

Interest Rate: A Key Variable in Deposit Money Banks' Lending Behaviour in Nigeria

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Abstract

This study examines the relationship between interest rate and bank loans in Nigeria from the periods 1981 to 2013. The specific objectives were to assess the extent to which monetary policy rate, lending rate, deposit rate and Treasury bill rate relates with the loans and advances granted by banks in Nigeria. To achieve the above objectives, relevant literatures were reviewed. An ex-post facto research design was used for the study. The time series data used were sourced principally from the CBN statistical Bulletin and tabulated using the desk survey. The data were analyzed using the ordinary least square multiple regression statistical technique at 5% level of significance. Result from the analyses reveal that increase in monetary policy rate reduces the capacity of banks to lend; deposit rate and Treasury bill rate have an inverse but significant relationship with bank loans and advances; lending rate had a positive and significant relationship with bank loan and advances in Nigeria. Based on these findings, it is recommended that effort should be made to reduce the lending rate or strengthen the regulatory framework of commercial banks lending rate. Also the spread between lending rate and deposit rates should be narrowed as this will encourage more deposit mobilization and efficient bank intermediation which will enhance bank profitability and economic growth in the long run.

Key words: Loans and advances, Lending rate, Deposit rate, monetary policy rate, treasury bills rate, lending behaviour.

INTRODUCTION

Most developing nations' financial systems have witnessed stress as a result of the economic shocks of the 1980s. The economic shocks which manifested through indiscriminate distortions of financial prices including interest rates, has resulted in the reduction of the real growth rate and the real size of the financial system relative to nonfinancial magnitudes (Davidson & Gabriel, 2009). Udoka and Roland (2012) stated that the Nigerian economy has at different times witnessed enormous interest rate swings in different sectors of the economy since the 1970s and mid 1980s under the regulated regime.

The regulated regime set out preferential interest rates. These interest rates were based on the known fact that the market rate, if universally applied, would exclude some of the priority sectors. Interest rates were, therefore, adjusted periodically with 'visible hands' to promote increase in the level of investment in the different sectors of the economy. Noticeable among the preferred sectors were the agricultural, manufacturing and solid mineral sectors which were given priority and deposit money banks were directed to charge preferential interest rates on all loans to encourage the upsurge of small-scale industrialization which is a catalyst for economic development (see Udoka, 2000 and Okoye & Eze, 2013).

Since 1986, the inception of interest rates deregulation, the government of Nigeria has been pursuing a market determined interest rates regime, which does not permit a direct state intervention in the economy but allows the demand and supply for loanable funds to set the rate of interest charged on lenders and paid to depositors (Nyong, 2007). Lending which may be on short, medium or long-term basis is one of the services that deposit money banks do render to their customers. In other words, banks do grant loans and advances to individuals, business organizations as well as government in order to enable them embark on investment and development activities as a means of aiding their growth in particular or contributing toward the economic development of a country in general (Olokoyo, 2011).

Deposit money banks perform many functions- encouragement of savings, provision of capital needed for development, encouragement of trading activities through the use of cheques, encouragement of investment, provision of managerial advice to industrialists who do not engage the services of specialists and rendering financial advice (Ogar, Enya & Arikpo, 2015). Consequently, these roles make them an important phenomenon in economic growth and development (Akinyomi, 2014). Therefore, no matter the sources of the generation of income or the economic policies of the country, deposit money banks would be interested in giving out loans and advances to their numerous customers bearing in mind, the three principles guiding their operations which are, profitability, liquidity and solvency (Adolphus, 2011). However, the prevailing interest rate, the volume of deposits, the level of banks domestic and foreign investment, banks liquidity ratio and the public reputation are some of the measure determinants of bank loans

Lending practices are informed by situational factors such as captains of industry are unable to meet up with the sudden upturn in their businesses financial requirements and therefore, necessarily, have to turn to the banks for assistance (Ezirim, 2005). For instance, the lending practices of the then colonial banks were biased and discriminatory as only the expatriates or expatriate-directed businesses were preferred for loans and advances. This has since changed following the establishment of indigenous banks and the implementation of Structural Adjustment Programme (SAP) in Nigeria.

With the deregulation of the interest rate in 1986, following the adoption of the structural adjustment programme, the forces of demand and supply now determine the cost of borrowing. Since this development, interest rate swings in the direction of the movement of these forces. The high fluctuations in interest rate between these periods have been known to alter banks' loans. What is not known however is the extent to which interest rate fluctuations affect bank loans in Nigeria. This study is therefore conceived to answer the question to what extent does interest rate swings affect the lending behaviour of banks in Nigeria.

OBJECTIVES OF THE STUDY

The broad objective of this study is to examine the fluctuation in interest rate on bank loans in Nigeria. The specific objectives of this study include:

- To assess the effect of lending rate on the total loans and advances of deposit money banks in Nigeria
- To ascertain the impact of deposit rate on the total loans and advances of deposit money banks in Nigeria
- To examine whether the CBN's influence of monetary policy rate significantly influences the total loans and advances of deposit money banks in Nigeria
- To examine whether there is significant relationship between Treasury bill and total loans and advances of deposit money banks in Nigeria
- Research hypotheses

On the basis of the above stated objectives, the following research hypotheses were formulated and tested in this study:

- HO: Lending rate does not significantly affect the total loans and advances of deposit money banks in Nigeria.
- HO: Deposit rate does not significantly impact the total loans and advances of deposit money banks in Nigeria.
- HO: monetary policy rate does not significantly affect the total loans and advances of deposit money banks in Nigeria
- HO: Treasury bill does not significantly impact the total loans and advances of deposit money banks in Nigeria

LITERATURE REVIEW AND THEORETICAL FRAMEWORK.

Theoretical framework

This study is anchored on the loan pricing and credit market theories. The loan pricing theory holds that Banks cannot always set high interest rates, e.g. trying to earn maximum interest income. Banks should consider the Problems of adverse selection and moral hazard since it is very difficult to forecast the borrower type at the start of the banking relationship (Stiglitz & Weiss, 1981). If banks set interest rates too high, they may induce adverse selection problems because high-risk borrowers are willing to accept these high rates. Once these borrowers receive the loans, they may develop moral hazard behaviour or so called borrower moral hazard since they are likely to take on highly risky projects or investments (Chodecai, 2004). From the reasoning of Stiglitz & Weiss (1981), it is usual that in some cases we may not find that the interest rate set by banks is commensurate with the risk of the borrowers.

The credit market theory on the other hand is a neoclassical credit market model that believes that the terms of credits clear the market. If collateral and other restrictions (covenants) remain constant, the interest rate is the only price mechanism which determines lending. With an increasing demand for credit and a given customer supply, the interest rate rises, and vice versa. It is thus believed that the higher the interest premium, the higher the failure risks of the borrower (Ewert, Szezesmy & Schenk, 2000).

Empirical review

A lot has been reviewed in terms of lending activities of various deposit money banks. Some opinions deliberated on the factor responsible for banks willingness to extend much credit to some sector of the economy, while some discussed effect of such extension of credits on productivity and output.

Ojong, Arikpo & Ogar (2015) investigated the role of deposit money banks on the growth of SME in Cross River State, using the Pearson product moment correlation tool on deposit money banks credit, multiple taxation and government policies found that all variables related significantly with SMEs output.

Khat & Bathia (1993) used non-parametric method to study the relationship between interest rates and other macro-economic variables, including savings and investment. In their study they grouped (64) Sixty-Four developing countries including Nigeria into three based on the level of their real interest rate. He then computed economic rate among which were gross savings, income and investment for countries. Applying the Mann - Whitney test, they found that the impact of real interest was not significant for the three groups.

Adofu & Audu (2010) used ordinary least squares method to ascertain the assessment of the effects of interest rate deregulation in enhancing agricultural productivity in Nigeria. The study found out that interest rate play a significant role in enhancing economic activities and as such, monetary authorities should ensure appropriate determination of interest rate level that will break the double - edge effect of interest rate on savers and local investors.

Rasheed (2010) used error correction model (ECM) to investigate interest rates determination in Nigeria. The study found out that as the Nigerian financial sector integrates more with global markets, returns on foreign assets will play a significant role in the determination of domestic interest rates.

Amidu (2006) examined whether bank lending is constrained by monetary policy in Ghana. The study revealed that Ghanaian banks' lending behaviours are affected significantly by the country's economic activities and changes in money supply, supporting previous studies that the Ghanaian Central Bank's prime rate and inflation rate negatively but statistically insignificantly affect bank lending.

Shelile (2006) examined the predictive ability of the term structure of interest rates on economic activity, and the effects of different monetary policy regimes on the predictive ability of the term spread. Results of the study established that the term structure successfully predicted real economic activity during the entire research period with the exception of the last sub-period (2000-2004) when using the multivariate model. In the periods of financial market liberalization and interest rates deregulation, the term structure was to be a better predictor of economic activity in South Africa.

Nnamdi (2007) attempted to evaluate the dynamic impacts and relationships between deposit structure, lending rates and risk assets created in the Nigerian banking system. The results indicated a significant multiple correlation between risk assets and a combination of the independent variables savings deposit, time deposit, demand deposits and lending rate.

Emery (1971), studied the use of interest rate policies as stimulus of economic growth. Using the OLS technique, He submitted that government of few less developed countries were beginning to view interest rate policy as one of their major discretionary policy variables – along with monetary and fiscal policy - in their efforts to stimulate economic growth and – when appropriate – to reduce inflationary pressure. According to him “this change in attitude has been caused in part by the experience of Taiwan, Korea and Indonesia following the introduction of substantial change in the interest rate structure, particularly for time and savings deposits.

Research methodology

The ex-post factor research design is used for this study and is adjudged to be appropriate as the event under study had already taken place. Unlike the experimental design, statistical techniques will be applied in the treatment of the events under study. Time series data were

collected, using the desk survey method, for the period between 1980 and 2013 on the Loan and Advances, Lending Rate, Deposit Rates, Monetary Policy Rate and Treasury Bills Rate.

Techniques of data analysis and model specification

The ordinary least squares multiple regression analytical technique is used, justified by its feature as the best linear unbiased estimator with built-in validation criteria used in establishing relationships among variables.

For the purpose of this study, the following econometric model will be specified.

$$\text{LOAD} = f(\text{LR}, \text{DR}, \text{MPR}, \text{TBR})$$

From where the ordinary least square model was obtained thus:

$$\text{LOAD} = a_0 + b_1\text{LR} + b_2\text{DR} + b_3\text{MPR} + b_4\text{TBR} + \text{ET}$$

Where:

LOAD = Loans and Advances

LR = Lending Rate

DR = Deposit Rate

MPR = Monetary Policy Rate

TBR = Treasury Bills Rate

ET = Stochastic Error Term.

A priori condition: $a_0, b_1, b_2, b_3 \text{ \& } b_4 > 0$

ESTIMATION AND VALIDATION TECHNIQUE

In view of the important nature of the study, an econometric equation was formulated on the basis of which the relationship between the variables (dependent and independent) was determined. The regression of the independent variables of Lending Rate, Deposit Rates, Monetary Policy Rate and Treasury Bills Rate on the dependent variable of Loan and Advance were estimated using the ordinary least square (OLS) method due to its characteristics of being the best linear unbiased estimator (Katsoyiannis, 2006).

On an a priori basis, we expect Lending Rate (LR) to be positive (+), Deposit Rate (DR) to be negative (-), Monetary Policy Rate (MPR) to be negative (-) and Treasury Bills Rate (TBR) to be negative (-). The result will also be evaluated using statistical criteria. This will include the R², t-statistics and f-statistics. R² will be used to test the explanatory power of the model and is expected to assume the value ($0 < R^2 < 1$). The closer the R² value to one the higher the fit of the model. The t-statistics will be used to evaluate the individual statistical significance of the respective parameters at 5% level. We expect that $t_{cal} > t_{tab}$ for all parameters. F-statistics will be applied to test the overall significance of the model. The higher the F-statistics value, the greater the explanatory power of the model.

Finally, we will evaluate the result on econometric basis using the d-w statistics. We expect the calculated d-w value to fall within the no autocorrelation region.

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

Analysis of Data

The beginning step in the estimation of a linear relationship is the testing procedure to find out the characteristics of the time series data. This procedure and the regression results will now be presented and analysed below: Table 4.1:

Table 4.1 showed that both monetary policy rate (MPR) and lending rate (LR) have positive relationships with bank loans and advances in Nigeria. This is seen, as the parameters entered the model with positive signs. Implying that one percent increase in monetary policy rate

(MPR) and Lending Rate (LR) resulted in 0.9247 and 3.8091 increases in bank loans and advances respectively.

Furthermore, the result showed that deposit rate and treasury rate related negatively with bank loans and advances. Stated somewhat differently, one percent increase in deposit rate and treasury bills rate resulted in a decrease in bank loans to the turn of 3.0826 and 1.1360 respectively.

The goodness of fit of the model as indicated by the adjusted R² value of 0.9229 or 92.29 percent indicated that the model fits the data well, the total variation in the observed behaviour of Bank Loans and Advances is jointly explained by the variation in monetary policy rate (MPR), Lending Rate (LR), Deposit Rate (DR) and Treasury Bill Rate (TBR) up to 92.29%. The remaining 7.71 percent is accounted for by the stochastic error term. The overall significance of the model was also tested using the ANOVA or F-statistics. Here, the high significance of the F-statistics value of 83.7499 confirms that the high predictability of the model did not occur by chance; it actually confirmed that the model fitted the data well.

We also tested for the presence of autocorrelation in the residual of the model using the d-w statistics, the test revealed that the calculated d-w value of 1.3693 fell within the inconclusive region of the d-w table. Hence no conclusion was drawn as to whether the model is free from autocorrelation.

TEST OF HYPOTHESES

Hypothesis one

- HO: There is no significant relationship between monetary policy rate and bank loans and advances.
- H1: There is a significant relationship between monetary policy rate and bank loans and advances.

Decision rule:

Accept Ho: If calculated t-statistics < table t-statistics

Reject Ho: If calculated t-statistics > table t-statistics.

From the data analysis,

Calculated t-statistics = 1.2572

Table t-statistics = 2.035.

Since the calculated t-statistics value of 1.2572 is less than the table t-statistics value of 2.035 at 5% level of significance, we accept the null hypothesis and reject the alternative hypothesis. This implies that there is no significant relationship between monetary policy rate and bank loans and advances

Hypothesis two

- HO: There is no significant relationship between lending rates and bank loans and advances in Nigeria.
- Hi: There is no significant relationship between lending rates and bank loans and advances in Nigeria.

Decision rule:

Accept Ho: If calculated t-statistics value < table t-statistics value.

Reject Ho: If calculated t-statistics table t-statistics value

From the analysis

Calculated t-statistics value = 6.1690

Table t-statistics value = 2.035

Since the calculated t-statistics value of 6.1690 is greater than the table t-statistics value of 2.035 at 5% level of significance, we reject the null hypothesis and accept the alternative hypothesis. It therefore implies that there exist a significant relationship between lending rate and bank loans and advances in Nigeria.

Hypothesis three

- HO: There is no significant relationship between deposit rate and bank loans and advances in Nigeria
- H1: There is a significant relationship between deposit rate and Bank loans and advance in Nigeria.

Decision rule:

Accept Ho: If calculated t-statistics value < table t-statistics value

Reject Ho: If calculated t-statistics value >table t-statistics value.

From the analysis;

Calculated t-statistics value = 15.4169

Table t-statistics value = 2.035

Since the calculated t-statistics value of 15.4169 is greater than the table t-statistics value of 2.035 at 5% level of significance, we reject the null hypothesis and accept the alternative hypothesis. It therefore implies that there exist a significant relationship between deposit rate and bank loans and advances in Nigeria.

Hypothesis four

- HO: There is no significant relationship between Treasury bill rate and bank loans and advances in Nigeria
- H1: There is a significant relationship between Treasury bill rate and Bank loans and advance in Nigeria.

Decision rule:

Accept Ho: If calculated t-statistics value < table t-statistics value

Reject Ho: If calculated t-statistics value >table t-statistics value.

From the analysis;

Calculated t-statistics value = 2.2518

Table t-statistics value = 2.035

Since the calculated t-statistics value of 2.2518 is greater than the table t-statistics value of 2.035 at 5% level of significance, we reject the null hypothesis and accept the alternative hypothesis. It therefore implies that there exist a significant relationship between Treasury bill rate and bank loans and advances in Nigeria.

DISCUSSION OF FINDINGS

From the above analysis, it was discovered that there exist a positive but insignificant relationship between monetary policy rate and the bank loans and advances. This is to say that as monetary policy rate increases, the bank's loans and advances increase accordingly, but such increase is marginal. This finding is in agreement with Amidu (2006), who in his findings posited that the monetary policy rate is a potent instrument through which the CBN control the

lending behaviour of deposit money banks in Nigeria. This finding is also in agreement with Adebisi & Babatope-Obasa (2004), who in a similar study held that an increase in monetary policy rate reduces the ability of banks to lend to investors. Hence, an increase in minimum rediscount rate reduces the capacity of banks to lend.

The study also revealed a positive and significant relationship between lending rate and bank loans and advances in Nigeria. Stated differently, the study proved that as lending rate increases, banks increase their loans and advances to the public. This finding is in tandem with Nnamdi (2007), who investigated the dynamic impacts and relationships between deposit structure, lending rates and risk assets created in the Nigerian banking system. Using the OLS analytical technique, the study revealed a significant relationship between deposits rate, lending rates, and the risk assets created by commercial banks.

The study finally revealed an inverse but significant relationship between deposit rate, treasury bills rates and bank loans and advances. Supporting these findings is Nnamdi (2007) who revealed a positive relationship between deposit rates and bank loans and advances in Nigeria.

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

Summary of findings and conclusion

This research study was carried out to evaluate the impact of interest rate on commercial banks credit in Nigeria. In order to validate the work theoretical and empirical literature relevant to the subject matter were reviewed. The Ordinary Least Square (OLS) was adopted to examine the performance of interest rate indices on bank loans and advances in Nigeria. Consequently, the following findings were made: There is a positive and significant relationship between lending rates and banks loans and advances in Nigeria. Deposit rates and Treasury bill rate have inverse but significant relationship with bank loans and advances. Increase in monetary policy rate does not deter bank loans and advances; it only reduces the capacity of banks to lend to the public. . Based on these findings, it was concluded that interest rate is one of the major determinants of bank lending behaviour in Nigeria.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations were made:

Efforts should be made to moderate lending rates or strengthen the regulatory framework of commercial banks lending rate determination, to encourage effective and efficient allocation of funds to the productive sector of the economy.

Bank managers should ensure that loan offer rates are painstakingly set to reduce the problem of loan default and adverse selection. This will reduce the level of nonperforming loan held by banks in Nigeria.

Sustain the current regime of interest rates management but with greater transparency and accountability to ensure that interest rate paid and charged by deposit money banks are stable and enterprise-inducing.

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