

An Appraisal of Monetary Policy and its Effect on Macro Economic Stabilization in Nigeria

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Abstract: This study appraised monetary policy development in Nigeria and also examined the effect of monetary policy on macroeconomic variables in Nigeria for the period 1986-2009. The study adopted a simplified Ordinary least squared technique and also conducted the unit root and co-integration tests. The findings of the study showed that monetary policy have witnessed the implementation of various policy initiatives and has therefore, experienced sustained improvement over the years. The result also shows that monetary policy had a significant effect on exchange rate and money supply while monetary policy was observed to have an insignificant influence on price instability. The implication of this finding is that monetary policy has had a significant influence in maintaining price stability within the Nigeria economy. The study concluded that for monetary policy to achieve its other macroeconomic objective such as economy growth there is the need to reduce the excessive expenditure of the government and align fiscal policy along with monetary policy measure.

Key words: Monetary policy, price stability, exchange rate, implication, expenditure, influence, Nigeria

INTRODUCTION

In the past two decades, macroeconomic policies has been said to have improved enormously in developing countries but the expected growth benefit failed to materialize, instead a series of financial crisis, severely depressed growth and macroeconomic instability has been the case. Conceptually, macroeconomic instability refers to phenomena that make the domestic macroeconomic environment less predictable and this is of concern because unpredictability can hamper resource, allocation decisions, investment and growth. Although, macroeconomic instability can take diverse form such as the form of volatility of the key macroeconomic variables or of unsustainability in their behavior such as the one that predict future volatility. How then can a country like Nigeria experience macroeconomic stability? This problem is widely perceived to have worsened in the developing countries like Nigeria.

Surprisingly, monetary policy is known to be a vital instrument that a country can deploy for the maintenance of domestic price and exchange rate stability as a critical condition for the achievement of a sustainable economic growth and external viability. Its role in ensuring an overall macroeconomic stability cannot be overemphasized. Although, in Nigeria appreciable

progress has been made in this regard since, the introduction of various financial sector reform programs in 1986. Despite the foregoing, the Nigerian monetary policy has continued to face several challenges. No wonder, the CBN is increasingly focusing more on the aspect of price stability, recognizing the relevance of macroeconomic stability for economic sustainable output and employment growth.

In contrast, economist has disagree however, about whether price stability and money supply should be the central objective of macroeconomic policies or whether these policy should serve broader monetary policy goals which is now the trust of this current study. Also, the study will examine the relationship between money supply and price stability in Nigeria. Hence, this study investigate the effect of monetary policy on macroeconomic stabilization in Nigeria

Conceptual framework: The conceptual framework of this study is geared towards having a proper understanding of the concept of monetary policy; how monetary policy tends to affect price stability, exchange rate and interest rate. Monetary policy refers to the combination of measures designed to regulate the value, supply and cost of money in an economy to match with the level of economic activities. It can also be described as the act of

controlling the direction and movement of monetary policy and credit facilities in pursuance of stable price and economic growth in an economy CBN. In contemporary economies, the Central Bank is the authority with the mandate of manipulating monetary policy through monetary policy tools to achieving desired macroeconomic objectives which includes the achievement of price stability with respect to both domestic and external prices. In the same vein, uses inflation rate to track movement in the domestic price while exchange rate policy are used as tool in ensuring external stability, thereby enhancing export performance in the economy according to Caballer and Carbo. In addition, exchange rate policy impacts on the outcome of stabilization measures and debt management strategies according to Busari and Olayiwola (1999), respectively in developing countries which includes Nigeria.

The CBN uses monetary policy in order to maintain price stability. Hence, price stability occurs when goods and services in general are not getting rapidly more expensive (that is inflation) or less expensive (that is deflation). At present, price stability is defined as keeping inflation on average over the medium term. Inflation on the other hand depicts an economic situation where there is a general rise in the prices of goods and services continuously.

It could also be defined as a continuing rise in the prices as measured by an index such as the Consumer Price Index (CPI) or by the implicit price deflator to Gross National Product (GNP). When there is inflation, the currency loses purchasing power. The purchasing power of a given amount of naira will be smaller over time when there is inflation in the economy. For instance, if ₦5,000 can purchase 10 economics textbooks in the current period if the price of economics textbooks doubles in the next period. Invariably, the same ₦5,000 can only afford 5 economic textbooks.

Central banking in a measuring number of economies is faced with the fight against price stability, inflation, interest rate, Consumer Price Index (CPI), etc. The CBN is despite that still saddled with the attendant risk of policy conflict hence, the need for the analysis of several researches that has been undergone by researcher both in the developed and developing countries.

Nzotta and Okereke (2009) opined that the pursuit of price stability invariably implies the indirect pursuit of other objectives such as economic growth which can only take place under condition of price stability and allocative efficiency of the financial markets, since inflation is generally considered as purely a monetary phenomenon with significant cost to the economy. The primary goal of monetary policy to him is to ensure that money supply is

at a level that is consistent with the growth rate will be ensured. Without mincing words, the literatures stipulate that the pursuant of price stability therefore, encompasses all main areas in which the Central Bank can contribute towards stabilizing the macroeconomic environment of the country.

Another impulsive evidence is the one from the financial press in Nigeria as reported by Gan *et al.* (2006) that investors generally believe that monetary policy and macroeconomic events have a large influence on the unpredictability of the stock price which further implies that macroeconomic variables could exert shocks on share returns and thereafter influence investors investment decision. To buttress the above, Akinnifesi (1987) emphasized that there is a relationship between exchange rate and stock prices fluctuation. He found out that the impact of naira depreciating as a monetary policy tool goes a long way in increasing stock prices.

Mashai (1999) opined that in the latter 1980s as a result of structural adjustment program, the effects of wage increases created a cost-push effect on inflation which in the long run was a structural feature of the economy coupled with the growth in money supply that translated these into durableness increases.

In the literatures, the traditional approach to the study of inflation stresses the significance of the link between money supply and inflation. Monetarists see inflation as always and everywhere a monetary phenomenon as examined by Mashai (1999). Further, Friedman (1956) argued that inflation has a monetary character because it results from the rise in the quantity of money, through the change in prices may not show up at the same time as the rise in the quantity of money. The concept of inflation which models money supply as an exogenous variable with causality running from money supply to prices characterizes the research of Cagan (1956) among others. According to Fakiyesi (1996) in his study of inflation in Nigeria, he argued that inflation depends on growth in broad money (m_2), The Rate of Exchange (TRE) of the naira vis-a-vis the dollar (\$) the growth of real income (GRI) or (Y); the level of Rainfall (R) and the level of anticipated inflation which is based on the previous years level of inflation (P_{t-1}).

Theoretical/analytical perspectives: The study seeks to establish a theoretical foundation that it would be based on. This investigation would be based on the research carried out by Husnan in Indonesia and the one carried out by Sanusi (2002) in Nigeria, respectively. They observed that to achieve macroeconomic stability, inflation, exchange rate, asset price, etc. that a transmission mechanism of the monetary policy is useful

in influencing the price and quantity of the above mentioned macroeconomic indicators and ultimately real economic activities. Kandir (2008) investigated the role of macroeconomic factors in order to explain the growth rate of industrial production index, change in exchange rate, interest rate, growth rate of international crude oil prices and return on (MSC) world equity index. Moreover that inflation rate is significant for only three of the twelve portfolios he examined. Also that industrial production, money supply and oil prices do not appear to have significant effect on stock returns and other macroeconomic indicators.

In Turkey, Adam and Tweneboah (2008) observed that macroeconomic variables impact on stock prices in Ghana. They further exerted that both the long run and short run dynamic relationships between stock market index and the economic variables inward foreign direct investment, treasury bill rate, consumer price index, average oil prices and exchange rates by using cointegration test, Vector Error Correction Model (VECM). From their test, it was discovered that there is cointegration between macroeconomic variable and the prices of stock in Ghana indicating long run relationship.

Amadi *et al.* (2002) revealed in their research that there exist a relationship between prices of stock and macroeconomic variables. And that they are consistent with theoretical postulation and empirical findings in some countries.

In Ball's opinion, the most reasonable alternatives to a policy of fixed exchange rates are inflation targeting and price level targeting since, movement in exchange rate typically, feed quickly into price levels in emerging economies or at least do so a lot quicker than in OECD. In a similar vein, Svensson (2000) is of the view that many policy makers would examine or assess the above as represent both an opportunity and constraint on optimal monetary policies. However, Devereux argues that the best monetary policy rule in an open economy should be the one that stabilizes non-traded goods price inflation and that policy of strict inflation targeting is much more desirable in an economy with limited pass through if the monetary authorities are concerned with consumer prices inflation (over and above non-traded goods inflation) then the flexible mechanism for exchange rate determination and the policy instruments designed and applied to register the course of exchange rate movements.

In other words, the movement from a fixed regime to a flexible regime was among other things to stimulate growth and maintain a healthy external balance which is what is generally referred to as macroeconomic stability. In particular, the theoretical foundation will be based on the monetary policy transmission

mechanism of Sanusi (2002) and the research of Husnan, an example of developed and developing economy.

An appraisal of monetary policy in Nigeria between 1986 and 2009: The adoption of Structural Adjustment Program (SAP) in Nigeria offered a sea of policy change in monetary policy development in Nigeria. The deregulation exercise in the financial system, led to the establishment of two foreign exchange markets in 1986. In 1987, interest rate controls completely removed, bank licensing liberalized and the foreign exchange markets unified. In 1988, foreign exchange bureaus established bank portfolio restrictions relaxed and the Nigerian Deposit Insurance Corporation was established. In 1989, banks were permitted to pay interest on demand deposits, the auction markets for government securities was introduced, the capital adequacy standards were reviewed upward and the extension of credit based on foreign exchange deposits was banned. In 1990, the risk-weighted capital standard was introduced and banks required paid-up capital increased. Also in 1990, a uniform accounting standards was introduced for banks while a stabilization security to mop up excess liquidity was also introduced. In 1991, there was an embargo on bank licensing while the administration of interest rate was introduced. Also, the Central Bank was empowered to regulate and supervise all financial institutions in the economy. In 1992, the interest rate controls removed once again while the privatization of government-owned banks commenced. More so, capital market deregulation commenced, credit control was dismantled while the foreign exchange market was reorganized. In 1993, indirect monetary instruments were introduced while in 1994, the interest and exchange rate controls were re-imposed.

In 1996, all mandatory credit allocations on banks by the CBN guidelines were abolished while in 1997, the minimum paid up capital of merchant and commercial banks was further raised to a uniform level of ₦500 million. In addition, the operational environment for banks was further liberalized in 2001 with the introduction of universal banking system while in 2005, the minimum paid up capital was further raised to ₦25 billion naira for all commercial banks in accordance with the recapitalization exercise. In 2006, the Central Bank of Nigeria introduced a new monetary policy implementation framework (Monetary Policy Rate (MPR)) to replace the Minimum Rediscounted Rate (MRR). Specifically, this is done to dampen the volatility of interest rate in money market and stimulate a transaction rate that would improve the transmission of monetary policy actions and ultimately to achieve a stable value of the domestic currency. An important implication of the various policy initiated above was to bring about stability in the

macroeconomic variables. The extent to which have been achieved will be substantiated by the empirical analysis carried out in the succeeding section.

MATERIALS AND METHODS

The study deals with model specification, data requirement and source of data. This model comprises a number of alternative monetary policy motives.

However, the empirical implementation of the model makes use of Ordinary Least Squared (OLS) econometric technique on data covering 24 years (1986-2009) in Nigeria.

Model specification: In the light of the objectives raised in the introductory chapter, two models will be specified. The 1st examines the relationship between monetary policy and macroeconomic variables while the 2nd is to examine the relationship between money supply and inflation in Nigeria. The short term interest rate is used to proxy monetary policy changes. Thus with respect to objective one and two, we specified a simple model as follows:

$$MP = (INF, EXR, GDP, M_2, U_1) \quad (1)$$

Expressing Eq. 1 more explicitly, we have:

$$MP = a_0 + b_1 M_2 + b_2 INF + b_3 EXR + b_4 GDP + u_t \quad (2)$$

Where:

RGDP = Real Gross Domestic Product

M_2 = Log of money supply

INF = Inflation rate

EXR = Exchange rate

MP = Money supply proxy by short term interest rate

RESULTS AND DISCUSSION

This study commence it empirical analysis by 1st testing the properties of the time series used for analysis. This is important most macroeconomic time series exhibit

non-stationarity behaviour in their level form which often poses a serious problem to econometric analysis, leading to spurious result if appropriate measures are not taken. To guard against spurious result this study, took caution by checking the properties of the variables via the Augmented Dickey-Fuller (ADF) test developed by Dickey and Fuller and the Philip-Perron (PP) test. The result is shown in Table 1. As observed from the ADF test on Table 1, all estimating variables were found to be I (1) series, implying that these variables were non-stationary at level but became stationary after 1st difference. Hence, the null hypothesis of no stationarity was rejected in all the series. The PP test results reported on the other half of Table 1 also confirmed the ADF test result.

Ensuing stationarity test is the examination of the long run (co-integration) relationship among the variables. The Johansen multivariate co-integration technique was adopted rather than the Engel-Granger techniques. This was based on two reasons. First, the variables for analysis are I (1) series which is a pre-condition for the adoption of the Johansen technique and secondly, the models are multi-variate models as specified in Eq. 2 and 4, consequently, there is the possibility of having >1 co-integrating vector in the model. This is against the Engel-Granger technique which is only suitable for testing co-integration between two variables. The results obtained from the Johansen multivariate co-integration method were shown in Table 2. From Table 2, the null hypothesis of no co-integration for $r = 0$ and $r \leq 1$ in the model was rejected in the trace statistics and the maximum eigen-value statistics.

The statistical values of these tests were greater than their critical values. However, the null hypothesis of no co-integration that is $r \leq 2$ could not be rejected in both the trace statistics and the maximum eigen-value statistics because their values were less than the critical values implying that there are at least two co-integrating vectors among the series. The implication of this result is that there is the possibility that a long run relationship exist between monetary policy variable and other macroeconomic variables used in the model. This result is however, sub-stantiated by the regression result

Table 1: Unit root test on variables with intercept

Variables	Augmented Dickey-Fuller (ADF) test			Phillip-Perron (PP) test		
	Level	1st difference	Status	Level	1st difference	Status
ext	-2.1126	-4.8500*	I (1)	-2.1972	-4.8486*	I (1)
gdp	0.2549	-3.1066**	I (1)	0.9265	-3.2068**	I (1)
int	2.9851	-3.4795**	I (1)	-2.0394	-6.3094*	I (1)
m_2	-0.8476	-5.0455*	I (1)	0.2528	-3.8704*	I (1)
inf	-2.6543	-4.0018*	I (1)	-2.7458	-5.9004*	I (1)
Test critical values						
1%	-3.7529	-3.7696	-3.7529	-3.7696	-	-
5%	-2.9981	-3.0049	-2.9981	-2.0049	-	-
10%	-2.6388	-2.6422	-2.6388	-2.6422	-	-

*/**implies stationarity at 1 and 5%, respectively

Table 2: Summary of the co-integration tests

	Trace test				Maximum eigen-value test			
	Null	Alternative	Statistics	95% critical values	Null	Alternative	Statistics	95% critical values
Model I	$r = 0$	$r \geq 1$	116.9577	68.52	$r = 0$	$r = 1$	63.9529	33.46
	$r \leq 1$	$r \geq 2$	53.0048	47.21	$r \leq 1$	$r = 2$	34.7817	27.07
	$r \leq 2$	$r \geq 3$	28.2230	29.68	$r \leq 2$	$r = 3$	21.5525	20.97
	$r \leq 3$	$r \geq 4$	6.6705	15.41	$r \leq 3$	$r = 4$	6.3191	14.07
	$r \leq 4$	$r \geq 5$	0.3514	3.76	$r \leq 4$	$r = 5$	0.3514	3.76

shown in Table 3. From the regression estimates of model 1 in Table 3, it was observed that the overall performance of the model was good. Both the R^2 (67.3%) and the adjusted R^2 (60.5%) were above average. The Durbin Watson statistics was not substantially farther away from the traditional benchmark of 2.0 in the model and the F-stat (F-stat = 9.79, $p < 0.01$) of the model was also significant at 1%. It was also observed from the model that exchange rate (ext) and money supply (m_2) had there expected signs while gross domestic product (gdp) and inflation rate (inf) had signs contrary to their a priori expectations.

In addition to the above the coefficient of individual variables is examined to determine the nature of the relationship between monetary policy and other macroeconomic variables. The co-efficient of exchange rate was observed to be positive and significant while the coefficient of inflation rate was observed to be negative and significant. Contrary to the above, the coefficients of both gross domestic product and inflation rate were observed to be positive but insignificant. The significant relationship between monetary policy, exchange rate and monetary supply reflect the potency of the variables as an important conduit in transmitting monetary policy impulses to the aggregate economy. In contrast, the insignificant relationship between monetary policy, gross domestic product and inflation in Nigeria suggest that monetary policy as a policy option had been inactive in influencing these macroeconomic variables. This could step from the dominance of fiscal measures, especially government expenditures in stimulating such macroeconomic variables. More so, the insignificant relationship between these variables could be explained by the underdeveloped nature of the financial institutions in transmitting monetary policy to the ultimate variables in the economy which is usually economic growth and price stability.

With respect to objective two, the regression estimate revealed that monetary policy had a positive impact on price instability (proxy by inflation) but this effect was insignificant ($p = 0.26$). The insignificant effect of monetary policy on inflation rate is a consequence of the autonomy that is granted monetary authority in

Table 3: Regression result of model

Variables	Coefficient	SE	t-statistic	Prob.
C	4.320107	3.367480	1.282890	0.2150
LEXT	0.438339	0.089196	4.914315	0.0001
LGDP	0.137521	0.346245	0.397177	0.6957
LINF	0.052330	0.045277	1.155772	0.2621
LM2	-0.389923	0.112769	-3.457704	0.0026

$R^2 = 0.673334$; Mean dependent var. = 2.632854; Adjusted $R^2 = 0.604563$; SD dependent var. = 0.269652; SE of regression = 0.169567; Akaike info criterion = -0.528081; Sum squared resid. = 0.546309; Schwarz criterion = -0.282653; Log likelihood = 11.33697; F-statistic = 9.790863; Durbin-Watson stat = 2.087939; Prob (F-statistic) = 0.000179

the management of price instability in Nigeria and also, the various policy initiatives that have been adopted (such as financial regulation, interest rate and exchange rate deregulation and inflation targeting) to mitigate price instability in Nigeria.

CONCLUSION

The appraised development in monetary policy analyzed the effect of such development on some selected macroeconomic variable with a view to ascertaining the extent to which monetary policy has served as a tool for enhancing macroeconomic stabilization in Nigeria. From the policy appraisal, the study observed that monetary policy has witnessed adoption of various policy initiatives over the years.

Some of these policies include the deregulation of the interest rate and exchange rate, upward reveal of the minimum capital base for banks, adoption of universal banking system and the replacement of the Minimum Rediscount Rate (MRR) with the Monetary Policy Rate (MPR).

From the empirical estimate, all variables used for estimation were observed to be integrated of order one and were also observed to exhibit long run relationship among each other. More so, the empirical result showed that monetary policy has been influential in mitigating price instability in Nigeria. This is based on the insignificant effect of monetary policy on inflation rate. The study therefore, concluded that to further sustain price stability and to achieve other macroeconomic objectives of the government such as economy growth; there is the need to grant greater flexibility to the

monetary authority reduce the excessive expenditure of the government and align the objectives of fiscal and monetary policy of the government.

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