserves

Variations in the proportion of required reserves is potentially one of the most powerful devices of monetary control and indeed, one criticism that has sometimes been made against it is that it is too power-

ful, in the sense that the burden of adjustment imposed on the commercial banks when the proportion is changed, is thought to be greater than is desirable.[27] As has been noted in the literature, this difficulty can be overcome relatively easily through Central Bank lending or rediscounting facilities, by allowing time for commercial bank adjustments,[28] and by always undertaking changes in reserve requirements in relatively small steps. These possibilities will be discussed below for the Nigerian case.

Reserve requirements can be formulated in many ways, differing in terms of what assets can be included in reserves, whether they are defined as marginal or average ratios, whether they are meant to hold at all times or only on the average over some period of time, etc. Furthermore, there may be several types of reserves that are separately required, e.g., there may be a "primary" and "secondary" reserve requirement, with different assets being included in the two types. Many of these differences refer to the form rather than substance of the requirements, and attention will be restricted here to the following substantial questions only:

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[27] See, e.g., Smith, W.L., "The Instruments of General Monetary Control," National Banking Review, Vol. 1, September, 1963, pp. 47-76, reprinted in Smith, W.L., and Teigen, R.L. eds, Readings in Money, National Income, and Stabilization Policy, Homewood, Illinois, Irwin, 1965, pp. 210-237 (see especially pp. 231-235). In spite of this, some writers on monetary policy in less developed countries seem to feel that the Central Banks have little choice but to use it as one of the principal instruments. See, e.g., Fousek, op. cit. pp. 45-47, Dorrance, op. cit., p. 277.

[28] This method is used in Canada, where the reserve requirement at a given date is computed on the basis of average actual reserves relative to deposits during a given number of weeks before that date. When relatively automatic borrowing facilities in the Central Bank are available, however, there is less reason for this device than would otherwise be the case.

(1) What assets should be included in "reserves"?

(2) Should the requirement be a marginal or an average one? Should it be the same for all banks?

The concept of reserves which is used here and in the previous chapter, is a broad one including net foreign assets and government securities held by commercial banks. The reason for including foreign assets was that otherwise the expatriate banks with their easy access to the international money market would be able to expand or contract credit to the private sector by transferring funds from and to abroad, without any change in their reserve position, which would mean that the Central Bank would partially lose control over the money supply.[29]

The argument put forward in Chapter II in favor of including government securities holdings in required reserves was that under the price-fixing policy for governments, they were equivalent to cash reserves, given the fact that they could instantaneously be sold to the Central Bank at a known, fixed price, and that therefore the commercial banks could finance, e.g., a lending expansion, by sales of their government securities, unless they were held to meet the reserve requirement. If, however, the Central Bank would suspend its pegging policy, the price at which the unpegged securities could be sold, would no longer be known with certainty, and an attempt by the commercial banks to finance a lending expansion to the private sector by selling governments would induce the prices of the latter to fall, i.e., their yields to rise, unless the Central Bank intervened. Such securities would, therefore, not be equivalent to reserves,

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[29] As is clear from chapter 2, the idea of including foreign assets in required reserves, is not a new one in Nigeria, even though the extent to which they may be included has been decreased.

and the question arises whether there would still be any reason to include them in legal reserves. It will be argued here that the choice in this respect does not make much difference with respect to monetary control, but that it has an important impact on the level and variability of commercial bank profits and net government borrowing costs.

If a certain rate of government borrowing from the banking system as a whole is foreseen, and a given rate of monetary expansion is to take place, there will be only one given level of expansion of commercial bank credit to the private sector which is consistent with the plans in this respect.[30] Given the proportion of bank deposits in the total money supply, this means that only a given proportion of the deposits can be used to expand the money supply, i.e., for private-sector lending, and the level of "reserves," in the sense of assets other than loans and advances, must be such as to permit only that amount of private sector credit. The total amounts of currency with the public, and required bank "reserves" are, therefore, given. If unpegged government securities may be included in "reserves," the banks will hold a given amount of such securities; if they may not be included, the same amount of required "reserves" will be held by the commercial banks in some other form, e.g., as foreign exchange or deposits with the Central Bank. But in that case, the Central Bank can add this amount of governments to its portfolio, in exchange for foreign exchange, or for deposits by the commercial banks, leaving the total level of "reserves" unchanged. Therefore, there is no difference between the two cases with respect to the total amount of government securities held

[30] Following the argument in chapter 4, section B-5, it is assumed that international reserves are taken as constant at some target level.

in the banking system as a whole, or in terms of the reserve ratio or the money supply.[31]

The net cost of government borrowing, however, in the sense of interest costs on the government debt minus the portion of the interest which goes to the Central Bank, will be lower in the second case, and commercial bank profits are also likely to be lower if the yields on foreign assets and Central Bank deposits are lower than on government securities; on the other hand, if there is sufficient competition in the banking system, the result might instead be a decrease in explicit or implicit[32] deposit rates. This argument also indicates a disadvantage with a policy of trying to minimize (directly or indirectly) government

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[31] The following T-account representation of cases 1 and 2 may be helpful here.

Case 1: Governments Included.

Central Bank

Govts.	500	Curr. public	1000
For. Exch.	550	Cash in Bks.	50

Commercial Banks

Govts.	200	Dep's.	1000
Fr. Exch.	50		
Cash	50		
"Res's"	300		
Loans	700		

Case 2: Governments Excluded.

Central Bank

Govts.	700	Curr. public	1000
Fr. Exch.	450	Cash in Bks.	150

Commercial Banks

For. Exch.	150	Dep's	1000
Cash	150		
"Res's"	300		
Loans	700		

It is seen that currency with the public and total bank deposits are the same in both cases, as are the total amounts of foreign exchange and governments in the banking system.

[32] By "implicit" deposit rates, we mean interest paid in the form of banking services, performed below cost, as discussed above.

borrowing costs by forcing the commercial banks to hold large reserves at low yields: it reduces the marginal profitability to the banks of attracting deposits, and, therefore, would tend to depress explicit or implicit deposit rates; i.e., lead to an understatement to savers of the social profitability of financial savings.

In answer to question (1) above, it has thus been argued here that, in addition to what is traditionally included in required reserves, in Nigeria it would be appropriate also to include net foreign assets; whether or not government securities should be included is relatively unimportant from the point of view of monetary control, but the choice made might affect deposit rates and commercial bank profits. On balance, the view of the present author is that there are administrative advantages in excluding government securities from legal reserves which make it preferable to adopt this policy. In order to increase competition between banks for deposits, however, the marginal profitability of attracting deposits could be maintained by paying interest on deposits with the Central Bank,[33] either directly or indirectly, by letting the banks hold their reserves in some form such as the "Call Money Fund" described in Chapter II; balances in this Fund earn interest. One of the advantages with this policy would be that the Central Bank would then only have to negotiate with the government regarding the amounts of government securities to be acquired by itself, whereas the amounts held by the commercial banks would be determined solely by them, without policy interference; therefore, the commercial banks would be less likely to feel that they were being "exploited"

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[33]Under the present Bank Act, the Central Bank is prohibited from doing this. It may, however, be done indirectly, e.g., through the Call Money Fund as stated in the text.

in order to provide inexpensive government financing. One disadvantage, however, would be that commercial bank participation in the market for government securities would be likely to be less active; while this does not make much difference with respect to total holdings of governments in the banking system, as was argued above, it would mean that the potential benefit of stabilizing speculation by the commercial banks in this market would be lost.[34] On the other hand, the direct influence that the Central Bank would have on the level of commercial bank interest rates if it could directly determine the yield on reserves, e.g., in the Call Money Fund, would be likely to be great, and variations in this rate would constitute a simple and powerful tool of monetary policy.[35]

Question (2) above concerns the form of the reserve requirement, i.e., whether it should be in the form of a marginal or an average ratio. Marginal ratios (i.e., a requirement that a given fraction of any increase in deposits above a given initial level have to go to reserves) are typically used in situations where a restrictive policy is desired with respect to the money supply, but where it is desired to avoid an increase in the average ratio because of the difficulties this is expected to cause in terms of adjustment by the commercial banks.[36] Such adjustment difficulties are especially likely to arise for those banks which hold the minimum level of reserves at the outset, or which expect a slower growth rate of deposits than the average; banks with initial excess reserves, or banks with faster deposit growth, would have less difficulty adjusting. In

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[34] If one believes that speculation is typically destabilizing, he would of course not think of this as a disadvantage.

[35] Payment of interest on commercial bank reserves has been advocated by Friedman (see A Program for Monetary Stability, op. cit., p. 68-76, and Tobin, J., "Towards Improving the Efficiency of the Monetary Mechanism," Review of Economics and Statistics, Vol. 42, August 1960, pp. 276-79.

[36] See e.g., Dorrance, op. cit. p. 276.

many countries, including Nigeria, this problem is especially relevant because of the typically different degree of liquidity of the indigenous and expatriate banks.[37]

Whereas the adjustment problems may indeed be difficult in certain cases when the average reserve requirement is raised, the attempt to solve this problem by the use of marginal reserve ratios has the strong disadvantage that it constitutes a significant reduction in competition for deposits between the banks. The marginal reserve ratio must be considerably higher than the average if there is to be an appreciable increase in the actual average level of reserve. Therefore, the marginal yield on deposits will be considerably lowered through a marginal reserve requirement, if the yield on "reserves" is lower than on non-reserve assets, so that competition for deposits will decrease.[38] It may be noted that if a marginal reserve ratio is different from the average one, if the marginal ratio is effective, it will generally result in a different actual average reserve ratio for different banks. Therefore, the question of average vs. marginal ratios is a special case of the problem whether reserve requirements should be the same for all banks. The argument above indicates the general fact that unequal treatment of banks in this respect will tend to reduce the degree of competition in the banking system.

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[37] The difference in degree of liquidity has been extensively documented for the early sixties by Brown, in The Nigerian Banking System, op. cit., Chapters I and II. From unpublished data released by the Central Bank to the author, it can be seen that the difference has persisted throughout the 1960's.

[38] If the bank holds no excess reserves, the yield on an incremental $ of deposits, i, is:

$$i = i_L \cdot (1 - r) + i_r \cdot r$$

where i_L is the loan rate and i_r is the rate on reserves, and r is the marginal reserve ratio (which, of course, may be equal to the average). Differentiation yields:

$$\frac{di}{dr} = i_r - i_L < 0 \text{ if } i_r < i_L$$

For the case of credit ceilings, r is effectively equal to 1, and i becomes equal to i_r.

and thereby tend to be economically inefficient. If the same average reserve ratio applied to all banks, those banks with reserve deficits would have to adjust by more vigorous competition for deposits (e.g., by raising interest rates), or would have to cut back loans (which may also be done by raising interest rates). If only a marginal ratio is imposed, this would not be necessary. Interbank competition and interest rate flexibility would then be diminished. Therefore, consistency with the efficiency criteria for monetary policy discussed in Section A would generally require equal treatment of different banks. The problems of bank adjustment can be eased in other ways, however, through discounting and lending facilities in the Central Bank, and perhaps through direct government assistance in certain cases.

Finally, it may be noted that a uniform reserve requirement would provide a stimulus for the development of a short-term money market, i.e., a market for short-term funds; banks with liquidity deficiencies would have an incentive to obtain loans from banks with excess liquidity, or other types of short-term loans.[39] If there is less pressure towards adjustment on the banks with low liquidity, e.g., because the policy-makers choose a marginal rather than average reserve requirement, such a market is less likely to develop.

3. Discounts and Advances Policy

As described in Chapter II, the Central Bank of Nigeria has rather wide-ranging discretion to rediscount a wide variety of assets, including

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[39] One form of government assistance to banks in liquidity difficulties is to deposit of government funds in such banks. Whereas this is little different from lending to the banks by the Central Bank, it may lead to more competition for short-term funds if such deposits were placed with commercial banks through competitive bidding, which would stimulate the development of money market.

Treasury Bills, commercial bills, crop bills, and it may also grant advances for limited periods against the security of specified assets. The basic reason for permitting rediscounting privileges, of course, is to give the commercial banks access to a "lender of last resort" in times of crisis, or under normal circumstances, to make temporary assistance available to the banks when their liquidity is low, e.g., because of an increase in the reserve ratio. This function can be very simply fulfilled by giving the Central Bank authority to grant direct advances to the commercial banks, and from the point of view of monetary control, the elaborate prescriptions regarding which assets are eligible for rediscounting, or as security for advances, are largely pointless. Rather, the important factor in this respect is the cost at which advances are granted, and the term for which they can be made.

In discussing the role of discounts and advances facilities, it may first be noted that in order for a reserve requirement to work well as a tool of monetary policy, it is essential that such facilities are available, and that they do not depend on availability of certain types of securities. The process whereby reserve requirement variations are used for monetary control involves application of pressure on the commercial banks to increase (or decrease) their liquidity. If there are banks which have a low initial degree of liquidity, and which do not have assets which can be used for rediscounting or as security for advances, they may not be able to adjust to an increased liquidity requirement, and the question of sanctions will arise. If the sanctions involve drastic measures, such as revoking the charter of the bank,[40] the Central Bank will, in practice,

[40] For a commercial bank in Nigeria to have a liquidity deficiency constitutes an "offence", and the Central Bank may revoke the charter of a bank that repeatedly commits this offence.

be very reluctant to apply those sanctions. It is said that as a consequence, some banks in Nigeria have repeatedly violated the liquidity requirements in the 1960's, without any sanctions being invoked. If, on the other hand, the Central Bank makes direct advances to the commercial banks at a relatively high rate, then there will be a monetary pressure on them to adjust their liquidity instead of a threat of the more drastic sanctions mentioned above, and this type of pressure is more likely to be effective in practice.

If the discount rate (or the advances rate) is explicitly used as the device whereby commercial banks are discouraged from using the Central Bank as a permanent source of funds, there seems to be less reason to adopt other measures to limit commercial bank use of this facility; the right to get such advances could then become fairly automatic. There would, therefore, be little need for e.g., unwritten codes of conduct such as in the U.S., where banks are supposed to borrow in the Federal Reserve system only "reluctantly," or for making advances only against certain securities, etc., such as in Nigeria at the present time.[41] Furthermore, it is possible to create an extra incentive dissuading banks from large or prolonged use of Central Bank funds, by making the rate progressive, depending on the amount of the advance and the period during

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[41] See the discussion in Smith, op. cit., pp. 212-214. This type of automatic discounting policy would be more in line with British than with American practice though, in Britain, Bank of England lending is indirect, through the discount houses. See Sayers, R.S., Modern Banking, 4th edition, Oxford, The Clarendon Press, 1958, pp. 104-114. One reason why the Central Bank in Nigeria makes only certain assets eligible for discounting, is the desire to "support the market" for those securities. But this can of course be done by the Bank intervening directly in the market.

which a bank has been utilizing advances. If the basic advances rate is high enough, however, there will be no strong need for such measures, and the policy of unlimited and automatic advances at a uniform rate would have the great advantage of simplicity. For this to be feasible, however, the advances rate must be a penalty rate which is set as high as, or higher than, the rate prevailing on government securities at any given time, or possibly at about the same level as the prevailing rates on commercial bank loans and advances to the private sector.[42] It might again be noted that this type of arrangement would act as a stimulus to the development of a money market; if assistance from the Central Bank were available only at a penalty rate, the banks with borrowing needs would have a strong incentive to seek loans from other sources, including other banks with excess liquidity, so that a market in short-term funds would be encouraged. Furthermore, it would also enhance competition between the banks for deposits from the public.

4. Interest Rate Policy

In the mid-sixties, the Central Bank of Nigeria has assumed a direct role in influencing the level of interest rates in the financial system. In addition to fixing discount rates on various securities (Treasury Bills, produce paper, and other securities eligible for rediscounting), its role as a debt manager has also made the Bank responsible for determining issue rates of Treasury Bills and long-term government securities. Furthermore, as outlined in Chapter II, the Bank has announced that it "expects" the commercial banks to set their lending rates and deposit rates with reference to the Central Bank discount rate.

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[42] This is again in agreement with British practice. See Sayers, loc. cit.

In the previous sections, the view has consistently been taken that the choice of techniques of monetary control should be made in such a way as to stimulate competition in the banking system. If these measures were successful, there would be a tendency for the level of loan rates, yields on government securities, and bank deposits to reflect the opportunity cost of credit more closely than with less competition, and there would, generally speaking, be less reason for the Central Bank to adopt policies aimed at directly influencing interest rates. Indeed, it may be argued that the policy most likely to enhance efficiency in the financial system is for the Bank to focus on the money supply, as outlined in Chapter IV, and to abstain from direct interference with the level of interest rates; those rates which must be directly determined by the Bank, i.e., the discount rate and possibly the rate paid on reserves, could be set more in response to changes in other interest rates in the financial system than as an attempt to change these rates.

Nevertheless, there are some specific ways in which the Bank could use interest rate policy to enhance competition in the banking system. The possible measures to be discussed here will be minimum deposit rates in commercial banks, minimum lending rates, and the possibility of stimulating competition by having the public sector operate institutions which directly compete with the commercial banks for deposits.

If it is held that lack of effective competition between the banks at the present time makes it possible for them to exercise a certain monopoly power in the form of paying lower explicit or implicit deposit rates than would result with more vigorous competition, then a case could be made for the imposition of minimum deposit rates by the policy author-

ities.[43] The main effect of this would be to pass on some of the monopoly profits to savers (i.e., deposit-holders), and it might also force the banks to become more aggressive in seeking out profitable lending opportunities, i.e., would make them less prone to exercise their monopoly position by favoring loans at relatively low interest rates to borrowers with a high degree of credit-worthiness. Both of these effects, by definition, increase the efficiency of the banks as channels of investment funds from savers to borrowers.

The main difficulty, however, lies in the administration of such a rule. First, it would be very difficult to enforce a minimum for the implicit rates on demand deposits. These implicit rates arise when the user of a demand deposit is charged less than cost for the services performed by the banks in connection with the account, so that, in order to regulate them, the policy authorities would have to estimate these costs, as well as regulate the charges. This would be very difficult administratively. For time and savings deposits, simple minimum rates could be set, although in the case of time deposits, the rate differences between deposits of different term would be somewhat arbitrary, and in the case of both time and savings deposits, it would be difficult to control other characteristics of the accounts than the interest rate, e.g., rules regarding minimum balances, the frequency of compounding, and for savings accounts, the maximum number of transactions permitted during a certain period, whether or not the banks would require notice of withdrawal, etc.

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[43] This is analogous to the effects of a maximum product price in the simple monopoly model of a commodity producer in price theory.

Unless these factors were also controlled, which would also be very difficult administratively, the banks could compensate partially for the higher interest rates by worsening service in these respects.

Imposition of a minimum lending rate would also imply some pressure on the banks to switch their asset portfolios away from low-yield, low-risk loans,[44] towards loans with somewhat higher risk but higher yields. Again, however, there would be difficulties with controlling other ways in which the banks would compensate their preferred borrowers for the higher interest rate, e.g., by providing other financial services at low cost to the borrowers, etc.

In spite of the administrative difficulties in enforcing a policy of minimum rates, it is not likely that they would be completely ineffective, and such a policy would, therefore, be consistent with the objective of improving the efficiency with which credit is allocated, and with which the opportunity cost of credit is reflected in explicit and implicit yields on financial savings.[45] In order for this to happen, however, the minimum rates must be appropriately chosen; if they are too low, they will be ineffective, and if they are too high, the banking system will incur losses. One method by which they could be set, and which would serve to insure that they would not be too high, would be to set them with reference to

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[44] As discussed above, some of the borrowers in this category are international firms who have easy access to the international market for credit, but who choose to borrow in Nigeria for reasons of convenience, and to avoid having large amounts of net financial assets in Nigerian pounds in case of a devaluation. One advantage with raising lending rates would, therefore, be that such borrowers would increasingly obtain credit from abroad.

[45] Provided, of course, that there is in fact a significant lack of competition in the banking system.

the yields on government securities, provided that government securities had been unpegged. If minimum deposit rates were always somewhat below the yields on governments, the banks would never have to make losses, since they could always invest in governments. Minimum loan rates to the private sector could also be set with reference to the yield on governments. However, in a profit-maximizing banking system, it is unlikely that loans to the private sector would ever be made at rates below the yield on government securities of comparable term to maturity; this illustrates the point that unpegging government securities might be sufficient in itself to make the allocation of bank credit more efficient, without any policy of statutory minimum rates being required.

5. Other Policy Measures

The policies discussed in the previous section are, of course, not directly related to the problem of monetary control, but rather with the problem of the efficiency of the banking system in channeling monetary savings to investors. In this section, two further possible types of institutional reforms which would stimulate competition in the banking system and thereby increase its efficiency, will be briefly discussed. The first one is the possible expansion of the banking facilities in the Nigerian Post Office; the other is the possibility of establishing publicly-owned commercial banks to compete with the private ones.

As mentioned briefly in Chapter II, the Nigerian postal system at the present time offers savings bank facilities in all of its branches. Because of its wide network of offices, it could be expected that it could compete quite effectively with the commercial banks for savings. In fact, however, whereas savings deposits in commercial banks have grown at very high rates during the 1950-66 period (see Chapter II), deposits

in the Post Office Savings Bank have declined. One reason for this must be the very low interest rates paid by the POSB, namely, 2.5% throughout the 1960's; this has been ½-1 percentage points lower than the already low rates on commercial bank savings deposits.[46] Part of the explanation for this low rate may have been that the POSB has held an asset portfolio exclusively composed of government securities, on which the yields have been maintained at a relatively low level by the Central Bank.

Increasing the rates paid on savings in the POSB, and improving its services generally might increase somewhat the overall level of financial savings in the economy; more importantly, however, it would force the commercial banks to compete more aggressively for funds, with the beneficial effects discussed above. If this were done in conjunction with a policy of unpegging the prices of government securities, it could be done without a financial loss to the Post Office. Moreover, the Post Office could also be made to compete more directly with the banks in their function of providing a payments mechanism, thereby reducing the banks' monopoly power and lowering the cost of monetary transactions; the technical details of such a reform will not be discussed here, however.

The foundation of a publicly owned commercial bank with a network of branches could have similar beneficial effects in terms of increasing competition. In order to do so, however, this bank would have to act as a price leader with respect to deposit rates and service charges; in Ghana, where the largest commercial bank is publicly owned, this does not seem to have happened to any great extent, so that the previously existing

[46] See, for example, Central Bank of Nigeria, Economic and Financial Review, Vol. 4, December, 1966, Table 9, pp. 44.

banks have not been forced to change their rates very much. From an administrative point of view, it would be important to organize such a bank as a statutory corporation with as much autonomy and as few direct connections as possible with the government, and to avoid the imposition of restrictions on its choice of asset portfolio;[47] if such a bank is to act as a competitive stimulus to the other ones, competition must take place on essentially equal terms. This argument could also be used against a policy involving directives to public sector organizations to hold their deposits with a public bank; this would give it less incentive to compete with the other banks for deposits. Again, the technical aspects of such a scheme will not be further discussed here.

C. Monetary Control and Debt Management

In the previous chapter, the discussion of monetary policy was only partial, in the sense that it was concerned with the determination of a target rate of expansion of the money supply consistent with internal or external stability. The purpose of this chapter has been to discuss briefly the other main objective of monetary policy, namely, that of stimulating the efficiency with which the banking system fulfills its functions of providing a payments mechanism and of channeling monetary savings into socially profitable investments. As was argued above, the choice of what particular policy techniques should be used to control the money supply can be approached on the basis of considering the consistency of various techniques with this second objective; further, certain

[47] For example, restrictions in the form of requiring that it favor small Nigerian businessmen; if the government wishes to implement such a policy, it can do so directly through the existing Loans Boards, Development Corporations, etc.

policies may be implemented specifically to increase efficiency in the banking system, without reference to the effects on the money supply.

The policies which have been analyzed are all of a fairly traditional variety in terms of policies used in industrialized countries, and the analysis of them for the Nigerian case is a relatively straightforward application of similar analysis for such countries. The policy alternatives which have been suggested as appropriate ones for Nigeria also mostly constitute modifications of techniques which are already being used, in one form or another, in Nigeria. There is one major exception to this, however, namely, in the discussion of open market operations, and the associated suggestion of relieving the Central Bank from its responsibility of fixing the prices and yields for government securities. This suggestion was justified by the argument that unpegging government securities would have beneficial effects on the efficiency of the banking system by itself, and would lead to a more efficient operation of monetary policy measures generally. Therefore, one of the most important modifications of the rules according to which the Bank presently operates, can be argued to lie in a redefinition of its role as manager of the public debt, and some brief observations on this question will conclude this chapter.

As was discussed in Chapter II, under present procedures the decision-making functions regarding matters of public debt, are not very well defined. Once the amount of a debt issue, and its nominal yield (i.e., issue rate, since the securities are sold at par), have been somehow determined through an agreement between the Central Bank and the Ministry of Finance, however, the Bank guarantees that they will be sold at par, and subsequently fixes a floor for their prices. There exist no

formal rules describing how the rates are fixed, or stating the conditions under which the Bank subsequently stabilizes them.

In order for unpegging to take place, a more clear-cut administrative division of responsibility would be called for. As discussed above, in order to facilitate both debt management and monetary policy, it would be appropriate to have an explicit advance agreement between the debt-managing institution and the Central Bank regarding the maximum amounts that the Bank would absorb, year by year, and, in case the commercial banks were to be permitted to include government securities in their reserves, a forecast of the amounts that would be held as required reserves by them.[48] These amounts would be determined according to the procedures outlined in Chapter IV. The Bank, however, should not have any further responsibility for the interest costs on the government debt, or guarantee that issues would be fully subscribed. Therefore, the function of issuing and subsequently managing the public debt would have to be handled by a separate institution within the government, e.g., the Treasury or the Public Debt Office, in which case the latter would have to be administratively transferred, from its present position in the Bank, to the Treasury. The procedures of issuing debt might have to be modified, so as to permit the effective issue rate to vary in order for the Debt Office to be able to place sufficient amounts to meet the immediate borrowing needs of the government; the present system involves the Debt Office accepting orders for given amounts at the fixed issue rates, which would have to be modified

[49] As long as this limit was not exceeded, the Central Bank could agree to stabilize prices, but if it were exceeded, it would no longer be responsible for doing so. Another possibility would be that the Bank agreed to stabilize certain maturities, but that the government agreed to limit those maturities to certain maximum amounts, as discussed above.

to permit investors to state both the amounts they wish to purchase, and at what rate. The Debt Office would then decide which offers they would accept.[49] Furthermore, as both the short-and long rates would vary, the Office would also have to make decisions regarding the maturities of the securities to be sold. This decision would then be made with the objective of choosing such a maturity structure as to minimize the government's borrowing costs over time; the details of this problem will not be discussed here.[50]

It might also be noted again that this type of redefinition of the role of the monetary authorities in debt management parallels the agreements that took place in the U.S., the U.K., and other European countries in the early fifties. During and immediately after World War II, with the large amounts of borrowing by governments, the Central Banks had been assuming increasing responsibility for government financing, and it therefore became necessary to redefine their function in this respect in order to make monetary policy effective.[51] In the last analysis, the question whether this will be possible in Nigeria will, of course, depend on whether the decision-makers in the government in fact are sufficiently

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[49] This could be accomplished through sealed bids, or in an auction.

[50] The choice involves such factors as the relative issue costs of short-term and long-term debt, the level of the long-term rates relative to expected short-term rates in the future, etc. See Malkiel, B.G., The Term Structure of Interest Rates, op. cit., Chapter V.

[51] See the discussion in Chandler, L.V., Central Banking and Economic Development, op. cit., pp. 6-10, where he stresses the similarities between this period in the developed countries and the present situation in the less developed ones.

aware of the consequences of inflationary financing to consider a rational policy choice in this respect an important one, and whether they appreciate the efficiency losses that follow from a policy which exclusively focusses on minimizing government borrowing costs. If this is not the case, the chief function of the monetary authorities will be seen as that of providing development financing, and the Central Bank officials will have to engage in an uneven struggle against price inflation and balance-of-payments difficulties, using various ad hoc control measures which will become increasingly difficult to enforce.[52] The experience of Ghana during the first half of the 1960's is illustrative in this respect, and events since that time have also demonstrated the difficulty of reversing such a policy once it has started. On the other hand, the more clearly the effects of development financing through the monetary system are understood, the more likely it is that policy-makers will be able to make a rational choice regarding the degree to which inflationary financing will take place over time, and thereby leave the Central Bank in a position to pursue, to the greatest possible extent, its traditional objectives of controlling the internal and external value of money, and encourage the development of the financial system.

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[52] One of the simplest, though perhaps somewhat drastic, solutions of this administrative conflict would be to make the Central Bank simply a department of the Ministry of Finance; this would involve a greater change de jure than de facto, but is nevertheless likely to be greatly resisted by Central Bank officials. This possibility has been discussed by Harry Johnson for the case of U.S.; see his extremely persuasive and elegant statement entitled, "Should there be an Independent Monetary Authority," in The Federal Reserve System after Fifty Years, Washington, D.C., U.S. Government Printing Office, 1964, pp. 970-73; reprinted in Smith and Teigen, op. cit., pp. 247-250.

CHAPTER VI

Summary and Conclusions

The purpose of the present study has been to analyze the monetary and financial system and its interaction with the "real" economy for the case of Nigeria during the period 1950-66. As is perhaps the case with most research related to low-income countries, the primary aim has been to raise and answer questions directly relevant to policy decisions, through the use of essentially standard economic analysis as applied to this case.

In the Introduction, the question was asked whether the problems of monetary policy in a low-income, open economy such as the Nigerian one were significantly different from those in any other economy, and whether, as a consequence, one could expect that a study of monetary policy for this case would yield conclusions substantially different from those reached in similar work for more highly developed countries. In this brief concluding Chapter, an attempt is therefore made to summarize what has emerged from the analysis as the main policy problems for Nigeria in this area, and in what ways they differ from those in the more developed countries.

It was contended in the Introduction, that the objectives of monetary policy in a low-income country were likely to be somewhat different from those in highly developed countries, with the objective of stimulating growth having a great deal more weight than the maintenance of a stable external and internal value of the currency per se. As has been illustrated in this study, during the first seven years of an independent monetary system in Nigeria, the potential conflict between

those two objectives was not very strong. Because of the existence of a large cushion of foreign reserves, it was possible to conduct a relatively expansionary[1] monetary policy aimed at stimulating growth, without causing a great deal of price inflation or any necessity for devaluation, major tariff increases, or foreign exchange and trade restrictions. In 1966, however, foreign reserves had become quite low, so that the conflict was bound to become more severe.

The difficulty of reconciling the objective of a high rate of growth with that of internal and external monetary stability will only be a major one, however, if it is believed that an expansionary monetary policy, with the resulting price inflation, will constitute an effective way of accelerating economic growth. In order to make a rational choice in this respect, information is therefore needed regarding the nature of the trade-off between growth and price stability, and an attempt was made to utilize existing macro-economic data for Nigeria to investigate this trade-off empirically. Though the quality of the results can be no more reliable than that of the underlying data, the conclusion was that on the whole, there was little support for the hypothesis that monetary expansion and inflation would significantly stimulate savings, capital formation, and real growth. Moreover, and perhaps more importantly, the non-empirical discussion of the various channels through which such stimulation might take place gave little reason to doubt the general validity of the empirical results.

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[1] Expansionary in the sense that foreign reserves were permitted to fall rapidly, but less so in the sense of a very high rate of expansion of the money supply.

Considerable attention was given to the component of savings which directly depends on the rate of monetary expansion, namely, savings in the form of increased money holdings. As a percentage of GDP, this component is given by the percentage rate of expansion of the money supply times the money/income ratio. Because of the relatively low ratio (about .15 in 1966, if money is taken to include time and savings deposits in commercial banks), and also because some evidence was found that a higher rate of inflation would lead to a lower ratio, an increase in the rate of monetary expansion would not bring about a very large increase in this component of savings. Neither is it clear that an increase in this component would represent a net increase in overall savings, since it is possible that a greater rate of accumulation of real money holdings may be partially offset by decreases in other forms of savings. In view of the well-known difficulty of ensuring an efficient functioning of the resource allocation mechanism in a situation of a high rate of price inflation,[2] it may therefore be concluded that the case in favor of a highly expansionary monetary policy as a means of stimulating growth, is not very strong in Nigeria, and therefore that it is appropriate to consider price and exchange rate stability as the main objectives.

Nevertheless, even if overall savings do not increase much, a higher rate of monetary expansion may be used as a way of effecting a transfer of resources to those borrowing from the monetary system, away from other borrowers. Typically, the chief beneficiary of such a transfer

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[2] Especially if the price inflation leads to a consistently overvalued exchange rate, as discussed in the text.

is the public sector, through the device of government borrowing in the monetary system for purposes of deficit financing. The importance of this mechanism in low-income countries constitutes another factor through which the role of the monetary authorities becomes somewhat different from the one they have in more highly developed countries, because it leads to their becoming, in effect, managers of the public debt.

To some extent, government borrowing from the monetary system is merely one way in which the monetary system is used in an attempt to transfer resources towards increased capital formation and growth, on the assumption that the government has a higher propensity to invest these resources than do those people who would otherwise control their use. In principle, this function could, of course, be equally well fulfilled through government borrowing outside the monetary system. In Nigeria, however, as in many other low-income countries, the size of the market for non-monetary financial assets is quite small, and as discussed in the text, the demand for such assets is probably quite inelastic with respect to their yields. This means that whenever a significant amount of resources are to be transferred to the public sector through domestic borrowing, the major portion must generally come from the monetary system, if a drastic increase in the yields on government securities is to be avoided. As an almost inevitable consequence, the Central Bank, therefore, assumes major responsibility for the stabilization of prices of government securities.

It is true that the monetary authorities in many industrialized countries also have had this responsibility, particularly during and shortly after World War II. In the analysis of monetary policy for those

countries, however, this situation has been regarded as an anomaly, and it is generally considered that an effective monetary policy only became possible after it had been agreed that the monetary authorities should relinquish this responsibility.[3] In the present study, it was concluded on the basis of analysis of the size of the market for government securities outside the monetary system that even if a certain flexibility were to be introduced in their yields, the Central Bank would nevertheless have to continue to be largely responsible for their stabilization. As an indirect consequence of this, it was argued, the size of the government's domestic borrowing needs becomes one of the crucial determinants of changes in the money supply, and it was concluded that a pre-condition for a successful monetary policy was that some form of advance agreements could be made between the government and the monetary authorities regarding the amounts of such borrowing. This need for close coordination between monetary and fiscal policy constitutes a characteristic feature of policy-making in countries with underdeveloped financial markets.

The question regarding how to use monetary policy for purposes of stabilization was also considered in some detail. For the case of highly developed countries, Friedman has advanced his well-known proposition that monetary policy can be used most successfully as a stabilizing device if it is made "automatic," i.e., if it is made to consist simply in letting the money supply expand at a steady rate over time. His arguments in support of this policy prescription were examined in this study in relation to the case of Nigeria, and it was concluded that the case in favor of some form of fixed-rule policy was quite a strong one, primarily because of the presence of long lags of the inside type.

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[3] E.g., in the U.S., after the Federal Reserve-Treasury Accord.

However, it was argued that Friedman's rule in its original formulation was most appropriate for either a closed economy, or possibly an open economy where it would be possible to emphasize stabilization of domestic incomes and prices, rather than the balance-of-payments. This would be possible either under a system of flexible exchange rates, or in an economy with relatively small and stable foreign trade, or, again, if the economy had sufficiently large international reserves. For an economy which is operating under fixed exchange rates, in which international trade accounts for a large share of economic activity, and where exports and imports are relatively unstable, domestic stabilization may be incompatible with balance-of-payments stability, and very large foreign reserves would be needed to cope with external trade fluctuations if the policy-makers wanted to avoid direct controls on trade and payments. Since Nigeria essentially falls in these categories, but cannot well afford the opportunity cost implicit in holding large foreign reserves, it was concluded that monetary policy must necessarily focus mainly on achieving external stability rather than internal. In that situation, however, the Friedman rule in its original form would not be appropriate. In the projection calculations in Chapter 4, it was found that a fixed rate of monetary expansion would have to be chosen very accurately, on the basis of correctly predicted trends in international transactions in order to maintain a stable level of reserves. Since it is unlikely to be possible, with the present state of forecasting ability for the Nigerian economy, to choose the target rate of monetary expansion with sufficient accuracy, it was argued that a rule aiming for a constant rate of growth of the money stock would be very difficult to implement in the Nigerian situation.

As an alternative, it was suggested that a modified form of automatic policy rule could be employed; the modification essentially consisted in the proposal that a certain degree of "automatic" external stabilization be retained, in the sense that the money stock would be permitted to deviate from its target value when the level of foreign reserves exceeded or fell below the desired value. On the basis of results of a number of hypothetical projections, under the assumption that monetary policy were conducted according to this rule, it was tentatively concluded that it seemed likely to be quite successful in achieving external stabilization, and it was felt that the possibility of its actual adoption would merit serious consideration.

The points discussed above refer primarily to differences in monetary policy between a low-income country and a highly developed country which arise as a consequence of differences in the fundamental objectives of policy, and the slightly different way in which the financial system interacts with the real sector in an open economy with relatively undeveloped financial markets. Another set of questions, however, are those which concern the actual implementation of given monetary policy objectives, i.e., what techniques of monetary control can be used. In this area, the contrast between low-income countries and more highly developed countries becomes particularly pronounced, not only because the differences in objectives may call for different techniques, but also because of the less developed financial markets in the former.

On the basis of the analysis of the monetary and financial system in Nigeria, an attempt was made to evaluate various techniques of monetary control. The main criteria used in this evaluation were derived from the view that the policy-makers have an interest not only in controlling the

money supply, but also in improving the performance of the monetary and financial system in its function of allocating credit to the socially most profitable uses. If one rules out a high degree of direct centralised control over credit allocation , whether on ideological or pragmatic grounds, this objective implies that it is desirable to encourage competition so as to enhance the efficiency of the price mechanism in this respect, and to some extent, the choice of policy techniques may influence the degree of competition and price flexibility in the financial system.

It was argued that one feature of existing monetary policy which hampered competition, was the practice of stabilising unconditionally the yield on government securities at very low levels, and it was suggested that "unpegging" government securities would potentially have beneficial effects on the competitiveness in the system as well as enhance the possibilities of indirect monetary control. The implications for government interest costs were considered, but it was concluded that the real cost increase need not be great, partly because much government debt was held in the public sector, (including the Central Bank), and partly because increased interest payments in commercial banks could be neutralised by imposing higher cash reserve requirements which would force the banks, in effect, to sell some of their governments to the Central Bank, in which case the net budgetary burden of interest payments on such securities of course disappears.

If government securities were "unpegged," it was suggested that it would be possible for the Central Bank to undertake limited open market operations, though the magnitude would have to be small in order to avoid very large fluctuations in the yields on governments; they would be more effective as a means of influencing interest rates than as a tool

for controlling the money stock. Given the state of development of Nigeria's financial markets, it was instead concluded that the most effective tool for the latter purpose was a combination of relatively strict limits on total government borrowing from the banking system, and corresponding reserve requirements on commercial banks. The question of the effective enforcement of the latter was also considered, taking into account that the lack of a highly developed short-term money market might sometimes make liquidity adjustment difficult for individual banks. To overcome this difficulty, which is characteristic of monetary control in most low-income countries, it was suggested that one might make use of either the device of marginal reserve requirements, or of Central Bank advances policy. It was argued that the latter alternative was to be slightly preferred, because the conscious use of the interest rate on such advances as a way of influencing commercial bank portfolio decisions would enhance the role of interest rate variations in banks as a mechanism for controlling private credit; this in turn might lead to greater efficiency in private-sector credit allocation.

Finally, it was recognized that the monetary authorities, apart from their task of controlling the stock of money, would also have the responsibility for the general development of the financial system, and certain policy measures relating primarily to this objective, rather than to monetary control, were analyzed. It was concluded that in view of the oligopolistic nature of Nigeria's commercial banking system, the imposition of minimum interest rates on commercial bank deposits would be likely to increase economic efficiency in this area, as would the strengthening of the banking functions of the postal system, etc.

Summarizing the discussion above, it appears that the differences between the analysis of monetary management in a low-income country of Nigeria's type and in a more highly developed country, are differences in emphasis rather than in kind. Nevertheless, it has been quite convincingly demonstrated in many low-income countries that inappropriate policies in the monetary and financial areas may have very serious consequences for economic stability and growth, so that academic debate aiming at elucidating what the important problems are and evaluating various ways of dealing with them, may have great pay-offs. It is, therefore, hoped that this study may be useful to the participants in this debate, and directly or indirectly, to the policy-makers themselves.

Appendix

THE DATA USED IN THIS STUDY AND THEIR SOURCES

Table A-1

PRINCIPAL MACROECONOMIC DATA

	GDP CURR. £Nig.mill.	GDP, 1957 prices £Nig.mill.	Exports, Curr. £Nig.mill.	Imports, Curr. £Nig.mill.
1950	512.1	688.7	88.9	66.0
51	573.2	741.4	114.2	103.5
52	614.5	793.5	126.3	110.4
53	665.0	811.6	128.6	111.8
54	774.2	872.1	154.3	125.9
55	827.5	895.2	128.2	152.3
56	870.6	873.7	135.7	169.1
57	910.0	910.0	129.1	175.6
58	924.3	961.8	144.4	186.8
59	982.2	1035.9	172.8	203.1
1960	1122.3	1174.0	176.6	239.7
61	1196.7	1179.6	187.6	241.6
62	1315.4	1235.1	183.4	228.1
63	1403.2	1339.3	204.9	239.7
64	1457.0	1374.1	229.7	294.3
65	1540.3	1449.2	285.8	317.3
66	1605.0	1486.8	303.8	323.2

Sources:

GDP, Current Prices: Federal Office of Statistics, Economic Indicators, Vol. 5, No. 10, Oct. 1969, p. 35. The source given there for 1950-57 is Okigbo, P.N.C., Nigerian National Accounts, 1950-57. The reader is warned that there is a break in the series between 1957 and 1958. The figures for 1950-66, from the F.O.S., have been revised and differ from earlier estimates.

GDP, 1957 Prices: Same as above, though the 1958-66 figures given in F.O.S., op. cit., p. 36, have been converted into 1957 prices instead of 1962 prices.

Exports, Current Prices and Imports, Current Prices: 1950-65 figures from Clark, P.G., The Choice of Optimal Import Substitution Patterns for Nigeria, unpublished PhD. dissertation, M.I.T., 1967, p. 93. His sources are Helleiner, G.K., Peasant Agriculture, Government and Economic Growth in Nigeria, Homewood, Ill., R.D. Irwin, 1966, Statistical Appendix, for 1950-59, and IMF, Balance of Payments Yearbook, thereafter. The 1966 figures are from United Nations, Yearbook of National Accounts Statistics, 1968, p. 496.

Table A-1, Continued

	Tariff Index	Import Price Index 1953=100	GFCF, CURR. £Nig.mill.	GFCF, 1957 Prices £Nig.mill.
1950	n.a.	86	n.a.	n.a.
51	n.a.	107	41.8	69.3
52	n.a.	112	55.3	78.7
53	n.a.	100	63.6	88.8
54	117	93	85.7	115.5
55	117	92	108.8	135.3
56	118	93	128.3	139.4
57	118	95	99.3	99.3
58	118	92	109.2	108.6
59	119	91	122.8	127.2
1960	119	95	122.8	126.9
61	127	95	152.5	140.2
62	127	98	159.8	137.2
63	128	100	177.0	153.0
64	132	103	195.0	167.0
65	138	107	234.1	200.6
66	n.a.	n.a.	242.6	207.8

Sources:

Tariff Index: See Blomqvist, A.G., and Stebbing, D.H., A Simple Model of Imports, Incomes and Prices in Nigeria, unpublished, read at a N.I.S.E.R. Seminar in May, 1967. The index was constructed by Mr. Stebbing from tariff data.

Import Prices: 1953-63: Helleiner, G.K., Peasant Agriculture, Government and Economic Growth in Nigeria, Homewood, Ill., R.D. Irwin, 1966, p. 29; 1963-66: IMF, International Financial Statistics.

Gross Fixed Capital Formation, Current Prices: 1951-56: Aboyade, O., Foundations of an African Economy, New York, Praeger, 1966, p. 109; 1957-1966: Federal Office of Statistics, Economic Indicators, Vol. 5, No. 10, October 1969, p. 38. For a discussion of the break in the series, see the text, pp. 163-164.

Gross Fixed Capital Formation, 1957 Prices: 1951-56: Aboyade, op. cit., p. 38. Same remark applies.

Table A-2

PRINCIPAL MONETARY DATA, ANNUAL AVERAGES OF QUARTERLY DATA

	Currency with Public £Nig.mill.	Demand Deposits, £Nig.mill.	Total Deposits £Nig.mill.
1950	30.0	11.8	15.0
51	38.5	16.8	20.8
52	42 8	21.8	26.8
53	46.6	23.6	30.1
54	48.3	29.4	37.6
55	46.9	34.6	44.4
56	50.5	34.8	45.6
57	51.0	36.3	50.0
58	52.7	38.5	56.9
59	55.6	40.1	65.6
1960	65.1	42.7	70.5
61	71.8	39.6	73.2
62	70.5	38.8	81.6
63	73.3	42.9	88.9
64	80.5	50.6	107.7
65	87.9	53.9	124.9
66	95.5	57.6	139.6

Sources:

Currency with the Public: 1950-59: Federal Office of Statistics, Digest of Statistics, various issues. 1960-66, Central Bank of Nigeria, Economic and Financial Review, various issues.

Demand Deposits and Total Deposits: 1950-59: Gray, C.S., "Credit Creation for Nigeria's Economic Development," Nigerian Journal of Economic and Social Studies, Vol. 5, No. 3, November 1963, pp. 348-349. Gray reproduces the quarterly data from the Digest of Statistics, which were used to compute the annual averages used here.

Table A-2, Continued

	Foreign Assets, Monetary Authority £Nig.mill.	Governments in Central Bank £Nig.mill.	Rediscounts & Advances, Central Bank, £Nig.mill.
1950	32.8	-	-
51	42.0	-	-
52	50.4	-	-
53	54.1	-	-
54	56.5	-	-
55	54.4	-	-
56	57.5	-	-
57	58.0	-	-
58	59.1	-	-
59	64.2	-	-
1960	73.6	2.0	.4
61	75.8	4.8	2.1
62	71.3	6.4	4.6
63	64.4	10.9	9.5
64	64.4	19.7	9.4
65	69.0	25.5	7.9
66	69.7	37.0	5.4

Sources:

Foreign Assets, Monetary Authority: The figures shown for 1950-59 are given by total currency with public plus currency with banks, since the West African Currency Board held foreign exchange against these liabilities. Sources used were Digest of Statistics, various issues, and Gray, op. cit., p. 346. 1960-66: Computed from Central Bank of Nigeria, Economic and Financial Review, various issues.

Government Securities with Central Bank: Economic and Financial Review, various issues. Consists of sum of Development Stocks and Treasury Bills, including Treasury Bills with the Call Money Fund, but not including Rediscounted Treasury Bills, which are included in the Rediscounts and Advances category.

Rediscounts and Advances, Central Bank: Same source as above. Includes rediscounted Treasury Bills and Produce Bills.

Table A-2, Continued

COMMERCIAL BANK ASSETS

	Net Foreign Assets, £Nig.mill.	Cash Reserves, £Nig.mill.	Loans & Adv., £Nig.mill.	Treasury Bills £Nig.mill.
1950	9.2	2.7	2.8	-
51	12.7	3.4	3.9	-
52	12.1	7.6	6.3	-
53	13.9	7.5	7.3	-
54	18.9	8.2	9.3	-
55	22.9	7.6	13.3	-
56	19.1	6.9	19.4	-
57	18.5	6.9	24.4	-
58	16.8	6.4	30.2	-
59	18.5	8.2	34.1	-
1960	12.8	9.1	40.0	2.7
61	6.8	8.4	45.8	6.5
62	4.7	9.2	60.4	6.4
63	3.7	8.8	77.7	4.1
64	-2.2	9.6	93.2	7.8
65	- .3	10.9	108.1	9.4
66	1.7	10.4	119.5	12.6

Sources:

Net Foreign Assets: 1950-59: Computed from Gray, op. cit., p. 346, whose source is Digest of Statistics, various issues. Foreign assets during this period are defined as "net balances with banks abroad." 1960-66: Computed from Economic and Financial Review, various issues, as the sum of net balances with banks (including office of the same bank) abroad, net loans and advances to banks abroad, and bills discounted and "investments" abroad.

Cash Reserves: Same sources as above. Up to 1959, reserves consisted of currency held by banks; after that date, they include balances with the Central Bank and Call Money at the Central Bank (i.e., in the Call Money Fund).

Loans and Advances: Same sources as above; from 1960, exclude loans and advances to banks abroad and bills discounted which are payable abroad.

Treasury Bills: Economic and Financial Review, various issues.

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