

INTEREST RATE AND MONEY SUPPLY IN NIGERIA

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Abstract

The main focus of this paper was to look into the economic implication of interest rates on the money supply in Nigeria. The Keynesian reformulated quantity theory of money was used as the theory. The historical research design was applied. The data were secondary in nature for the period 1970 to 2016. The Augmented Dickey-Fuller test for evidence of unit root and the Johansen cointegration test was applied to the regress and repressors of the model. The long-run correlation of the variables showed that all the variables were of order I (1) and were co-integrated. The Vector Error Correction Mechanism (VECM) was used to estimate the model. It was discovered that the interest rate had significant long-run and short-run consequences on the level of money supply in Nigeria. To sustain the level of broad money supply required for adequate investment and productivity in Nigeria, it was recommended that, CBN must ensure that its monetary policy rate (MPR) is consistent with the investment demand.

Keywords: Interest rate, money, money supply and the Keynesian reformulated quantity theory of money

Introduction

The price a customer pays for use of the borrowed fund is referred to as the interest rate. An economist sees interest rate as the reward for parting with liquidity or the cost of borrowing money from a lender, bank or individual to fund a capital-intensive project. It is the return a provider of capital received, for deferring the use of the fund for future use (Charles, 2012). Interest rate as an instrument of a desirous action undertaken by monetary authorities is based on two main assumptions: firstly, as an instrument of managing the supply of money. Secondly, for the regulation of credit policy or

monetary policy of CBN in Nigeria (Akingunola, Adekunle & Ojodu, 2012).

In Nigeria, the cost of borrowing funds is high, and this affects the money supply inversely. The reason is that lenders usually got facilities from banks and non-banking establishments with the hope to invest and make a return higher than the interest rate paid on borrowed funds. In the same vein, a high level of interest is a pointer for business-oriented people to keep aside savings for maximum returns in the possible future (Belongia & Ireland, 2016). In addition, single-digit interest rates imply cheap

affordability of capital resources and subsequent facilitation of feasible project outlays in a growing economy. It is paramount to note that organizations and other corporate firms cannot do without sourcing for capital to invest in manufacturing industries, existing companies and other non-current assets, expecting to earn more returns from the business.

Conversely, the expected return from investment should be greater than the cost of the fund, otherwise, it would not be economically viable for the borrower. Consequently, in a good-controlled interest rate economy, corporate organizations and individuals are more prone to making feasible project execution.

The business cycle has many stages or dimensions. The stages give rise to demand and supply for funds in any economy. For example, when the economy has good fortune during the economic boom, the supply for funds tends to be less than the demand for funds, meaning that the demand for funds is greater during this period. In contrast, when the economy is in recession or declining, the level of interest rate drops gradually owing to low investment activities because expected returns are lower than the cost of capital. The government controls the rate of interest through the Central Bank using monetary policies. The interest rate is being regulated by monetary authorities through the Central bank of Nigeria. When monetary authorities decide to reduce the money supply, the interest rate will go up. The monetary authorities do this by selling government bonds and in effect; regulating the rate of interest on securities it wants to make the public patronize it. Therefore, the article explores the implication of interest rate changes on the money supply.

The challenging upsurge in interest rates in Nigeria raised widespread concern about its possible damaging effects on money supply and gross fixed capital formation. Many arguments were made that wide interest rate margins discourage savings in any developing economy

and lower the propensity of the banking sector to efficiently mop deposits to fund investments and facilitate employment that will trigger growth within the economy. As the margin between the lending rate and deposit rate continues to grow unabatedly, monetary policy control ought to have effectively managed the margin to allow growth and expansion of the economy. Money supply as one of the macroeconomic variables that promote growth was hampered by attendant high unemployment levels and low productivity. There was wide inflationary pressure which adversely redistributes income in a manner that deters economic activities and undermines economic growth. Most businesses and corporate organizations seem to be underfunded, as a result of the high cost of securing funds from the banking sector. These continued to question the known theoretical postulates that interest rates and other macroeconomic variables promote growth.

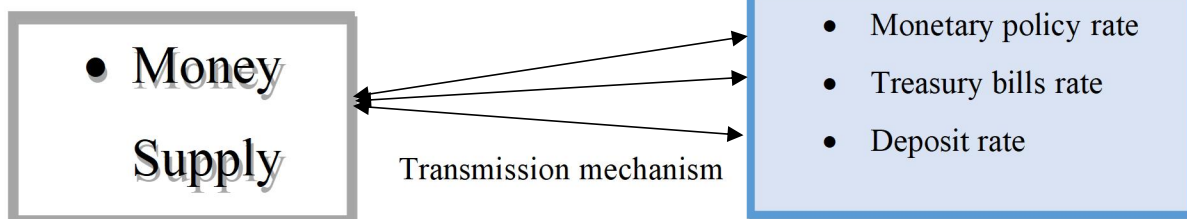
Various policies were implemented to tackle the problem of interest rate with a view to enhancing savings, and money supply, reducing unemployment and facilitating economic growth but turned out to be unsuccessful. Many studies on the interest rate and money supply had continued to arrive at contradictory results making their association unclear. There seemed to be no well-established conclusion regarding the direction and extent of the influence of interest rates on the money supply. This was demonstrated in the various interest rate policy-making and reversal and the continuous poor performance of other macroeconomic variables to the extent that many previously well-performing businesses were now performing poorly and many people lost their jobs in a consequence. Therefore, the unsettled gap exists that needs to be linked in order to give policy drivers the basis upon which to formulate and implement interest rate policies that will promote sound growth and money supply in Nigeria. The aim of this paper is to assess the influence of interest rates on the money supply in Nigeria.

Conceptual framework

This aids the understanding of the connection between interest rates and money supply. The interest rate was decomposed into monetary policy rate, treasury bills rate and deposit rate. The display of these three rates shown below

Figure 1: Conceptual framework

Macroeconomic variable



Source: Researcher’s work, 2018

Theoretical Framework

The theory used in this article is known as the Keynesian reformulated quantity theory of money propounded by Keynes (1936). The proponent asserted that once the quantity of money is multiplied, initially, the interest rate falls and the volume of investment is positively affected. Therefore, a downward slope in the rate of interest will definitely make the volume to swell up, given the marginal efficiency of capital. The upsurge in investment will raise effective demand to rise via the multiplier effect and consequently, increase earnings, output and employment (Jhingan, 2007).

Research Methodology

The historical research design was adopted. The design became appropriate as the variables used were of secondary nature. Annual time series data covering 1970 – 2016 were collected to analyze how interest rate affects the output. The technique of data analysis was Vector error correction using long run and short run Error correction analyses.

Model Specification

This study however considers interest rate in terms of the following function or relationship as follows:

$$MS = f(MPR, TBR, DR) \dots\dots\dots (Equ. 1)$$

Where

increase or decrease the money supply depending on whether each of the rates is single-digit or double-digit.

MS = Money Supply

MPR = Monetary Policy Rate

TBR = Treasury bills rate

DR = Deposit Rate

Empirical Review

According to Ahmed & Mortaza (2005) appraised the association between monetary policy and gross domestic product growth in Singapore. Times series data on GDP and Consumer Price Index (CPI), the monetary policy rate was used. The study covered 1980 to 2005. It was discovered that a significant long-run negative correlation between inflation, exchange rate and gross domestic product growth. However, the monetary policy rate had a direct effect on gross domestic product growth. The paper also discovered the existence of a long-run indirect association between inflation, monetary policy rate, exchange rate and GDP. The study concluded that monetary policy tools were effective in enhancing economic growth in Bangladesh.

Anoruo (2002) explored fluctuations of money demand function and economic development in Nigeria. It was found that the M2 demand function was stable for the period under review. The paper noted that broad money was a sound monetary policy instrument to regulate the supply of money. That it could be used to facilitate economic growth in a developing nation like Nigeria. The paper recommended

that monetary authorities should support some sectors that are affected by some monetary policy shocks. Contrary to the above, Nwaobi (2002) x-rayed the instability of the demand for money. The study used Vector Autoregressive process (VAR) and a long-run test. It was revealed that inflation, interest rate, money supply as well as growth in the domestic product are jointly co-integrated.

Amidu (2006) assessed bank lending and credit control measures in Ghana. The study also considered interest rates and factors affecting liquidity money as relevant concepts to the study. The paper discovered that Ghanaian banks' lending characteristics are affected by selective credit controls, administered interest rate and moral suasion and gradual changes in money supply, which support other studies. The money supply is inversely but statistically non-significantly.

Intermediation of interest rates and other macroeconomic variables were investigated using the liquidity-money model (Mishkin, 2001). The theory added that the higher the level of interest, the more people will be ready to forgo liquidity. The monetary and real sectors of the economy is connected through interest rate in the liquidity money model. This model is relevant because it is dynamic and market-driven and enhances production and encourages the growth of the real sector.

The liquidity-money model, established by John Hicks, was used to explore the intermediation of interest rates and other macroeconomic factors (Mishkin, 2001). In the liquidity money model, the monetary and real sectors of the economy are linked via interest rates. This model is highly valuable for moderating monetary expansion and reducing inflationary pressures in the economy. The theory is relevant because it allows anticipating the effects of monetary instruments under competing exchange rate regimes while also offering policy evaluation reports for any enterprise or government. This model is quite beneficial to a growing economy.

The relationship between interest rate and aggregate output is shown by liquidity money, in which the amount of money required matches the quantity of money supplied. The demand for money rises as actual liquidity money increased output, allowing the interest rate to rise. The impacts of various policies in the liquidity-money model are influenced by a number of factors, including the exchange rate regime, openness to international trade and capital, and so on. The liquidity-money model is considerably more effective as a policy model because of the wide range of possible outcomes. If the economy's currency depreciates, the interest rate will be automatically higher. This portrays the fall of the effect. Theoretically, a decrease in the cost of capital will improve aggregate output. We presume there is a significant amount of correlation between macroeconomic variables. The Keynesian model posits that the price of bonds will rise as the interest rate falls and vice-versa. According to Keynes, an economy is efficient when all of its resources are completely utilized, resulting in effective demand for its output. The Keynesians recognize the potential for government to crowd out investment by raising borrowing costs, or interest rates (Okpanachi). Therefore, consumption plus investment give rise to the gross domestic product as in the following equation:

$$G = C+ I \dots\dots\dots Eqn. (2)$$

Consequently, this takes another form when the rate of interest is applied:

$$G = C+ I+ IR \dots\dots\dots Eqn. (3)$$

Therefore, the interest rate is affected by many macroeconomic variables or indicators. In the liquidity-money model, the government regulates most macroeconomic indicators including interest rates.

Results and Discussion of Findings
 Analysis of long-run test

The error correction term for the equation of interest was extracted and used for the analysis. The resulting extract is presented below:
 TABLE 1: Long Run Error Correction Analysis

Dependent Variable: LMS			
Variables	Coefficient	t-stats	p-value
C (58)	-0.05094	-2.10251	0.0457
R-Square	0.94424		
significant F-Statistics	23.5183*		0.000

*Represents F-Statistics at 5 percent level

Source: Eview 9.1

The Long run error Correction analysis as well as the coefficient of the system equation and the probability of the estimate is as presented in table 1. The C (58) was the error correction term which explains how far it will take the money supply toward long-run equilibrium. The expectation about C (58) was that it must be negative and significant at 5%. From the result above, C (58) were negative and significant at 5 per cent. This implied that there was a long-run causality flowing from the regressors to the money supply. This means that the predictors, which is an exogenous variable had significant long-run causality with the dependent variable- money supply. Furthermore, the R² value of 0.9442 or 94.42 per cent showed that about

94.42 per cent of the observed behaviour in money supply had respectively been explained by the variations in interest rate. The F-statistics result of 23.5183 with their subsequent probability of 0.0000 % shows that the money supply equation was statistically robust.

Analyses of short-run dynamics

The short-run causality is examined through the wald test statistics. The wald test results were extracted and used for the analysis of the existence of a short-run causality running from the three independent variables and money supply.

Table 2: Analysis of the short-run causality using Wald Test

Endogenous Variable: MS (Money Supply)			
Null Hypotheses	Interest rate	F-Stats	Prob.
C(70)=C(71)=0	MPR	15.175*	0.0000
C(72)=C(73)=0	TBR	9.252*	0.0010
C(74)=C(75)=0	DR	0.5411	0.5888

*Represents rejection of null hypotheses per cent level
 Source: Eview 9.1

In table 2 above there was no short-run causality running from deposit rate to money

supply. This could be seen as its null hypothesis was not rejected. Meaning that lag one and two

of the deposit rate do not jointly influence or cause a change in money supply in the short run. However, there is a short-run causality running from the monetary policy rate and treasury bill rate to the money supply. This could be seen as their null hypotheses having been rejected. Meaning that lags one and two in monetary policy rate and treasury bills rate jointly influence or cause a change in money supply in the short run.

Findings from the analyses of the implication of interest rate on money supply show a significant relationship between interest rate and money supply both in the long run and short run periods. This means that movements in interest rate has an immediate and continuous impact on the money supply to the long-term periods. This finding is in tandem with Akinbobola, (2012) who studied the dynamics of interest rate and macroeconomic variables.

Conclusion and recommendation

The study adopted the long-run and short-run Error correction analysis and concluded that interest rate has both long-run and short-run effects on the gross domestic product growth of Nigeria. Above all, the interest rate has a strong influence on the money supply both in the long run and short run. It was recommended that to sustain the level of broad money supply required for adequate investment and productivity in Nigeria, CBN must ensure that its monetary policy rate is consistent with the investment demand.

REFERENCES

- Ahmed, S. & Mortaza, G. A. (2005). Inflation and economic growth in Bangladesh: 1981-2005. Policy Analysis Unit (PAU), Research Department, Bangladesh Bank Working Paper Series: WP 0604
- Akinbobola, T. O. (2012). The dynamics of money supply, exchange rate and inflation in Nigeria. *Journal of Applied Finance and Banking*, 2(4), 117-141
- Akingunola, R.O., Adekunle, O. A. & Ojodu, H. (2012). Impact of interest rate on capital market growth: A case of Nigeria. *Universal Journal of Management and Social Sciences*, 2 (11), 33-49
- Amidu, M. T. (2006). The link between monetary policy and banks' lending behaviour: The Ghanaian case. *Banks and Bank Systems*, 1(4), 38-48.
- Anoruo, E. (2002). Stability of the Nigerian M2 money demand function in the SAP period. *Economics Bulletin*, 14, 1-9
- Belongia, M. T. & Ireland, P. N. (2016). Interest rate and money in the measurement of monetary policy. *Journal of Business and Economic Statistics*, 33 (2), 255-269
- Central Bank of Nigeria [CBN] (2016). Interest rate. *Education in Economics Series*, No. 3
- Charles, O. (2012). Monetary policy and economic growth of Nigeria. *Journal of Economics and Sustainable Development*, 3 (7), 62-70.
- Jhingan, M. L. (2007). *Money, Banking, International trade and Public finance*. Delhi, India: Vrinda publications Ltd.
- Keynes, John Maynard (1936). *The general theory of employment, interest and money*. London: Macmillan (reprinted 2007).
- Mishkin, F. S. (2001). *The economics of money, banking, and financial markets*. Boston, Toronto: Little, Brown and Co.
- Nwaobi, G. (2002). A vector error correction and non-nested modelling of money demand function in Nigeria. *Economics Bulletin*, 3, 1-8.
- Okpanachi, J. (2007). Comparative analysis of the impact of mergers and acquisitions on financial efficiency of banks in Nigeria. *Journal of Accounting and Taxation*, 3 (1), 14-28