EFFECTS OF MONEY SUPPLY AND EXCHANGE RATES ON INFLATION IN NIGERIA

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ABSTRACT

This study examines the effects of money supply (M_2) and Exchange Rates on Inflation in Nigeria for the period of 28 years ranging from 1982 to 2009. Annual figures were collated for Inflation Rates: money supply and Exchanges rates for the years under study. The figures were analyzed using Multiple Regression Analysis (with SPSS). A model was built with Inflation as dependent variable while money supply and exchange rate were the independent variables. Our results show that while Money Supply and Exchange rate were the dependent variables. Our results show that while Money Supply and Exchange Rate are correlated, each affects inflation in varying degrees. Money Supply and Exchange Rate are correlated; each affects inflation in varying degrees. Money supply has positive effect while exchange rate has negative effect. However the two account for only about 12% of the causes. That means that there are some other more important factors that need to be investigated. Such other factors may relate to government growing annual deficit budgets, increasing lending rates of commercial banks.

Keywords: Inflation, Exchange Rate, Money Supply, Monetary Aggregates, Cost-of-Living Index (COLI)

INTRODUCTION

Inflation is a phenomenon that has come to stay in virtually all economies of the world. The causes are controversial. Different Economists and Finance Experts give different factors as the causative agents. They opine that some of these factors – money supply, exchange rates, interest rates, government deficit budget and a host of others – are largely responsible for inflation plaguing, in various degrees of different parts of the world. Developing countries appear worst hit by the ravages of inflation. This paper has set out to investigate how far money supply and exchange rates have effects on inflation in Nigeria.

BACKGROUND OF STUDY

We shall here make some comments on the variables being studied namely: money supply, Exchange Rates and Inflation.

Money Supply in Nigeria

Money Supply (MS) is a term not easily agreed upon as to its precise meaning. Money supply also called Money Stock could be used to refer to the amount of money in the hands of the non-bank public at a point in time and the some balances in commercial banks. There are several ways of measuring such an amount (also called monetary Aggregates) but each includes Currency in Circulation (c) Plus Demand Deposits (DD). Demand Deposit refers to balances in current accounts of customer's withdrable by cheque. The Central Bank of Nigeria (CBN) as well as public and private analysts shows interest in the growth of Money Supply because of the impact it is believed to have on real economic activities and the

general price level (P). Money supply is considered an important instrument for controlling inflation. Economists believe that growth in Money Supply will lead to inflation if demand for money is stable so that increase in Money Supply is not met by equal increase in demand. Changes in Money can be inflationary or deflationary. When the Central Bank expands Money Supply, inflation occurs and when it reduces money supply deflation occurs. Central Bank's expansionary and concretionary policy is carried out through the Fractional Reserve Banking which enables Commercial Banks to create money by credit expansion.

Importance of Money Supply

Money Supply is the life wire of all economic activities and so has powerful effects on the economic life of any nation. An increase in Money Supply puts more money in the hands of producers and consumers and thereby stimulating increased investment and consumption. Consumers increase purchases and business firms respond to increased sales by ordering for more raw materials and other resources to achieve more production, the spread of business and capital goods. As the economy goes buoyant, Stock Market prices rise and firms issue more equity and debt instruments. As the Money Supply expands, prices begin to rise, especially if output growth reaches full capacity. Lenders insist on higher interest rates to off-set expected decline in purchasing power over the life span of their loans. Opposite effects occur when the Money Supply falls or when there is decline in its growth rate, economic activities decline and disinflation (reduced inflation) or deflation (falling price) results.

Foreign Exchange Market/Rate in Nigeria

Before the establishment of the enactment of Exchange control Act of 1962, foreign exchange was earned by private sector operators. These were held in their balances overseas by commercial banks which then acted as agents for local exporters. These were mainly foreigners doing business in Nigeria. During this period, Agricultural exports contributed the bulk of foreign exchange receipts. By then the currency, Nigerian pound, was tied to the British pound with ease of convertibility. But this caused delays in the development of active exchange market. However with the establishment of the Central Bank of Nigeria there was centralization of foreign exchange authorities in the CBN. There then became the need to develop a local foreign exchange market.

Following sharp increase in the price of crude oil in the 1970s, the foreign exchange market experienced a boom. The boom resulted in excessive importation of all kinds of goods from all corners of the globe. Most of the goods were imported through a very liberal system of Inward Bills for Collection (IBC). The system involved importing through Acceptance Bills that were paid after the goods have been imported and sold. The bills soon resulted in huge sums of payments for imports made in local currency that accumulated in the Central Bank but not remitted abroad because of shortages of foreign exchange. By 1981 crisis over these un-remitted bills developed necessitating the need to control the nation's foreign exchange. It was not until 1982 that comprehensive exchange controls were introduced. The increasing demand for foreign exchange with falling supply encouraged the development of flourishing parallel market popularly called "Black Market" which has flourished up to today. Since 1987

controls were not enough, Structural Adjustment Programme (SAP) was introduced in 1986. The second Tier Foreign market (SFEM) was introduced to find realistic exchange rate for the Naira by employing the market forces. To enlarge the scope of Foreign Exchange Market, Bureaux-de-change were introduced in 1989 for dealing in privately sourced foreign exchange. Foreign Exchange Market (FEM) which pegged the exchange rate and adopted dual exchange rates system – N22 per $1 for government transactions and market-determined rate for all other transactions. In 1995 Autonomous Foreign Exchange Market (AFEM) was introduced for sale of foreign currencies to end users by the CBN through authorized dealers at market-based exchange rates. In 1999, there was the introduction of Inter-Bank Foreign Exchange Market (IFEM). There followed in 2006 the Dutch Auction System (DAS). It is pertinent to note that since 1986 foreign exchange has been determined by operations of market forces of demand and supply.

Inflation in Nigeria

There are various meanings of inflation today but there is a consensus among economists that inflation is a continuous rise in prices or what is called general price level. Simply put, inflation depicts an economic situation where there is a general and persistent rise in prices of goods and services. It could be said to be a continuous rise in prices as measured by the Consumer Price Index (CPI). People describe inflation as a situation where too much money is chasing too few goods. During inflation in an economy, the currency loses purchasing power. When we talk of inflation, it is understood as overall increases in prices of all goods and services as distinct from isolated increase in one or a few goods. The prices increases must also be continuous not a once-for-all increase. Inflation is a world-wide phenomenon and a household name today in Nigeria.

Inflation is usually estimated by calculating the inflation rate of a price Index usually Consumers Price Index (CPI), which measures price changes of a selection of goods and services purchased by a typical consumer. Inflation is the percentage rate of change of price Index over time. For example, if in Nigeria in 2008 CPI is 242.16 and in 2009 CPI is 292.08, the formular for calculating annual inflation rate is

$$\frac{\text{CPI for } Yr_1 - \text{CPI for } Yr_0 \times 100}{\text{CPI for } Yr_o}$$

Where Yr_1 is the current year Yr_o is the previous year

That mean that the inflation rate for 2009 is $\frac{292.08 - 242.16 \times 100}{242.16} = 20.61\%$

There are other ways of estimating inflation rate for example COST-OF-LIVING INDEX (COLI) which is similar to CPI. We also have PRODUCER PRICE INDEX (PPI) which measures average changes in prices received by domestic producers for their output. PPI differs from CPI in that price subsidization, profits and taxes may cause the amount received by the producer to differ from what the consumer paid. PPI measures the pressure being put on producers by cost of raw materials. Depending on demand elasticity for the goods, these costs could be passed on the consumers or absorbed by profits. There are also CORE PRICE INDICES which try to remove volatile components such as food and oil from computation of

inflation rate. By trying to remove the volatile goods and services, the Core inflation rate calculated is less affected by short run supply and demand conditions in specific markets.

STATEMENT OF PROBLEM

Nigeria has experienced general price increase since the 1970s and the situation became worse since the introduction of Structural Adjustment Programmes in 1986. The impact of SAP policies resulted in increase in inflation rates as well as in exchange rates. Policies were introduced such as privatization and deregulation with aim of controlling inflation. These policies were introduced because it is believed that they affect inflation. Some studies carried out in some African countries tried to link changes in exchanges rates and money supply with inflation. One such study is by Albadawi (1990) who worked on "Inflationary Process in Uganda", (East Africa). His study opined that exacerbation of exchange rates does not affect inflation adversely. Adedokum (1995) studied about inflation in Nigeria and concluded that growth of money stock and devaluations of exchange rates have adverse effects on domestic inflation. Various factors such as money supply, exchange rate and other factors have been held responsible for persistent inflation in Nigeria. These divergent views and the perceived poverty that has overtaken Nigerians have posed problems that have motivated this study. The study attempts to find out the effects of changes in Money Supply and exchange rates on inflation in Nigeria.

OBJECTIVES OF STUDY

As stated earlier, inflation has assumed global importance. Unbridled inflationary pressures have been perceived to have adverse effects on various segments of the economy. For example, people with fixed income have lost purchasing power of their money income; firms have their plans and finances thrown out of gear, Government programmes have their budgets suffer cost overruns. The study therefore sets out to find the impact of exchange rates and money supply on inflation in Nigeria. Since inflation has continued to go on unabated, the study will help to identify whether these factors are causative agents. It will make suggestion to guide future policies in Nigeria.

SIGNIFICANCE/JUSTIFICATION FOR STUDY

All over the world national governments and Central Banks are obsessed about inflation. Valuable resources and time are devoted to fighting inflation. Perceived adverse effects are many such as erosion of purchasing power of the Naira, inequitable distribution of income among earners, loss of social welfare due to reduction in saving and investments. Inflation has also been known to have triggered off social upheavals and overthrow of governments in some countries.

The justification for the study is that answers and suggestions generated will be useful to segments of people who are affected by changes in money supply and exchange rates. The findings will form basis of suggestions as to how to control inflation. We say control because we do not think that inflation can be eliminated entirely. Inflation economists such as Phillips of the Phillips-Curve fame, argue that a small measure of inflation is necessary for an

economy not to slip into economic depression. Phillips tried to show that there are trade offs between inflation and unemployment. This study will also show whether inflation in Nigeria is largely caused by increases in Money Supply and exchange rates or some other factors. The result obtained will then be of immense help in ensuring that appropriate measures are taken.

METHODOLOGY OF STUDY

The study will use Multiple Regression to analyze time series data generated over the period. It will be used to test the hypothesis proposed. Multiple Regression will look at correlation (r) coefficient of determination (r^2) to explain the degree of influence of independent variables on dependent variable.

Sources of Data

The data are secondary and are from CBN Economic and financial issues and statistical Bulletins, also various text books and journals. Extensive use was made of the internet especially from goggles and wikepedia.

Statement of Hypothesis

The hypothesis is stated in Null (H_o) and Alternative Hypothesis (H_1)

$H_{o:}$ There is no significant effect of Money Supply and Exchange Rates on Inflation in Nigeria

H_1: There is significant effect of Money Supply and Exchange Rates on inflation in Nigeria.

Scope of Study

The study is limited to a period of 28 years from 1982 to 2009. The study will be based on time series figure for Money Supply, exchange rates and inflation rates for the period of study.

REVIEW OF LITERATURE/THEORITICAL FOUNDATIONS

We use this section to review relevant literature and the theoretical foundation of the factors under study namely, money supply, Exchange Rates and Inflation.

MONEY SUPPLY IN NIGERIA

Money Supply or Money Stock could be used to refer to the total amount of money held by the non-bank public at a point in time plus current account deposits in banks withdrawable by cheque. Money Supply is very important because it is believed that it is an important instrument in controlling inflation. It is, however, noteworthy that there is no single accepted concept of what makes up money supply. Ekezie (1997) collaborates when he stated that "economists have not been able to agree on the best definition of money". He further added that "there is honest disagreement as to the best definition of money and the best measure of money" Thus there are varying conceptions of what is money supply but there are some basic acceptable versions.

M1 – known as the narrow definition, it looks at Money Supply in terms of currency in circulation in form of paper currency and coins (c). To this is added Demand Deposit in form of balance in customer's current accounts in Banks. Thus we have M1 = C+DD. This definition is associated with J.M. Keynes. M2 – some economists have included to M1 amount held in savings and Time Deposits. The argument is that even though holders of these accounts do not issue cheques payable on demands, they can easily go to the bank and make immediate cash withdrawals. Even for fixed deposits, they can terminate their fixed deposits by paying some penalties and collect cash ahead of expiry. We thus have M2 = C+DD+STD (STD means saving and Time Deposits). This broader definition is propagated by Milton Friedman and modern monetarists. This is the definition generally accepted by the CBN when it talks of money aggregates. M3 some economists have gone further to define money supply, in terms of M1 + M2 plus near-money such as postal orders, Money Orders and other readily marketable instruments. They argue that such near-monies can be sold easily for cash and may also be used as collateral to secure loans from banks. This broadest definition is popularized by Gurley and Shaw in the late 1950s. Thus M3 = M1+M2 + Near Monies.

EXCHANGE RATES IN NIGERIA

An exchange rate is price – exactly the same as any other price-which is the amount you give up to acquire something else. In this case you give up an amount of Naira to acquire another currency, say US Dollar or Japanese Yen. Layi Afolabi (1998) said that "exchange rate is the rate at which one currency will exchange for another" He added that in dependent economies such as Nigeria, "the exchange rate will be the important price in that it determines virtually all other prices". Nzotta S.M. (2004) agrees with the above and adds that "exchange rate is the rate of transformation of one currency to another or the rate at which one currency is exchanged for another" Nzotta (ibid) adds that foreign exchange rate is maintained by arbitrage. Arbitrage is a mechanism whereby speculators buy in one market where the rate is low and sell in another where the price is high. The difference constitutes arbitrage income. Exchange rates may be fixed by government by fiat as was the case in Nigeria before the introduction of SAP in 1986. However presently exchange rates are largely determined by the operations of Demand and Supply. This is the Demand and Supply of Naira traded in the foreign exchange market, let us look at figure 2 below:-

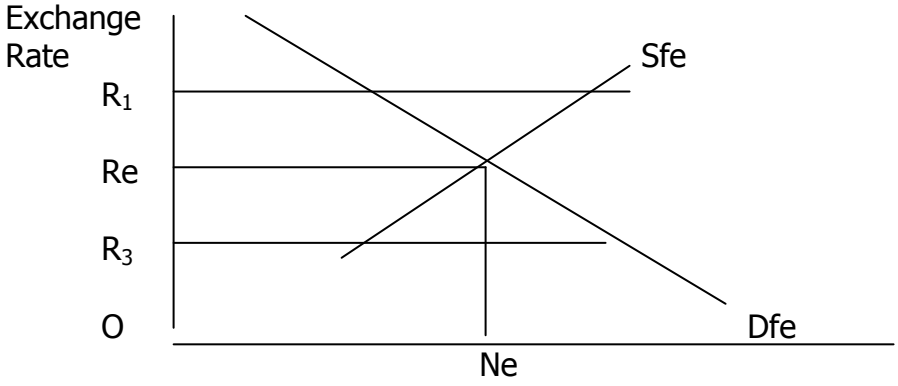

Fig. 2 Equilibrium of Demand and Supply of foreign Exchange

The equilibrium exchange rate is Re and Naira requirement is Ne. Changes in Demand and Supply can push the rates to R1 and R2. According to Ikeora, E.J. (2007) demand for foreign exchange is made up of:

i) Importers of foreign goods
ii) Foreigners resident in Nigeria who need to repatriate home earning or investment capital.
iii) People who want to purchase or send gifts to people abroad and
iv) People resident in Nigeria but want to invest and lend abroad.

The supply components come from:

i) The Central bank of Nigeria which receives proceeds of exports of oil and non-oil.
ii) Companies which export their products abroad.
iii) Domestic residents (foreigners) who bring in capital funds from abroad.
iv) Gifts from Nigerians resident abroad. Large foreign currencies come into Nigeria through WESTERN UNION, MONEY GRAM and other agencies.
v) Private Investors who invest in some sectors of the economy. The Federal Government has always courted these private foreign investors.

As we have now market based exchange rates we have floating or flexible exchange rates. As in figure 2 the rate can float up to R_1 and down R_2. The equilibrium rate Re is very important in realizing the stability in the macro economy.

PEGGED OR FIXED EXCHANGE RATE

This is a system where the exchange rate is not allowed to be determined by market forces of demand and supply. It is determined by government fiat. For example before the introduction of SAP in 1986, Naira exchange rate was maintained by fiat. Even for some years after the introduction of SAP and SFEM the Naira was pegged at N22:$1 for government transactions.

THEORIES OF INLFATION

Various theories have been proposed by various economists to explain the occurrence of inflation. Inflation is a complex phenomenon and not yet fully well understood. One of the theories is the monetarists approach. According to them inflation is always a monetary phenomenon and caused by increases in Money Supply. It dates back to the Quantity Theory of money which proposed a direct proportional relationship between money supply and prices. The Crude Quantity Theory was stated as P = xM where P is the general price level, x is the constant by which money supply changes while m is the money stock. Irving Fisher about 1911 reformulated the theory in what he called Equation of Exchange:

MV = PT where M = Money Stock
V = Velocity of circulation of Money
P = General Price level and
T = Total Volume of transactions.

Fisher said the V and T are fairly constant because they depend on people's habit and income which tend to remain constant. He thus came up with M and P and again opined that changes in M have equal and proportional effect on P. monetarists together with Friedman argue that money supply has overwhelming effect on prices. The government then was advised to control money supply. Another theorist, Keynes, looks at inflation as being caused by increases in demand and costs. The duo makes up the popular Demand-Pull Inflation and Cost-Push Inflation. Demand Pull is where Aggregate Demand persists to exceed Aggregate Supply. Cost-push Inflation attributes the basic cause of inflation to costs of production i.e. on the supply side. Increased cost productions are recycled back in form of higher prices. Another theory of inflation is the structural theory. It is believed to have originated from developing countries. The theory takes a hard look at the dependency nature of LDCs such as Nigeria. It opined that LDCs suffer from weak infrastructure and have over-dependency on developed countries such that local production is tied up heavily on external economies. Part of this is the burdensome effects of Bretton Wood institutions of World Bank and IMF. For example not caring about the excessive devaluation that Naira has suffered over the decades, the IMF recently was goading Nigeria the devalue the Naira. It is reported that the CBN Governor, Sanusi Lamido Sanusi, rejected the call for devaluation.

REVIEW OF EMPIRICAL STUDIES ON INFLATION IN NIGERIA

Some empirical studies on inflation have been done in Africa and Nigeria. Some economists differ in opinions about the causes of inflation. Clilibber and Shafik (1992) carried out a study on Ghana Inflation (1965-1988) and pointed out the growth in Money Supply is one variable responsible for Ghana's inflation. Ndungu (1993) using vector Auto Regression (VAR) models used 6 variables VAR – Money supply, domestic price level, exchange rate, foreign price index, real output and interest rate – to attempt to explain inflation trends in Kenya. He observed that inflation rate and exchange rate affect each other and linked exchange rate devaluations as having major impacts on inflation especially in developing countries. In Nigeria, Oyejide (1986) explain from Regressions carried out in Nigeria that there exist direct relationship between inflation and money supply. His study spanned 1957-1970. Odedekun (1995) did studies on causes of inflation on Sub-Saharan Africa Nigeria inclusive. He used econometrics to analyze annual reports data for 35 countries (1971 – 1990) and made findings suggesting that money supply, domestic currency depreciation have positive effects on inflation. CBN – NISSER (1998) study supported Greene and Cavetti (1991) study which stated that exchange rates and monetary expansion largely propagated inflation in ten African countries including Nigeria. It is observed then that there is no perfect agreement on the totality of factors that cause inflation in developing countries including Nigeria. This study using Multiple Regression will concentrate of finding of effects of two varies-money supply and exchange rates.

Table 1:

Years	**Inflation Rate (%)**	**Money Supply (M2) (N'Million)**	**# Exchange Rate (ExRate)**
1982	7.70	18,093.6	0.6729
1983	23.20	20,879.1	0.7241
1984	39.60	23,370.0	0.7649
1985	5.50	26,277.6	0.8938
1986	5.40	27,389.8	2.0206
1987	10.20	33,667.4	4.0179
1988	38.20	45,446.9	4.5367
1989	40.90	47,055.0	7.3916
1990	7.50	68,662.5	8.0378
1991	13.00	87,499.8	9.9095
1992	44.50	129,085.5	17.2984
1993	57.20	198,479.2	22.0511
1994	57.00	266,944.9	21.8861
1995	72.80	318,763.5	21.8861
1996	29.30	370,333.5	21.8861
1997	8.50	429,731.3	21.8861
1998	10.00	525,637.8	21.8860
1999	6.60	699,733.7	92.3428
2000	6.90	1,036,079.5	100.8016
2001	18.90	1,315,869.1	111.7010
2002	12.90	1,599,494.6	126.2577
2003	14.00	1,985,191.8	134.0378
2004	15.00	2,263,587.9	132.3704
2005	17.90	2,814,846.1	130.6016
2006	15.00	4,027,901.7	128.2796
2007	8.50	5,809,826.5	245.1947
2008	11.60	9,166,835.3	189.3270
2009	11.7	10,767,377.8	242.8155

Source: CBN Statistical Bulletin, various issues

MODEL ESTIMATION, ANALYSIS AND INTERPRETATION

The figures on Table 1 are secondary data collected from CBN Statistical Bulletin for the period of 28 years 1982-2009.The Table relates to Inflation rates, Money Supply and Exchange Rates. Here the Inflation Rates is the dependent variable while Money Supply (MS) and Exchange Rates (Ex Rate) are independent variables. Multiple Regression Analysis is adopted to test the impact of Money Supply and Exchange Rates on Inflation Rate. The Analysis is done through use of the Special Package for Social Science (SPSS). The Multiple Regression Analysis will look at the coefficient of correlation (r) and coefficient of

Determination (r^2) to explain the degree of influence of independent variables on the dependent variable – inflation in Nigeria.

MODEL PRESENTATION

The model put in form of function will be
Inf = f (Ms, Ex Rate)
Put in model form we have
$Inf_t = a, + a_2 M_{2t} + a_3 Ex\ Rate_t + e$
Where Inf_t = Inflation Rate at a period of the
Ms and M_{2t} = Money Supply aggregate at a time
Ex Rate = Exchange Rate at a time
a = Constant
e = Random Error Term

Random Error terms will capture unknown variables.
If we may restate the Hypothesis we say
Ho (Null Hypothesis) – There is no significant effect of Money Supply (M_2) and Exchange Rates (Ex Rate) on Inflation in Nigeria.
H_1 (Alternative Hypothesis) = There is significant effect of Money Supply (M_2) and Exchange Rate (Ex Rate) on Inflation in Nigeria.

GUIDE TO JUDGING CORRELATIONSHIPS. (r)

- I denotes perfect negative correlation
O denotes spurious or no correlation
+ I denotes perfect positive correlation
The closer the r is to I, the stronger the correlationship and vice versa.

ANALYSIS AND INTERPRETATION OF SPSS CORRELATION ANALYSIS (see attached Appendix I)

Table 2: correlation matrix:

	INFLATION	**MONEY SUPPLY**
Money Supply (2)	-0.268 (0.84)	
Exchange Rate (3)	-0.335 (0.041)	0.872 (0.000)

The correlation between Inflation and Money Supply is -0.268 (approximately 0.27) indicates very weak negative correlation. The correlation is not significant at 5% level of significance. Therefore we can say that the relationship is negligible. The correlation between Inflation and Exchange Rate is -0.335 (approximately -0.34) and denotes weak negative correlation. The correlation is statistically significant at 5% level significance. However it is negative and we can say that there is negative relationship between inflation and exchange rate. The correlation between the two independent variables (Money Supply and Exchange

Rates) is 0.872 (approximately 0.87). This denotes strong positive relationship between Exchange Rates and Money Supply.

MODEL SUMMARY

The coefficient of Determination (r^2) measures the portion of the changes in inflation that can be explained by the independent variables (money Supply and Exchange Rate). It is 0.115 in this study. This approximates to saying that about 12% of the changes in inflation in Nigeria is accounted for by Money Supply and Exchange Rate. The extension of the statement is that about 88% causative agents of Inflation cannot be explained by Money Supply and Exchange Rate. In other words other factors are largely responsible for causing inflation in Nigeria. Other such factors may relate to burgeoning Annual Government Deficit Budgets, Excessive Revenue from oil, Imported Inflation following over dependence of the nation on imports, lending activities of commercial banks and high lending Interest Rates. While we cannot outright blame these very possible causative factors they may form basis of further investigation on their effects on inflation in Nigeria.

The model: $Inft_t = aO + a_2 M_2 + a_3$ Ex Rate $+e$

$Inf = 27.38 + 0.0000069M_2 - 0.103$ Ex Rate

(4.684) (0.0000) (0.093)

The model shows that Money Supply will have positive effect or impact on inflation while exchange rate will have negative impact on inflation. The standard error of the coefficient is small indicating that the predictive ability of the model is high. The t value measures the contribution of each variable to the inflation rate: the t value for money supply is 0.267 (0.79) and exchange rate is – 1.102 (0.281), the value of exchange rate is higher than that of Money Supply meaning that exchange rate contributes more to inflation than Money Supply.

CONCLUSION AND RECOMMENDATION

From our analysis and interpretation we have examined the effects of money supply and Exchange Rates on Inflation in Nigeria. The study has shown that the two independent variables – money supply and exchange rates – have varying degree of Impact on Inflation. Money Supply has positive impact while Exchange Rate has negative impact. It is also seen that the impact of exchange rate is stronger than money supply. The reason may not be far fetched because since the introduction of Structural Adjustment Programmes (SAP) and market oriented exchange rates through SFEM in 1986, inflation has become intractable and nightmarish to subsequent Nigerian governments. The study also revealed that the variables are correlated meaning that their effects on inflation, albeit in varying degrees, are inseparable. Their impact, however, is limited to about 12%. Definitely other factors have to be sought for the larger percentage of 88%.

We therefore recommend that a further study will be carried out to determine the impact of other possible factors such as government deficit financing, rising lending interest rates of commercial banks, importation and other structural factors. However policy makers should continue to introduce measures to control money supply, exchange rates and other factors

causing inflation. Prolonged effects of inflation on an economy are not palatable although small measure of it is necessary to fight unemployment a-la-Philips Curve.

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APPENDIX

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REGRESSION
  /DESCRIPTIVES MEAN STDDEV CORR SIG N
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA COLLIN TOL CHANGE
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Inf
  /METHOD=ENTER M2 ExRate
  /RESIDUALS DURBIN HIST(ZRESID) NORM(ZRESID).
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Regression

Descriptive Statistics

	Mean	Std. Deviation	N
Inflation	21.7679	18.43457	28
Money Supply	1.5759E6	2.74942E6	28
Exchange Rate	65.0532	76.00687	28

Correlations

		Inflation	Money Supply	Exchange Rate
Pearson Correlation	Inflation	1.000	-.268	-.335
	Money Supply	-.268	1.000	.872
	Exchange Rate	-.335	.872	1.000
Sig. (1-tailed)	Inflation	.	.084	.041
	Money Supply	.084	.	.000
	Exchange Rate	.041	.000	.
N	Inflation	28	28	28
	Money Supply	28	28	28
	Exchange Rate	28	28	28

Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	Exchange Rate , Money Supply[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: Inflation

Page 1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2
1	.339a	.115	.044	18.02620	.115	1.619	2	25

a. Predictors: (Constant), Exchange Rate , Money Supply

b. Dependent Variable: Inflation

Model Summary

Model	Change Statistics	Durbin-Watson
	Sig. F Change	
1	.218	.950

a. Predictors: (Constant), Exchange Rate , Money Supply

b. Dependent Variable: Inflation

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1051.906	2	525.953	1.619	.218a
	Residual	8123.595	25	324.944		
	Total	9175.501	27			

a. Predictors: (Constant), Exchange Rate , Money Supply

b. Dependent Variable: Inflation

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	27.380	4.684		5.845	.000		
	Money Supply	6.896E-7	.000	.103	.267	.792	.239	4.189
	Exchange Rate	-.103	.093	-.425	-1.102	.281	.239	4.189

a. Dependent Variable: Inflation

Collinearity Diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions		
				(Constant)	Money Supply	Exchange Rate
1	1	2.387	1.000	.06	.03	.02
	2	.533	2.115	.70	.08	.01
	3	.079	5.481	.25	.89	.97

a. Dependent Variable: Inflation

Residuals Statistics[a]

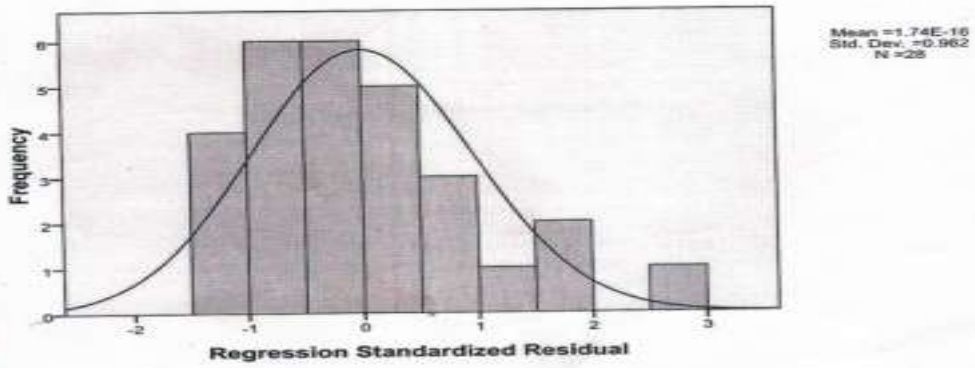
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	6.1378	27.3235	21.7679	6.24175	28
Residual	-2.1806E1	47.45427	.00000	17.34572	28
Std. Predicted Value	-2.504	.890	.000	1.000	28
Std. Residual	-1.210	2.633	.000	.962	28

a. Dependent Variable: Inflation

Charts

Histogram

Dependent Variable: Inflation



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