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Analysis of Monetary Control Policies and their Influence on Price Stability in Nigeria

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Abstract

This study examines the impact of monetary policy on price stability in Nigeria from 2006 to 2018. The data obtained for the purpose of the study is through Central Bank of Nigeria Statistical Bulletin. Results derived through the use of regression analysis and linear correlation were presented and interpreted. The result of the findings shows that Monetary Policy Rate (MPR) have high maximum output, follow by exchange rate, inflation and interest rate in that order. This indicates that, there is a significant relationship between Monetary Control Policies and Price Control in Nigeria. Since the Significance value is .022 (which is less than .05), it also means the values are significant to each other Inflation will increase by beta 4.19 and t of 2.39 which implies that Inflation rate has significant influence on Price Stability in Nigeria.

Keywords:
Monetary policy,
Money Supply,
Exchange Rate,
Inflation

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Background to the Study

Monetary policies are ways through which the government can check inflation rate and interest rates in a country in other to stabilize the economy. It is a combination of measures designed to regulate the value, supply and cost of money in an economy, in consonance with the expected level of economic activity (Folawewo and Osinubi, 2008). In Nigeria to be specific, the Central Bank of Nigeria (CBN) is saddled with the responsibility of ensuring price stability in Nigeria (Sulaiman, 2005). In ensuring price stability, the CBN implements policies that enhance sustained economic growth through an appropriate change in the level of money supply.

Giving the bank's mandate to promote macroeconomic stability through the conduct of monetary policy, it is pertinent to examine how monetary policy influences the attainment of its stated objectives so as to achieve domestic price stability as a necessary condition for promoting high output, employment growth and a healthy balance of payments position.

Price instability is a reflection of rising inflation and thus poses a threat on the economic progress of a nation. However, maintenance of price stability is often difficult to attain, at least in the short-run because of its apparent conflicts with other macroeconomic objectives. Consequently, monetary management involves some trade-offs with other national economic policy objectives.

The conduct of monetary policy solely relies on direct control measures, which involves imposition of selective sectoral control and credit ceiling, interest rate control, cash reserve requirement, exchange rate control and call for special deposits. The use of market-based instrument was not successful due to the under-development of the financial market in the early part of the periods under review. The research investigates the impact of monetary policy on price stability in Nigeria.

Nigeria since her independence in 1960 has initiated a number of monetary policies that aimed ensuring stable economic growth and to check inflation in the economy. However, in-spite of these policies, price stability has not been achieved in Nigeria. Price instability is a reflection of rising inflation and thus poses a threat on the economic progress Nigeria. Consequently, monetary policies in Nigeria have not been able to achieve price stability thus the need to make analysis of monetary control policies and their influence on price control in Nigeria.

The objectives of the study are to examine the relationship between Monetary Control Policies and Price Control in Nigeria and to investigate the impact of Monetary Control Policies and their Influence on Price Stability in Nigeria in the last twelve years. The hypotheses formulated for the study are that monetary Control Policies have no significant relationship on and Price Control in Nigeria and that monetary Control Policies have no significant influence on Price Stability in Nigeria.

Literature Review

Monetary policy is a combination of measures designed to regulate the value, supply and cost of money in an economy in consonance with the expected level of economic activities (Adesoye, 2012). Inflation which confronts the economic policy-makers throughout the world in the form of a dominant economic problem is not a new phenomenon because from the earliest days of history, mankind has been puzzled and discomfort by rising prices.

One of the policy objectives of monetary and fiscal policy is to stabilize the price level (Jhingan, 2004). Both economists and laymen favour this policy because fluctuation in prices brings uncertainty and instability to the economy. Rising and falling prices are both hazardous due to the fact that they bring unnecessary loss to some people and undue advantage to others. A policy of price stability keeps the value of money stable, eliminates cyclical fluctuations, brings about economic stability, helps in reducing inequalities of income and wealth, enhances social justice and promotes economic welfare (Jhingan,2004).

However, there are certain difficulties in pursuing a policy of stable price level. The first problem relates to the type of price level to be stabilized, whether relative or general price level. Despite this drawback, majority of the economists favour a policy of stable prices. Another problem is the definition of price stability. Price stability does not mean that prices will remain stable indefinitely.

Since the establishment of Central Bank of Nigeria (CBN) in 1959, the bank continued to play the traditional role expected of a central bank, which is the regulation of the stock of money in such a way as to promote the social welfare (Ajayi, 1999). This role is premised on the use of monetary policy that is usually targeted towards the achievement of full-employment equilibrium, rapid economic growth, price stability, and external balance. Over the years, the major goals of monetary policy have often been the two later objectives. Thus, inflation targeting and exchange rate policy have dominated CBN's monetary policy focus based on assumption that these are essential tools of achieving macroeconomic stability.

With the introduction of indirect monetary control instrument, CBN now controls the stock of money (from banks and non-bank public) through the manipulation of the monetary base of reserve aggregates. This was expected to move the interest rate to the desirable position, so that through their influence on monetary aggregates and market interest rates, the ultimate goals of monetary policy may be achieved.

The relationship between effective monetary policy management and the objective of price stability has a lot of empirical studies. In the study of Kumapayi et al. (2012), that used a simple linear regression method to regress inflation rate against Domestic Credit (DCM), Broad Money Supply (M) Fiscal deficit (FD), Trade openness (TO), Interest Rate (INT) Exchange Rate (EXR) and one year lag INF (INF), their findings revealed that while FD, M2 and INT were possibility related to INT, EXR and TO, INF (-1) were inversely

related to inflation (INF). Similarly, Emmanuel (2000) evaluated the impact of monetary policy on inflation in Nigeria between 1980 and 1995. Using ordinary least squares technique (OLS), the regressed inflation on domestic credit, money supply, exchange rate and gross domestic product. In his study, while both domestic credit and gross domestic credit showed a positive and significant relationship with inflation, both Money supply and exchange rate were negatively related inflation.

The study by Iyaji et al. (2012), investigated the effectiveness of monetary policy in combating inflation in Nigeria. Using the classical least squares technique, they found liquidity ratio and interest rate to be leading monetary policy instruments that can be used in combating inflation in Nigeria. They however claim that, due to unethical practices by commercial banks in Nigeria, cash reserve ratio, broad money and exchange rate have lost their potency as effective monetary policy instruments in Nigeria. Using ordinary least squares technique, Ajayi (1974), revealed that monetary policy instruments are more potent than fiscal policy in promoting macroeconomic objectives in Nigeria. His findings are similar to those of Ajisafe and Folorunso (2002) who investigated the relative effectiveness of monetary and fiscal policy in macroeconomic management in Nigeria.

In a similar study, using the econometric methods of co integration and error correction mechanism, Folorunsho and Abiola (2000), examined the long -run determinants of inflation in Nigeria between 1970 and 1998. Their result revealed that inflation in Nigeria could be caused by the level of income, money supply, and public sector balance. The results also indicated that in the long-run, exchange rate, money supply, income and fiscal balance determine the inflation spiral in Nigeria. Their conclusion is that a reduction in fiscal deficits, an increase in domestic production and a stable exchange rate should be pursued as means of controlling inflation in Nigeria. The studies by Fielding (2008), and Olubusoye and Oyaromade (2008), showed that efforts of the monetary authorities to stabilize the domestic prices would continuously be disrupted by volatility in the international price of crude oil.

Ajisafe and Folorunsho (2002), investigated the relative effectiveness of monetary and fiscal policy in Nigeria from 1970 to 2008. They employed co-integration and error correction models. Their research evidence reveals that monetary policy rather than fiscal policy exerts greater impact on economic activity in Nigeria.

Akinbobola (2012), provides a quantitative analysis of the dynamics of money supply, exchange rate and inflation in Nigeria from 1986 to 2008 using Vector Error Correction Mechanism (VECM). His empirical evidence confirms that money supply and exchange rate have significant negative effects on inflationary pressure in the long-run while real output and foreign price changes have direct effects on inflationary pressure.

Adesoye (2012), examined the Cointegration and causality between price, monetary policy aggregate and real output in Nigeria from the period of 1970 to 2009 using the inflationary gap model that results from the quantity theory of money. The empirical results revealed that inflation is a monetary phenomenon and previous price and output are strong indicators of controlling monetary aggregate in Nigeria.

Chimobi and Uche (2010), examined the relationship between Money, Inflation and Output in Nigeria using co-integration and ganger-causality test. The results of their findings revealed that monetary stability could lead to price stability in Nigeria since the variation in price level is mainly caused by money supply.

Folawewo and Osinubi (2008), examined the efficacy of monetary policy in controlling inflation rate and exchange instability from 1980 to 2000. They adopted time series model to conduct their analysis. Their research evidence shows that inflation affects volatility in its own rate as well as exchange rate.

Olorunfemi and Dotun (2008), examined the impact of monetary policy on economic performance in Nigeria using ordinary least square regression (OLS). His research evidence showed that negative relationship exists between interest rate and GDP on one hand, and inflation and GDP on the other hand.

Chuku (2009), examined the effect of monetary policy innovations in Nigeria by adopting structural vector auto-regression (SVAR) approach to trace the effects of monetary policy shocks in Nigeria from 1986 to 2008. He employed three alternative policy instruments, namely, broad money (M2), minimum rediscount rate and the real effective exchange rate. His research evidence showed that monetary policy innovations have real and nominal effects on economic parameter depending on the policy variable selected.

Onayemi (2013), also investigated the price stability effect of monetary policy and output growth in Nigeria from 1970 to 2011 following the adoption of the Keynesian inflationary gap model that emanates from the quantity theory of money. The empirical evidence shows that previous price gap tends to be a significant determinant of inflationary pressure. The result also reveals that changes in monetary aggregate and output gap enhance inflationary pressure in Nigeria as a result of inefficiency of monetary and macroeconomic policies in stabilizing the price level.

Nenbee and Madume (2011), examined the impact of monetary policy on macroeconomic stability in Nigeria from 1970 to 2009. He employed error correction model (ECM) and co-integration. The results of their findings showed that monetary policy instruments had conflicting results with respect to their effect on inflation.

Onyeiwu (2012), investigated monetary policy shock on Nigerian Economy from 1981 to 2008 using ordinary least square regression (OLS) method. The empirical results showed that monetary policy exerts a positive impact on gross domestic product (GDP) growth and balance of payments but a negative impact on the rate of inflation.

Empirical Review

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Methodology

In this study, the data obtained through secondary source are presented and analyzed. Data on two research questions and hypotheses stated were also presented. Results derived through the use of regression analysis and linear correlation were presented and interpreted.

In measuring the impact of monetary policy on price stability, there must be specification of the model which shows the relationship between all the explanatory variables namely: Monetary Policy Rate (MPR), interest rate (IR), exchange rate (EXR), and Inflation. From the theoretical analysis, changes or increase in money supply from whatever source be it induced or autonomous, would lead to an increase in the price level (inflation).

Model specification

In line with the objective of this study, the CPI model, expresses the relationship between monetary policies and price stability. Both variables were transformed into their natural logs. In our model, equation *eq1* below, *InCPI* is expressed as a function of InM_2.

$$\ln CPI = f(\ln M_2) \qquad (1)$$

Where:

InC P I => Log of Consumer Price Index (a proxy for price level)

InM2 => Log of broad money (a proxy for money supply)

Both $a_0 + a_1$ were expected to be positive.

Descriptive Statistics of the Variables Used in the Summary

Table 1: Descriptive Statistics

	Years	Range	Minimum	Maximum	Mean	Std. Deviation
Monetary Policy Rate (MPR)	2006-2018	272.99	121.45	394.44	212.88	90.77
Interest Rate	2006-2018	7.47	6.03	13.50	9.13	2.12
Exchange Rate	2006-2018	157.65	148.90	306.55	198.47	64.97
Inflation	2006-2018	8.50	8.00	16.50	11.90	2.90

Source: Descriptive Statistics Results using SPSS version 24

The mean score of Monetary Policy Rate (MPR) is 212.88 and standard deviation of 90.77; while the mean score of Interest Rate is 9.13 and standard deviation of 2.12; the mean score of Exchange Rate is 198.47 and standard deviation of 64.97and the mean score of Inflation is 11.90and standard deviation of 2.90. This result shows that Monetary Policy Rate (MPR)

have high maximum output, follow by exchange rate, inflation and interest rate in that order.

Ho_1: Monetary Control Policies have no significant relationship on and Price Control in Nigeria.

Table 2: Correlations

		Monetary Policy Rate (MPR)	Exchange Rate
Monetary Policy Rate (MPR)	Pearson Correlation	1	-.709*
	Sig. (2-tailed)		.022
	N	10	10
Exchange Rate	Pearson Correlation	-.709**	1
	Sig. (2-tailed)	.022	
	N	10	10

***. Correlation is significant at the 0.05 level (2-tailed).*

In this hypothesis, Pearson correlation value **r** is 0.709. This number is very close to 1. For this reason, we can conclude that there is a significant relationship between Monetary Control Policies and Price Control in Nigeria. Since the Sig value is .022 (which is less than .05), it mean the values are significant to each other's, we therefore reject the null hypothesis which stated that there is no significantly affect between the two variable; the value of N in this study representing twelve (12) years of activities in the monetary control policies.

Ho_2: Monetary Control Policies have no significant influence on Price Stability in Nigeria.

Table 3.

Model Variables	R	R^2	β	F	t	P-value
Constant	0.73	0.53	16.79	2.26	3.01	.024
Interest Rate	-	-	6.03	-	1.44	.025
Exchange Rate	-	-	1.00	-	1.91	.005
Inflation	-	-	4.19	-	2.39	.007

Source: Linear Regression Analysis Results using SPSS version 24
Note: Regression significant at 5% level of significance.

Interpretation

$y = X_1 + X_2 + X_3 + C$ where C is the constant.

Predicted $y = 6.03X_1 + 1.00X_2 + 4.19X_3 + 16.79$.

The value of 0.73indicates good linear regression with 53% of the variation in the dependent variable revealed by the coefficient of determination (R^2), while the remaining 47% was due to other factors not presumed in the variation model. The result above

revealed that the intercept (constant) of the equation is 16.79. This value of 0.025 is positive and significant since P-value is less than 0.05 level of significant, indicating Interest rate will increase by beta 6.03and *t* of 1.44. Since the result shows that the null hypothesis was rejected it implied that Exchange rate has significant influence on Price Stability in Nigeria. This value of 0.005is positive and significant since P-value is less than 0.05 level of significant, indicating Interest rate will increase by beta 1.01 and *t* of 1.91. Since the result shows that the null hypothesis was rejected it implied that Exchange rate has significant influence on Price Stability in Nigeria. Whereas, Since the Sig value is 0.007(which is less than .05), it means the values are significant, indicating Inflation will increase by beta 4.19 and *t* of 2.39. Since the result shows that the null hypothesis was not rejected it implied that Inflation rate has significant influence on Price Stability in Nigeria.

Results and Discussion

The empirical analysis within the scope of the study reveals that price stability in Nigeria is largely determined by both money supply and interest rate. Emphasis was placed on both money supply and interest rate because they are directly controlled by monetary authorities while other explanatory variables such as deficit financing and exchange rate were used to measure the impact of monetary policy on price stability because they are indirectly influencing price stability through money supply.

The result shows that price stability is positively influenced by both money supply and interest rate. In other words, reducing money supply and interest rate can check inflation in Nigeria. Despite the manipulation of these variables by the monetary authorities, inflation still persists. Inflation can be controlled if Federal Government of Nigeria continues to reform the economy with sincerity because there will be efficiency if interest rates are determined by the forces of demand and supply. If there are adequate infrastructures like good motorable roads, stable power supply, political stability, security of lives and properties, level of productivity will be increased and price stability will be enhanced.

Conclusion and Recommendation

This paper investigated the role of monetary policy in price stability in Nigeria between 2006 and 2019 by measuring the relationship between the price level in Nigeria (captured by the Consumer Price Index) and money supply (measured by broad money supply). In order to achieve this set objective, the study applied the methodology of Vector Autoregressive (VAR) Model with in-built differencing to take care of unit root in these time series data. The results of the empirical estimates revealed that money does not significantly impact on price level in Nigeria. This position was further strengthened by the result of the VAR granger causality which failed to find causality between the price level and money supply.

On the whole, the role of monetary policy in promoting price stability leaves a gap to be bridged. This may be due to the high influence of 'Outside bank money' and the high level of participation in the informal financial sector in Nigeria. This has significantly reduced the influence of monetary policy instruments targeted at influencing money supply, in

keeping with the macroeconomic objective of price stability. One this basis, the researcher recommends that policy reforms, which would help reduce the influence of the informal financial sector, be implemented.

This would enhance the influence of the central monetary authority in the financial sector, and by implication, enhance the role of monetary policy in macroeconomic management in Nigeria. We also recommend a further investigation directed at unveiling the role of the entire money market in promoting price stability in Nigeria.

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