EFFECT OF INTEREST RATE REFORMS ON ECONOMIC GROWTH OF NIGERIA
(1986 - 2013)

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Abstract
The study investigates the effect of bank interest rate reforms on economy growth of Nigeria with annual time series data from 1986 to 2013. Econometric evidence reveals stationary of the variables at their first differences while the Johansen co-integration approach also confirms the presence of one co-integrating relationship at one percent and five percent levels of significance. In addition, Ordinary Least Square results indicate that bank interest rate reforms have significant negative effect on economic growth in Nigeria. The study further shows that, bank interest rate reforms have shown to have very high explanatory influence on Nigerian economy, which indicates that, banking sector reform is a veritable tool for repositioning and reorienting Nigerian economy. The study recommends among others that, monetary authorities should continue to allow the market forces of demand and supply to determine interest rate regime with little guided intervention and monitoring the performance/trends to ensure effective contributions of interest rate on savings, investment and the growth of the economy.

Keywords: Interest Rate, Bank Sector Reforms, Economic Growth, Monetary Policy, Nigeria.

Introduction
Banking sector reform is meant to build and foster a competitive and healthy financial system to support development and to avoid systemic distress. The reform involves the liberalization of interest rates, promotion of market-based system of credit allocation, enhancing competition, and efficiency of the regulatory and supervisory framework (Jegede & Mokulolu, 2004). Banking reforms in Nigeria are motivated by the need to proactively put the Nigerian banking industry and the economy at large on the path of global competitiveness. Banking reforms started effectively in Nigeria with the liberalization of interest rates in August, 1987. Interest rate liberalization was aimed at enhancing the ability of banks to charge market-based loan rates and hence guarantee the efficient allocation of scarce resources (Ikhide & Alawode, 2001). The importance of interest rate is hinged on its equilibrating influence on supply and demand in the financial sector. Colander (2001) and Ojo (1993) affirm that, the channelling of savings into financial assets and the willingness of individuals to incur financial liabilities are strongly influenced by interest rates on those financial assets and liabilities. The developmental role of interest rate is possible because of the interlock between the financial and real sectors of economies. It is therefore, through this linkage that, the effect of interest rate on the financial sector is transmitted to the real sector. For instance, the lending rate which translates into the cost of capital has direct implications for investment. High lending rate discourages investment borrowing and vice versa. On the other hand, when the rate of Savings is high, it ultimately translates to increased availability of loanable funds. The snag here is that, the high savings rate is also bound to translate into high lending rates with attendant negative consequences on investment (Chizea, 1993). In the view of classical economists, level of savings is determined by savings rate of interest (Olusoji, 2003). This view holds that, increase in interest rate leads to increased savings and hence a positive relationship. It is this view that, have encouraged the Nigerian authorities to abandon administratively fixed interest rates for market determined ones (Olusoji, 2003). In the words of Ahmed (2003), deregulated interest rate is believed to be critical for both economic stabilization and development of a nation. The implication of Ahmed’s postulation above covers the relationship between interest rate and investment. In this case, it has been established that high lending rates discourage borrowing for investment and vice versa (Anyanwu &
Oaikhenan, 1995). Since economists hold that investment plays a fundamental role in capital formation, hence on economic growth and developments, it becomes obvious that lending rates through perceived influence on investment play a developmental role. That is, a decrease in lending rate is theorized to cause investment borrowing to rise which in turn leads to increased capital formation and eventually to economic growth (Onoh, 2007).

The link between savings and investment is no less important as the level of savings in an economy which also plays a role in the determination of investment levels. This is why monetary authorities in their pursuit of monetary policies try to influence level of savings and availability of credit by directly, in the case of administratively fixed rates or indirectly during deregulated era, influencing the rate of interest (Ogwuma, 1996).

To achieve the desired level of interest rate, the Central Bank of Nigeria (CBN) adopts various monetary policy tools. Among the various monetary policy tools adopted was the Monetary Policy Rate (MPR). This rate, which until 2006 was known as the Minimum Rediscount rate (MRR), is the rate at which the CBN is willing to rediscount first class bills of exchange before maturity (Onoh 2007). Onoh further stressed that, by raising or lowering this rate, the CBN is able to influence market cost of funds. If the CBN increases MPR, banks’ lending rates are expected to increase with it, showing a positive relationship. In recent past, the need to possess certain class of assets as collateral to assess the CBN’s discount window was dispensed with due to global crisis.

Acha and Acha (2011) maintained that, interest rate is an important economic price. This is because, whether seen from the point of view of cost of capital or from the perspective of opportunity cost of funds, interest rate has fundamental implications for the economy of a nation. As the positive relationship between investment and economic development is well established, it therefore becomes expedient for any economy that wishes to grow to pay proper attention to changes in interest rate.

Statement of the Problem
Studies have been conducted to investigate the effect of bank interest rate reforms on economic growth of Nigeria. The studies have used different data sets, techniques for data analysis, and years covered. However, there appears to be different results generated regarding the phenomenon under study. Thus, there is the need to further investigate the effect of bank capital reforms on the economic growth of Nigeria with time frame from 1986 to 2013.

Research Question
The following research question is posed to guide this study:

1. Do bank interest rate reforms influence the economic growth of Nigeria?

Objective of the Study

1. To ascertain the effect of bank interest rate reforms on economic growth of Nigeria.

Research Hypothesis

H$_{01}$: Bank interest rate reforms have no significant effect and economic growth of Nigeria.

Empirical Review
Acha and Acha (2011) in their study examined the “implications of interest rates for savings and investment in Nigeria”’They used data obtained from the Central Bank of Nigeria (CBN). Pearson’s Correlation Coefficient and Regression Method were the analytical tools adopted for data analysis. Result showed interest rate as a poor determinant of savings and investment, indicating that, bank loans were mostly not used for productive purposes. The study, therefore recommends that, bank loans should be channelled to productive investments if interest was to play its catalytic role in Nigerian economy.

Obamuyi and Olorunfemi (2011) investigated the “effects of financial reform and interest rates behaviour on economic growth in Nigeria”. They applied the co-integration and error correction model on time series data from 1970-2006. The results proved that, financial reform and interest rates had significant impact on economic growth in Nigeria. The results also implied that, the behaviour of interest rates was important for economic growth in view of the empirical nexus between interest rates and investment, and investment and economic growth. The study recommends that, government should embark on growth enhancing financial reforms and be sensitive to the behaviour of interest rates for overall economic growth in Nigeria.
Theoretical Framework
The study anchored on the liberalization theory which is summarized in the studies carried out by Goldsmith (1969), McKinnon (1973) and Shaw (1973). These scholars argued that, financial development has a strong correlation with growth. They stressed further that, under the assumption of a well-functioning market, financial liberation enhances efficiency in resource allocation, promotes competition which results in competitive prices for goods. They argued further that, government restrictions on the banking system restrain the quantity and quality of investment.

The financial liberalization theory ascribes the poor performance of investment and growth in developing countries to interest rate ceiling, high reserve requirements and quantitative restrictions in credit allocation. According to the theory, the restrictions are sources of financial repression, and the main symptoms are low savings, credit rationing and low investment in that economy. Thus the need for financial liberalization which frees financial market from any intervention and allows the market forces of demand and supply determined the allocation of credit in an efficient manner.

The theory discourages active involvement of government in economic activities and argues that the role of government, if any, should be limited to the maintenance of law and order and the creation of relevant institutions for the efficient functioning of the free market system. This confirms the views of Ogun and Akinlo (2011) that, the adoption of economies of laissez-fair means, placing a strong faith in Adam Smith’s ‘invisible hand’ and the market mechanism to efficiently allocate resources and fix prices. The postulation of Ogun and Akinlo is in consonance with the views of McKinnon (1973) and Shaw (1973), which attribute the slow growth of developing countries to financial repression. They argued that, liberalizing the markets results in tremendous benefits, which include increased savings and investment; increased efficiency of investment and long term economic growth. To this extent, economic growth is then expected to drive the growth of the financial sector, which in turn further stimulates and enhances the process of savings mobilization and the allocation of financial resources to productive investments.

The policy implications of the liberalization theory is that, if the interest rate adjusts to its steady-state equilibrium and investment equilibrate savings in the money market, low yielding projects will be eliminated so that, the overall efficiency of investment is enhanced. In addition, as the real rate of interest increases, savings and the total real supply of credit increase, which induces a higher volume of investment. Economic growth in the real sectors would therefore, be stimulated not only through the increased investment but also, due to an increase in average productivity of capital. Moreover, the effects of lower reserve requirements reinforce the effects of higher savings on the supply of bank credit, while the abolition of directed credit programmes would lead to an even more efficient allocation of credit thereby stimulating the average productivity of capital.

Methodology
Data on these variables are obtained from the CBN Statistical Bulletin, 2013 covering a time frame from 1986 to 2013. The present study has adapted these variables from Acha and Acha (2011) which examines Effects of interest rates on GDP.

\[ \text{GDP} = f (\text{INTR}, \text{MPR}, \text{TB}) \]  

Where:

\[ \ln \text{GDP} = \beta_0 + \beta_1 \text{INTRS} + \beta_2 \text{MPR} + \beta_3 \text{TB} + \mu \]  

\[ \text{GDP} \] is Gross Domestic Product is the dependent variable and is the proxy for economic growth. \[ \text{INTRS} \] is commercial lending interest rate (%) and is the bank rate that usually meets the short- and medium-term financing needs of the private sector. \[ \text{MPR} \] is Monetary Policy Rate is the official interest rate of the Central Bank of Nigeria (CBN), which anchors all other interest rates in the money market and the economy. Monetary Policy Rate (MPR) is one of the key instruments the Central Bank uses to moderate pressure on consumer prices. \[ \text{TB} \] is Treasury bill is a short term negotiable bill of exchange, used by Governments to help finance national borrowing requirements, quoted for purchase/sale in the secondary market on an annual percentage yield to maturity and issued at a discount.

\[ \beta_0 \] is the constant while \[ \beta_{1,3} \] are the coefficients of the regression, and \[ \mu \] = the error term.

Results
The characteristics of the time serial data used in the analysis are presented in Table 1. The table provides clues about the mean, median, standard deviation, skewness as well as the Jarque-Bera statistics of each variable. From the Jarque-Bera statistics, the normality of the variables is explained. The variables considered here are Natural log of Gross Domestic Product (LnGDP), Interest Rate (INTR), Monetary Policy Rate (MPR), and Treasury Bill Rate (TBR). Specifically, the outcomes of each of the variables have mean, median as well as values for their maximum and minimum that suggests well behaved variables. The mean values employed are not too different from their respective median values. This is an indication of absence of excessive outliers and stability of the variables employed, which are essential for the analyses carried out in this study. The value of the standard deviation of each of the variables is a further proof of the fact that the distribution of the variables is approaching normal distribution. In addition, the skewness, kurtosis and standard deviation statistics show that the variances of the variables are not unnecessarily large.

The results on Table 2 above, shows that at level, all of the variables have unit root. This implies that none of the variables is stationary at level. At first difference, all the variables including LnGDP, INTR, MPR and TBR do not have unit root. This implies that the first difference of the variables has no unit root and the null hypothesis is rejected at 5% level of significance, indicating that the variables are integrated at the same order, that is I(1). From the analyses of result in Table 2, we conclude that variables are stationary at first difference and hence reliable for further statistical analyses.
Table 3: Test of Co-integration among the Variables of Bank Interest Rate Reform Model
Test assumption: Linear deterministic trend in the data
Series: LNGDP INTR MPR TBR
Lags interval: 1 to 1

<table>
<thead>
<tr>
<th>Eigenvalue</th>
<th>Likelihood Ratio</th>
<th>5 Percent Critical Value</th>
<th>1 Percent Critical Value</th>
<th>Hypothesized No. of CE(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.793257</td>
<td>68.06064</td>
<td>47.21</td>
<td>54.46</td>
<td>None **</td>
</tr>
<tr>
<td>0.419199</td>
<td>27.07742</td>
<td>29.68</td>
<td>35.65</td>
<td>At most 1</td>
</tr>
<tr>
<td>0.360881</td>
<td>12.95039</td>
<td>15.41</td>
<td>20.04</td>
<td>At most 2</td>
</tr>
<tr>
<td>0.049176</td>
<td>1.311092</td>
<td>3.76</td>
<td>6.65</td>
<td>At most 3</td>
</tr>
</tbody>
</table>

*(**) denotes rejection of the hypothesis at 5%(1%) significance level
L.R. test indicates 1 cointegrating equation(s) at 5% significance level

Co-integration test was carried out to ascertain the existence of long run relationship among the variables employed for each model. Co-integration of two or more time series suggests that, there is a long run or equilibrium relationship between them. The decision rule is to reject the null hypothesis if the value of the Likelihood Ratio is greater than the Critical Value. Otherwise, we do not reject.

The Interest Rate Reform and Economic Growth model, which is specified to examine the effect of interest rate reform on the economic growth of Nigeria, is tested for the null hypothesis of no co-integration assuming linear deterministic trend. The results of the co-integration test for interest rate reform variables and economic growth are presented on Table 3 above. Comprised in the model are LnGDP, INTR, MPR and TBR. The result on Table 3 indicates that, there is one co-integrating equation, since the likelihood ratio value of 68.06064 > critical value of 54.46 at 1%. It becomes necessary to reject the null hypothesis of no co-integration and conclude that, there is the existence of long-run relationship among the variables of interest rate reforms and economic growth.

Table 4: Multivariate OLS Regression of the Interest Rate Reform and Growth Model
Dependent Variable: LNGDP

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTR</td>
<td>0.370816</td>
<td>0.083467</td>
<td>4.442660</td>
<td>0.0002</td>
</tr>
<tr>
<td>MPR</td>
<td>-0.048419</td>
<td>0.192468</td>
<td>-0.251570</td>
<td>0.8035</td>
</tr>
<tr>
<td>TBR</td>
<td>-0.405026</td>
<td>0.168349</td>
<td>-2.405878</td>
<td>0.0242</td>
</tr>
<tr>
<td>C</td>
<td>5.821066</td>
<td>1.512460</td>
<td>3.848740</td>
<td>0.0008</td>
</tr>
</tbody>
</table>

Adjusted R-squared: 0.512560
F-statistic: 10.46381*
Durbin-Watson stat: 1.913121

Note: * denotes significant at 1%, ** denotes significant at 5%; *** denote significant at 10%

The results of regression equation for Interest Rate Reform and Growth Model are presented in Table 4. The results tested the null hypothesis two that, bank interest rate reforms have no significant effect on economic growth of Nigeria. The coefficients of the regression are lending Interest Rate (INTR) = 0.370816, Monetary Policy Rate (MPR) = -0.048419 and Treasury bill rate (TBR) = -0.405026. The results indicate that, INTR has positive effect on economic growth while MPR and TBR have negative effect on economic growth. This indicates that, a unit increase in lending interest rate brings about 37% increases in economic growth. On the contrary, a unit increase in MPR and TBR leads to about 5% and 41% decrease in economic growth respectively. Largely, interest rate reform variables have negative effect on economic growth. The significance of the coefficients of the regression is tested with t-statistics. The results indicate that, INTR (t. 4.442660 < 0.05) has significant effect, MPR (t.0.8035 > 0.05) has insignificant effect and TBR (t. -2.405878 < 0.05) has significant effect.

The results indicate that, INTR has significant positive effect on economic growth; MPR has insignificant negative effect on economic growth while TBR has significant negative effect on economic growth. As majority of the variables are negative, it implies that, interest rate reforms have negative effect on growth. The value of F-statistics (10.46381) with probability less than 5% (p. <0.05): Since the probability of F. value is less than 5% level, we reject the null hypothesis that bank interest rate reforms have no significant effect on economic growth of Nigeria. But as the coefficients of the variables are negative, we accept that
null hypothesis and conclude that bank interest rate reforms have no significant effect on economic growth of Nigeria. The result of Adj R^2 is 0.512560 which indicates that about 51% of changes in economic growth can be explained by interest rate reforms. The result of the Durbin-Waston statistics (1.913121) which is approximately equal to 2 indicates absence of autocorrelation in the model. Based on the results of the t-statistics, F-statistics and Adj R^2, we conclude that interest rate reforms have significant negative effect that explains 51% of economic growth in Nigeria.

**Discussion of Findings**

The result of this study indicates that, interest rate has adverse effect on economic growth in Nigeria. However, about 49% of factors that determine growth are not captured by interest rate policy. This implies that, huge proportion of determinants of growth cannot be addressed with interest rate policy or reform. This in line with the postulation of Acha and Acha (2011) which asserts that, interest rate is a poor determinant of savings and investment in Nigeria. Bank loans are mostly not used for productive purposes. On the other hand, the findings negate the work of Obamuyi and Olorunfemi (2011) which maintained that, the behaviour of interest rate is important for economic growth.

**Conclusion and Recommendations**

Following the problem identified, the objective, and the findings of the study, the following recommendations are put in place:

1. Monetary authorities should continue to allow the market forces of demand and supply to determine interest rate regime with little guided intervention and monitoring the performance/trends to ensure effective contributions of interest rate on savings, investment and growth of the economy.

2. Central Bank of Nigeria should work with the Federal Ministry of Finance to ensure effective and proactive fiscal policies that will guarantee effective interest rate reform for purposes of financial intermediation resulting in higher growth in savings and investment.
References