MONETARY POLICY AND THE INFLATIONARY PROCESS:

THE NIGERIAN EXPERIENCE, 1970 - 1993

By

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A Thesis Submitted to the Post-Graduate School
Ahmadu Bello University, Zaria in partial fulfillment
of the requirements for the award of the degree of
Master of Science in Economics

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1997

ATTESTATION

I, Bulus Yusuf Dauda, declare that to the best of my knowledge, the data contained in this Thesis is from Original research and the Thesis has not been submitted to any other University for examination.

All references in this work have also been duly acknowledged.

Bulus Y. D.

DEDICATION

This work is dedicated to men and women who are conscious and have concern about the development of our country Nigeria.

CERTIFICATION

The Thesis entitled "Monetary Policy and the Inflationary Process: The Nigerian Experience 1970 - 1993" by Bulus Yusuf Dauda meets the regulations governing the award of the degree of Master of Science (Economics) of Ahmadu Bello University Zaria and is approved for its contribution to knowlege and literary presentation.

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ACKNOWLEDGEMENT

First, I will start by registering my thanks to the Lord God Almighty who has made it possible for me to be counted among the living and healthy throughout this work.

This work has been made possible by the opportunity I received to be a graduate student of the Department of Economics. In this regard, I am grateful.

My special thanks goes to my Supervisors Prof. Mike Kwanashie who painstakingly supervised this work and Dr. A. B. Eshiet who also made himself available throughout the work. Similarly, my thanks goes to the Head of Department, Dr. (Mrs) P. S. Aku who facilitated the completion of this work.

It will be fair to also express my appreciation to my colleagues in the Post-Graduate class and Graduate Assistants in the Department with whom I exchange ideas and which actually helped me in the development of arguments contained in this work.

I am equally grateful to my wife Mrs. E. Y. Dauda for the love and encouragement shown in the course of this study.

I am also indebted to a number of friends who, in the course of undertaking this research work, provided the friendly atmosphere that is necessary for an academic work

of this nature. Among them are Mr. Ben. T. Umaru, Dr. S. T. Fadason, Mr. Sunday Ogunwole, Mr. Yunana Teku and Mr. Joe Gude.

Finally my gratitude goes to my father, Rev. B. Y. Dauda, my brothers and sisters, my aunt Mrs. Na'omi Musa and many other relations who did provide the moral and financial support for this work to suceed. And to the Typist who did this job I say thank you.

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ABSTRACT

The course of economic history the world over is replete with substantial price disturbance. The concept commonly used to describe negative price disturbances in the form of upward movement of prices is inflation. The immeasureable attention accorded the problem of inflation can best be understood in its ability to alter social progress.

Attempt at arresting the inlfationary situation in Nigeria dates back to the late 1960s following the civil war and its attendant consequences. Ever since then, the problem of upward price pressure has continued unabated (in relative terms) notwithstanding its monetary explanation and the various liquidity restraining strategies employed. The framework within which monetary authorities design and implement actions necessary to bring the monetary situation under its control is the monetary policy and inflation viewed to a very large extend as a monetary phenomenum have over the years been addressed via monetary policy.

Monetary policy actions which involves not only measures designed to regulate the volume but also the cost and direction of money supply in the economy have not yielded the required results. What seems to be happening is that the polices designed over the years have not been able to mainatin a close track with developments in the

financial sector and the associated intricacies of liquidity. Developments such as the liquidity disposition of non-bank financial institutions, domestic monetisation of foreign savings by individuals especially over the eleven (11) years of political transition and the extra government budgetary expenditure that has characterised the nations budgeting system are cases in view.

The results emanating from the empirical test as informed by the analytical frawmework and the specifications arrived at proved the significance of the variables captured in the model. For instance, the quasi-money variable used here as a surrogate proved to be significant. This means we can inferentially conclude that the inflow of financial resources in the eleven (11) years of political transition has been contributory in facilitating money inflation. Also, the growth in domestic credit, a larger proportion of which is usually brought about by government deficit proved significant, and the fact that the major component of the monetary base is credit to the banking (commercial and Merchant) sector, activities in the non-bank financial sub-sector have proved to be providing a counter working effect on efforts towards inflation moderation.

It is the position of this study that the non-success of the policy actions taken can be associated with the considerable incoherence and inconsistency inherent in them

and policy oversight on, not ncessariily economic, policy actions of government that have possible monetary implications. Thus, while there is the need to exercise restraints on unwarranted monetary expansion, especially within the realm of the public sector, a major economic challenge of the future is for the monetary authorities to understand the role monetary policy has played and should play in influencing the behaviour of important economic magnitudes and the restructuring of the economy in general.

CHAPTER 1

1.1 INTRODUCTION:

The course of economic history is replete with substantial price disturbances. Whenever such disturbances have occurred, two different explanations have been offered. One, common to all disturbances, is that the price movement reflects changes in the quantity of money, though the source of the monetary change has varied widely - from gold discoveries to changes in monetary standard, printing of paper money and to creation or destruction of deposits by central and commercial banks. The other explanation has been in terms of some special circumstance of the particular occasion such as good or bad harvests, disruption in international trade, lack of business confidence, the activities of ``profiteers'' or ``monopolists'' selling goods or labour unions or organisations pushing wages up; and so on in lots of variety (Samuelson and Solow, 1968).

The concept commonly used to describe negative price disturbances in form of upward movement of prices is inflation. Inflation may not be a relevant issue if it does not alter, in any way, social progress. This relevance is what has informed immeasurable attention requiring social investigation and explanation (Ganiyu,

1991). However, one common core of explanation is that price movements are generally associated with the socially misguided behaviour of particular individuals or groups - government, producers or distributors. Bearing in mind the two strands of explanations provided, to the monetarists, the alternative explanation plays little or very insignificant role in either long-run or large upward price movements, ``though they may in short and minor movements, except indirectly as they affect the supply of money'' (Friedman, 1969).[2] While this position still remains contentious as one tries to be fair to non-monetarists, structuralists in particular, it is not the choice of this work to engage itself in this kind of discourse or debate.

The global attention accorded the inflationary phenomenon in the post Great Depression era, in general, or since the end of the Second World War, in particular, has proved, beyond any reasonable doubt, the centre piece occupied by inflation in modern economic analysis. Discussions and search for solutions have not just been carried out locally but globally as well (See Aghevli and Idnan, 1978; Vogel, 1977 and Argy, 1970 among others). However, the situation seems to have surrendered to the view that solutions sought locally may eventually be a panacea to the universality of the phenomenon.[3] In addition, beyond the conventional demand-pull and cost-push explanations, the causative factors have been sourced from

the policy perspective such that solution to the problem has been proposed via the same policy grounds.[4]

In more specific terms, since the end of the Second World War, the post-war monetary analyses have generally concluded that variation in prices during the periods covered were highly explained by the monetary factors which were a function of policy design (See Cagan, 1956 and Friedman, 1968). The various statistical and mathematical techniques were and are still being employed to buttress these arguments by making empirical the theoretical findings and conclusions. As a result, most economies have had a test of the framework to substantiate the view. The ability of the position to withstand tests and criticism is what has led to the near universalisation of the idea that ``inflation is always a monetary phenomenon'', thus making the monetary explanation of inflation the reigning paradigm of the day.

From this and as earlier said, therefore, since the proponents see the monetary factor as a policy variable, they opined that solution must be sought policy-wise and it is this attempt to address the problem from the policy perspective by nations and Nigeria, in particular, that will form the central thesis of this study.

In what follows, the remaining introductory items examined include:

- Statement of the research problem. Here attention is drawn on the fact that while some countries or economies have been able to exercise a substantial degree of control on price movements using the tools available in the exercise of monetary policy, the trend in Nigeria seems to have defied the use and effectivity of these tools. However, question still lingering inquiring minds are whether or not the right tools have been identified, and if yes whether or not the right combination of these tools has been chosen with cognisance to the prevailing general economic condition at the given point in time.
- Aims and Objectives: This includes identifying the crucial lapses that have characterised the designs and applications of past monetary policies aimed at addressing the problem of inflation, through a periodic assessment of the inflationary situation. This will form the basis of understanding the necessary combination of tools - which will be identified in the course of the analysis, capable of being employed in addressing the problem.
- Justification of the research: Here an attempt is made to justify the need for a research like this in view of the problem raised.
- Scope, methodology and limitation of the study: This includes stating the time frame covered by the study,

the method of analysis adopted in the research and the rationale informing the choice of the method as well as drawing the attention of the reader on the limiting case to the reliability of the study.

The second chapter reviews some literature on the inflation-money relationship. The review covers the classical, keynesian and the new classical analyses of the monetary basis of upward price movements and some inflation models results of study conducted in Nigeria and other developing countries that have near similar economic conditions. The third chapter explains the framework of analysis adopted in this study and the model emanating from the theoretical framework. Trend analysis of monetary policy in Nigeria over the period 1970 to 1993 engages the forth chapter while chapter five covers the appraisal of the model's empirical results. The study ends with summary, conclusion and recommendations in the sixth chapter.

1.2 STATEMENT OF PROBLEM:

Attempt at restraining excessive demand in Nigeria dates back to the late 1960s which marked a period of monetary and credit restraint (See Nemedia, 1974). The contraction was informed by the need to arrest the continued deterioration in our international payment position and also containing inflationary pressure (See

Ekukiram, 1968). Ever since then, the problem of upward price pressure has continued unabated (in relative terms), notwithstanding its monetary explanation and the various liquidity restraining strategies employed. Strategies tried have ranged from surplus budgeting to credit guidelines and in some cases mop-up exercises are carried out all in an effort to reduce the monetary demand pressure. The underlying explanation informing these lines of action has been the point that, bearing in mind the fragility of the nation's productivity base as could be seen in the inelastic nature of domestic output supply and the high dependence on import of consumables, the rapid monetisation of oil resources which characterises the 1970s and the eventual slump of the crude oil price in the world market during the first half of 1981, propelled money demand pressure on goods and services. The explanation of the upward and persistence movement in prices in the 1970s which was said to be resulting in the rapid growth in money supply resulting from the monetisation of oil resources took a different tune in the 1980s as the slump in the crude oil price triggered fiscal crisis as reflected in the persistent and substantial budget deficit which cumulated to approximately 17.4 billion Naira in five years between 1980 - 1984 (CNB-E&FR, 1984). The monetary situation became highly expansionary as large part of the deficits incurred were financed through the creation of credit and

with the increase attributable to net claims by the government. This growth in aggregate credit had two important direct effects - it vastly expanded aggregate demand and second, it accelerated the growth of domestic money supply. An insight in these effects is the view by Harberger (1963) that ``....there is no record in the history of the whole world anywhere or at anytime of a serious and prolonged inflation which has not been accompanied and made possible, if not caused, by a large increase in the quantity of money.''

The framework within which monetary authorities design and implement actions necessary to bring the monetary situation *under its control is the monetary policy.* Monetary policy which involves not only measures designed to regulate the volume but also the cost and direction of money supply in the economy has over the years been in use and supplemented by monetary circulars. What seems to be happening is that the policies designed over the years have not been able to maintain a close track with developments in the financial sector and the associated intricacies of liquidity. For instance, the liquidity disposition of non-bank financial institutions, domestic monetisation of foreign savings by individuals especially over the eleven (11) years of political transition and the extra government budgetary expenditure are cases in point. Thus this explains why mere official definition of money supply, that

automatically predicts the conventional restraining tools that can be used, has not yielded the required results.

1.3 RESEARCH OBJECTIVES:

Closely in line with the problem raised in the preceding section, and given its significance in the monetary therapy of inflation, the objective of this research is to investigate the nature of Nigeria monetary policies and how they are, and can be used to curb the problem of inflation. To achieve this objective, the following are to be taken into account:

-- The integration of the points raised in the problem statement in the portfolio structure analysis and their implication on money supply and its control;
-- The available monetary tools and their effectiveness in solving inflation problem; and
-- The changing patterns of policies which may, in their individual level, reflect significant influences through either ameliorating or exercebating the problem and this would, thus require a periodic assessment of inflationary situation in Nigeria.

HYPOTHESIS:

Informed by the foregoing objective, the general hypothesis premising this research is that if account is taken on the operations of the non-bank financial

institutions, individuals domestic monetisation of foreign savings especially during political transition and the monetary authorities' capacity to restrain government extra budgetary expenditure in the design of monetary policy, the end objective of curbing the problem of inflation would, to a large extent, be achieved. Analogously, the objective would be far from being achieved if in the design of the policy, attention is not accorded these aspects of the nation's financial characteristics.

1.4 JUSTIFICATION OF THE RESEARCH:

As earlier observed in this chapter that inflation may not be a relevant issue if it does not alter, in any way, social progress, it is this impingement nature of the problem of persistent upward price movement on the socio-economic advancement of every society (ours inclusive), in areas of production, distribution and consumption that would make this study worthwhile. To be precise, since monetary policy has come to assume an imperative position in today's national macroeconomic policy formulation and the high expectation attached to policy pursuits of nowadays, the need for the formulation process to take into account the dynamic nature of the economic environment and the intricacies therein as well as the economic implication of some socio-political programmes put in place cannot be over-emphasized. Instead of sporadic reactions to monetary

situations such as the episodic mop-up exercises, which sometimes have the implication of financially strangulating some businesses, the most appropriate thing is for the monetary authorities to keep a close watch on developments that have monetary implications and the policy formulation process accounting for such developments.

1.5 METHODOLOGY OF THE RESEARCH:

Information covering the study are sourced from official publications (which are secondary in nature), mainly from articles published in Journals and magazines like the International Monetary Fund (IMF) staff papers, the World Bank Observers and Economic Review, American Economic Reviews, Journal of Applied Economics, the Bullion, Economic and Financial Reviews of the Central Bank of Nigeria, among others as well as conference papers and Text Books. With regard to the method of data collection, the data used in this study is collected from official publications of the Federal Office of Statistics (F.O.S), Annual Reports and Statements of Account, and Statistical Bulletin all of the Central Bank of Nigeria. The reliance of this work on secondary information is premised on the nature of the study area whose information or data can hardly be sourced anywhere outside official quarters. However, every conclusion reached in this study would be

based on my personal reasoning and analyses, and do not represent the view of any group or organisation.

Furthermore, within the general context, the approach to empirical analysis employed in this study is statistical in nature. Therefore, in view of the fact that the validity of any research work, to a great extent, depends on the methodology used, the method of analysis adopted in this research is ordinary least squares regression. The rationale for the choice of this method is that it allows for specification of non-linear equations (in variables) but transformable into linear equations (in parameters) by the use of natural logarithms. Also, the parameters to be estimated gives values of elasticities with respect to the explanatory variables. The choice of the method is borne out of its simplicity and logical pattern of analysis and it does not only ease understanding but also lessen subjectivity to some barest minimum.

In addition, it is worthy of mentioning here that even though the relationship between variables in this study are taken as linear and casually observed, these relationships have now come to be subjected to test for their co-integration. For instance, if we take variables such as X_t and Y_t representing money and prices, their series are expected to revolve round their means in the long-run. That is, any drift from their means in the short-run should only be temporal as forces would push them to their

equilibrium mean. What this implies is that the trend relationship between the variables over a long period of time should prove the causal relationship and deviations from their long-run average should be temporal. The X_t and Y_t series are expected to have a finite spectrum but non-zero at all frequencies, a condition under which they can be said to be integrated of order zero. However, under a condition where the series of a given variable possesses no such properties, depending on the degree of the drift, the series would have to be differenced in order to provide a good basis for establishing the relationship. This development in the analysis of relationship between variables is credit to the work of Granger (1986).[5]

1.6 SCOPE AND LIMITATIONS OF THE RESEARCH:

Whether a policy aimed at providing a short-run or a long-run panacea to the economic ailment of any given society, it adequately must have been informed by a good historical experience that covers a good time frame and which guides the theoretical underpinnings of the policy decision. So time, as commonly construed by professionals in management field, is vital when it comes to thrusting an idea that has empirical flavour. This study deems it wise for the analysis to cover the period 1970 - 1993. The choice of such a range of time is informed by two reasons:

-- In the science of research, the period is wide enough to permit good deductions that may influence or redirect policy decisions.

-- The period covers what one may call two distinct aggregate policy strands - the regulated sort of policy practice (1970 - 1985) and the liberalised sort of policy practice (1986 - 1993). Put differently, the period covers the pre-SAP and the SaP era.

With regards to the constraints of this study and as well acknowledged that the most common obstacle to any research work is the availability and reliability of statistical data, our problem has to do with the quantification and quality of data. This study is not such problem free because if a work is to be adjudged empirical by precision and statistical inferences, there is little to rejoice about what the nation's data bank (the Federal Office of Statistics) has to offer.

FOOTNOTES

1. Garba A: Understanding the Nigerian Inflationary process. The case for an inquiry. Paper presented at the National Conference on the Financial System and Nigeria's Economic Recovery. Department of Economics, A.B.U., Zaria (February, 1990).

2. Friedman M. The Supply of Money and Changes in prices and output. In Friedman M. (ed). The Optimum Quantity of Money and Other Essays. MacMillan, New York. (1969) pp. 171 - 188.

3. This Observation is anchored on the much researches conducted on the domestic inflation in many countries compared to this less attention directed at international inflation.

4. Deficit financing (being a policy matter) in developing countries has been charged (by some analysts) of being substantially responsible for the inflationary spiral experienced by these countries.

5. Granger C. W. ``Developments in the Study of Co-Integrated Economic Variables.'' University of California San Diego Discussion Paper. (1986).

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION:

Investigations have shown that lots of studies have been conducted on inflation within and across economies with similar characteristics (Onitiri and Awosika, 1982; Ajayi, 1983; Ojo, 1978; Dlakal and Kandil, 1993; Asogu, 1991; Beltas and Jones, 1993 among others). The driving force has been informed by the observed implications of inflation on the socio-economic progress of societies. In an effort to fashion out strategies necessary to curb the situation, perceptions and suggestions have varied and the issue still remains contentious even to the present time. Among the questions yet to receive consensus of opinion are what are the causes of inflation and how can it be stopped or at least restrained? It need not be said that before we can come to grips with questions such as these, we must know what inflation is.

2.2 INFLATION - THE DEFINITION:

A search of learned literature would yield scores of definitions of inflation, differing from one another in essentials or in nuances. Example, a definition advocated by Abba P. Lerner (1947) and which found favour in the early post-war years is that inflation is a state of

affairs in which there is excess demand for commodities in the economy as a whole.[1] By this it means that the level of spending being directed towards home produced commodities exceeds the maximum output of home produced commodities which is attainable given existing production resources.

A much used paraphrase of the excess demand definition of inflation is that inflation is a condition in which ``too much money is chasing too few goods.'' However, inherent in this paraphrase are two flaws. In the first place, it is the (flow) spending which ``chases goods'' not the (stock) money. Secondly, excess demand means either that desired spending is ``too much'' in relation to the available goods, or (equivalently) that the available goods are ``too few'' in relation to the desired spending. Therefore, to introduce both ``too much'' and ``too few'' in the definition is to say the same thing twice. A more acceptable paraphrase of the excess demand definition would rather be that inflation is a condition in which ``too much spending is chasing the available goods.''[2]

Paish (1969) in his work ``Rise and Fall of Incomes Policy'' defines inflation by first of all asking the question ``what exactly is being inflated when inflation is in progress.''? In answering the question he said, in inflation, money incomes are being inflated relative to

real potential Gross National Product (GNP). He puts the point in the following way:

> ``A better definition of inflation (than one based on prices) is that it is a condition in which money incomes are rising faster than the flow of goods and services on which to spend them - that is to say, faster than real national income. But this definition is not adequate, for an accelerated rise of money income may be accompanied for a time by an equally rapid rise of output and real income, achieved by a higher level of employment. But while the rise in income can be achieved indefinitely, and indeed is likely to accelerate as unemployment falls, the rapid rise can be maintained only until full employment is reached, and must then slow down to equality with long-term trend of growth. The inflation already implicit in the rapid rise of incomes, now comes into the open. The definition of inflation must therefore be a condition in which incomes are rising faster, not more than the current rise in real national income, but than the maintainable rise.''[3]

From the foregoing definition, two points vis-a-vis the excess demand definition can be observed here. First, the definition runs in terms of a comparison between aggregate money income and real potential G.N.P rather than a comparison between aggregate spending and real potential G.N.P. Secondly, the definition runs in terms of the rate

of increase in variables rather than in terms of the levels of the variables.

Bearing in mind that the definitions above are among the numerous definitions of inflation put forward by different authors, the two can be said to be right in their own sense. Though they provide a good basis for economic analysis, they, however, seem to suffer the disadvantage of being rather too technical. A definition that seems to have been nodded by both professionals and laymen is that inflation means a condition in which there is a persistent upward movement in the general price level. Asogu (1991) put it thus ``inflation is a situation of rapid, persistent and unacceptably high rise in the general price level in an economy, resulting to general loss of purchasing power of the currency.''[4] By this definition, the price movement does not only have to be general but persistent before the situation can be described as being inflationary.

2.3 THEORETICAL APPROACHES:

In the course of research on inflation, theoretical classification or several approaches for the explanation of the inflationary process have emerged and which traditionally became the conventions of analysis. The literature is rich with several approaches and the five most popular are demand-pull, cost/wage-push, monetarist, structural and imported inflation.

To the Demand-Pull theorists, inflation is traditionally regarded as the consequence of excess total demand. Inflation occurs when the economy attempts to spend beyond its capacity to produce. Employing the aggregate demand-aggregate supply framework, if aggregate demand is in excess of the economy's full employment output (as valued at current prices), an inflationary gap will exist. That is, because the economy is already at full employment and operating at a point on its production possibilities curve (ppc), real output is fixed in response to this excess demand; hence, the excess of total demand will have the effect of pushing up prices. The rise in demand may be due to a government deficit or to an expansion of bank credit to private investment or rising demand from abroad (See Papi, 1962 and Haberler, 1962).

Cost or Wage-Push inflation can be initiated by increases in the cost of production following the raising of factor share of the total product. This occurs under imperfect market condition in the product market (administered prices) or in the labour market (wage-push). There is the presumption that labour unions and big businesses both possess significant amount of monopoly power with which to raise wages and prices and that this power becomes easier to exert as the economy approaches full employment.[5] The ``Wage-Push'' or cost-push inflationary scenario goes something like this; as the

economy moves toward full employment, labour market tightens and unions becomes more aggressive in their wage demands. Added to that, increasing prosperity will tend to enhance the willingness of businesses to grant union demands. Two reasons could necessitate that: firms will not like to risk a costly strike at the very time when business activity is becoming increasingly profitable - and economic expansion provides a favourable environment in which monopoly power can be used to pass wage increases on to consumers in the form of higher product prices (See McConnel, 1973).[6] Mark-up inflation models are usually grouped with cost-push models. Businesses mark-up the price of their goods in time with the rise in factor cost of production and the mark-ups cover the estimated cost of the overhead costs and required profit margins.

The structural theory is platformed on the economic characteristics of Less Developed Countries (LDCs) of the world. The structural thesis is that upward price movements are not experienced in these countries only when resources might have been fully employed or when labour market tightens. Rather, the case in Less Developed Countries has been that of inflation at less than full-employment output level or inflation in the face of significant proportion of unemployed labour force. Thus, by the structural argument, inflation in these economies is basically supply-oriented rather than demand. That

explains why the term ``supply inelasticity'' is used to describe it. That is, inflation can result from certain structural constraints such as sluggish growth of one or more sectors in an economy, which leads to supply shortages. Factors such as infrastructural bottlenecks, imports bottleneck, inadequate and unstable government revenue creates situations that generate inflation. The agrarian foundation of these economies and the crude technology in use tends to provide a situation where the rise in agricultural output lags behind the also increasing food demand of the populace.

The monetarists hypothesise that inflation is always and everywhere a monetary phenomenon, and maintain that a policy of monetary and financial stability is a necessary pre-requisite for rapid economic development (Friedman, 1968).[7] Therefore, monetarism stresses that, for demand or structurally motivated inflation to hold, expansion in money supply would be required to finance the increasing nominal national income brought about by rising prices. The consequent expansion of money supply outstripping demand for money gives rise to inflation, especially if output does not expand as much as money supply. Accordingly, the inflation rate is expected to vary, ceteris paribus, positively in relation to the rate of change in money supply. To this end, monetarists explanation can be said to be an explanation of the

instruments of demand-pull, cost-push and or structural inflation. An elaboration of this is what follows in the next sub-section.

Imported inflation, concerns openness of economies. This approach identifies a number of channels whereby inflation may be transmitted from one country to another. The channels include price, demand and liquidity effects. The price effects are transmitted by internationally traded goods and services; demand effects by the spill-over of excess demand across countries. The liquidity effect result from changes in foreign reserves, occasioned by adjustment in the balance of payment, which affect money supply and prices.

2.4 THE MONEY-INFLATION RELATIONSHIP:

From the classical perspective, the cradle of a comprehensive incorporation of money into mainstream economic analysis dates back to the works of John Locke (1932 - 1704), Richard Cantillon (1680 - 1734), David Hume (1711 - 1776), Adam Smith (1732 - 1790) and Alfred Marshall (1842 - 1924) among others. The Quantity Theory of Money, though crudely formulated and accepted by these writers, received its onesome boost in the work of Irving Fisher (1911) ``The purchasing power of Money.'' The most essential aspect of the theory is the quantity of money.

Money was basically related to price and nothing more. In the words of Cantillon:

> ``If mines of gold or silver be found in a state and considerable quantities of minerals drawn from them, the proprietor of these mines, the undertakers and all those who work there will not fail to increase their expenses in proportion to the wealth and profit they make... All this money, whether lent or spent will enter into circulation and will not fail to raise the price of products and merchandise in all the channels of circulation which it enters.''[8]

Therefore, the quantity of money, increased either through discovery of new gold or silver, increase in export proceeds (or rather increase in foreign exchange), official printing of new money (i.e. by ways and means process), or any combination of the above processes, would invariably result in raising prices. A simple channel of transmission observed by Cantillon is that the effect of this increase of money will habituate a great number of people to a larger expense than before (i.e. inducing a corresponding increase in consumption) and this will in consequence send up market prices.

A further observation is that it is not only the abundance of money that determines the direction of price movement but that increase in exchange does also raise the

level of prices.[9] That is, an acceleration or greater rapidity of circulation of money in exchange is equivalent to an increase of actual money up to a point.[10] Thus, for any increase to have a push effect on prices, that increase must go into the exchange system. In other words, supposing there is an increase in the quantity, but that new money is not spent (which means it is hoarded), under such condition velocity falls because there is a decrease in the average number of times a unit of money changes hands, hence there will be no change in prices. In the same vein, assuming the quantity of money remains unchanged, increase in velocity of circulation resulting from either increase in the level of monetisation, financial deepening or intermediation (through the developments of money and capital markets) or both, would, in the course, push prices up. This position is most appropriately posited under Fisherian equation of exchange.

From his concised classical theory of money, Irving Fisher viewed that the price level may be said to depend on only three set of causes:

-- The quantity of money in circulation.
-- The ``efficiency'' or velocity of circulation; and
-- The volume of trade (or the amount of goods bought by money).

It is the interactive process of these set of variables that determines the direction of price movements. However, to correctly formulate the theory more explicitly as against earlier classical explanations, Fisher's quantity theory, which similarly posits that the level of prices varies directly with the quantity of money, is informed by the assumptions that such a relationship holds true provided the velocity of circulation of that money and the volume of transaction or trade which it is obliged to perform are not changed.[11]

The equation of exchange is a statement in a mathematical form and it relates to all purchases made by money in an economy over a given period of time. In each sales and purchases, the money and goods exchanged are Ipso-facto equivalent. In sum the total money paid is equal in value to the total volume of goods bought. The equation is mathematically stated in the form:

$$Mv = PQ \quad \text{_____} \quad 1$$

where M = Total money supply or money stock

V = Velocity of circulation

P = General price level

Q = Total output of goods and services in the economy

From equation (1), by holding V and Q constant, the relation provides the basis for a direct and proportional relationship between the quantity of money and price level.

To deduce the price equation from equation (1),

Given $MV = PQ$

$$V = \frac{PQ}{M} \quad \text{---------} \quad 2$$

The time rate of change of the variables in equation (2) gives

$$\frac{1}{V}\cdot\frac{dv}{dt} = \frac{1}{p}\cdot\frac{dp}{dt} + \frac{1}{Q}\cdot\frac{dQ}{dt} - \frac{1}{M}\cdot\frac{dM}{dt} \quad \text{------}3$$

If the assumption of constant velocity is true, then

$$\frac{1}{V}\cdot\frac{dv}{dt} = 0 \quad \text{so that}$$

$$\frac{1}{P}\cdot\frac{dp}{dt} = \frac{1}{M}\cdot\frac{dM}{dt} - \frac{1}{Q}\cdot\frac{dQ}{dt} \quad \text{-----} \quad 4$$

From equation (4), if output grows at a constant rate, then our price equation would thus be:

$$\frac{dp}{P} = a_0 + a_1 \frac{dM}{M} \quad \text{----} \quad 5$$

Equation (5) provides a linear relationship between prices and money stock with the rate of increase in the general price level positively explained by the rate of increase in money supply.

By relaxing the assumption of constant velocity and if from equation (1) we make P the subject of that equation, we would have

$$P = \frac{V}{Q} M \quad \text{-------} \quad 6$$

So that the ratio V/Q would be the parameter explaining the degree of responsiveness of P to changes in M. In addition, that means the increase in P depends not only on M but on the value of the ratio V/Q too. That is, if the value of the ratio increases (probably as a result of increase in V or decrease in Q) or decreases (as a result of decrease in V or increase in Q), P would change in the same direction by increasing if the value of the ratio increases or decrease if the value of the ratio decreases - assuming the amount of money stock in the system remains unchanged. In a nut shell, the equation ratio V/Q is similar to the parameter `a_1' in equation (5) and both provide us a simple model of the classical theory of inflation.

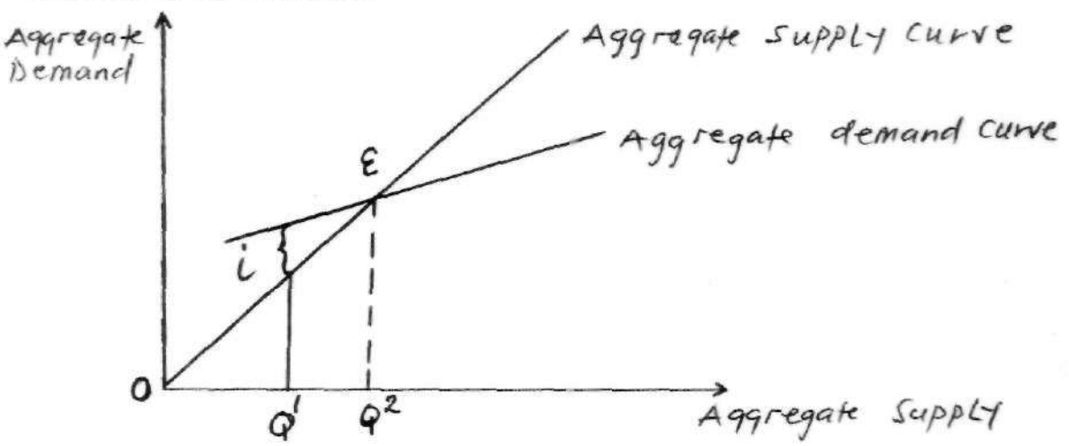
From the preceding classical provision on the theory of inflation, it will suffice to say that the underlying assumptions of the model required some appraisal with respect to the Nigerian experience. As already mentioned, constant velocity of circulation and full-employment output level are assumptions governing the equation of exchange {equation (1)} and they provide the basis from which changes in money supply transmit easily into price level. However, statistics available from the table in appendix 1 have shown that the assumption of the velocity of circulation being constant does not hold. Over the years, ``V'' has been falling in the Nigerian economy except until

recently the excessive fiscal deficits, a likely product of government's huge expenditure on the prolonged transition programme, has raised the figure from an average of 5.2 to 6.9.

With regard to the full-employment assumptions, the wide gap existing between registered unemployment and placements from official statistics, the jobless labour force physically visible in our cities today and the unworked installed capacities in our industries, among others, are clear indicators that the Nigerian economy is operating at far less than full-employment output level. This means that changes in P, from equation (6), in Nigeria may to some extent be explained by variation in Q and the small change in Q could be an indication of supply rigidities which might be structurally premised.

As for the keynesians view, the explanation of the inflationary process is not very much in variance with the classical postulation because they see inflation in terms of movement in aggregate demand. In the words of Keynes (1940) in his work titled ``How to pay for the war'', Inflation occurs when the volume of output (i.e. ``output at pre-war years'') is virtually fixed in the short-run. With that, supposing the government increases its own spending without taking steps to reduce private spending by an equivalent amount, aggregate spending will increase.

But if aggregate spending increases, the value of output must increase by the same amount because aggregate spending and the value of output are identically equal. Now with the volume of output fixed, the only way in which the value of output can increase, so as to keep in line with the higher level of aggregate spending, is by means of an increase in the price index.[12] Here the prices rise to fill what we may call an inflationary gap as shown in the diagram that follows.



where i = Inflationary gap

Q^1 = Real output level in the short-run

Q^2 = Nominal output level.

From the diagram, the gap of disequilibrium between the aggregate demand and aggregate supply is eliminated by upward price movement which raises the nominal value of the output to ensure equilibrium between the aggregate spending and the value of output. With this, however, a major lapse in the keynesian analysis is its passive recognition of

monetary forces in explaining the inflationary process. To the monetarists, the keynesian analysis would have been completed if it had taken cognisance of or explained the instrument(s) of expansion in aggregate spending or demand.

From the changes inflicted on the economies of industrialised countries by the Second World War, the general presumption among most economists was that the post-war problem was going to be depression and unemployment. As such, what was needed was to stimulate investment and consumption sufficiently in order to prevent unemployment. The appropriate policy then, from the keynesian perspective, was to pump substantial amount of money into the system (possibly via the relaxation of credit restrictions), so as to keep interest rate low. Experience, however, later shows that this easy money approach could not do the magic. The post-war problem turned out to be inflation and not depression and unemployment. Excess liquidity resulting from cheap money supply was understood to be the causal factor of inflation (see Friedman, 1964).[13] It was this situation that premised a rebirth of interest on the role of money in the economy which is the central thesis of the new classical or monetarists argument.

Spearheaded by Milton Friedman of the Chicago School, ever since the end of the Second World War, there has been

a dramatic change in the views of economists about monetary theory and government official about monetary policy. Taking-off from the Keynesian view point, there has been something of a counter-revolution in both theory and policy.[14] This revival benefited greatly from Keynes' work in that money is viewed not only as a medium of exchange ala the old classical school but also as an asset (in reference to the speculative component of Keynes' money demand Model). Again, the revolution also took the form of a change in policy direction from credit policy (within the aggregate demand management framework) to monetary policy which is concerned with the quantity of money.

The essential contribution of this revival, as contained in Friedman's ``the Quantity Theory of Money - A Restatement'' (1956) and his other articles plus those of his contemporaries with similar theoretical conviction, was not limited to accentuating the view that ``Money Matters'', but permits an insight into the relationship between money and assets as defined by the liquidity structure.

By way of definition, liquidity is the easeness or cheapness with which an asset may be exchanged for any other asset, and money is regarded as the most liquid of all asset. Example, it is easy to exchange money for other assets or commodities (example, government bond, house or loaf of bread) than exchanging any of these assets for any

other assets (excluding money). Therefore, the liquidity of an asset is commonly judged by the ease, cheapness and speed with which they can be exchanged for money, and the ``liquidity spectrum'' of assets in order of decreasing liquidity might be as follows; cash, demand deposits, time deposits (at commercial banks), saving deposits, loan shares, short term government securities, long-term government bonds, corporate bonds, equities, real-estate, human capital and so on.[15] Although this order of listing varies with economies, it is however, important particularly when we come to considering the nature of liquidity in Nigeria and the liquidity assets captured by the official definition of money supply.

As earlier mentioned, we can say that the new classical school revival surrounds three basic areas viz, renewed interest in quantitative controls, the view of money as an asset or wealth, and closely related to that, the observation on the existence of near moneys in the works of Gurley and Shaw (1956).

With regard to the quantitative controls, that follows exactly the de-emphasising of credit policy with preference to monetary policy. Credit policy means the effect of the actions of monetary authorities on rates of interests, terms of lending and the ease with which people can borrow. While monetary policy in this context, means the effect of the actions of monetary authorities on the stock of money

(See Friedman, 1969, p. 75). Therefore, instead of being concerned about who borrow and how much is, or should be, disbursed to the borrower[16], the monetarists are concerned with how much is, or should be, in circulation in the economy.

To the asset or wealth definition of money, very much influenced by Keynes' liquidity preference theory (which is the analysis of the structure of people's balance sheet or portfolio of the kind of assets they wish to hold[17], Friedman observed that:

> ``If money is an asset, one way of holding wealth or a capital good that provides productive services to the wealth owning units and business enterprises respectively, then its quantity is crucial in determining economic magnitudes.''[18]

The attention on near moneys as an alternative source of liquidity as observed by Gurley and Shaw, provides the basis of understanding the role of financial intermediaries in providing near money substitutes and the influence of portfolio adjustment mechanism of non-bank financial institutions in the effectivity of monetary policy. These approaches were further improvements upon earlier works, particularly that of Irving Fisher, which implicitly defined money as currency in circulation.

Informed by the preceding theoretical underpinnings,

therefore, a lot of models (differing in forms) have been propounded on inflation in developing countries in general and Nigeria in particular. Although much attention has been accorded to the monetary variable in the specifications, most models have attempted capturing other variables which have proved to be essential in explaining the price behaviour in the economies of their application. Among some of these models that have been specified and estimated includes those of developing countries whose economic characteristics are similar to that of Nigeria, e.g. Haberger (1963), Aghevli and Khan (1978), Salih (1993), Dhakal and Kandil (1993), and Beltas and Jones (1993), among others. With particular application in Nigeria includes Ajayi and Teriba (1974), Adeyokunmu and Ladipo (1974), Owosekun and Odama (1982), Adejugbe (1974), Awosika (1980), Ajayi (1983), Ojameniaye (1988), Samuel (1991) and Asogu (1991) among others. The choice of these models for illustrative purposes in our analysis is informed by the following reasons:

(ii) The models would provide us the basis for substantiating the existence of a relationship between money stock and prices;

(ii) They would also allow an understanding of the direction of the relationship;

(iii) They would permit an insight into the role of other variables in explaining price behaviour; and

(iv) As a reflection of general inflation models platforming designs of macro-economic policy, they would provide a background point of departure for this study.

Haberger (1963)[19] conducted a research work on the factors that determine inflation in Brazil for the period 1947 - 1962. In his attempt to observe whether the behaviour of the general price level reflects changes in the money supply, the result thus obtained revealed that there is a direct relationship between the money supply and inflation.

The Aghevli and Khan Model (1978)[20] was designed for four developing countries - Brazil, Columbia, Thailand and the Dominican Republic. They specified a multiple equation model of the form:

$$\log P_t = -\lambda a_0 - \lambda a_1 \log y_t - \lambda a_2 {}_t - (1-\lambda) \log (M/P)_t\text{-}1 + \log M_t \quad \ldots\ldots\ldots 7$$

$$\log M_t = \log M_t + K_0 + K_1 \log G_t - K_2 \log R_t + K_3 \log E_t \quad \ldots\ldots\ldots\ldots 8$$

$$\overline{\Pi}_t = B \log P_t + (1 - B) \overline{\Pi}_t\text{-}1 \quad \ldots\ldots\ldots 9$$

where:

M = Stock of nominal money balances

P = Price level

Y = Level of real income

$\overline{\Pi}$ = Expected rate of inflation

t = Time factor.

$\log (M/P)_t-1 = (\log M_t-1 - \log P_t-1)$

a_0. a_1. a_2. $(1 - \lambda)$, K_0, K_1. K_2, B and (1 - B) are parameters that were estimated.

From equation (8), the deduction is that depending on the budgetary behaviour of the government, changes in government expenditure vis-a-vis her revenue ($G_t - R_t$) would invariably influence the behaviour of money supply (M_t). Thus, deficit financing would raise M_t and which would also raise P_t in equation (7). Variation in the expected rate of inflation as explained by current changes in the price level and expected rate of inflation in the preceding year (equation 9) would also induce price movement in the same direction. This is a case of bidirectional relationship between prices and expected rate of inflation.

The result of their estimation shows that all the estimated coefficients are significant at the 5 percent level except the coefficient of expected rate of inflation for the Dominican Republic and Thailand, which, nevertheless, have correct sign. The result also shows

that those countries that have sluggish system of tax collection or narrow tax base would experience a higher rate of inflation because expenditure would tend to be deficit - meaning raising the level of money stock and hence prices. In a nutshell, the essential achievement of the model is that it did explain the relationship between government deficit and inflation which is a common feature of the government sector in Less Developed Countries.

The Salih Model (1993) was informed by the theoretical investigation of the determinants of inflation in oil-exporting developing countries.[21] Nigeria being a near monoproduct-export economy depends highly on the export of oil for foreign exchange. Salih observed that:

> ``In the last two decades, inflation in oil exporting countries has been moderate, relative to the rest of the world, because of their implementation of extensive and expensive subsidy programmes. However, with the increasing cost of the subsidy and the recourse to deficit financing in these countries, there has been a growing role and resurgence of interest in monetary policy as it affect inflation.''[22]

In addition, the openness of these economies given their weak production base has made them net importers and models specified for such economies must take into account

the import variable or the foreign sector. The model specified by Salih is in the forms:

$$\dot{CPI}_t = \theta_0 + \theta_1 \dot{UVim}_t + \theta_2 \dot{M}_t + e_i \quad \ldots\ldots\ldots 10$$

where

$\dot{CPI}_t$ = A measure of the rate of inflation in the current year.

$\dot{UVim}_t$ = The rate of growth of the unit value of imports in the current year.

$\dot{M}_t$ = Rate of growth of money supply (broadly defined).

However, in order to allow for the existence of lag structures, equation (10) was restated in the form:

$$\dot{CPI}_t = \alpha + BD + \sum_{i=0}^{4} \lambda_i \dot{M}_{t-i} + \sum_{i=0}^{10} \delta_j \dot{PW}_{t-j} + e_j \quad \ldots\ldots 11$$

where

D = Dummy

$\dot{PW}_{t-j} = \dot{UVim}_{t-j}$

e_i = Error term

, B, λ_i, and δ_j = parameters to be estimated and all other variables are as previously defined.

In testing the model of equation (11), data for Kuwait was used for the period 1970 - 1990. The result, thus, obtained gave a mixed picture. For example, while all the coefficients are expected to have a positive sign, the second and third lagged quarters in the growth rate of

money supply, and the second through the fourth as well as the nineth and tenth lagged quarters in imported inflation carried a negative sign.[23] With regard to the explanatory power of the variables, the estimated coefficient for the influence of the growth rate of money supply in domestic inflation are not statistically different from zero. The result shows that at 0.15 percent level of significance (if this level is permissible), the total lag effect of monetary stimulus on domestic inflation is 6 percent. A probable explanation to that could be the low level of financial deepening and the maintenance of extensive and expensive subsidy.

As for the imported inflation, the effect is not only a delayed one but also not very significant. For example, the result shows that the whole period effect is 2.6 percent and the likely explanation to that follows from the presence of large subsidy which cover all the imported inputs used in domestic production.[24]

The Dhakal and Kandil Model (1993) [25] is a specified and tested relationship of price behaviour for six countries which includes: Bangladesh, India, Korea, Malaysia, Pakistan and Singapore for the period 1970 - 1988. The model tested is in the form:

$$DPt = \alpha o + \sum_{i=0}^{np} \alpha ip\ DP^{e}_{t-i} + \sum_{i=0}^{nm} \alpha i\ MDM_{t-i} + \sum_{i=0}^{ny} \alpha i\ YDY_{t-i} + \sum_{i=0}^{nr} \alpha ir\ Dr_{t-i} + \sum_{i=0}^{nf} \alpha if\ Df_{t-i} + \sum_{i=0}^{no} \alpha i0\ DimP_{t-i} \quad \ldots\ldots\ldots 12$$

where

DP_t = Inflation rate in the current period.

DP^e_{t-i} = Expected rate of inflation lagged various period.

DM_{t-i} = Money supply rate lagged various period.

DY_{t-i} = Growth rate of real output lagged various period.

Dr_{t-i} = Domestic nominal rate of interest.

Df_{t-i} = Foreign nominal rate of interest.

$Dimp_{t-i}$ = The imported price.

From equation (12), what distinguishes the Dhakal and Kandil Model from the other models is that it takes into account the influence of the domestic and foreign interest rate in domestic inflation. The theoretical basis for their inclusion is that demand for money relates negatively to the increase in domestic nominal interest rate (which is a variable that measures the opportunity cost of holding money balances). A rise in opportunity cost stemming from the rise in interest rate has a negative impact on the public preference to hold money balances, and, in turn, a positive impact on the price level. Similarly, a rise in foreign interest rate increases the international opportunity cost of holding domestic money balances, which has a negative impact on the demand for domestic currency,

and, in turn, a positive impact on the price level. At the point of estimation, due to data limitation, three measures were employed for foreign interest rate. They are the Japanese money market rate, the money market rate of the United Kingdom and the money market rate of the United States.[26]

With respect to the result, among the six countries considered, the money supply variable enters the specification of the empirical model as an important determinant of inflation in three countries - Bangladesh, Malaysia and Singapore. While the impact of a change in the money supply on the price level in Bangladesh is of short duration, the length of this impact has longer duration in case of Malaysia and Singapore. However, it is only in the long-run that the sum of the lags in Malaysia is positive. Again, in all the three cases, the change in the price level is not proportional to the change in the money supply. Other variables such as interest rates as they affect money demand, especially in Singapore and Korea, expected rate of inflation and real output proved to be significant. However, the result in general suggests that appropriate anti-inflation policies must involve reductions in the excessive monetary growth. This is a conclusion of most monetary models of inflation in developing economies.

With particular attention tc Nigeria, Ajayi and Teriba (1974)[27] developed a general quantity data model of multiple equations to evaluate the relative contribution of the different factors that affect inflation during the period 1960 - 1972. Some of the equations are in the form:

$$P = f(Ms_t) \quad \ldots\ldots 13$$

$$P = f(Ms_t, Ms_{t-1}, Y/P, A) \quad \ldots\ldots 14$$

$$P = f(Ms_t, Ms_{t-1}, Y/P, A, Exp/GDP) \quad \ldots\ldots 15$$

$$P = f(Ms_t, Ms_{t-1}, Y/P, A, IMP/GDP \quad \ldots\ldots 16$$

where

P = Change in price or rate of inflation

Ms_t = Money supply at time t

Y = Income

A = Past changes in the rate of inflation

EXP/GDP = Export - Income Ratio

IMP/GDP = Import - Income Ratio.

The result reveals that while the real income parameter proved to be very significant in determining the rate of general price increase, bearing in mind the production level of the economy during the period under review, the money supply variable was not all that a significant determinant of inflation. They also concluded that the adjustment process was rather low.

In the same year, Adeyokunmu and Ladipo (1974), conducted a study on thte quantitative impact of money

supply, import duties and Gross Domestic Product (GDP) on the inflation rate in the cities, using the following models:

Linear: $Y = f(X_1, X_2, X_3, U)$.....17

Logarithmic: $Y = a_0 + a_1 \log X_1 + a_2 \log X_2 + 9_3 \log X_3$...18

where,

Y = C.P.I. for Ibadan

X_1 = Money supply

X_2 = Import duties

X_3 = Gross Domestic Product

U = Residual.

The result obtained from the data, for the period 1960 - 1973, for both the linear and logarithmic specifications shows that money supply contributed significantly to the inflationary process in the city.[28] The likely reason for this difference from the result obtained by Ajayi and Teriba is that the level of monetisation and, in particular, the money velocity of circulation is higher in urban areas compared to the rural areas. Though the other variables in the model also proved significant in explaining inflation in the city, a significant achievement of the study is that it attempts providing a monetary explanation of inflation in the Nigerian economy.

Almost similar to that of Adeyokunmu and Ladipo, the model by Owosekun and Odama (1982) was specified in the

form:

$$P_t = \alpha_0 + \alpha_1 M_t + \alpha_2 M_{t-1} + \alpha_3 Y_t + \alpha_4 A + U....19$$

where,

P_t = Rate of inflation

M_t = Percentage change in real money supply

Y_t = Percentage change in real GDP (1962/63 factor cost)

A = Cost of holding money.

The result obtained could not support the ``apriori'' expectation. For that, a modified version was used together with other variables like aggregate demand, price expectation and cost elements. The result from this, thus proves significantly different with the lagged variables being more influensive.[29]

Adejugbe's (1974) empirical investigation into the causes of inflation in Nigeria for the period 1962 - 1972 employed two sets of equations - static and dynamic. In the static model, he examined the impact of the variables generally, while in the dynamic equation, he attempts measuring the influence of these variables through time. The static equations are in the form:

$$P = A_0 + A_1 M + A_2 Y + A_3 Trv + A_4 W + U.....20 \text{ (Linear)}$$

$$\text{Log } P = A_0 + A_1 \text{ logM} + A_2 \text{ logY} + A_3 \text{ logTrv} + A_4 \text{ logW} + U.....21 \text{ (Log)}$$

The dynamic equation took the form:

$$P_t = a_0 + a_1 M_t + a_2 M_{t-1} + a_3 M_{t-2} + a_4 Y + U....22 \text{ (Linear)}$$

$$\text{Log } P_t = a_0 + a_1 \log M_t + a_2 \log M_{t-1} + A_3 \text{ LOG } m_{t-2} + a_4 \log Y + U \quad \text{.....23 (Semi-log transformation)}$$

$$\text{Log } P_t = a_0 + a_1 M_t + a_2 M_{t-1} + a_3 M_{t-2} + a_4 Y + U \quad \text{.....24 (Inverse semi-log function)}$$

where,

P = Average price index

P_t = Rate of inflation

M = Money supply

Trv = Trade restrictions variable taken as the percentage of import duty to the value of imported goods.

Y = Value of Nigeria's export used as surrogate for GDP

W = Average wage level

U = Residual.

From the result, the impressive growth of rate of the GDP which also reflects on the volume of exports during the period reviewed by the study buttresses the significance of output variable in the equations. The money supply variable, though generally not very significant (as similarly observed in Ajayi and Teriba's investigation), proved to be relatively important when lagged over some times.[10]

In a separate study conducted by Ojo (1974)[31] on the relative contribution of both the structural elements and monetary factors in inflation in Nigeria; when regressed together, it was observed that both factors were responsible for inflation in Nigeria in the twenty years period reviewed. When the two factors were treated separately, monetary variables performed fairly better than the structural elements. A follow-up explanation to this is that the civil war period happen to have experienced a drastic reduction in the production of goods and services thereby reducing the volume of goods and services available in the face of war-induced rising quantity of money. In addition the post-war reconciliation, rehabilitation and reconstruction expenditure by the government further mounted another financial pressure on available goods and services.

A similar argument can be found in Awosika and Onitiri (1980) discussion of the key causes of inflation and the presentation of the anti-inflationary policy of the 1970s. They argued that the deficit financing of the 1960s, the civil war (1967/70) which disrupted the productive base of the economy, high import tariffs and rising prices of inputs exerted upward pressure on inflation. To them, the ``Udoji Award'' of 1974/75 and the rapid growth pursued by the government contributed remarkably to the upward movement of the general price level.[32] These findings show

a high correlation between Openness cum level of development of the economy and inflation. Meaning inflation in Nigeria is determined by developments in the external sector and strongly complemented by internal influences.

In 1988, Ojameruaye undertook an analysis of the determinants of the general price level between 1960 and 1984 using a model of multiple equations six of which are stated below:

$CPI = f(M_s, U)$.....25

$CPI = f(M_s, M_{s-1}, U)$.....26

$CPI = f(GBD, GBD_{-1}, U)$.....27

$CPI = f(M_s, GBD, BSCPS, BSCGS, U)$.....28

$CPI = f(ER, FER, IMR, IM, IOR, U)$.....29

$CPI = f(M_s, IAP, SA, PM, MBLR, PCI, U)$.....30

where,

CPI = Consumer price index

MS = Money supply

GBD = Government Budget Deficit

BSCGS = Banking System Credit to the Government Sector

BSCPS = Banking System Credit to the Private Sector

ER = Average Exchange Rate

FER = External Reserves of the CBN

IAP = Index of Agricultural Products

SA = Salary Dummy

PM = Nigeria's Import Price

MBLR = Maximum Bank Lending Rate

PCI = Nigeria's Per Capita Income

IM = Merchandise Imports

IOE = Index of Openness defined as the import/current GDP ratio

With regard to the monetary variable, the result shows that money supply is a significant variable in explaining the price movement. However, he discovered that when lagged, the money supply variable is not significant at any reasonable level,[33] probably because of the significant influence of the banking system credit to both the government and the private sectors.

Samuel's (1991) Model has a close similarity with equations 25, 26 and 27 of Ojameruaye's specifications. The general equation took the form:[34]

$$I = f(M_3, Y, BD, M_{3-1}, BD_{-1}, P_{t-1}, P_f, e) \quad \ldots\ldots\ldots\ldots 31$$

where

I = Percentage change in CPI and the explanatory variables are also in percentages.

M_3 = Money supply

Y = Income

BD = Budget Deficit

P_{t-1} = Expected rate of inflation

PF = Foreign prices

e = Residual.

From the result, the explanatory power of the money supply variable, though with expected sign happen to be weak. The index of income proved to be the major significant explanatory variable. The foreign price variable was also significant and the likely explanation to that can be deduced from the degree of openness and the technological inefficiency of the Nigeria economy.

The Asogu (1991)[35] study came up with specifications whose variables include index of real income, industrial production, food prices, money supply, government expenditure, import prices, exchange rate and lagged values of some of these variables. From the result, the index of food prices showed a significant explanatory power. This is no surprise considering the dominance of food weight in the household expenditure ``basket.'' Although the coefficient for lagged changes in money supply appeared to be neither statistically significant nor with the expected sign in some of the equations, it however had the correct sign and also significant in some others.[36] This reminds us of earlier studies conducted by Ajayi and Teriba (1974) and Osakwe (1983)[37], using quarterly data, which indicated that the lag in the fourth quarter in a year had significant coefficient. Hence, the variable for lag-in-effect of monetary policy, as far as inflation rates are concerned, appears to be relevant for period less than one year.[38]

Taking a purely monetarists position, the models by Ajayi (1983)[39] and Beltas and Jones (1993)[40] for Nigeria and Algeria respectively both tested for the relationship and causality between money and prices. They also allow for the existence of lag structures. The model by Ajayi (which covers the period 1961 - 1977) was in the form:

$$\Delta \log P_t = \log \sigma_0 + \sigma_1 \Delta \log M_t + \sigma_2 \Delta \log M_{t-1} + __ __ \sigma_n \Delta \log M_{t-n} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 32$$

where,

$\Delta \log P_t$ = Rate of inflation

M_t = Money supply

n = Length of lag

$\sigma_0 \dashrightarrow \sigma_n$ = Parameters to be estimated.

On the other hand, the specification by Beltas and Jones (which covers the period 1970 - 1988) is in the form:

$$\begin{bmatrix} P_t \\ M_t \end{bmatrix} = \begin{bmatrix} a_1(L) \\ a_3(L) \end{bmatrix} \begin{bmatrix} a_2(L) \\ a_4(L) \end{bmatrix} \begin{bmatrix} P_t \\ M_t \end{bmatrix} + \begin{bmatrix} e_1(t) \\ e_2(t) \end{bmatrix} \ldots\ldots 33$$

Equation (33) whose relation is expressed in matrix format is restated more explicitly in the form:

$$P_t = a_0 + a_1 \log P_{t-1} + a_2 \log M_{-2} + e_1(t) \ldots\ldots\ldots 34$$

$$M_t = a_0 + a_3 \log P_{t-3} + a_4 \log M_{-4} + e_2(t) \ldots\ldots\ldots 35$$

From the models specified in equations 32 to 35, though the authors theoretically acknowledged the role of some other variables crucial in explaining price behaviour that are not captured in their specifications[41], the essential objective was to assess the extent and the direction of the relation between the two variables.

The result of estimates by Ajayi shows that better result is obtained when the model allow for the existence of lag structures. For instance, the model provides that when instantaneous adjustment is allowed, the money variable is statistically significant at one (1) percent level, and less than 40 percent of the variation in prices is explained by the variable in the regression.[42] On the other hand, the statistical significance of money supply lagged two period (M_{-2}) proved to be greater than for any other lagged variable in the regression. The money lagged nine period sum up to give about 95 percent explanation of the behaviour of prices and, as expected, the goodness of fit (F^{-2}) also improved.

In the same vein, the results by Beltas and Jones shows that both the movement of the price index and the money supply index rises continually throughout the period but that the money supply increases at a faster rate than prices.[43]

With respect to directional causality, Ajayi and Beltas and Jones observed a unidirectional causality

between money and prices, with changes in money supply preceding the variation in prices. This result, therefore, seem to support the hypothesis that the growth of the money supply causes inflation and not vice-versa, i.e. there is no bidirectional or feedback relationship between the money supply and inflation. With this, the result may, thus, imply that, for a developing economy, the interaction between the demand for and supply of money is the prime mover of the price level and it is also the working assumption used by modern monetary ``growth theorists.'' If the supply of nominal money rises faster than the demand for real balances, price inflation ensues.[44]

In summary, the preceding review of some literature has allowed us an insight into the degree of association between money and prices. Meaning there is an established relationship between money supply and rate of inflation which is not only theoretical but empirically proved. In addition, the direction of the relationship is not ambiguous but well defined, with changes in money supply causing prices to change.

Informed by the foregoing revelation, an inference that can be drawn from there is that to control or reduce the rate of rising prices, in addition to the need for the state to provide investment succour to willing investors in order to expand production, all that the monetary authorities have to do is to regulate the quantity of money

stock in the system. This advocation is credited to the monetarists and it has been put into use not only in Nigeria but in almost all economies of the world. The question then is why has there not been a success, on the part of the authorities, in the implementation of this policy action? In response to this question, this study wishes to observe that there are lapses in some of the specifications which are likely products of the theoretical underpinnings and the problem of policy conflict an issue that is inherent particularly when the objective of development is vigorously pursued. With regard to the first observation, what is needed and which defines the framework of analysis employed by this study, is to further explore the monetarists argument with the hope that a more effective result would be obtained in that direction.

FOOTNOTES

1. Lerner A. P. ``The inflationary process.'' Review of Economies and Statistics, (August, 1949) pp. 193 - 195.

2. Hagger A. I. ``Inflation - Theory and Policy.'' MacMillan London (1977), pp. 2.

3. Paish F. W. ``Rise and Fall of Income Policy.'' Institute of Economic Affairs, London (1969), pp. 20.

4. Asogu T. O. ``An Econometric Analysis of the Nature and Causes of Inflation in Nigeria.'' Central Bank of Nigeria Economic and Financial Review Vol. 29, No. 3 (1991) pp. 239.

5. Gardner A. ``Administered Prices and Inflationary Process.'' American Economic Review, Papers and proceedings LXIX (May, 1959).

6. McConnell C. Economics - Theory, Principles and Policy. McGraw-Hill Inc. New York (1973), p. 370.

7. Friedman M. ``The Role of Monetary Policy.'' In Friedman M (ed) The Optimum Quantity of Money and Other Essays MacMillan, New York (1969), pp. 109.

8. Richard C. ``Essays on the nature of trade.'' In Edwin Dean (ed) Controversy over the Quantity Theory of Money. D.C. Health and Company. Boston (1965), pp. 2 - 8.

9. Ibid, p. 3.

10. In other words, an increase in velocity has the same effect on prices as an increase in the quantity of money.

11. Fisher I. ``The purchasing power of money.'' In Edwin Dean (ed), controversy over the Quantity Theory of Money D. C. Health and Company, Boston (1965), pp. 9 - 28.

12. Keynes J. M. ``How to Pay for the War.'' MacMillan, London (1940) - This is a paraphrase view by Hagger (1977) Op. cit.

13. Friedman M. ``Post-War Trends in Monetary Theory and Policy.'' In Friedman M. (ed), The Optimum Quantity of Money and other Essays, MacMillan, New York (1969), pp. 67 - 79.

14. Ibid, p. 71 and see also, Lawrence S. R. The Role of Money in Keynesian Theory. In Muella M.G. (ed), Readings in Macroeconomics, Holt, Rinehart and Wiston Inc. New York (1967) pp. 161 - 172, Friedman M. ``A Monetary and Fiscal Framework for Economic Stability.'' In Muella M.G. (ed), Readings in Macroeconomics, Holt, Rinehart and Winston Inc., New York (1967), pp. 337 - 352.

15. Beare J. B. Macroeconomics - Cycles, Growth and Policy in Monetary Economics. MacMillan, New York (1978), p. 187.

16. A good example of credit policy management can be seen in credit guideline contained in the various years Federal Budget and Monetary circulars of the Central Bank of Nigeria.

17. Friedman M. ``The Quantity Theory of Money - A Restatement.'' In Friedman M. (ed). The Optimum Quantity of Money and Other Essays. MacMillan, New York (1969), pp. 51 - 68.

18. Ibid, p. 52.

19. Habager A. C. ``Habager's Inflation Model - A Critique and test using data for Brazil and India.'' Indian Economic Journal Vol. 16 No. 4 - 5, (1963), p. 434.

20. Aghevli B. B. and Khan M.S. ``Government Deficit and the Inflationary process in Developing Countries.'' International Monetary Fund (IMF) staff papers, Vol. 25 (1978), pp. 383 - 406.

21. Salih A. S. ``Determinants of Inflation in oil-exporting developing countries - An empirical investigation (1970 - 1990).'' Journal of Applied Economics, Vol. 25 No. 4 (April, 1993), pp. 439 - 445. In this empirical application of the Model, he used Kuwait as his case study.

22. Ibid, page 439.

23. According to Salih (ibid), ``$UVim_t$'' is an import price index obtained by dividing the value of imports by the volume of imports (in the current period and expressed in percentage form), p. 443.

24. Ibid, page 443.

25. Dhakal D. and Kandil M. The Inflationary experiences of six developing countries in Asia - An investigation of underlying determinants.'' Journal of Applied Economics Vol. 25, No. 3 (March, 1993), pp. 413 - 425.

26. Ibid, page 416.

27. Ajayi S. I. and Teriba O. ``The Inflationary process in Nigeria 1960 - 1972 Evidence from Quarterly Data.'' In Inflation in Nigeria - proceedings of a National Conference edited by Onitiri and Awosika K. Ibadan NISER (1975), pp. 112 - 125.

28. Odeyokunmu T. and Ladipo O. O. ``Causes of Inflation in Nigeria - Quantitative Assessment.'' In Onitiri H. M. O. and Awosika K. (ed). Inflation in Nigeria, Conference proceedings, Ibadan NISER (1975), pp. 147 - 158.

29. Owosekun A. and Odama J. S. ``The causes of Inflation. Some empirical evidence'' In Onitiri and Awosika K. (ed) Inflation in Nigeria. Conference proceedings, Ibadan NISER (1975).

30. Adejugbe A. ``Cause of Inflation in Nigeria'' In Onitiri H.M.O. and Awosika K. (ed) Inflation in Nigeria. Conference proceedings, NISER Ibadan (1975).

31. Ojo O. ``Causes of Inflation in Nigeria'' In Onitiri H.M.O. and Awosika K. (ed). Inflation in Nigeria, NISER Ibadan (1975.

32. Awosika K. and Onitiri H.M.A. ``Causes of Inflation in Nigeria.'' In Onitiri and Awosika (ed) part II. Inflation in Nigeria. Conference proceedings NISER, Ibadan (1980), pp. 271 - 385.

33. Ojameunye E. O. ``An Analysis of the determinants of the General price level in Nigeria. Journal of the NISER Vol. 5 (1980).

34. Sanuel David.''

35. Asogu J. O. ``An Econometric Analysis of the nature and causes of Inflation in Nigeria, C.B.N. Economic and Financial Review Vol. 29 No. 3 (Sept., 1991), pp. 239 - 254.

36. Ibid page 247.

37. See Ajayi and Teriba (Note 27) above and Osakwe J. O. ``Government Expenditure, Money Supply and Prices - 1970 - 1980'' C.B.N. Economic and Financial Review Vol. 21 No. 2 (June, 1983) pp. 4 - 18.

38. See Asogu J. O. (1991) Op. cit, page 247.

39. Ajayi S. I. ``On the Directional causality between Money and Prices.'' Nigerian Journal of Economic and Social Studies, Vol. 25 No. 3 (Nov., 1983), pp. 319 - 326.

40. Beltas A. and Jones T.'' Money Inflation and Causality in a Financially Depressed Economy - Algeria'' 1970 - 1988. Journal of Applied Economics Vol. 25 No. 4 (April, 1993), pp. 473 - 480.

41. See Ajayi Op. cit page 319 and Beltas and Jones Ibid page 474.

42. Ajayi Ibid page 321.

43. Beltas and Jones Op. cit page 477.

44. McKinnon R. ``Money and Capital in Economic Development. Brookings Institute, Washington (1973), page 39.

CHAPTER 3

THE THEORETICAL FRAMEWORK

3.1 INTRODUCTION:

The intensity of research into the monetary sector of developing economies, resulting from the awareness of the role money plays or can play in economic activities and the availability of more reliable data, have provided the basis for the assumption of a position of near prominence, in policy parlance, of monetary policy as a framework for addressing problems and fashioning out a course for economic advancement of societies. Otiti (1982), defines monetary policy as ``measures designed to regulate and control the volume, cost and direction of money and credit in the economy to achieve some specific macroeconomic policy objectives, which can change from time to time depending on the economic fortunes of a particular country.''[1] Inferring from this definition and crucial in monetary policy is the question of money supply and control of money stock. The question is said to be crucial because it provides the basis for understanding the working of the monetary policy.

Monetary policy is operated through the use of some tools and the basic instruments commonly used includes, the bank rate, reserve requirement, liquidity ratio, open market operation, special deposits, stabilisation securities and moral suasion (a detail explanation of these is carried out in the next chapter). Although the basic framework of analysis is the same for all economies - developed and developing, given these instruments, the money supply and control process itself is highly differentiated, depending on a variety of factors such as the openness of the economy, the level of development of the financial system, their degree of integration and so on.[2] For instance, it is argued that if the economy is insulated, monetary policy tends to have a far more pervasive impact on the supply and control magnitudes than it does in an open economy where short-term capital movements are unhampered (Khatkhate et al (1974) and Porter (1972).[3]

3.2 THE SUPPLY OF MONEY AND CONTROL OF MONEY STOCK - A PORTFOLIO APPROACH:

In line with the above observation, there exists spirited argument, whose cradle dates back to the 1950s or earlier than that and which has much bearing on the effectivity of monetary policy understood within the context of this study. This argument can be classified

into two views - the orthodox view and the Radcliffe or banking school view.[4]

The orthodox approach (whose proponents includes English economists like Robert Torrens, George W. Normans and Samuel Jones L.) argues that monetary policy must rest primarily on control by the authorities of the supply of money - the supply of money generally defined here as the amount of money in the economy. The basic chain of reasoning underlying this view is as explained in the preceding chapter. Money is what people spend; the more money is available, the more will tend to be spent and the higher the level of spending, the greater the upward pressure on production and prices. Given this line of reasoning, the corollary for policy is plain. If the authorities wish to encourage expansion, the supply of money should be increased; while to assist in controlling inflation, the supply should be reduced. In the latter case which has been of greater practical importance in recent years (see Dhakal and Kandil, 1993), the effect to be expected are two fold: as the supply of money becomes increasingly scarce relative to the demand for money, people will be inclined both to spend less freely and to lend less freely. The former influence reduces the pressure on demand directly while the latter indirectly because interest rates are pushed up and the demand for loans tend to fall.

However, it is imperative in this type of policy prescription that we should know with some precision what money is and it will suffice to say here that this is the point of the arguments. Going by the explanation of the preceding paragraph, it is fundamental to first of all understand the components that combine to define the variable which the policy lays claim in controlling. On the surface this is not a difficult problem because the solution would seem to have been provided by the familiar textbook definition of money as ``anything which is generally accepted in settlements of debts.'' Several classes of assets may be used to give effect to demand for goods and services in the economy or in a restricted sector of the economy (for example, the use of credit cards or luncheon voucher in restaurants, bookshops and or super markets) by the economic units. Thus, if we are to influence the behaviour of these units by varying the supply of money, then we must know which assets are to be classified in the category of money.

To the orthodox (or currency) school, money supply is made up of the currency which includes coins and notes issued by the central monetary authority (in our own case the Central Bank of Nigeria). Though today's official narrow definition of money supply is the sum of currency outside the banking system and demand deposits with commercial banks, to this school, deposits stems

exclusively from deposits of cash by bank customers; hence distinction can be drawn between notes-issuing bank and deposits banks which perform the intermediary role of borrowing money from some and lending to others. Therefore, banks deposits are governed by cash volume available in the economy and an exercise of control on the supply of notes and coins would tend to produce a reluctance to make deposits with banks and lending by banks would thus be prevented from expanding.

The banking school's attack (with proponents like Lord Radcliffe, J. S. Mill and later monetarists like John Gurley and Edward Shaw, among others) on the orthodox thought hinges on the case of substitutability between various classes of paper assets.[5] If money must be a medium of exchange, a means of payment, then in addition to coins, notes and bank deposits, payment can be effected or made with deposits with Non-Bank Financial Institutions (NBFIs) in addition to the Saving and Time deposits with commercial and merchant banks. Other instruments such as bills and trade credit do also possess some appreciable degree of liquidity and this high degree of substitutability between various types of liquid assets is liable to create embarrassment for monetary policy. For example, if the authorities try to bring down a reduction in money supply, it would seem comparatively easy for financial intermediaries to offer rather higher rates of

interest (on the assumption that there exists a high interest elasticity of deposits) to attract previously idle bank deposit which they can re-lend to the deficit spending units. Similarly, firms can expand trade credit among themselves to permit a hitch-free transaction just as transactions using credit cards, luncheon vouchers and other bills can be effected so long as there is that public conviction on the liquidity of these instruments. Afterall it is a case of near-impossibility for the desire to transform these instruments into notes and coins to collectively happen at once.

On the basis of this logic, we can, in this study, argue that it is the general liquidity of the economy rather than the supply of money officially defined, which is the prime financial influence on the level of spending. Cramp (1962) put it thus:

> ``To the extent to which highly liquid assets are available at attractive rates of return, people may be induced to take them up and so to lend their own money balances for the finance of expenditure by others; further the more such assets a transactor (firm or individual) holds, the more willing he may be to extend his own spending, confident that he has a source from which his money balances could be replenished in case of need.''[6]

The preceding analysis is but a portfolio theory of money supply. Meaning, the general liquidity or total

money supply is the result of the interactive process of the portfolio behaviour of the non bank public sector, the commercial banks and the central bank. Ajayi (1978) observes that:

> ``The importance of the portfolio approach is that it allows us to get out of the money supply exogeneity concept and the money multiplier approach while at the same time allowing us to see the inter-dependence between the three sector.''

In the case of Nigeria, a wider concept of money supply which includes currency in the hands of the public, plus demand, savings and time deposits with the commercial banks is commonly used. And I think the choice of this definition rests on the fact that most Nigerians tend to use their savings account as current account. As a result, savings account function as a means of payment. As a matter of fact, the banks have been known for their noticeable activity in the popularisation of savings deposits - a case clearly seen in the way banks are ramifying their network of activities. Furthermore, the choice confronting an individual asset holder in most cases is not between currency and demand deposits, or as much as between currency and savings or time deposits.[8] Savings deposits are themselves a means of payment while time deposits are easily converted into a means of payment, hence a conclusion by Laumas (1969) that:

> ``What is regarded as near-money in the traditional framework could be very near-money indeed in a different institutional milieu.''[9]

Alongside this argument, Ojo (1978) specified and tested the substitutability relation between money (narrowly defined) and savings deposits, money and time deposits, and money and time plus savings deposits for the period 1961 - 1977.[10] The result obtained are shown below:

$$\log M/SD = 1.79 + 44.73 \log \frac{1}{1 + is} \quad R^{-2} = 0.48$$
$$(13.9) \quad DW = 0.6922$$

$$\log M/TD = 1.26 + 2.4 \log \frac{1}{1 + it} \quad R^{-2} = 0.100$$
$$(5.0) \quad DW = 0.4682$$

$$\log M/ST = 2.5 + 60.7 \log \frac{1}{1 + ist} \quad R^{-2} = 0.024$$
$$(27.3) \quad DW = 0.6035$$

where,

M = Money supply narrowly defined (M_1)

SD = Savings deposits

TD = Time deposits

it, is = Rate of interest on time and savings deposits respectively.

ist = Average interest rate of saving and time deposits.

The result shows that the elasticities of substitutions for money-savings deposits, money-time deposits, and money-saving plus time deposits are 44.73,

2.4 and 60.7 respectively. This implies that there is a high degree of substitutability between money and saving deposits and between money and savings plus time deposits. Once again, the implication of this result provides that there is the need to properly comprehend or take cognisance of the various components of money stock necessary to allow policy actions to yield required result.

With regard to control, the central bank's capability of altering the composition of its portfolio depends on the willingness of the other two sectors - the banking and the non-bank public sectors, to absorb part or all of the released assets into their portfolios. For instance, commercial banks respond to their economic environment by allocating their portfolio of assets between extremely liquid and illiquid assets. The non-bank public, on the other hand, makes a decision on the allocation of its financial assets between currency holdings, deposits holdings at the commercial bank and treasury bill holding, based on the market opportunities which it faces. Therefore, the potency of the central bank's power to affect the money supply depends very much on the extent to, and the mechanism by which the banks as well as the non-bank public absorb changes in securities into their portfolios.

Closely in line with the above, Ajayi (1978) specified three different definitions of money (M_1 = currency and

demand deposits, M_2 = sum of M_1 and time deposits and M_3 = sum of M_2 and savings deposits), and tested their relative stability. The underlying hypothesis was that the relative stability of each of the definitions implies that the components entering or captured by the definition are controllable by the monetary authorities. A summary of his instability index, for the period 1960 - 1977, shows that M_1 = 24.4, M_2 = 29.6 and M_3 = 29.6. This means M_1 has the lowest instability index but significant instability of M_2 and M_3.[11] The results thus explained why policies anchored on M_1 definition have tended to be erroneous. In the words of Ajayi:

> ``While the index of instability derived in the paper shows that the M_1 concept is more stable than those of other monetary aggregates, this finding does not make M_1 a more acceptable definition of money than other aggregates. But rather that if the appropriate definition is not M_1, attempts to control the relevant aggregate involves taking appropriate cognisance of this variability and taking a more appropriate and efficient measures at attempting to forecast the variables that are involved in the different component.''[12]

With regard to the activities of non-bank financial institutions and given the circumstances of our economic and social under-development, other monetary policy, in addition to instruments in use, such as setting up of

credit ceiling for banks and sectoral distribution of such credits - which are restrictions on bank aggregate loans and advances, have mostly been applied to banks with less attention given to the non-bank financial institutions.[13] The issue here then becomes a question of how does the non-application of these instruments on non-bank financial institutions impair the effectiveness of the instruments in achieving the control objective?

Near moneys or quasi-monies - such as share account, cash value of life insurance policy in addition to savings and time deposits, which form part of the security structure of the non-bank financial institutions are assets that closely approach the liquidity of money. Their monetary effect is that financial claims in the form of near-monies affect the monetary process just as money itself does.[14] New issues can be made an accepted as promissory notes. They can affect the velocity or rate of turn-over at which money is spent. This velocity effect, in turn, can change aggregate economic performance by their impact on prices in addition tc other macro aggregates. Therefore, by controlling banks and leaving non-banks financial intermediaries with their near monies will not facilitate the achievement of the policy objective (Akatu, 1987).

In addition, it has been argued that tight monetary policy could be frustrated by borrowers increasing their

expenditure by borrowing from non-bank financial institutions and in an attempt to compete with commercial banks, non-bank financial institutions do make their deposit terms more attractive so as to attract funds which they can lend out at no restriction, thereby increasing their liabilities and assets (Ojo, 1987). The implication of this is that controlling the activities of commercial banks alone, in an attempt to achieve projected objectives, would be sabotaged by the unchecked operations of the non-bank financial institutions (Tobin and Brainnard, 1963).

To further expound on the control argument, we can adopt Park's control analysis in his paper, ``The Role of Money in Stabilisation Policies'' (1973), using Ajayi's definitional specifications[16] with the following relation:

$$M = mA \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 36$$

where,

M = The stock of money (M_1 or M_2)

m = The money multiplier

A = The monetary base.

It will be crucial to say here that our definition of the monetary base will be different from the one conventionally used in developed countries where it consist of currency in the hands of the non-bank public and the reserves of the banking system. To us, assets which serves as primary reserves must count in our definition of the monetary base. In Nigeria, since treasury bills held by

banks are counted as reserves, the base may be defined as consisting of currency in the hands of the non-bank public, total bank reserves (vault cash and balances with the Central Bank of Nigeria) and treasury bills in the hands of the banking sector and the public.

The behavioural relation in equation (36) points that money stock (M_1 of M_2) at any given period is a function of the monetary base defined by the money multiplier. This relation can be derived by using the following definitional equations:

$$M_1 = D_1 + C \quad \ldots\ldots(37)$$

$$M_2 = M_1 + D_2 \text{ or } D_2 + D_1 + C \quad \ldots\ldots(38)$$

$$A = R + C \quad \ldots\ldots(39)$$

$$R = k\,(D_1 + D_2) \quad \ldots\ldots(40)$$

$$C = \lambda D_1 \quad \ldots\ldots(41)$$

$$D_2 = \sigma D_1 \quad \ldots\ldots(42)$$

where,

R = Total Reserves of the banking system

C = Currency held by the non-bank public

D_1 = Demand Deposits

D_2 = Time Deposits

λ = c/D_1 = Currency - Demand deposits ratio or the marginal currency ratio. This ratio is not constant in view of changes in opportunity cost reflecting from changes in interest rates paid on demand and Time deposit and or savings

deposits. It also depends on income and relative income effects.

k = R/D ≈ Deposit multiplier with D = D_1 + D_2

σ = D_2/D_1 = Time-Demand Deposit ratio.

When we substitute equations (41) and (40) into (39), we can obtain our high powered money as

$$A = k(D_1 + D_2) + \lambda D_1 \quad \ldots\ldots(43)$$

And substituting equation (42) into (43) would give

$$A = k(D_1 + \sigma D_1) + \lambda D_1 \quad \ldots\ldots(44)$$

Equation (44) when factored may be rewritten as

$$A = [k(1 + \sigma) + \quad]D_1 \quad \ldots\ldots(45)$$

which is the same as

$$D_1 = \frac{1}{k(1 + \sigma) + \lambda} A \quad \ldots\ldots(46)$$

Equation (46) specifies demand deposits relation with the monetary base, and using equation (46), we can define both currency and time deposits in terms of the monetary base by substituting that into equations (41) and (42) respectively. That is,

$$C = \frac{\lambda}{k(1 + \sigma) + \lambda} A \quad \ldots\ldots(47)$$

And

$$D_2 = \frac{\sigma}{K(1 + \sigma) + \lambda} A \quad \ldots\ldots(48)$$

If we substitute equations (46) and (47) into equation (37), we would have our narrow money supply function as

$$M_1 = \frac{1 + \lambda}{K(1 + \sigma) + \lambda} A \quad \ldots\ldots(49)$$

In similar vein, by substituting equations (48) and (49) into equation (38) gives our broad money supply function as

$$M_2 = \frac{1 + \lambda + \delta}{K(1 + \delta) + \lambda} A \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (50)$$

Given equation (49) and (50), what is of concern to us is;

(i) Which of the variables entering these functions, in terms of the parameters that defines the money multiplier, can be controlled by the monetary authorities, and

(ii) Whether the functions explaining these relations are stable and predictable.

The ``λ'' ratio (i.e. the currency - demand deposit ratio) as earlier observed, is determined by the public's preference for currency versus demand deposits which in turn depends on the interest rates, income, the degree of monetisation, the growth of the banking system and income distribution.[17] The ``$\delta$'' ratio depends, among other things, on the interest rates paid on time deposits, while the ``K'' ratio depends very much on the reserve requirement for demand deposits with commercial banks. A clear indication of these, therefore, is that it will be theoretically unfounded to assume that the central bank can easily change the money supply through variation in the monetary base because the ratios describing the multiplier are in themselves not constant.

Added to this, with these determinants of the respective ratios and bearing in mind that the sources of

the monetary base in Nigeria are central bank credits to the government (CBCG), central bank credits to the commercial banks (CBCCB), and central bank holdings of foreign assets (NFACB) - the sum of which is used up as reserves by the banks (R) and currency outside the banks (C), central bank credits to the government are dominated by the budgetary operations of the government on which the monetary authorities have little influence (Ogwuma, 1993).[18] The second source of the monetary base, being credit to the commercial banks, has been the major area in which monetary control has been exercised. Changes in reserve requirements, the use of stabilisation securities and recently to some extent the use of open market operations have been effectively employed. The central bank's net foreign assets holdings is primarily determined by the variation in imports, exports, and capital movements. In an open economy like that of Nigeria, the monetary authorities appeared to have little control over this source. Given these, therefore, we cannot view the monetary base as being controllable by the central bank. As a result of the peculiar definition and composition of the base, the major effect of the central bank actions is on the composition of the base rather than its total volume. For instance, influencing the base will only amount to touching on the controllable component which is credit to commercial banks.

With regard to the stability and predictability of the functions, these appear less ascertained. For example, considering the inherent feature of the external sector of a country that rely heavily on the export of few raw agricultural products and, given her oil resources, depending on the export of crude oil, while totally relying on the imports of capital and even household items, such an economy is highly susceptible to externally generated swings in her balance of payments (B.O.P) and hence the net foreign assets. Similarly, for a nation that has some of her citizens owning an appreciable chunk of foreign assets outside the economy, the case of stability and predictability of these variables or functions becomes almost impossible. A clear case in Nigeria is when civilians are about to be ushered into power, a good proportion of these foreign assets are liquidated, thereby increasing the liquidity level of the economy. Thus, with the exception of ``k'' ratio (Central Bank credit to commercial banks), and possibly central bank credit to the government where there is financial discipline, the other variables are endogenously determined by income or output, wealth, interest rate and level of development of the financial systems - in terms of financial deepening in particular, among others. The case of private ownership of assets or resources is an issue worth considering. In a nutshell, where some of the components of the monetary base

falls outside the proper control orbit of the central bank, it is difficult to forecast the money multiplier and, hence, the effectiveness of monetary policy to control money supply. Alternatively, what is important is for the monetary authorities to have or properly understudy the portfolio mix of the non-bank public, the banks and the non-bank financial institutions.

3.3 THE IMPLICATION OF FISCAL OPERATIONS ON MONEY SUPPLY:

It would also be imperative to say here that the money supply process in developing countries has been highly propelled by the fiscal operations of the government. In Nigeria, for example, given the prevalence of the government or public sector in economic activities, the entire operations have always been designed within a planned framework - the budget. State budgets have come to be the major guide to the activities of not only the public sector, but the private sector as well. Within this kind of setting and bearing in mind the fact that the policy thrust has remained the need for a socio-economic and political advancement of the society, pursuance of this thrust has come to be the responsibility of the state. This therefore, provides a clear reason for the high rate of public expenditure. The fiscal operation has always

resulted in deficit - a case of excess of public expenditure over public revenue.

Government or public expenditure (G_t) is the total of capital and recurrent expenditure of the government in a particular fiscal year. Total expenditure can be said to be determined by output or income in the economy, external assistance in the form of aids and grants and borrowing from overseas. However, we shall posit here that all other variables outside income that determine expenditure are proportionally less significant compared to income. With this, government expenditure can linearly be specified as

$$\overline{\Pi} \log G_t = \alpha_0 + \alpha_1 Y_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (51)$$

In the same vein, total revenue to the government can be said to be a function of output or income generated or earned by all the economic units in the system. That is,

$$\overline{\Pi} \log R_t = B_0 + B_1 Y_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (52)$$

From equation (51) and (52), the deficit can, therefore, be explained by the difference between government expenditure and total revenue, meaning,

$$GD_t = \overline{\Pi} \log (G_t - R_t) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (53)$$

where,

$\overline{\Pi}$ = Deficit coefficient and $\overline{\Pi} > 0$

GD_t = Government Deficit in the current period.

However, actual expenditure (revenue) adjust to the difference between desired expenditure (revenue) and actual expenditure (revenue) in the previous period.

$$\overline{\Pi} \log G_t = \theta (G_t^{\Delta} - G_{t-1}) \quad \ldots\ldots\ldots\ldots\ldots\ldots (54)$$

$$\overline{\Pi} \log R_t = \lambda (R_t^{\Delta} - R_{t-1}) \quad \ldots\ldots\ldots\ldots\ldots\ldots (55)$$

where,

θ and λ are coefficients of adjustment, with

$0 < \theta < 1$

$0 < \lambda < 1$

With equations (54) and (55) and under a balanced budget, $\overline{\Pi} \log G_t = \overline{\Pi} \log R_t$. However, in developing countries, even when government expenditure equal total revenue, the coefficients of adjustment may be such that $\theta > \lambda$ [19] in view of their peculiar economic circumstances and programmes of action such as the political or transition programmes as well as economic restructuring programmes (as the case may be in Nigeria). In this case, we would expect an expansion in money supply especially where the deficit is financed by ways and means process as it were between 1986 and 1993.

3.4 MODEL SPECIFICATION:

Informed by the preceding framework of analysis, what we seek to do here is to investigate the long-run relationship between inflation rate and determinants of the general price level with adequate attention on the monetary factor(s).

To identify the determinants of the inflation rate, in line with the monetarists explanation, we start with the

equilibrium condition in the money market, where,

$$\frac{M^s}{P} = \frac{M^D}{P} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (56)$$

This means the supply of real money balances (M^s/P) equals the demand for these balances (M^D/P). The log of the money supply is simply assumed to be determined by the central bank and can be denoted here by M_t. Accordingly, the log of the price level ``P'' can be expressed as follows:

$$\log P_t = \log M_t - \log M^D/P_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (57)$$

When we take the first difference of equation (57), we have

$$\Delta \log P_t = \Delta \log M - \Delta \log M^D/P \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots (58)$$

Which means the rate of growth of prices (i.e. the rate of inflation), equals the rate of growth of the money supply less the rate of growth of the demand for real balances. What this implies is that the supply of money is not meant to be inflationary, but where the rate at which it is supplied exceeds the rate at which the system is prepared to absorb the real balances, prices increase to equate the value of goods and services with nominal incomes.

In addition and from the monetarists assertion which says inflation is a pure monetary phenomenon, the phrase ``monetary phenomenon'' refers not only to movements in the quantity of money ($\Delta \log M$), but also to factors that influence the public's willingness to hold money ($\Delta \log M^D/P$). Accordingly, determinants of the inflation rate can be expressed by rewriting the demand for real money balances as follows:

$$\Delta \log P_t = \Delta \log M - \Delta \log (Y, P^e, r) \quad \ldots\ldots (59)$$

where,

Y = Real income

P^e = Expected rate of inflation

r = Nominal interest rate.

The functional relation in equation (59) provides that the change in the demand for real money balances is some function of the rate of growth of real income ($\Delta \log Y$), the change in the public expectation of the inflation rate ($\Delta \log P^e$), and the change in the nominal interest rates ($\Delta \log r$). A rise in income is expected to increase the demand for money or people desire to hold part of their assets in money balances. This reduces transactions or liquidity thereby decreasing the price level. On the other hand, demand for money relates negatively to the increase in rates of inflation expectation and interest. The expected rate of inflation measures the yield foregone on real assets and the nominal rate of interest measures the yield foregone of financial assets. Both variables represent the opportunity cost of holding money balances. A rise in the opportunity cost stemming from these variables has a negative impact on the public's preference to hold money balances and in turn, a positive impact on the price level.

In less developed countries where the level of financial development is low (i.e. in terms of the

portfolio structure of the public), the interest rate as a cost of holding money balances has proved to be less effective in determining the demand for money.[20] In its stead, the expected rate of inflation has proved to be more significant (Park, 1973, p. 387). Thus, we can restate equation (59) to give us an inflation equation of the form:

$$\Delta \log P_t = \Delta \log (M, Y, P^e, E) \ldots\ldots\ldots\ldots\ldots (60)$$

Where E represents the error term while P_t, M, Y and P^e are as previously defined.

The relation depicted by equation (60) is not very different from some of the specifications reviewed above because the ``M'' variable has not been adequately defined. The ``M'' has both the narrow and broad definition M_1, M_2 and M_3. The broader definition M_3, which is the sum of M_2 and savings deposits, does not imply that assets like commercial bills and trade credits are irrelevant in defining liquidity, but when it comes to the most common liquid assets that defines money supply in Nigeria, M_1, M_2 and M_3 satisfies. By taking these components of money supply into account, equation (60) can be restated as:

$$\Delta \log P_t = \Delta \log (M_1, Y, P^e, D_2, D_3, E) \ldots\ldots (61)$$

where,

D_2 = Time deposits

D_3 = Savings deposits, and

Q_m = $D_2 + D_3$ = Quasi-Money.

The essential idea here is that notwithstanding the adoption of mostly M_1 and M_2 (which is in this case the sum of M_1 and Quasi-money), in the specification of models of inflation, monetary policies, expected to be informed by the empirical results of these studies, seems to have paid less, if any, attention to the significance of the quasi-money component in the determination of money supply and price level by implication.

To account for the implication of fiscal deficit on price level, equation (61) would have to be restated also to capture the deficit variable. Similarly, the relationship between the dependent variable and the explanatory variable is such that current behaviour of the dependent variable may not necessarily be a product of current changes in the explanatory variable, but or rather a response to previous behaviour of the independent variable. The lags will be distributed because the influence of the explanatory variable is distributed over a number of past values of the explanatory variable.[21] In monetary sphere, the effect of a monetary disturbance on other variables is not instantaneous particularly when taking into account the various points involved in the transmission channel.[22]

Furthermore, in view of our structural peculiarity and openness, in terms of international economic relations, a structural variable which somehow has monetary bearing and

which has to be taken into account in view of recent policy developments associated with it is the exchange rate. In terms of the openness of the economy, the international transmission of inflation is expected to be accounted for by changes in the index of import prices. It is widely believed in developing countries that another major source of inflation for them has been the behaviour of imported prices.[3] Since many developing countries are highly dependent on imported raw materials and intermediate goods, a rise in import prices increases the cost of the output produced in these countries which in turn propel increase in domestic price level.

From the foregoing, the general model of inflation structured in this study is in the form:

$$\Delta \log P_t = \Delta \log (M_{t-i}, Y_t, P^e, GD, QM, EXR, IMP, DC)$$
$$(+)\ (-)\ (+)\ (+)\ (+)\ (+)\ (+)\ (+)$$

where,

P_t = Inflation rate at current period

M_{t-i} = Money supply narrowly defined with i = time factor

Y_t = Real GDP

P^e = Expected rate of inflation

GD = Government deficit

QM = Quasi-Money

EXR = Exchange rate

IMP = Import Price Index

DC = Domestic Credit to the economy.

In order to avoid or reduce the incidence of multicollinearity, given that from the general specification above there are certain variables in the model whose determinants happen to be explanatory variables also in the equation, we have to structure alternative equations from the general equation where these variables will be made to appear separately as substitutes. The following are the alternative equations to be estimated:

$$\log P_t = a_0 + a_1 \log M_t - a_2 \log Y_t + a_3 \log P^E + a_4 \log QM + a_5 \log EXR \quad \text{.....(i)}$$

$$\log P_t = b_0 + b_1 \log M_{t-1} - b_2 \log Y_t + b_3 \log P^E + a_4 \log QM + b_5 \log EXR + b_6 \log IMP \quad \text{.....(ii)}$$

$$\log P_t = c_0 + c_1 \log M_{t-1} - c_2 \log P^E + c_3 \log GD - c_4 \log Y_t + c_5 \log QM + c_6 \log IMP \quad \text{.....(iii)}$$

$$\log P_t = d_0 + d_1 \log DC + d_2 \log M_{t-1} + d_3 \log QM + d_4 \log P^E + d_5 \log EXR + d_6 \log IMP \quad \text{.....(iv)}$$

$$\log P_t = e_0 + e_1 \log M_t + e_2 \log M_{t-1} + e_3 \log P^E - e_4 \log Y_t + e_5 \log EXR + e_6 \log IMP \quad \text{.....(v)}$$

$$\log P_t = f_0 + f_1 \log M_t + f_2 \log P^E + f_3 \log QM + f_4 \log M_{t-1} + f_5 \log EXR \quad \text{.....(vi)}$$

$$\log P_t = g_0 + g_1 \log P^E - g_2 \log Y_t + g_3 \log GD_{t-1} + g_4 \log IMP\ EXR \quad \text{.....(vii)}$$

$$\log P_t = h_0 + h_1 \log M_t - h_2 \log DC_{t-1} - h_3 \log Y_t + h_4 \log QM + h_5 \log EXR \quad \text{.....(viii)}$$

A look at the specifications vis-a-vis the reviewed equations in chapter two reveals some departures. In the specifications arrived at in this work, Quasi-Money (a sum of time and savings deposits) enters as an independent variable from the usual money supply variable used in the reviewed equations. The aim is to be able to understand the significance of savings and time deposits as components of total money supply and the significance of their effect on inflation. In addition, the quasi-money is also used here as a surrogating variable for the foreign resources that are usually brought in (for political reasons for instance as earlier mentioned in the problem statement) by individuals, as they are normally lodged in the banks in form of time deposits of 90 days or (6) six months or in some cases one year maturity. It can also be recalled that until 1992, stipulations on reserve requirements were made in respect of demand deposits. Meaning resources emanating from time deposits were not considered to be of any serious significance in influencing some economic magnitudes.

Well, things have now changed as the requirement is now specified as a percentage of total deposits.

Again, except for the work by Ojemeruaye (1988) among the studies reviewed, no major or serious attention has been given to the exchange rate variable. In view of the developments in the foreign exchange market since 1988 and their implication on imports, production and distribution, this study deems the variable worthy of consideration.

The deficit variable, though included in some of the models reviewed is also included in our specifications, however, with emphasis on the financial indiscipline which is the characteristic source of the deficit and arrived at through excess credit to the government.

Given the foregoings therefore, the parameters to be estimated will give us values of elasticities of the dependent variable with respect to each explanatory variable. The data used for the regression runs as shown in table 2. They are percentage changes in the annual figures for each variable obtained for the period 1970 to 1993. The rate of growth of the real GDP was obtained by deflating the rate of growth of the nominal GDP by the rate of Inflation. The import price index was obtained by dividing the rate of growth of the value of imports by the rate of growth of the volume of imports. As for the exchange rate and government deficit, the data used are actual values. Finally, while increases in money supply,

inflation expectation, government deficit, exchange rate of the Naira, index of import prices and domestic credit to the economy are expected to intensify the inflationary pressure, increase in real output would reduce the rate of inflation.

FOOTNOTES

1. Otiti A. O. G. ``The Concept of Money and Monetary Policy'', Central Bank of Nigeria Bulletin Vol. 7, No. 2 (April - June, 1982) 13 - 21.

2. Deena P. K. (et al). ``A Money Multiplier Model for a Developing Economy - The Venezuelan Case.'' I.M.F. (Staff Papers), Vol. 21, No. 3 (November, 1974), pp. 740 - 754.

3. See Deena P. K. (et al) Ibid and Porter M. G. ``Capital Flows as an offset to Monetary Policy - The German Experience.'' I. M. F (Staff Papers) Vol. 19 (July, 1972), pp. 395 - 424.

4. Cramp A. B. ``Two Views on Money.'' The Lloyd Bank Review No. 65 (1962), pp. 1 - 15.

5. Gunley J. and Shaw E. Financial Intermediaries and the Saving - Investment Process.'' In John L. (ed). Macroeconomic Readings. The Tree Press, New York (1968) and Cramp A. B. Ibid, page 3.

6. See Cramp A. B. Ibid, page 3.

7. Ajayi S. I. ``Money in a Developing Economy - A Portfolio Approach to Money Supply Determination in Nigeria.'' Ibadan University Press, Ibadan Nigeria, page 47 (1978).

8. Ajayi S. I. Ibid, page 51.

9. Laumas P. ``The Role of Savings Deposits and Money.'' Journal o Money, Credit and Banking No. 1 (1969) p. 795.

10. Ojo O. ``On the Empirical Definition of Money Stock.'' Nigerian Journal of Economic and Social Studies Vol. 20 No. 2 (July, 1978) pp. 195 - 206.

11. Ajayi S. I. Money, Prices and Interest - The Nigerian Paradigm.'' Nigeria Journal of Economic and Social Studies Vol. 20 No. 2 (1978), p. 175 - 194.

12. Ajayi S. I. Ibid, page 187.

13. Okah G. O. ``Lessons from Nigeria's Recent Monetary and Fiscal Policy Experience.'' C.B.N. Economic and Financial Review Vol. 24 No. 2 (June, 1986) pp. 18 - 25.

14. Smith W. L. ``Financial Intermediaries and Monetary Control.'' Quantity Journal of Economic Vol. 73 (1959), pp. 533 - 553.

15. Development in the financial system during the S.A.P. period 1986 - 1993 proved this view. See also Tobin J. and Bramnaid W. C. ``Financial Intermediaries and the Effectiveness of Monetary Control. American Economic Review Vol. 53 No. 2 (May, 1963) pp. 383 - 400 and Ojo A. T. ``Evaluation of Financial Intermediaries and Instruments in the Nigeria Financial System'' C.B.N. Bulletin Vol. 11 No. 3 (July - September, 1987) pp. 1 - 7.

16. See Ajayi S. I. Ibid (Note 11) pp. 185.

17. Park Y. C. ``The Role of Money in Stabilisation Policy in Developing Countries.'' I.M.F. (Staff papers) Vol. 20 (1973) page 398.

18. Ogwuma P. A. ``State of the Economy - The Central Bank Perspective.'' C.B.N. Bullion Vol. 17 No. 4 page 2 - 6.

19 The experience Nigeria had during the administration of Alhaji Shehu Shagari and General Babangida are good examples of discretionary exercise of budgetary power by government. See also Daniyan S. ``A Review of the State of the Economy and the Way Forward.'' A paper submitted to the National Economic Committee (December 10,, 1993) and Ogwuma P. A. op. cit. page 2 - 6.

20. Aghevli B. B. and Khan S. M. ``Government Deficit and the Inflationary Process in Developing Countries.'' I.M.F. (Staff papers) Vol. 25 (1978) p. 392.

21. Tijjani J. M. ``An Econometric Analysis of the Demand for Money in Nigeria, 1970 - 1989.'' An unpublished M.Sc Thesis, Department of Economics, A.B.U., Zaria (1991).

22. Koutsoyiannis A. ``Theory of Econometrics.'' Second Edition, English Library Book Society and MacMillan, London (1977), page 294.

23. Monetary action operates through the public balance sheet (i.e. the public's cash-assets structure), and it is plausible that balance sheet adjustment are shiggish in the sense that individuals spread adjustment over a considerable period of time. See Friedman. M. ``The Supply of Money and changes in prices and output'' op. cit page 175 and Friedman M. ``The Lagin effect of Monetary policy'' In Friedman M. (ed) The Optimum Quantity of Money and other Essays. MacMillan, New York, 1969, pp. 237 - 260.

CHAPTER 4

MONETARY POLICY IN NIGERIA - A TREND ANALYSIS

4.1 INTRODUCTION:

The aggressive use of monetary policy as an instrument of economic management in Nigeria in recent years has raised a number of issues associated with the effectiveness of monetary policy in a recessed economy. Its importance has been underscored by the recognition that the need for economic adjustment is necessitated in part by the outcome of poor monetary policy management over the last post-civil war years.

Monetary policy has a central role in macroeconomic management primarily because of the close relationship between the monetary aggregates and economic activity. This is true irrespective of whether one is considering the monetarists or the Keynesian framework. The monetary framework of an economy is definitely a scientific device but its application usually appear to be more of an art. This is because other factors, other than the logic of the theoretical framework, usually come into play.[1] The key determinant of the type of monetary management employed is

the economic environment such that even when it may be desirable to introduce some monetary instruments, the environment for their effective use may not be suitable.

The Nigerian monetary system is operated by the monetary authorities and the banks (i.e. the commercial and the merchant banks). The monetary authorities design and implement monetary policy and consist of the presidency, the Central Bank of Nigeria and the Federal Ministry of Finance. Of these, the CBN is the agency which is primarily responsible for designing of monetary policy proposals for presidential approval and ensuring the implementation of the monetary policy measures accepted by the Federal Government.

Since 1970 to date, the policy design has been fluctuating between monetary ease and squeeze in line with perceived economic condition and demands. However, although monetary circulars have always been issued by the Central Bank containing monetary policy prescriptions, not until recently has much attention been accorded monetary policy - in terms of alternative regulatory instruments. This is because the behaviour of most economic variables have had, either directly or indirectly, an inducing effect of the monetary action taken.

4.2 MONETARY POLICY OBJECTIVES AND TOOLS:

The objectives of monetary policy have over the years remain broadly the same irrespective of the package of instruments in use. These objectives includes among others:

-- The maintenance of reasonable price stability;
-- The promotion of an accelerated rate of economic growth;
-- The maintenance of a balance of payment equilibrium.

The effectiveness of the monetary policy in achieving one or more of the above stated objectives hinges, to a large extent, on the modes of operation of the monetary instruments.

Generally, tools available for monetary policy administration includes: Open Market Operations (OMO), the rediscount rate mechanism, variable liquidity ratio; variable cash ratio; special deposits; stabilisation securities; selective credit control and moral suasion.

Open Market Operation: This is done by the Central Bank with the aim of regulating the availability of credit and consequently influence commercial banks credit. OMO involves the discretionary sale or purchase of government securities in the money market by the Central Bank. The sales are carried out to reduce the liquidity or cash

holdings of banks and the public, while the purchases are meant to increase the liquidity or cash holdings of both the banks and the non-bank public. It is undertaken to effect all or any of the following: stability of the general price level, rate of interest and to strengthen the effect of changes in discount rate. Thus, OMO works where there is the existence of a well developed financial system and in an integrated and interest sensitive financial markets, and where government securities held by banks, private corporations and individuals are large.[1] The Central Bank of Nigeria formally commenced open market operations on 30th June, 1993 with a modest offer of securities worth N250 million.

The Rediscounting Rate Mechanism: By this mechanism, the Central Bank, being a lender of last resort, stand ready to honour demand for financial accommodation from the commercial banks on the former's term. However, in rendering such services, the Central Bank takes into account the general economic condition. A situation that demand a rise in the rate of rediscounting of commercial bills (i.e. a rise in the bank rate), will call for an increase in the cost of capital. If banks remain ``loaned to hilt'', market rate of interest is automatically revised upward and consumption and investment borrowing falls. Where commercial banks have excess liquidity, the size of

the bill market is narrow and/or investment is interest insensitive, conditions like this renders the bank rate ineffective.[3]

The Reserve Requirements: This include variable liquidity ratio and cash ratio. The use of these tools have gained much attention partly because, in Nigeria, banks enjoy excess liquidity which renders both the OMO and rediscounting rate instruments ineffective, and partly because of the easeness associated with the use of these tools. Unlike the OMO, the change in any of these instruments is an important instrument of counter cyclical monetary policy.

By the device of the variable liquidity ratio, the Central Bank is empowered to raise or lower, as required, the specified minimum amount of liquid assets expressed as a ratio of total deposit liabilities, which the commercial banks are to maintain. The Central Bank is also empowered to ``vary both the composition of any specified liquid assets and the proportion of the different categories of assets that may from time to time be held by a bank.''[4] The initial design of the liquid assets requirement was to ensure that the banks' ability to meet the demand from their customers remain unimpaired and, therefore, strengthen confidence in the banking system.

By the device of the variable cash ratio, the central bank is empowered to order commercial banks to maintain a given ratio of cash reserves to specified classes of deposit liabilities. The use of this is to limit credit expansion as well as to ensure that banks are always in a position to meet their customers' demand for cash. The cash ratio is designed as a discriminatory control tool for which purpose the commercial banks are classified into groups with the higher ratio going to the largest banks and the smaller banks with the smallest ratio.

Special Deposits and Stabilisation Securities: These are supplementary reserve requirements. The central bank's power also call for special deposits by banks depending on the economic situation. The rationale for such calls is similar to that of reserve ratio. In the same vein, the central bank do sometimes issue special securities, compelling commercial and merchant banks to buy. These are called stabilisation securities whose issue is also informed by the prevailing economic circumstances and the aim is to keep in grip of the monetary authorities the behaviour of the monetary variables.

Direct Control: This includes credit ceiling and selective control. They are principal means of directly influencing banks credit operation in an economy. A variant to these

instruments is the power to prescribe minimum ratios of loans and advances which the commercial and merchant banks should grant to indigenous persons. Similarly, the central bank is empowered to fix ceilings on the volume as well as the rate of increase in bank credit which banks must maintain from time to time. Closely associated with this is the power of selective control of credit which the central bank can exercise by prescribing a sectoral distribution of credit which the banks should adhere to within a specified period of time. Over the years, these instruments have been found to be of greater relevance in the pursuit of goals of monetary policy in Nigeria.

Moral Suasion: This tool involves the use of persuasion to influence the lending operation of the banks in a direction desired by the monetary authorities. It is an age long instrument. The Governor of the Central Bank merely uses his position to appeal to the banks to exercise restraints on credit expansion especially under an inflationary situation. Although there is the perception that the use of moral suasion is only a transcient device to influence business decision except when more fundamental policy actions are taken, one might tend to agree that despite the absence of legal compulsion, banks tend to comply for fear that the central bank may exercise its statutory power to force them to behave accordingly.

Informed by the preceding elaboration of monetary policy tools, it is observable that these instruments can be categorised into direct and indirect. The direct instruments of monetary control are the special deposits, stabilisation securities, credit ceiling and selective credit control. The indirect instruments, on the other hand, are open market operations and variable rediscounting rate mechanism. The emphasis on direct instruments can glaringly be seen in the review of the monetary policy trend that follows.

4.3 TREND ANALYSIS:

PHASE I

In the wake of the civil war, policy makers were confronted with a paradoxical situation: the success of mobilising resources to finance war led to the problems of mounting inflationary pressures, a deteriorating balance of payment position, a rapid rate of deficit financing etc. With these, the policy needed to be directed towards, among other things, reducing inflationary pressures, restoring normal economic conditions, relieving the pressure on the external payment position, increasing government revenue and reducing government's reliance on the banking system.[5]

In tackling these problems, the government relied on fiscal policy with monetary policy playing a supplementary role. With regard to the credit policy, though the central

bank had very wide powers to control expanded liquid assets of commercial banks, the central bank relied almost entirely on prescribing credit guidelines for commercial banks. Under the guidelines, the aggregate credit outstanding at the end of 1970 was not to exceed 20%. Increases in credit to the industrial sector, general commerce and services were limited to 45,10 and 50 percent respectively. No increase was allowed for credit to other categories of borrowers, whose expenditures were believed to finance non-productive activities. Furthermore, on 30 April, 1970, the central bank directed each commercial bank to grant, on the average, a minimum of 35 percent of its loan, advances and discounts to indigenous borrowers.

By the end of the year, while government succeeded in raising its revenue, the overall deficit increased from N73.1 million in 1969 to N232.8 million in 1970. The financing of government deficit through the banking system caused a substantial rise in money supply. The monthly average level of money supply in 1970 was 48.4 percent more than in 1969.[5] The liquidity ratio averaged 96.2 percent in 1970 compared with 92.6 percent in 1969. The excess liquidity in the economy was one of the major factors in the rising level of domestic prices. On the average prices in 1970 rose 13.8 percent compared with 1969 (see Table I).

On credit guidelines, commercial banks complied with the central bank directives such that loans and advances

increased by 19 percent, one percent less than that permitted in the guidelines (See C.B.N - Annual Report and Statement of Account, 1970 page 42 Table 22). In case of certain subsectors, credit increases were less than the rates allowed under the guidelines.

The 1970 monetary policy objectives were carried over into 1971. At the end of 1971, money supply fell by about 3.4 percent and the factor that slowed down the rate of money supply was the drastic fall in bank credit to the government. The composite consumer price index which had increased by more than 4 percent in 1970 rose in 1971 to 16.1 percent.

The objectives of 1972 monetary policy remained unaltered from those of the preceding year. They were to contain inflationary pressure and to ensure that the bulk of the banks funds went to the productive sectors of the economy.[7] While the central bank in the preceding years relied on the prescription of ceilings on aggregate credit expansion by the commercial banks, and on giving directives regarding the sectoral allocation of credit, this method of credit control was modified in 1972. Ceilings on aggregate credit were not prescribed for 1972/73. However, guidelines were specified for the distribution of commercial banks credit to the various sectors in the economy.[8] By the end of 1972, the rate of credit expansion was not judged to be such as necessitates

a change in the stance of monetary policy. The policy objective was more successful in the area of price reduction. The inflation rate falls from the figure of 16.1 percent in 1971 to 3.1 percent in 1972 (See Table II). In that same year, the government revenue and expenditure balance stood a surplus of N97 million.[9] That is, government fiscal operation ceased to be a major source of monetary instability.

The major development in the Nigerian economy in 1973 and 1974 were a massive balance of payment surplus, however, accompanied by a rapid growth in domestic liquidity and a strengthening of inflationary pressures. In its monetary circular for 1973/74 fiscal year, the central bank stipulates a sectoral distribution of credit which the commercial banks were to follow. Although actual sectoral allocation remain the same in 1973, the 1974 guidelines grouped production and services as the more productive sectors. Minimum allocation of 45 percent and 11 percent were allowed for production and services and maximum allocations of 32 percent and 12 percent for general commerce and ``others'' respectively. Thus, the central bank's anti-inflationary measure, sought to encourage commercial banks to direct a greater and increasing proportion of their loans and advances to the more productive sector.

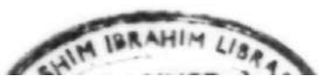
At the end of 1974, inflation turn out to be the most serious problem that confronted the government. Reasons fetched for that were both internal and external. In the words of the then Federal Commissioner of Finance on the 1974/75 budget statement:

> ``During the (past) year, stability of internal prices has been seriously disturbed through imported inflation and the international monetary crisis.''[10]

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Inadequate domestic production and the inability to augment supplies sufficiently and at a reasonably low cost through importation, due to bottlenecks such as port congestion, were responsible for the rising cost of living. The short fall in domestic production, despite the high rate of growth of the GDP was explained by the fact that the bulk of the increase in DGP was attributable to production for exports. The increasing trend of liquidity in the system by 42.5 percent further exercebated the situation (See Table I).

It is worth mentioning that the 1970 - 74 monetary policies were all formulated and implemented within the framework of the Second National Development Plan. Though deviations and shortfall were experienced during the period, as contained in the preceding elaboration, certain basic achievements were recorded. These includes, the sharp cut in government deficits, reduction in bank credit



to the government, increase in credit access to commercial banks through the taking over of 40 percent share of foreign own commercial banks, among others.

PHASE II

The monetary policy objectives and strategies that followed between 1975 and 1980 were designed and implemented within the framework and the broader objective of the Third National Development Plan spanning the period 1975 - 80. In the monetary policy of the 1975 fiscal year, the central bank was asked to ``revert to a system of imposing ceilings on total and sectoral increases in commercial banks credit to the private sector and introduce cash reserve requirements into the banking system in addition to the prescribed liquidity ratio.''[11] In addition, the central bank was expected to exercise its power in issuing stabilisation securities as well as introducing a flexible interest rate structure so that loans for non-directly productive purposes will attract higher interest. The underlying objective of these was to control liquidity, prices and expand production. However, in what follows by the end of 1975, there was the unprecedented port congestion, the usually high rate of inflation (33.9 percent) engendered by the rapid expansion in domestic liquidity (73.5 percent), supply deficiencies and rising import prices. The growth in the domestic

liquidity was reinforced by the continued monetisation by the government of its earnings from petroleum and the payment of the public service review commission awards (i.e. the Udoji Awards). Credit by the banking system to the private sector increased by 65.4 percent. The liquidity and cash ratio rose from 65.4 percent and 29.2 percent in 1975 respectively. The banks maintained high cash levels owing to an increase in bank deposits and lack of short-term money market instruments. The end result shows that the policy objectives of combating inflation and ensuring price stability, reducing liquidity in the system and banking credit to the government as well as ensuring equilibrium in the budgetary operation were defeated. Government deficit stood at N427 million by the end of 1975.

The monetary policy objective for the period 1976 to 1979 remain the same as compared to the preceding years. While emphasis continued to be paid on the use of credit ceiling and selective credit control, the developments in the financial system permits the issuing of more financial securities such as treasury bills, treasury certificates and development loan stock, with commercial banks and savings-type institutions subscribing about 90 percent of the securities issued.[12] The liquidity and inflation control strategy adopted within the period was met with excessive expansion in money supply and aggregate demand.

Indeed during the oil boom, the keynesian public expenditure-led-growth was pursued by the military government. Similarly credit to the government expanded and since domestic supply could not expand sufficiently to service the increase in aggregate demand, the total import bills accelerated. Government deficit which stood at N797 million in 1974 rose to as high as N2535 million by 1978. State governments' deficits also rose from N742 million in 1974/75 to N1768 million[13] in 1978.

The 1980 policies were aimed at further stimulating domestic output and employment and stabilising the price level through increase in supply of goods and services. Although the aggregate ceiling on the rate of expansion of commercial and merchant banks credit remain unchanged as compared to the preceding year, the greatest share of the permissible volume of bank credit was earmarked for the productive sector of the economy.

In the period, commercial and merchant banks were required to maintain a credit expansion ceiling of 30 percent. In addition, certain categories of loans were excluded from credit ceiling namely - loan granted for the purchase of shares by Nigerians under the indigenisation programme, loans for buying motor cars by eligible workers both in the public and the private sectors, and loans for agriculture and residential building construction.[14] With regard to the liquidity squeeze, advance deposits for

imports was unfrozen and such deposits were no longer made compulsory. The minimum cash reserve ratio for the four (4) categories of commercial banks (based on their deposit liabilities) were reduced from 6.25 percent to 5.0 percent for big banks and 2.5 percent to 2.0 percent for small banks. The interest rate policy saw to the adjustment of both the lending and the deposit rate in a way necessary to mobilise savings. Similarly, the Minimum Rediscount Rate (MRR) was reduced from the 1979 figure to 6 percent in 1980.

While the strategies were geared towards the achievement of policy objectives, by the end of the fiscal year, the results tended to be at variants with the projections. The relaxation of the liquidity restrictions was abused by banks over-blowing credit allocation in areas with no ceiling. The monetary policy of 1980 sow the seed of monetary expansion of about 50.1 percent. Though extensive importation of goods was undertaken to supplement domestic production in order to dampen domestic prices, the mounting demand propelled by liquidity induced aggregate demand pressure worked their way into the 1981 year.

PHASE III

The period covering this phase was historic to the nation. In the domestic front were the emergent factor of democracy in economic decision making, the problem of

excessive deficits, high rate of inflation and low level of domestic production. Externally, the period coincided with the World Oil glut which severe earnings of the country and the mounting import bills. Based on these developments, the 1982 monetary policy was targeted at mobilising increased domestic capital formation.

In order to address the observed economic ailments and for the purpose of credit allocation, the production/economic units were structured into preferred and less preferred sectors. Aggregate credit expansion range of 30 to 40 percent, which has been in application since 1978/79 was retained in 1982.[15] As prescribed in the monetary policy circular number 16, loans and advances allocated to preferred sector was raised from 56 percent to 59 percent. Allocation to export sector was reduced while indigenous borrowing was encouraged as the percentage of total loans and advances was raised from a minimum of 70 percent to 80 percent.

On liquidity regulation, the 1981 directive for regulating the bank liquidity in terms of both cash and liquid asset holdings was maintained up to 1982. The external sector which was far experiencing difficulties was to be saved by a package of prohibitions and restrictions on importation of goods or items classified as non-essential.

The recession which inflicted the economy from 1981 continued through 1983. There was a fall in industrial output of 25.1 percent as against an increase of 6.2 percent in 1982. Money supply expanded by 12.3 percent in 1983 compared with 3.1 percent in 1982. The problem of inflation worsen as the rate of price inflation rose from 7.7 percent in 1982 to 23.2 percent in 1983.[16]

The beginning of the 1984 financial year was marked with new government whose aim includes arresting the extravaganza and squandermania culture which characterised the civilian administration. Against this background, the monetary policy objectives in 1984 were set to clear the back log of accumulated trade debts and achieve a substantial improvement in the balance of payment position, stimulate domestic production, reduce the rate of price inflation in the economy and mobilise increased domestic resources as well as external financial resources.[17] In order to achieve the objectives, the following measures were taken:

-- In a bid to curb excessive monetary expansion, the authorities decided to reduce the percentage of loans and advances by 50 percent i.e. from 25 percent in 1983 to 12.5 percent in 1984.

-- The scheme of giving loan to indigenous borrowers was given impetus as the percentage allowed was raised from 80 percent in 1983 to 90 percent in 1984.

-- The provision of reserve requirement of 1983 was retained in 1984 where 25 percent minimum liquid assets ratio and a range of 2 - 5 percent for cash ratio were prescribed.

- Interest rates were raised by 1.5 to 2 percent points in order to increase mobilisation of savings and promote efficient allocation of loanable funds.[18]

In the external sector, stringent measures were introduced some of which includes the reactivation of the foreign exchange anti-sabotage Decree of 1977. These objectives and measures of 1984 almost reign up to 1985 except some few alterations that were made. These includes the reduction in aggregate credit disbursement by commercial and merchant banks from 12.5 percent in 1984 to 7.0 percent in 1985. Interest rates were also mildly adjusted to favour the preferred sector of the economy. The 1984 reserve requirements were retained in 1985 and debts repayments were vigorously pursued.

PHASE IV

This phase can be said to be unique in view of the significant development in economic-wide policy framework adopted during the period. Towards the last quarter of 1985, there was the change in government and so policy issues started changing. By October 1st, the then

administration declared a state of National Economic Emergency for 15 months. The aim of this economic emergency as stated in the decree enabling it was the ``revamping and stimulating the economy during the period of 15 months.'' Thus, the monetary policy and credit measures taken in 1986 were designed to achieve, among others, an accelerated growth rate of national output, reduction in the high rate of unemployment and moderation of inflationary pressures in the economy as provided in the decree. Measures adopted includes reversing, increasing and in some cases maintaining the policy measures of the preceding administration. For example:

-- As against the reduction in 1985 from 1984 Figure, aggregate credit disbursement by commercial and merchant banks was raised from 7.0 percent to 10.0 percent;

-- Loan facilities to the agricultural sector was increased;

-- The interest rate structure and reserve requirements of 1985 were maintained for the 1986 fiscal year.[19]

In addition to the above measures, the monetary policy circular number 20 of 1986 was amended twice. The first amendment effective September 20, 1986 changed the existing ceiling of 10 percent imposed on the rate of credit expansion to 8 percent. Interest paid on time deposits was fixed at the floor of 8.5 percent. Subject to this flow,

banks were given the freedom to negotiate with customers on acceptable rate depending on the size, maturity and forces of demand and supply of funds. It was this arrangement that provided the background to interest rate deregulation under the Structural Adjustment Programme (SAP).

The second amendment was in respect of complaints made by banks to the central bank that 10 percent ceiling was too restrictive. In fact they claimed that the 8 percent ceiling would starve the key sectors of the economy. Therefore, in order to avoid these problems, banks were enjoined to accept deserving applications for loans in respect to agricultural production, production for exports and export financing.[20] Worth noting here is that by the middle of 1986, the Economic Emergency Programme developed into a full-blown Structural Adjustment Programme.

In the years 1987 and 1988, monetary policies were similar in nature and complexion. They were prescriptive and restrictive because the economy was still not responding as earlier envisaged.

The 1987 measures were designed within the context of the Structural Adjustment Programme and meant to curb excessive demand pressures and stabilise the economy.[21] Some of the measures included the raising of interest rate and finally its total deregulation, and the operation of the Second-tier Foreign Exchange Market (SFEM) which was designed as an institutional framework for the

determination of an exchange rate that is realistic for the Naira. In what follows, what was envisaged remain a mirrage because Naira went on depreciating as a result of inadequate funding/supply to the market, and the attendant consequence of that was the continuous rise in the rate of inflation to a figure of 10.2 percent.

Subsequent monetary policy objectives of 1988 and 1989, not in any form different from those of the previous years, were addressed towards curbing these problems. As contained in the central bank annual reports, the objectives were to be attained through the following measures:

-- Raising of the ceiling on commercial and merchant banks' credit to the private sector from 7.4 percent to 12.5 percent;

-- Credit extension to the rural borrowers and small-scale wholly Nigerian owned enterprises was encouraged;

-- Interest rate deregulation introduced in 1987 continued in 1988 and the central bank Minimum Rediscount Rate (MRR) was reduced from 15 percent to 12.7 percent;

-- A range of 2 - 5 percent cash ratio were to be maintained and liquidity ratio for commercial banks was reduced from 30 percent to 27.5 percent;

-- Banks were allowed to take equity participation in companies but the overall ownership for each bank should not exceed 33.2 percent of its paid-up capital plus reserve.

However, signals from key macro-economic indicators by the end of the first-half of 1988 showed that the economy was getting over-heated and measures had to be taken to reduce aggregate demand. This calls for the amendments of some policies as contained in the monetary policy circular number 22 of 1988. The circular contains the amendment of the prescribed merchant banks' credit ceiling as a percentage of their total eligible assets at 47 percent to henceforth be on the same basis as for the commercial banks. Specifically, for the last two quarters of 1988, merchant and commercial banks total loans and advances were targeted to grow by not more than 7.1 percent over the level attained at the end of June, 1988.[22]

While it was generally agreed that these measures were platformed on very laudable objectives, the 1988 reflationary policy package saw an unsatisfactory result. Money supply rose sharply by 43.9 percent, the highest rate recorded in the seven years preceding 1988 (See Table I). This was an explosive deviation from the target rate of 15 percent set for the year. Similarly, domestic credit rose by 26.1 percent as against the policy target of 7.1 percent. Credit to the government rose by 30 percent as

against the policy target of 2.5 percent. Credit to the private sector increased by 21.6 percent compared with the prescribed growth of 12.5 percent for the sector.[23] In a nutshell, the implication of these was for the inflation to increase by 38.3 percent - a figure highly accounted for by the rate of increase in food prices (See Table II).

The adoption of tight monetary policy measures in 1989 which includes a reduction in credit expansion rate, the raising of cash reserve requirements and statutory liquidity ratio as well as the prohibition of banks and non-banks financial institutions from granting Naira-denominated loan/credit against the securities of foreign guarantees, foreign currency deposits or any other assets held abroad, were all aimed at reversing the 1988 trend.[24] Government also directed all Federal and state governments' deposits and those of their agencies to be transferred to the central bank. In the same year, a monetary instrument called ``stabilisation securities'' was introduced to mop up the excess liquidity.[25] Money supply was to grow by 14.6 percent compared to 1988 figure. The growth of aggregate bank credit, credit to the government and credit to the private sector exceeded their target of 9.5, 8.3 and 10.7 percent respectively. The rate of growth in money supply as at the end of the last quarter was 31.0 percent while the rate of inflation move up by a figure of 40.1 percent, again a figure largely accounted for by food price

inflation of 55.4 percent because of domestic output shortage.

The focus of the 1990 economic policies remained the moderation of inflation, stimulation of private sector output as well as reduction of pressures on the external sector.[26] To achieve these, monetary policy stance during the year 1990 remained moderately restrictive. Money supply (M_1) was targeted to grow at 13.0 percent, aggregate bank credit at 13.5 percent while credit to the government and the private sector at 10.9 and 15.8 percent respectively. In allocating bank credit, priority was expected to be given to agriculture and industry in keeping with the policy of inducing more growth in the non-oil sector.

Other policy measures includes

-- the retention of the minimum liquidity ratio requirement for commercial and merchant banks at 30.0 and 22.2 percent respectively; and reserve requirement prescribed for various categories of commercial banks (with respect to their total deposit liabilities) in 1989.[27]

-- the stipulation of a 5.0 percent cash ratio by merchant banks which hitherto had been excluded from the observance of cash reserve requirement.

-- the granting of approval to commercial banks to undertake equipment leasing up to 15.0 percent of

their total assets. This was limited only to merchant banks before 1990.

-- the requirement that commercial and merchant banks to report on the activities of their subsidiary firms offering financial services; and

-- the retention of the abolition of the use of foreign guarantee or currency deposits as collateral for Naira loan and the requirement that all segment of the interest rate structure be market-determined in 1990.

These policy measures are highly promising. However, the observance of some deviations in the response of some economic magnitudes from the stipulated targets called for an amendment as contained in the monetary circular number 24 of 1990. This amendment was in respect of banks excess reserves. By August, 1990, they re-introduced the issuance of non-transferable and non-negotiable stabilisation securities to those banks whose reserves were in excess of the stipulated reserve requirements.

By the end of the year, though there were some favourable response of the economy to these measures, the growth in money supply exceeded the target by about 31.9 percent. The underlying reasons in the excessive monetary expansion were the unsustainably high rate of monetisation of foreign exchange earnings of the public sector and the sharp rise in credit to the domestic economy.[28] As for the latter, the figure increased 14.6 percent compared with the

target of 13.5 percent and in contrast to the decline of 16.4 percent in 1989 (see Table III). The combined credit by commercial and merchant banks rose by 19.7 percent compared with the stipulated target of 12.5 percent.

Similarly, commercial banks loans and advances to high priority sectors fell short of the stipulated minimum by 3.8 percent points compared with 4.0 percent point in 1989. However, the overall economic performance in the 1990 was to some extent successful as GDP (at 1984 factor cost) grew by 5.4 percent, inflationary pressures, which prevailed in the preceding year, subsided considerably in 1990 from a figure of 40.9 percent in 1989 to 7.5 percent in 1990. On the external front, the balance of payment showed a surplus of N18,498.2 million compared with N8,727.8 million in 1989. From the official position of the central bank:

> ``Overall economic performance could have been higher than what was achieved in 1990 but for the persistent problem of fiscal imbalance which tended to induce rapid monetary expansion and depreciation of the Naira exchange rate.''[29]

In appreciation of these developments, the 1991 policy measures were designed to consolidate and enhance the gains of 1990 in areas of reduction in inflation, and pressures on the external sector as well as stimulation of domestic production capacity. Towards these ends, monetary policy continued to be moderately restrictive. Most monetary

policy measures of 1990 were retained except few changes in some areas. For example, money supply was to grow by 14.6 percent in 1991 compared with the target of 13.0 percent in 1990. The target of aggregate bank credit was reduced to 10.6 percent compared to 13.5 percent in 1990. Cash reserve requirement was fixed at 3.0 percent, while the floor and ceiling for deposits and lending rates were fixed at 13.5 and 21.0 percent respectively. To support this policy thrust, the central bank reduced its minimum rediscount rate from 18.5 percent to 15.5 percent.

With regard to the result at the end of the year, the growth rate of the money supply exceeded its stipulated target. It grew by 24.0 percent, surpassing the 14.6 percent target for the year though when compared with the 1990 record, it slowdown.

Aggregate banking system credit to the economy grew at a rate of 31.2 percent and was substantially in excess of both the 10.6 percent target for the year and the recorded growth of 14.6 percent in 1990. Thus, the expansion in money supply was a reflection of the sharp increase in banking system's credit to the economy in addition to the monetisation of the foreign exchange receipts of the public sector.[30] Closely associated with the monetary expansion was the increase in the rate of inflation from 7.5 percent in 1990 to 13.0 percent by the end of 1991. In general, the policy measures operated in the 1991 performed below

expectation as GDP growth of 4.4 percent was far below the growth rate of 8.3 and 5.2 percents recorded in 1989 and 1990 respectively.

With respect to 1992, though the monetary policy objectives remained the same as those of the previous years, one important development in the year was in the pattern of policy measures adopted towards achieving the set goals. The general direction of monetary policy was the efforts towards the creation of a conducive environment for a change over to the use of market-based instruments of monetary control, though direct control of monetary and credit aggregates contained in the interim.

The growth in money supply was targeted at 24.3 percent for 1992 compared to 14.6 percent for 1991. Furthermore and in line with the phased implementation of the indirect approach to monetary and credit control, the ceiling on the growth of commercial and merchant banks' credit to the private sector was removed for banks that met specified criteria (which includes keeping with the operational guidelines on cash reserve requirement, liquidity ratio, prudential guidelines and capital adequacy ratio, among others).[31] The reserve requirements in operation in 1991 were retained while the ceiling on bank lending was removed - though the spread of 5.0 percent between cost and lending rate was to be observed.

The end of the year 1992 saw a remarkable deviation of the monetary aggregates from their prescribed target. Money supply (M_1) grew by 34.3 percent compared to the growth rate of 24.6 percent recorded in 1991. A dominant factor in the expansion of M_1 during the year was the unprecedented 40.9 percent growth in aggregate credit to the domestic economy with a substantial part of it going to the government. Inflation rate grew by 44.5 percent compared to 13.0 percent recorded in 1991. In general, the major factor that dictated the outcome of macroeconomic policy of 1992 was the financing by the central bank of the large fiscal deficit of the Federal Government. The monetary impact of this mode (i.e. ways and means process) of financing government deficit must result in rapid monetary expansion, depreciate exchange rate and consequently higher rate of inflation. The combined effects of these problems adversely affected the productive sector and indeed forced some economic agents to abandon the more productive endeavours for quicker gains in commercial and speculative activities.[11]

The policy measures of 1993 were highly informed by the developments in 1992. The aim was to arrest the macroeconomic instability experienced in 1992. As in the preceding year, the 1993 policy focus was the use of the market-based instruments of monetary control. However, owing to compelling circumstances, there was increased

reliance on the allocation of stabilisation securities in order to reduce the liquidity overhang from the previous year. The selective lifting of credit ceiling for banks which met performance criteria of the central bank was continued, while monetary and credit management shifted to the use of Open Market Operation (OMO) to curtail monetary growth as well as maintain stability in the interest rate regime.[33] Money supply was to grow by 20.0 percent compared to the 1992 target of 24.3 percent. And inspite of the shift to the use of indirect instruments of control, credit ceilings were still stipulated and aggregate bank credit was to grow by 17.5 percent target compared to 1992 target of 13.2 percent. It is worth noting here that the total bank credit by official definition did compose of loans and advances, equipment leasing, and net inter-bank call money, certificates of deposits, bankers' acceptances, commercial papers, bills discounted and Naira promissory notes. The reserve requirement of 1992 were retained and the interest rate policy of 1992 were also carried-over into 1993.

As for the indirect instrument, OMO was finally introduced in June 30, 1993 and was to be complemented by cash reserve requirement, liquidity ratio and cash ratio, prudential guidelines, statutory minimum paid-up capital and sound management, among others.[34]

By the end of 1993, the results of the policy objectives and measures shows that the restrictive stance

of monetary policy (despite the innovation) was not effective owing to significant increase in Federal Government fiscal deficit - solely financed through a recourse to the banking system. Consequently, money supply (M_1) grew by 35.5 percent compared with 34.3 percent in 1992. Aggregate domestic credit, a major factor in the rapid monetary expansion, rose by 43.2 percent compared with 40.9 percent in 1992 and against the target growth rate of 17.5 percent. The excessive increase in credit to the domestic economy was dominated by increase in credit to the government which rose by 120.7 percent.[35]

In general, economic activities slowed down in 1993 owing to persistent macroeconomic instability and the uncertain political climate. the rate of inflation accelerated to 57.2 percent compared with 44.6 and 13.0 percents recorded in 1992 and 1991 respectively - a result of the increased demand pressures fuelled by the persistent growth of domestic liquidity.

In summary, the review has allowed us an insight to the formulation and measures of implementation of monetary policy in Nigeria. It has also allowed us an understanding of the nature and combination of the instruments used over the years under study. A clean picture that has emerged in the review is as from 1970 to 1991 attention was accorded to the use of direct instruments of monetary and credit

management in this country, and until 1992 that policy strategy began changing in favour of market-based approach.

The full introduction of Open Market Operation was informed by the dissatisfaction associated with some direct instruments such as credit ceilings. For instance, while it was initially good and effective, as the banking sector and the economy expanded, many items of credit were excluded from the credit ceilings. These only serve to erode the effectiveness of the ceilings as some operators used such avenues to hide credit transactions. As for selective credit control, skepticism about the effectiveness of such control increased over the years as the possibility of leakages could not be ruled out, particularly when it has been difficult to monitor the end-use of the allocated credit. In addition, it has also been argued that experience of countries that have shifted to indirect methods of monetary management suggests that attempts to introduce market instruments have hastened the growth of the financial markets and stability in the system.[36] In view of the fact that the full implementation of OMO is still at its embryonic stage, an appraisal of its effectiveness will be too early for now. Also from the review, the reasons for the persistent rise in the general price level have been associated with the excessive fiscal deficit of the government financed by the banking system and consequently undue monetary expansion. The exchange

rate, since its deregulation in 1986, has adversely been affected by the excessive liquidity, low production and consequently high import bills.

It suffice to also mention here that a scan through the monetary policy trend has shown that attention has only been directed at the activities (loans and advances and charges ceilings) of commercial and merchant banks with almost totally no mention about or on the other related financial institutions. Except in 1990 when commercial and merchant banks were required to report on the activities of their subsidiaries offering financial services, the non-bank financial outfits have not been fully integrated in the monetary policy formulation. Following this, it is also clear that over the period under study, the importance of consistency in the policy achievement of its objective was never an issue seriously thought of. Take the case of prescribed aggregate bank credit to the economy, this figure fell from 25 percent in 1983 to 12.5 and 7 percents in 1984 and 1985 respectively. In 1986 it was 10 percent and before the end of the year, the figure was reduced to 8 percent. It went as low as 7.1 percent in 1988 only to surprisingly shoot up to 12.5 and 13.5 percents in 1989 and 1990 respectively. By 1991 it was on its way down again. Since effects are not instantaneous as earlier mentioned in chapter three, results would in no way rhyme with the target. What we have seen are rather sharp swings in

policy. In some occasions they have moved in the wrong direction. However, in most cases, the moves are in right direction, although often too late or sometimes too far. In fact too late and too much has been the general practice. In relating monetary actions to price level, it takes a longer time for an action to affect the price level than for the action to affect the quantity of money, and both the time lag and the magnitude of effects vary with circumstances.[37] Circumstances such as political transition and its attendant monetary implications as well as fall in business confidence resulting from disaffection in the society are crucial situations requiring serious consideration during policy formulation. It is not gain saying that if you have scenarios such as these, it will be difficult if not impossible to predict accurately just what effect a particular monetary action will have on the price level, and equally important, just when it will have that effect.

FOOTNOTES

1. A good example is the infusion of political factor into economic policy as the case has been since 1986.

2. Bulus Y. D. ``The Efficiacy of Monetary Policy in the Mobilisation of Savings in Nigeria.'' An unpublished undergraduate thesis, Department of Economics, A.B.U., Zaria (1991) page 22.

3. Edodi U. U. ``The Potentials of Monetary Policy as an Instrument of Economic Recovery.'' Paper presented at a National Conference on the Financial System and the Nigeria Economic Recovery (1989).

4. Nemedia C. E. ``Monetary Policy in Nigeria - Tools and Effectiveness.'' Lecture given to Economic Society, A.B.U., Zaria (February, 1974).

5. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1970), page 11.

6. Central Bank of Nigeria - Annual Report and Statement of Accounts, (December, 1970), page 14.

7. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1972), page 12.

8. Ibid, page 32 and Monetary Circular No. 4 (1972).

9. Anthony Kirk - Greene and Douglas Pimmer. ``Nigeria Since 1970 - A Political and Economic Outline.'' Hodder and Stonghton, London (1981), page 121 and 122.

10. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1974), page 13.

11. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1975) page 48.

12. Central Bank of Nigeria - Statistical Bulletin, Vol. 5 No. 1 (June, 1994), PP. 48 - 52.

13. See Anthony K-G and Douglas R. Op. cit, page 122. Similarly, the figures for state governments do not include figures for Borno State.

14. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1980), page 3.

15. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1982), page 11.

16. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1983), page 20.

17. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1984), page 14.

18. Ibid, page 14.

19. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1986), page 10.

20. Bello Abdulmumin. ``Critical Review of Monetary Policy in Nigeria, 1977 - 1988. An unpublished M.B.A. Thesis, Department of Business Administration, A.B.U., Zaria (1988).

21. Central Bank and Nigeria - Annual Report and Statement of Accounts (December, 1987).

22. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1988).

23. Ibid.

24. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1989).

25. Ibid.

26. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1990), page 9.

27. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1990), page 10.

28. Ibid pages 12 and 17.

29. Ibid, page 13.

30. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1991), page 13.

31. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1992), page 11.

32. This is observable in the major engagements of our banks from 1991, in particular, to 1992. The money spinning business of buying and selling of foreign exchange totally sucked out financial resources from investment in real sector as gains from commercial and speculative activities were immediate and more promising.

33. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1993), page 11.

34. Central Bank of Nigeria - Annual Report and Statement of Accounts (December, 1993), page 12.

35. Ibid page 21: The movement in its government sector component accounted for 90.6 percent (N107,618.6 million) of the increase in total credit while the contribution of the private sector dropped off sharply in the second half of the year owing to the apparent slack in business activities in the wake of the prevailing political crisis.

36. Ojo M. O. ``Application of Open Market Operations as Instrument of Monetary policy in Nigeria.'' Central Bank of Nigeria - Bullion, Vol. 17, No. 3 (July - September, 1993), page 10.

37. Friedman M. ``The Role of Monetary Policy.'' In Friedman M. (ed). The Optimum Quantity of Money and Other Essays. MacMillan and Co. Ltd., New York (1969) page 108.

CHAPTER 5

5.0 EVALUATION OF THE RESULTS:

To start with, it is worth observing that though the specifications did not include a dummy variable for tracking the incidence of price control (over the period 1972 - 1978), that will not in any way, invalidate our results; moreso, in a study conducted by Asogu (1991), the dummy variable coefficient of the price control showed a moderate significance which implies only a salutary effect was achieved by price control.

The result of the empirical regression estimates for equations (1) to (8) are presented in Table 4. the R^2 and R^2 adjusted in all cases measured the explanatory power of the multiple regression while the F-statistics are reported for testing the significance of the multiple regression coefficient and coefficient of determination. The t-statistics are in parenthesis under the relevant coefficients.

From a cursory look at the results in Table 4, one would note that all the selected factors, except the exchange rate variable, had significant regression coefficients in equation (1), which also has a significant coefficient of determination (R^2 = 89.0 and R^2 - Adj = 87.9). The output, expected rate of inflation and the quasi-money

variables proved to be significant at 5 percent level. However, the significance of money supply (M^1_t) happen to be at 10 percent level while the inflation expectation (P^E), though significant carried a wrong sign. The F-statistics figure of 53.54 also implies that we reject the null-hypothesis and accept that the explanatory variables of the multiple regression are significant factors explaining inflation in Nigeria.

Equation (2) has a lower coefficient of determination (R^2 = 61.5 and R^2 - Adj = 59.5). And of the six variables entering the equation, only the output, import price index and exchange rate variables are significant at 5 percent level. The Money Supply and Inflation expectation variables are significant at 10 percent level while the quasi-money factor is significant only at 15 percent level (if such a level is permissible). The signs conformed with the theoretical expectations with emphasis on quasi-money and lagged variable of money supply. Again the F-statistics figure of 43.59 proved to be significant at both F0.05 and F0.01 level which also implies that we accept that the coefficients of the multiple regression are significant.

Equations (3) and (4) similarly had lower coefficients of determination compared to equation (1), with R^2 = 72.7 and R^2 - Adj = 68.4 for equation (3) and R^2 = 56.8 and R^2 - Adj = 55.8 for equation (4). Government deficits and

expected inflation in equation (3) and import price index in equation (4) appeared to be much more significant at both 5 and 1 percent levels. However, the import price index in equation (3), lagged money supply and exchange rate variables in equation (4), though with expected signs, appeared not to be significant. Lagged money supply and quasi-money in equation (3), and domestic credit and quasi-money in equation (4) are significant only at 15 percent level - if that is permissible. The F-statistics figure, though much more lower compared to equations (1) and (2), still provides that the coefficients of multiple regression are significant at both 5 and 1 percent levels.

With respect to equation (5), the coefficients of determination improved compared to those of equations (2), (3) and (4) - R^2 = 83.2 and R^2 - Adj = 82.3. Also of importance to us from the results is the significance of the monetary variables - money supply at current and lag periods as well as the exchange rate variables. The three variables combined to account for about 70 percent of the rate of inflation. The output, inflation expectation and import price index variables, though carrying expected signs, appeared to be weakly significant.

The results in equation (6) provides that except for the expectation variable which is completely not significant, all other variables are significant only at 10 percent level. Their weak coefficient of determination (R^2

= 52.6 and R^2 - Adj = 51.1) further buttressed the weak explanatory power of the combined variables. The F-statistics figure of 1.68 provides that the coefficients of the multiple regression are not significant.

For results of equations (7) and (8), except for the output variable in equation 7 (though with expected sign), all other variables proved to be significant. the inflation expectation in equation (7), output, exchange rate and domestic credit lagged one period in equation (8) appeared to be the major significant explanatory variables. Both equations had strong coefficient of determination with R^2 = 75.5 and R^2 - Adj = 72.9 (for equation (7)) and R^2 = 63.9 and R^2 - Adj = 50.1 (for equation (8)). Again by the figures of the F-statistics, the results provides that the coefficients of the multiple regression, for both equations, are significant at both 5 and 1 percent levels.

With regard to the Durbin-Watson test, the observed values for all the equations happen to, comparatively, be above the lower limit of the critical value (given the number of observations and the number of the explanatory variables excluding the constant term). The results in general provides that there is some degree of positive serial correlation, which is stronger the closer the value is to zero.

In sum it can be observed from the results that where money supply (M^1_t) and quasi-money (QM_t) appeared, the

variables have proved to be significant at either 5 or 10 percent level. Similarly, equations 1, 2, 3, 4, 7 and 8 where the output and inflation expectation variables appear (except in equation (7) for output and equation (5) for both variables), the factors have proved to be significant. These are in line with our a priori expectation as informed by the theoretical underpinnings.

Furthermore, aggregate government deficits and domestic credit appeared as factors in equations (3) and (4) while their lag values appeared in equations (7) and (8). However, while aggregate government deficits at current period proved to be significant at 5 percent level, aggregate domestic credit appeared to be much more significant when lagged one period. The implication of this is that the total banking system credit to the domestic economy in the preceding year would have an inducing effect on the rate of increase in the general price level at current year.

The openness of the economy proxied by the import price index has shown to be significant (at 5 and 1 percent levels) in two out of the five equations it appeared. Similarly, equations 1, 2, 4, 5, 6 and 8 where exchange rate variable appeared, except in equation (1) and (4), it has proved to be significant.

In general, one important provision in the results is that lagged effect of monetary variables have been crucial

in determining the inflationary trend over the period under study. Thus, in addition to changes in domestic output (Y_t), changes in liquidity brought about by changes in money supply, domestic credit and government deficit as well as the disturbing trend of the Naira exchange rate, are the major determinants of inflationary pressures. A look at Table VII on the major causes of inflation in Nigeria since 1985, from the point of view of the Central Bank of Nigeria, confirms that changes in domestic output, exchange rate and excessive government deficits financed by the banking system credit which results in money supply increases, have been the major causes of inflationary pressure in the economy.

In an attempt to assess the Structural Adjustment Programme policy implications on the behaviour of the variables in our specifications vis-a-vis what was obtainable between 1970 and 1985, the results for the two periods are presented in Tables V and VI.

A close look at Table V reveals that while money supply and output happen to be significant at 5 percent level in equation (1), the parameters for quasi-money, exchange rate and import price index in equation (2) also proved to be significant at 5 percent level. The improvement in the coefficient of determination (R^2 = 90.3 and R^2 - Adj = 78.7) and the F-statistics is a reflection of the conclusion that, except for the variable capturing

expectation, the coefficients of multiple regression are significant at both 5 and 1 percent level.

However, a further look at Table V shows that in equations (3) and (5), only the lagged values of money supply and output variables happen to be significant. A likely explanation to the non-significance of the other variables may include the presence of subsidies on a variety of products and services during the period under review, the relatively low level of financial development - in terms of financial deepening and the fixed exchange rate regime. Therefore, except for equations (3) and (5), the coefficients of determination for the remaining equations are low and insignificant as reflected by their F-ratios.

A turn to Table VI reveals some remarkable changes notwithstanding the limited number of observations covering the period. The coefficient of the exchange rate in equation (1) proved to be significant at 5 percent level - providing an elasticity value of 85 percent. The money supply, quasi-money factors as well as inflation expectation, though carrying a wrong sign, appeared to be significant only at 10 percent level. The combined significance of the variables as shown by their coefficient of determination (R^2 = 61.8 and R^2 - Adj = 60.1) is in the average of 60 percent. The F-statistics, though low, further provides that the coefficients of multiple

regression are significant. The results of equations 2, 3, 4 and 5, given the significance of their parameters and strength of their coefficients of determination, conformed with our theoretical postulation especially in view of the developments in the economy following the introduction of the Structural Adjustment Programme. The money supply variable (especially when lagged), the fiscal deficits of the government and the growing ratio of quasi-money fully provides a picture of liquidity induced inflation. The government over-blown financial commitment to the political transition programmes and the financing process of recourse to borrowing from the central bank in the late 1980s and early 1990s has been instrumental to the price spiral experienced in recent years.

In the production front, the continued downward trend in the exchange value of the Naira, high import bills (compounded by the removal of some subsidies) and the low level of production (in terms of household items) further exercebated the spiral. A look at the coefficients of determination in the aforementioned equations and their respective F-statistics, thus, provides that the coefficients of the multiple regressions are significant. Expectations have come to be crucial as speculations tend to propel aggregate demand pressure on the available goods and services.

In summary, achievements emanating from these results are the accentuation of postulations made by this study. The quasi-money variable has proved to be significant in all the equations it appears, though in few cases with wrong sign. With the surrogating power accorded it, we can, therefore, inferentially conclude that the inflow of financial resources in the eleven (11) years of political transition has been contributory in facilitating money inflation. This also implies that with the policy oversight on time deposits, the variable is bound to provide a counter working effect on effort towards achieving inflation moderation objective.

In addition, the growth in domestic credit, a portion of which usually translate into government deficit, has proved to be significant which means that except budgetary discipline is ensured, (since the review has shown that a larger proportion of total domestic credit is credit to the government), no amount of prescription and degree of restrictiveness platforming any monetary policy can carry the system to its required point. Closely in line with this, the ever changing prescription and restrictiveness as can be seen from the review in chapter four is a clear evidence of the absence of policy attention to lag in effect of actions. Where the units of the economic system are confronted with new policy prescriptions, having been working toward adjusting to the preceding period's

prescription, the economic system being more of a social system may find itself at a no focus position with results seriously at variants with policy targets. The significance of the estimation result on lag in effect emanating from this study, is buttressing the study view that consistency in policy prescription is relevant if full effect of actions are to be seen.

CHAPTER 6

SUMMARY, CONCLUSION AND RECOMMENDATION

6.1 SUMMARY AND CONCLUSION:

As a socio-economic problem the centrality of inflation cannot be over-emphasised. This study has attempted an investigation on the monetary basis of inflation in Nigeria. In particular, the policy effort at addressing the problem of inflation, given its place in the determination of social progress, has been the major engagement of this study. This study interest has been anchored on the position that monetary policies, designed and implemented over the years, have not been successful in addressing the problem. The constraints to success inherent in the policies' effort have been that inability to take into account aspects of the liquidity disposition of the non-bank financial institutions, monetisation of foreign resources by the non-bank public and the inability of the central monetary authority to check the deficit tendency of the government.

In chapter two, we have been able to theoretically establish the link between inflation and the quantity of money as can be seen in the literature reviewed and the postulations of the various schools of thought. This does

not, however, imply that the study negates other also important variables, (as can be seen in the specifications arrived at in this study), but that the centrality of money is worthy of serious attention.

The study's theoretical formulation which is founded on portfolio approach did succeed in co-establishing the liquidity implication of some assets and activities and, even in those fully acknowledged by the monetary authority, the authority's capacity to regulate or determine their behaviour and direction of movement remains inconclusive or doubtful. Therefore, to address the problem most adequately, it would be pertinent for the monetary authorities to understand how ineffective would their monetary action be so long as the policy does not seriously look into the portfolio mix of the public and non-bank financial institutions.

In chapter four, the picture emerging from the review of the policy trend has buttressed the aforementioned points. The monetary policy ``traditions'' that have been in practice over the years, though prescriptive and restrictive, have not yielded the required results. Emphasis on direct measures such as credit ceilings and selective credit control among others have in some ways been circumvented by banks through excessively working on the soft spots of the restrictions. In almost all the years, the prescribed percentages have always been

overshot. A good case in point is in specifying the maximum amount of aggregate domestic credit. For instance, between 1978 and 1982, aggregate credit expansion range of 30 to 40 percent was what the policy prescribed. But in all the five (5) years, the actual expansion was on the average of 50 to 55 percent. Similarly, under the Structural Adjustment Programme, the policy target of 7.1 percent was set for domestic credit expansion, 2.5 percent and 12.5 percent credit targets to the government and the private sector respectively in 1988. However, by the end of the year, the actual figures were 26.1 percent rise in aggregate domestic credit; 30 percent for the government and 21.6 percent for the private sector.

Following these, therefore, the specifications in chapter three and the results of the estimates in chapter five have (in terms of the variables) shown that excessive government fiscal deficits financed by the banking system credit, the money supply (M^1), the exchange rate and the quasi component of the money supply in particular are all significant and have had an inducing effect on inflation. In addition, the low level of production, over-reliance on oil export and the high taste for foreign products have come to make possible the transmission of international inflation into domestic inflation. The sudden policy of liberalisation which follows the Naira exchange rate devaluation did not help matters as the openness of the

economy, given its level of development, could not insulate the system from explosive swings in general and high price spiral in particular.

It is hard, therefore, to escape the conclusion that the way and manner in which the economy has been directed and managed has been the major cause of the inflationary situation. At one hand, we can associate that with inappropriate policies and programmes; that is policies and programmes that contain considerable incoherence and inconsistency, and on the other hand, weakness of the institutions charged with the responsibility of strict compliance either as a result of the fiat from the government of the day or sheer loyalty and or sychophancy of officials of the authorities.

While there is the need to exercise restraints on unwarranted monetary expansion, especially within the realm of the public sector, a major economic challenge of the future is for the monetary authorities to understand the role monetary policy has played and should play in influencing the behaviour of important economic magnitudes and the restructuring of the economy in general.

6.2 RECOMMENDATIONS:

From the policy perspective, the review of the monetary policy trend in the country over the years and result of the empirical investigation thus obtained have

shown the concern about the effectiveness of domestic anti-inflation policies and strategies. To compliment the effort, the following are recommended:

From our results, since the money supply variable (M_1) exerts a positive and significant impact on inflation, appropriate anti-inflation policies must involve reductions or cutdown in the excess monetary growth that has characterised the economy. Similarly, since the quasi-money component, as a variable captured in the specification, has also proved to be significant, a domestic anti-inflation policy must take into account the existence of near-liquid assets that, to some appreciable degree, possess the moniness of currency and demand deposits. This also implies that concern must be shown on the possible monetary implication of some, not necessarily economic, policy actions of the government.

Also, the fiscal operations of the government must be made to be in alignment with monetary policy targets. Specifically, it should be possible for the monetary authorities to work out a public sector borrowing requirement that is consistent with the monetary programme with the aim of achieving the policy targets on inflation, domestic aggregate demand and exchange rate.

It is similarly necessary that all financial operators, be it banking or non-banking, be brought under the regulatory guide of the Central monetary authority and

stringent measures backed by enabling edicts be designed to give full operational autonomy to the monetary authority.

With respect to production, since the real output growth is found to exert strong dampening effect on inflation, the anti-inflation policy action should include the implementation of effective economic development plans that would expand real output growth.

Finally, since the lag in effect of certain variables are also significant, contrary to the culture of inconsistency and where domestic policies require a relatively long or more than one year time to complete their impact on the target variable(s), these policies should be sustained over a length of time.

BIBLIOGRAPHY

Ajayi S. I. On the Directional Causality Between Money and Prices. Nigerian Journal of Economic and Social Studies Vol. 25, No. 3 (November, 1983).

- Money, prices and interest rate - The Nigerian paradigm. Nigerian Journal of Economic and Social Studies Vol. 20, No. 2 (July, 1978).

- Money Multiplier and Monetary Control. In Teriba O. and Diejomoh (ed) Money Finance and Economic Development. Nigerian Economic Society (1978).

- A Portfolio Approach to Money Supply Determination in Nigeria. Nigerian Journal of Economic and Social Studies Vol. 15, No. 1 (1973).

- Money in a Developing Economy - A Portfolio Approach to Money Supply Determination in Nigeria. University of Ibadan Press, Ibadan Nigeria (1978).

- Teriba O. The Inflationary Process in Nigeria 1960 - 1972: Evidence from Quarterly Data. In Onitiri H.M.O. and Awosika K. (ed). Inflation in Nigeria. Conference Proceedings, NISER, Ibadan (1975).

Adeyokunmu T. and Ladipo O. O. Causes of Inflation in Nigeria - Quantitative Assessment. In Onitiri H.M.O. and Awosika (ed). Inflation in Nigeria, Conference Proceedings, NISER, Ibadan (1975).

Adejugbe A. Causes of Inflation in Nigeria. In Onitiri H.M.O. and Awosika K. (ed), Inflation in Nigeria. Conference Proceedings, NISER, Ibadan (1975).

Asogu T. O. An Econometric Analysis of the Nature and Causes of Inflation in Nigeria. C.B.N. Economic and Financial Review, Vol. 29, No. 3 (September, 1991).

Anthony R. G. and Douglas R. Nigeria Since 1970: A Political and Economic Outline. Hodder and Stoughton, London (1981).

Anand G. C. Monetisation of Developing Countries. I.M.F. (Staff Papers) Vol. XXIV (1977).

Abba P. L. The Inflationary Process. Review of Economics and Statistics. (August, 1949).

Awosika K. and Onitiri H.M.O. Causes of Inflation in Nigeria. In Onitiri H.M.O. and Awosika K. (ed) Part II, Inflation in Nigeria. Conference Proceedings, NISER, Ibadan (1980).

Ackley G. Administered Prices and Inflationary Process. American Economic Review, Papers and Proceedings, Vol., XLIX (May, 1959).

Aghevli B. B. (et al). Monetary Policy in Selected Asian Countries. I.M.F. (Staff Papers) Vol. 26 (1979).

Akinmade O. O. Money Supply Control - Prospects of Indirect Control of Credit Growth and Open Market Operations. First Bank Review (June, 1992).

Akatu P. A. The Relationship between the non-Bank Financial Institutions and the Central Bank of Nigeria. Bullion C.B.N. Vol. 11, No. 3 (July/September, 1987).

Akurinfemi J. S. The growth of the Inflationary Process in Nigeria. An unpublished M.Sc. Thesis, Department of Economics, A.B.U., Zaria (1991).

Argy V. Monetary policy for Internal and External Balance. I.M.F. (Staff Papers) Vol. XVIII (1971).

Bello A. Critical Review of Monetary Policy in Nigeria, 1977 - 1988. An unpublished M.B.A. Thesis, Department of Business Administration, A.B.U., Zaria (1988).

Bulus Y. D. The Efficacy of Monetary Policy in Mobilisation of Savings in Nigeria. An unpublished Undergraduate Thesis, Department of Economics, A.B.U., Zaria (1991).

Beare J. B. Macroeconomics: Cycles, Growth and Policy in Monetary Economics. MacMillan, New York (1978).

Beltas A. and Jones T. Money, Inflation and Causality in a financially repressed Economy - Algeria (1970 - 1988). Applied Economics, Vol. 25 No. 4 (April, 1993).

Brainnard W. C. and Tobin J. Financial Intermediaries and the Effectiveness of Monetary Control. American Economic Review Vol. 53, No. 2 (May, 1963).

Cantillon R. Essay on the Nature of Trade. In Edwin D. (ed) Controversy over the Quantity Theory of Money. Heath and Company, Boston, U.S.A. (1965).

Cramp A. B. Two Views on Money. Lloyds Bank Review No. 65 (1962).

Deena R. K. Analytical Basis of the Working of Monetary Policy in Less Developed Countries. I.M.F. (Staff Papers) Vol XIV (1972).

_____(et al). A Money Multiplier Model for a Developing Economy - The Venezuelan Case. I.M.F. (Staff Papers) Vol. 21 No. 3 (1973).

Daniyan S. A Review of the State of the Economy and the Way Forward. A submission to the National Economic Committee (December, 1993).

Dhakal D. and Kandil M. The Inflationary Experiences of Six Developing Countries in Asia - An investigation of underlying determinants. Applied Economics Vol. 25, No. 3 (March, 1993).

Dennis R. M. A Note on Money Wages, Prices, Control and Trade Unions in Canada. Applied Economics Vol. 17, No. 1 (February, 1985).

Edodi U. U. The Potentials of Monetary Policy as an Instrument of Economic Recovery. Paper presented at a National Conference on the Financial System and the Nigeria Economic Recovery. Department of Economics, A.B.U., Zaria (1989).

Falegan S. B. Restructuring the Nigerian Financial System for Economic Resuscitation. Bullion C.B.N Vol. 17, No. 4 (October/December, 1993).

Fritz M. Another View of Cost-Push and Demand-Pull Inflation. In John L. (ed) Readings in Macroeconomics. The Free Press, New York (1968).

Fisher I. The Purchasing Power of Money. In Edwin D. (ed) Controversy over the Quantity Theory of Money. Heath and Company, Boston, U.S.A. (1965).

Friedman M. A Monetary and Fiscal Framework for Economic Stability. In Mueller M. G. (ed) Readings in Macroeconomics. Holt, Rinehart and Wiston Inc. New York (1967).

- Post-War Trends in Monetary Policy and Theory. In Friedman M. (ed). The Optimum Quantity of Money and Other Essays. MacMillan and Co. Ltd., New York (1969).

- The Quantity Theory of Money - A Restatement. In Friedman M. (ed). The Optimum Quantity of Money and Other Essays. MacMillan and Co. Ltd., New York (1969).

- The Supply of Money and Changes in Prices and Output. In Friedman M. (ed). The Optimum Quantity of Money and Other Essays. MacMillan and Co. Ltd., New York (1969).

- and Walter H. W. Monetary Versus Fiscal Policy - A Dialogue. W. W. Norton and C. Inc. New York (1969).

- The Role of Monetary Policy. In Friedman M. (ed). The Optimum Quantity of Money and Other Essays. MacMillan and Co. Ltd., New York (1969).

- Monetary Theory and Policy of Henry Simon. In Friedman M. (ed). The Optimum Quantity of Money and Other Essays. MacMillan and Co. Ltd., New York (1969).

- The Quantity Theory of Money Vindicated. In Samuelson P. (ed). Readings in Economics 7th Edition, McGraw-Hill Book Company, U.S.A. (1973).

The Lag in Effect of Monetary Policy. In Friedman M. (ed). The Optimum Quantity of Money and Other Essays. MacMillan and Co. Ltd., (1969).

Garba A. Understanding the Nigeria Inflationary Process. The case for an Inquiry. Paper presented at a National Conference on the Financial System and Nigeria Economic Recovery. Department of Economics, A.B.U., Zaria (1989).

George H. Tight Money, Monetary Restraints and Prices. In John L. (ed), Macroeconomic Readings. The Free Press, New York (1968).

Gurley J. and Shaw E. Financial Intermediaries and the Saving - Investment Process. In John L. (ed) Macroeconomics Readings. The Free Press, New York (1968).

Hagger A. J. Inflation - Theory and Policy. MacMillan London (1977).

Haberger A. C. Haberger's Inflation Model - A critique and test using data for Brazil and India. Indian Economic Journal Vol. 16, No. 4 - 5 (1963).

Haberler G. Internal factors causing and propagating InflationII. In Hague D. C. (ed), Inflation. Proceedings of a conference held by the International Economic Association, MacMillan, London (1962).

Harry G. J. Domestic Issues in Monetary and Fiscal Policies. In John L. (ed) Macroeconomic Readings. The Free Press, New York (1968).

Hannan Ezekiel: Monetary Expansion and Economic Development. I.M.F (Staff Papers) Vol. XIV (1967).

James S. Monetary Policy and Critics. In John L. (ed) Macroeconomic Readings. The Free Press, New York (1968).

Keynes J. M. How to pay for the War. MacMillan, London (1940).

Koutsoyiannis A. Theory of Econometrics. 2nd Edition ELBS with MacMillan, Hamshire, England (1977).

Khan S. M. Monetary Shocks and Dynamics of Inflation. I.M.F. (Staff Papers) Vol. 27 (1980).

– and Aghevli B. B. Government Deficits and the Inflationary Process in Developing Countries. I.M.F. (Staff Papers) Vol. 25 (1978).

Kandil M. and Dhakal D. The Inflationary Experience of Six Developing Countries in Asia – An investigation of the underlying determinants. Applied Economics, Vol. 25, No. 3 (1993).

Kwanashie M. and Owosekun A. A. Impact of Recent Monetary Policy on the performance of the Nigerian Economy. Nigerian Journal of Policy and Strategy Vol. 4, No. 1 (June, 1989).

Lawrence R. S. The Role of Money in Keynesian Theory. In Mueller M. G. (ed) Readings in Macroeconomics, Holt, Rinehart and Winston Inc., New York (1967).

Laumas P. The Role of Savings Deposits as Money. Journal of Money, Credit and Banking, Vol. 2, No. 1 (1969).

Machiko N. Excess Liquidity Syndrome in the Banking System in Low Income Developing Countries. SOAS (Working paper) No. 34, University London (September, 1993).

Manuel G. Credit Versus Money as an Instrument of Control. I.M.F. (Staff Papers) Vol. 20 (1973).

Marina V. N. W. Global Monetarism and the Monetary Approach to the Balance of Payments. Brookings Papers in Economic activity 3, The Brookings Institution, Washington D.C (1975).

McKinnon R. Money and Capital in Economic Development. Brookings Institution, Washington D.C (1973).

McConnel C. Economics: Theory, Principles and Policy. McGraw-Hill Inc., New York (1973).

Nemedia C. E. Monetary Policy in Nigeria – Tools and Effectiveness. Lecuture given to Economic Society, A.B.U., Zaria (1974).

Ojo M. O. Application of Open Market Operations as an Instrument of Monetary Policy in Nigeria. Bullion C.B.N, Vol. 17, No. 3 (July/September, 1993).

Ojameruaye E. O. An Analysis of the Determinants of the General price level in Nigeria. Journal of the NISER, Vol. 5 (1980).

Ojo O. Causes of Inflation in Nigeria. In Onitiri H.M.O. and Awosika K. (ed). Inflation in Nigeria, Conference proceedings, NISER, Ibadan (1975).

Ojo. A. T. Evaluation of Financial Intermediaries and Instruments in the Nigeria Financial System. Bullion, C.B.N. Vol. 11, No. 3 (July/September, 1987).

Oladeji O. On the Empirical Definition of Money Stock. Nigerian Journal of Economic and Social Studies, Vol. 20, No. 2 (1978).

Okah G. O. Lessons from Nigeria's Recent Monetary and Fiscal Policy Experience. C.B.N. Economic and Financial Review, Vol. 24, No. 2 (June, 1986).

Ogwuma P. A. State of the Economy - The Central Bank of Nigeria perspective. Bullion, C.B.N, Vol. 17, No. 4 (1993).

Otiti A. O. G. The Concept of Money and Monetary Policy. Bullion, C.B.N, Vol. 7, No. 2 (April/June, 1982).

Osakwe J. O. Government Expenditure, Money Supply and Prices 1970 - 1980. C.B.N. Economic and Financial Review, Vol. 21, No. 2 (June, 1983).

Owosekun A. and Odama J. S. The Causes of Inflation - Some Empirical Evidences. In Onitiri H. M. O. and Awosika K. (ed) Inflation in Nigeria. Conference proceedings, NISER, Ibadan (1975).

Oyejide A. A Critique to Money Multiplier Approach to Money Supply Determination - A Theoretical Extension and Some Empirical Tests. Nigerian Journal of Economic and Social Studies, Vol. 16, No. 2 (1974).

Paish F. W. Rise and Falls of Income Policy. Institute of Economic Affairs, London (1969).

Park Y. C. The Role of Money in Stabilisation Policy in Developing Countries. I.M.F. (Staff Papers) Vol. 20 (1973).

Patel I. G. Monetary Policy in post war years. I.M.F. (Staff Papers) Vol. III, No. 1 (1953).

Peter M. K. Controlling fluctuations in credit. I.M.F. (Staff Papers) Vol. 24 (1977).

Phillip C. The Monetary Dynamics of Hyper Inflation. In Friedman M. (ed) Studies in the Quantity Theory of Money. University of Chicago Press, Chicago (1956).

Polak J. J. and William W. The effect of income expansion on the Quantity of Money. I.M.F. (Staff Papers) Vol. IV, No. 1 (1956).

Porter M. G. Capital flows as an offset to monetary policy - The German Experience. I.M.F (Staff Papers) Vol. 19 (July, 1972).

Salih A. S. Determinants of Inflation in oil exporting Developing Countries - An Empirical Investigation 1970 - 1990. Applied Economics, Vol. 25, No. 4 (1993).

Smith W. L. Financial Intermediaries and Monetary Control. Quarterly Journal of Economics, Vol. 73 (1959).

- The Instrument of General Monetary Control. In John L. (ed) Macroeconomic Readings. The Free Press, New York (1968).

Solow M. R. and Samuelson P. A. Analytical Aspects of Anti-Inflation Policy. In John L. (ed) Macroeconomic Readings. The Free Press, New York (1968).

Tijjani J. M. An Econometric Analysis of the Demand for Money in Nigeria, 1970 - 1989. An unpublished M.Sc Thesis. Department of Economics, A.B.U., Zaria (1991).

Ugo G. P. Internal factors causing and propagating Inflation III. In Hague D. C. (ed) Inflation, proceedings of a conference held by the International Economic Association, MacMillan London (1962).

Wesley C. M. The Role of Money in Economic Theory. In Phillip C. N. (ed) Source Readings in Economic Thought. W. W. Norton and Company Inc., New York (1954).

APPENDIX I

YEAR	CURRENT FACTOR COST GNP	M^{s1}	V^1	M^{s2}	V^2
1970	5,205.1	608.3	8.6	949.9	5.5
71	6,570.7	628.9	10.5	1,005.3	6.5
72	7,208.3	700.1	10.3	1,161.3	6.2
73	10,990.7	827.1	13.3	1,414.0	7.8
74	18,298.3	1,178.3	15.5	2,156.2	8.5
75	20,957.0	2,044.0	10.3	3,622.4	5.8
76	26,656.3	3,293.0	8.1	5,278.9	5.1
77	31,520.3	4,794.4	6.6	7,057.5	4.5
78	34,540.1	5,089.7	6.8	7,699.5	4.5
79	41,947.7	6,146.8	6.8	9,857.4	4.3
80	49,632.3	9,226.8	5.4	14,397.4	3.4
81	50,456.7	9,744.9	5.2	15,548.1	3.2
82	51,570.0	10,048.6	5.1	16,894.0	3.1
83	56,709.7	11,282.4	5.0	19,368.9	2.9
84	63,006.3	12,204.1	5.2	21,600.5	2.9
85	71,368.1	13,267.8	5.4	23,818.6	3.0
86	72,128.3	13,105.0	5.5	24,592.7	2.9
87	106,883.2	14,905.9	7.2	29,994.6	3.6
88	142,660.0	21,148.6	6.7	42,780.3	3.3
89	222,450.0	25,697.6	8.7	46,222.9	4.8
90	257,873.0	37,233.7	6.9	64,902.7	4.0
91	320,247.3	49,364.5	6.5	86,152.5	3.7
92	547,147.6	75,172.5	7.3	128,283.7	4.3
93	799,490.0	116,593.4	6.9	196,318.2	4.1

where GNP = Gross National Product - at current factor cost.
M^{s1} = Money supply narrowly defined = currency + Demand Deposit.
M^{s2} = M^{s1} plus Quasi-Money-Savings and Time Deposits
V^1 = GNP/M^{s1}
V^2 = GNP/M^{s2}

SOURCE: CNB Statistical Bulletin Vol. 5, No. 1, June, 1994.

TABLE I: Money Supply in Nigeria: 1970 - 1993

YEAR	MONEY SUPPLY M^1 (NM) (1)	DEMAND DEPOSIT (NM) (2)	CURRENCY OUTSIDE BANKS (NM) (3)	(2) AS A % OF (1)	(3) AS A % OF (1)	% IN (1)	QUASI-MONEY* (NM)
1970	608.4	266.0	342.3	43.7	56.3	42.5	341.6
71	629.0	274.4	354.5	43.6	56.4	3.4	376.4
72	700.2	315.0	385.2	45.0	55.0	11.3	461.2
73	827.2	391.3	435.9	47.3	52.7	18.1	586.9
74	1,178.2	608.6	569.8	51.6	48.4	42.5	977.9
75	2,044.1	1,015.4	1,030.7	49.6	50.4	73.5	1,578.4
76	3,293.0	1,941.8	1,351.2	55.0	45.0	61.1	1,985.9
77	4,794.4	2,853.6	1,940.8	59.5	40.5	45.6	2,255.1
78	5,089.7	2,932.5	2,157.2	57.6	42.4	6.2	2,601.6
79	6,146.6	3,795.8	2,350.8	61.8	38.2	20.8	3,702.1
80	9,226.8	6,040.9	3,185.9	65.5	34.5	50.1	5,163.2
81	9,744.9	5,883.0	3,861.9	60.4	39.6	5.6	5,796.1
82	10,048.5	5,826.1	4,222.4	58.0	42.0	3.1	6,838.3
83	11,282.4	6,439.6	4,842.8	57.1	42.9	12.3	8,082.8
84	12,204.1	7,320.6	4,883.5	60.0	40.0	8.2	9,391.3
85	13,267.8	8,355.5	4,909.9	63.0	37.0	8.7	10,550.8
86	13,103.0	7,927.1	5,177.9	60.5	39.5	-1.2	11,487.7
87	14,905.9	6,298.6	8,607.3	42.3	57.7	13.6	15,088.7
88	21,446.4	12,032.8	9,413.6	55.5	44.5	43.9	18,397.1
89	25,697.6	14,009.2	11,688.4	54.5	45.5	19.8	20,525.3
90	37,233.7	22,293.1	14,940.6	59.9	40.1	31.0	27,669.0
91	49,364.5	26,256.3	23,108.6	53.3	46.7	24.6	36,788.0
92	82,165.0	45,399.1	36,765.9	55.3	44.7	34.3	53,115.1
93	116,593.4	60,338.9	56,254.5	51.8	48.2	35.5	79,724.8

* It is the sum of Savings and Time Deposits with Commercial Banks.

SOURCE: Obtained and computed from the data in various issues of Economic and Financial Reviews of the Central Bank of Nigeria, 1970 - 1994.

TABLE II: RATE OF INFLATION

YEAR	ALL ITEMS	CLOTHING	FOOD	DRINKS, TOBACCO & KOLANUT	TRANSPORT	H/HOLD & OTHER PURCHASES	FUEL & LIGHT	OTHER SERVICES
1970	13.7	3.5	2.0	2.5	2.9	1.5	7.3	3.5
71	16.1	13.4	2.4	4.5	3.9	3.7	10.5	4.5
72	3.1	0.9	2.4	4.0	3.6	2.9	10.5	2.8
73	5.4	16.9	3.2	-3.4	9.9	1.5	-2.4	9.1
74	13.3	14.9	15.8	7.0	30.6	12.1	3.9	9.5
75	33.9	27.2	41.8	3.7	15.3	37.9	40.0	15.2
76	23.9	28.1	22.0	8.6	16.1	20.9	8.6	18.0
77	15.4	10.4	19.7	68.6	21.5	13.2	17.2	23.3
78	16.6	24.7	17.7	1.6	12.3	7.5	3.2	7.0
79	11.8	24.3	8.0	9.1	23.4	6.1	27.0	14.1
80	9.9	23.3	7.6	13.0	0.9	16.3	6.2	32.4
81	20.8	16.1	25.2	15.5	2.3	7.2	-2.3	20.2
82	7.7	6.7	7.3	4.9	12.8	9.9	3.9	4.9
83	23.2	18.7	25.0	14.5	19.1	53.4	33.1	20.5
84	39.6	40.8	42.9	36.9	16.4	57.3	12.8	38.9
85	5.5	9.0	3.9	25.8	13.1	5.0	-4.5	23.3
86	5.4	15.4	0.14	22.6	18.2	30.8	40.6	36.3
87	10.2	11.9	8.55	14.1	13.2	18.3	4.3	21.8
88	38.3	10.6	52.2	8.1	15.7	3.0	-5.5	7.4
89	40.9	11.7	55.4	9.5	16.8	4.5	3.5	6.8
90	7.5	25.6	3.7	26.1	17.7	12.9	13.8	19.4
91	13.0	23.2	11.9	14.2	8.0	25.3	9.9	24.1
92	44.5	32.4	46.5	50.7	40.1	50.2	31.8	43.5
93	57.2	46.9	57.9	62.2	60.3	51.9	59.2	52.5

SOURCE: Computed from the data from the various issues of Annual Reports and Statements of Account and Statistical Bulletin of the Central Bank of Nigeria, 1970 - 1994.

TABLE III

YEAR	RATE OF INFLATION Pt	MONEY SUPPLY M*t	QUASI-MONEY QMt	EXCHANGE RATE EXR*	(1) GOVT. DEFICITS GDt*	GDt-1	INFLATION EXPECTATION P^e	(2) IMPORT PRICE INDEX IMP	(3) REAL GDP Yt	M^*_{t-1}	(4) DOMESTIC DCt	CREDIT DC_{t-1}
1970	13.8	42.5	8.4	0.7143	763.7	531.9	10.0	-12.1	24.5	30.1	38.0	34.7
71	15.6	3.4	9.2	0.6579	254.4	763.7	13.8	2.4	7.9	42.5	-1.6	38.0
72	3.2	11.3	18.4	0.6579	458.6	254.4	15.6	9.4	4.9	3.4	13.1	-1.6
73	5.4	18.1	18.4	0.6579	390.8	458.6	3.2	12.9	32.4	11.3	5.8	13.1
74	13.4	42.5	40.0	0.6162	365.8	390.8	5.4	27.0	32.2	18.1	-67.0	5.8
75	33.9	73.5	38.0	0.6267	3783.7	365.8	13.4	37.8	-18.8	42.5	113.6	-67.0
76	21.2	61.1	20.5	0.6308	4078.4	3783.7	33.9	-4.1	4.0	73.5	53.2	113.6
77	15.4	45.6	12.3	0.6514	5225.4	4078.4	21.2	1.5	-3.6	61.1	170.8	53.2
78	16.6	6.2	13.3	0.6475	6206.1	5225.4	15.4	8.4	-6.1	45.6	74.4	170.8
79	11.8	20.8	29.7	0.5605	4323.0	6206.1	16.6	6.5	6.7	6.2	26.4	74.4
80	9.9	50.1	28.2	0.5445	11557.0	4323.0	11.8	25.1	5.1	20.8	170.7	26.4
81	20.9	5.6	10.9	0.6369	13969.2	11557.0	9.9	23.1	-20.0	50.1	33.7	170.7
82	7.7	3.1	15.2	0.6702	1862.2	13969.2	20.9	-3.6	-6.2	5.6	23.2	33.7
83	23.2	12.3	15.3	0.7486	5290.9	1862.2	7.7	8.4	-31.7	3.1	24.8	23.2
84	39.6	8.2	13.9	0.8083	-4690.4	5290.9	23.2	-8.2	-6.7	12.3	9.5	24.8
85	5.5	8.7	10.9	0.9996	5105.4	-4690.4	39.6	61.2	7.9	8.2	4.7	9.5
86	5.4	-1.2	8.2	3.3166	8804.3	5105.4	5.5	106.1	3.2	8.7	11.2	4.7
87	10.2	13.6	23.9	4.1916	5889.7	8804.3	5.4	90.1	1.8	-1.2	21.5	11.2
88	38.3	43.9	30.2	5.3530	12224.5	5889.7	10.2	-61.5	4.2	13.6	18.1	21.5
89	40.9	19.8	-5.4	7.6500	15134.7	12224.5	38.3	-5.9	2.7	43.9	-16.4	18.1
90	7.5	31.0	25.9	9.0001	22116.1	15134.7	40.9	3.3	1.5	19.8	14.6	-16.4
91	13.0	24.6	24.7	9.7545	35755.2	22116.1	7.5	9.3	2.9	31.0	31.2	14.6
92	44.5	34.3	30.7	19.6609	57531.0	35755.2	13.0	47.1	3.2	24.6	40.9	31.2
93	57.2	35.5	33.4	21.8861	107126.5	57531.0	44.5	13.0	1.9	34.3	43.2	40.9

NOTE: * = Actual values
(1) = A balance of government expenditure less revenue is used here as a proxy for government deficits (overall).
(2), (3) and (4) = Adopted from Asogu (1991).
SOURCE: Computed from data in various issues of CNB Annual Reports and Statistical Bulletin, 1970 - 1994.

TABLE IV (1970 - 1993)

NO. OF EQUA-TIONS	INTER-CEPT	M^1_t	M^1_{t-1}	Yt	P^2	GDt	DCt	QMt	IMP	EXR	GD_{t-1}	DC_{t-1}	R^2	R^2-ADJ	F-Stat	DW
1	13.3 (2.29)	0.458 (1.75)		-0.359 (-2.40)	-0.296 (-2.79)			0.406 (2.88)		0.144 (1.07)			89.0	87.9	53.54	1.84
2	-0.20 (-0.30)		0.394 (1.73)	-0.245 (-2.35)	0.222 (1.88)			0.596 (1.59)	-0.214 (-2.09)	0.227 (2.17)			61.5	59.5	43.59	1.79
3	-0.44 (-0.34)		0.372 (1.63)	-0.194 (-1.95)	-0.270 (-2.25)	0.276 (2.43)		0.547 (1.45)	-0.137 (-1.22)				72.7	68.4	13.96	1.49
4	-0.27 (-0.16)		0.118 (0.36)		0.213 (2.04)		0.408 (1.51)	0.247 (1.51)	0.206 (2.57)	0.194 (1.24)			56.8	55.8	8.76	1.62
5	1.63 (1.24)	0.234 (2.53)	0.297 (2.26)	-0.319 (-1.66)	0.191 (1.67)				-0.104 (-1.60)	0.224 (2.76)			83.2	82.3	5.77	1.57
6	0.77 (0.48)	-0.109 (-1.79)	0.406 (1.79)		0.118 (1.03)			0.366 (1.77)		0.147 (1.95)			52.6	51.1	1.68	1.82
7	0.64 (0.48)			-0.080 (-0.41)	0.306 (2.79)				-0.104 (-1.51)		0.116 (1.86)		75.5	72.9	9.61	1.72
8	2.22 (2.01)	0.395 (1.89)		-0.311 (-2.32)				-0.308 (-1.87)		0.245 (2.28)		0.207 (2.68)	63.9	50.1	4.61	2.25

Results from data provided in Table III.

TABLE V (1970 - 1985)

NO. OF EQUA-TIONS	INTER-CEPT	M^1_t	M^1_{t-1}	Yt	P^2	GDt	DCt	QMt	IMP	EXR	GD_{t-1}	DC_{t-1}	R^2	R^2-ADJ	F-Stat	DW
1	3.36 (2.64)	0.573 (2.41)		-0.449 (-3.27)	-0.188 (-0.72)			-0.571 (-1.32		0.25 (0.19)			53.7	30.6	2.32	1.97
2	1.05 (1.21)		0.316 (2.55)	-0.545 (-5.47)	-0.256 (-1.53)			0.534 (3.34)	-0.360 (-2.75)	2.79 (2.40)			90.3	78.7	7.77	2.20
3	1.33 (0.93)		0.489 (2.41)	-0.501 (-2.71)	-0.082 (-0.32)	-0.037 (-0.25		1.16 (1.63)	-0.139 (-0.97)				79.4	54.7	3.21	2.13
4	1.77 (0.65)		0.095 (0.20)		0.439 (-0.81)		0.536 (1.26)	0.23 (0.21)	0.033 (0.09)	2.56 (0.75)			56.2	-	0.64	2.43
5	2.51 2.21)	0.291 (1.35)	0.477 (2.98)	-0.439 (-3.23)	-0.249 (-0.96)				-0.125 (-0.82)	0.62 (0.48)			77.1	49.5	2.80	2.31
6	0.62 (0.37)	-0.113 (-0.40)	0.485 (1.86)		0.011 (0.04)			0.494 (0.81)		1.16 (0.65)			28.7	-	0.80	1.60
7	3.52 (1.95)			-0.500 (-2.46)	-0.146 (-0.37)				-0.062 (-0.29)		-0.061 (-0.37)		58.5	30.8	2.11	1.78
8	2.73 (1.57)	0.361 (1.40)		-0.295 (-1.68)				-0.491 (-0.68)		-0.11 (-0.06)		0.038 (0.14)	42.2	6.1	1.17	2.19

Estimated Results from data provided in Table III.

TABLE VI (1986 - 1993)

NO. OF EQUA-TIONS	INTER-CEPT	M^1_t	M^1_{t-1}	Yt	P^g	GDt	DCt	QMt	IMP	EXR	GD_{t-1}	DC_{t-1}	R^2	R^2-ADJ	F-Stat	DW
1	2.13 (3.1)	0.357 (2.94)		0.184 (1.89)	-0.111 (-3.10)			0.532 (3.21		0.850 (4.44)			61.8	60.1	21.54	1.74
2	-5.05 (-4.31)		0.865 (4.87)	-0.804 (-5.96)	1.42 (5.41)			0.286 (4.42)	-0.870 (-5.98)	-0.648 (01.77)			99.0	92.8	15.99	2.36
3	-1.25 (-6.15)		0.983 (3.38)	-0.754 (4.77)	1.26 (4.10)	-0.513 (-5.08		0.345 (12.26)	-0.833 (-6.80)				99.9	99.0	81.03	2.88
4	-8.44 (-1.19)		0.490 (2.99)		1.55 (1.75)		2.58 (3.13)		0.673 (4.23)	1.86 (1.76)			83.5	81.3	2.43	1.64
5	4.46 3.96)	0.275 (2.30)	0.756 (3.12)	0.622 (2.68)	1.20 (4.68)				-0.881 (-3.68)	0.529 (2.08)			99.9	99.8	68.24	2.68
6	2.57 (1.92)	0.551 (2.82)	0.036 (1.06)		0.321 (1.77)			-0.721 (-2.68)		0.931 (1.76)			60.7	56.1	1.32	1.54
7	-3.70 (-0.83)			0.472 (1.76)	1.13 (1.82)				-0.516 (-2.42)		0.230 (2.51)		68.4	26.2	19.62	2.61
8	-0.923 (-1.07)	-0.616 (-2.22)		0.139 (2.94)				0.394 (4.72)		-0.646 (-2.52)		2.91 (4.48)	96.5	87.8	11.11	2.57

Estimated results from data provided in Table III.

TABLE VII: RECENT RATE OF INFLATION IN NIGERIA AND THEIR CAUSES

YEAR	RATE OF INFLATION (%)	CAUSES OR REASONS ADDUCED IN CNB ANNUAL REPORT
1985	5.5	a. Inflation reduced due to improved supply situation and restraint in aggregate demand expansion, especially government spending.
1986	5.4	a. Moderate food prices decelerated inflationary pressures and the sustained restraints in aggregate demand expansion.
1987	10.2	a. Poor harvests leading to acceleration in food prices. b. Following the dismantling of the remaining price control and the ensuring deregulation as well as the depreciation of the Naira, inflationary pressures intensified.
1988	38.3	a. Sharp rise in food prices following increased demand consequent upon the ban on the importation of rice, maize and wheat and their products. b. Increase in cost of production following continued depreciation of the Naira exchange rate. This means inflation was both Demand-pull and Cost-push.
1989	40.9	a. The finance of excessive government deficit by the banking system and the increased cost due to depreciation of the Naira exchange rate. b. Induced high input costs including reduction or in some cases removal of subsidies on some industrial and agricultural inputs.
1990	7.5	a. High interest rates and low level of investment as well increased cost of production due to further depreciation of the Naira exchange rate. In addition, the sustained deficit expenditure of the government and its financing by the banking system.

TABLE VII (CONT'D)

YEAR	RATE OF INFLATION (%)	CAUSES OR REASONS ADDUCED IN CNB ANNUAL REPORT
1991	13.0	a. Large fiscal deficit and persistent depreciation of the Naira exchange rate, with concomitant increases in the cost of manufacturing and farm inputs.
1992	44.5	a. The rapid growth in aggregate domestic demand, in the face of only modest increase in the supply of goods and services.
1993	57.2	a. Increased costs of production traced largely to further depreciation of the Naira exchange rate and the rising energy prices. b. Continued rapid growth in aggregate demand resulting from increasing liquidity in the economy.

SOURCE: Central Bank of Nigeria Annual Reports and Statement of Account, 1985 - 1993.

