

## **Effect of Interest Rates Deregulation on the Performance of Deposit Money Banks in Nigeria**

**Emeka E. Ene**

Accounting Department, Bingham University  
New Karu, Nasarawa State, Nigeria  
enelemeka@yahoo.com

**Agok, S. Atong**

Accounting Department, Bingham University  
New Karu, Nasarawa State, Nigeria

**Josephine C. Ene**

Business Administration Department, Bingham University, New Karu, Nasarawa State, Nigeria

---

**Abstract:** *Before the deregulation of interest rates in Nigeria, the interest rate was strictly controlled by the Central Bank of Nigeria (CBN). It was later realized that strictly regulated interest rate strategy could not sustain banks profitability in the country. The study therefore seeks to empirically examine the effect of Interest Rates Deregulation on the performance of Deposit Money Banks in Nigeria between 1986 and 2014 using OLS regression method. Unit root test was employed to ascertain the stationary levels of the variables before conducting the regression analysis. Findings from the study revealed that deregulated interest rates have positive and significant impact on the ROA of deposit money banks. It showed that as interest rates increase, the ROA also appreciates. The study further revealed that deregulated interest rates have positive and significant relationship with the loans and advances of deposit money banks. It shows that the higher the rates of interests, the higher the performance of deposit money banks. It was therefore recommended that the banking sector regulatory authority needs to ensure that specific policy tools such as the minimum re-discount rate, maximum lending rate, liquidity ratio, monetary policy rate are effectively managed to induce higher savings, increase credit supply, stimulate investment and hence positively impact on the performance of the banking sector and enhance economic growth in general.*

**Keywords:** *Interest Rates, Deregulation, Performances, Deposit Money Banks*

---

### **1. INTRODUCTION**

Interest rate plays a very important role in any economy as the signal that affects the channeling of funds. It is cogent to determining the strength of an economy and the economic well-being of its citizens. Recognizing the importance of interest rate in an economy, various government have always been reluctant in allowing market forces to determine this rate but rather governments have used various mechanisms to control and manipulate prevailing interest rate. Approaches used by government have included regulation, guided regulation, deregulation unto financial liberalization. The approach chosen by authorities usually depend on the stage of the economy in view of global economy, inflationary or deflationary variants in the economy and the government monetary policy.

According to Wikipedia (2005) an interest rate is the rate at which interest is paid by a borrower for the use of money that they borrow from a lender. Interest rate has also been defined as the rental payment for the use of credit by borrowers and the return for parting with liquidity by lenders (Ibimodo, 2005). Interest rate is usually assumed to be determined by the intersection of demand curve and supply curve, however interest rate can be determined by fiscal authorities in a bid to provide basis for growth and direction of investment.

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 preferential interest rates were based on the premise that the market, if freely applied would exclude some priority sectors. Thus, interest rates were adjusted through the “invisible hand” in order to promote increased level of investment in the various preferred sectors of the economy (Anyingang and Udoka, 2013). Amassoma, Nwosa and Ofere (2011) also pointed out that prior to the introduction of Structural Adjustment Programmes (SAP) in Nigeria in 1986, the Nigerian financial sector was characterized by rigid exchange rate and interest rate controls, mandatory sectoral allocation of bank credit to the

private sector, all of which engendered distortion and inefficiencies that results to low direct investment. Funds were inadequate, the Nigeria currency was overvalued and the monetary and credit aggregate moved rather sluggishly such that the economy was sort of engulfed with a general lull. The use of direct controls and the pervasive government intervention in the financial system had led to stifling of competition and resource misallocation with the economic indices showing a negative trend of industry and manufacturing rate and a negative growth rate in Gross domestic product. To reverse this trend, a comprehensive economic re-constructing programme was embarked upon in Nigeria in 1986 with increased reliance on market force. The reforms, which focused on structural changes, monetary policy, interest rate administration and foreign exchange management, encompass both financial market liberalization and institutional building in the financial sector (CBN June 2009 series).

The deregulation of interest rate, which is the removal of rules and regulations that constrains the operation of market forces and controls over interest rate, aims to allow interest rate to be set by the forces of demand and supply. According to Iyoha (1996), the ultimate objective of the deregulation under SAP was to bring about improved financial intermediation by enhancing the role of banks in effectively mobilizing domestic savings and optimally allocating investable resources. Deregulation of interest rate provides a platform for greater competitiveness in mobilization and utilization of fund, an efficient financial industry and more productive organizations within the financial industry. It has been advocated by many economists that interest rate deregulation helps to enhance savings, boost investment and consequently help to enhance economic growth.

However, the road of complete deregulation of interest rate in Nigeria has not been devoid of wide variations and unnecessarily high rate. Anthony, Ozomba and Olatunji (2009) in their study reported that in August, 1987, all controls on interest rates were removed, while the CBN adopted the policy of fixing only its minimum rediscount rate to indicate the desired direction of interest rate changes. This, they observed, was modified in 1989, when the CBN issued further directives on the required spreads between deposit and lending rates. In 1991, the government prescribed a maximum margin between each bank's average cost of funds and its maximum lending rates. Later, they further stated, the CBN prescribed savings deposit rate and a maximum lending rate. Partial deregulation was, however, restored in 1992 when financial institutions were only required to maintain a specified spread between their average cost of funds and their maximum lending rates. The removal of the maximum lending rate ceiling in 1993 saw interest rates rising to unprecedented levels in sympathy with rising inflation rate which rendered banks' high lending rates negative in real terms. In 1994, direct interest rate controls were restored. As these and other controls introduced in 1994 and 1995 had negative economic effects, total deregulation of interest rates was again adopted since October, 1996 (Anthony, Ozomba and Olatunji, 2009). This total deregulation remains the status quo.

Even though many economists have argued that the deregulation of interest rate has led to trudge in the real interest rate (interest rate that has been adjusted for changes in price level) which has induced savings and investment in general (Amassoma, Nwosa and Ofere, 2011), the deregulation of interest rate in Nigeria has been met with divergent views by financial experts both in academia and in the banking sector. While some commended the policy others deprecated the decision. For instance, Abiodun(1987) decried the deregulation policy because it will have the overall consequence of slowing down investment as borrowing will be cut down due to high interest rate. Ojo (1988), supporting this view, described the Nigerian domestic financial markets as being structurally oligopolistic therefore if interest rate is left uncontrolled, it might lead to a sharp increase in lending rate leading to increase in cost of capital and discouraging investment. Contrary to their views, Iklide (1990) argued that interest rate will not only bring relief to the financially repressed economy but it will ensure a real return on deposit which had previously yielded negative results. His argument is collaborated by the study by Mckinnon and Shaw. According to Mckinnon (1973) and Shaw (1973), financial repression arises mostly where a country imposes ceiling on deposit and lending nominal interest rates at a low level relative to inflation. The resulting low or negative interest rates discourage savings mobilization and channeling of mobilized savings through the financial system. This has negative impact on the quantity and quality of investment and hence economic growth in view of the empirical link between savings, investment and economic growth. In the same vein, Nwankwo (1989) believed that interest rate deregulations will definitely lead to more efficient allocation of financial market resources because interest rate will now reflect scarcity and relative efficiency in different use. That is, only efficient investors will have access to scarce financial resources.

It is pertinent to note that one of the prominent reasons for deregulation of interest rate is to improve financial intermediation by ensuring the existence of an efficient financial industry; it was intended to increase the efficiency of financial market. Under the deregulated interest rate system, the market forces of demand and supply plays a very prominent role in the determination of interest, that is, banks and their customers are free to negotiate to arrive at a suitable interest rate on both deposit and loans. This study attempts to find the probable effect of interest rate deregulation on the performance of deposit money banks in Nigeria. This study presupposes that the phenomenon that fundamentally dictates the size and utilization of mobilized fund is interest rate.

For the purpose of organization, the paper has been arranged into five sections as follows: section one, presents the introduction. Section two is the theoretical framework to understanding the effects of interest rate deregulation. The next section dwells on the review of related empirical literature. Section four captures data analysis and presentation, while the last section presents conclusion and recommendation.

## **2. THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

Presented below are some theoretical perspectives on the subject of relationship between interest rates and investment demand, which provides basis for our arguments and methodologies.

### **2.1. Keynes Theory**

This theory assumes equilibrium with less than full employment where both employment and income are fluctuating. The theory views interest as reward for parting with liquidity. It provides that interest rate is determined by the demand and supply of money. The theory opined that supply of money is usually determined by monetary authorities while the demand for money is a function of income and interest rate. The theory further explained that transactionary and precautionary motive of liquidity is dependent on income while speculative motive is dependent on interest rate, it is interest elastic. The Keynesian theory implies that low interest rate as a component of cost administered is detrimental to increase savings and hence investment demand. Proponents of this theory argue that increase in the real interest rate will have strong positive effects on savings which can be utilized in investment, because those with excess liquidity will be encouraged to save because of the high interest rate, thus banks will have excess money to lend to investors for investment purpose thereby raising the volume of productive investment. Keynes also emphasized that the rate of interest is purely a monetary phenomenon. This theory introduced the concept of liquidity trap, a situation where low interest rates discourage savings and consequently reduces investments due to lack of investable fund. Anyingang and Udoka (2012), in their study observed that the Keynesian liquidity preference theory interest rate is a stock theory. It is a stock analysis because it takes the supply of money as given during the short run and determines the interest rate by liquidity preference or demand for money.

This theory alludes to the Nigerian situation under the regulated interest era, where the monetary interest rate set by government authorities was low and the real interest rate was even lower because of inflation. The low interest rate encouraged inefficiency in the use of capital and resultant negative growth trend in investment. The negative trend was also because of lack of investable fund as people preferred to hold liquid cash as there was no adequate inducement to part with liquidity.

Keynes theory is regarded as an improvement over classical theory as it considers interest as a monetary phenomenon that links the present and the future. This theory abandoned the assumption of full employment, introduced the concept of unemployment therefore, it considered the change in the income level and its relation with savings and investment. Thus in Keynesian analysis more investment leads to more consumption, or in other words, investment and consumption go together. Keynesian analysis is more realistic in the context of unemployment of re-sources prevailing in the economy.

Opponents of this theory insist that it is an indeterminate, incomplete, inadequate and unrealistic theory of interest rate.

### **2.2. Time Preference Theory of Interest**

This theory was propounded by Irwing (1930) He defined interest as payment for waiting, a reward for making a choice to postpone consumption to a future date. He theorized that people generally have an inclination towards current consumption (expenditure over future consumption (expenditure) therefore the interest rate must be attractive enough to encourage sacrifice for immediate satisfaction.

Fisher further explained that time preference is determined by the willingness principle and investment opportunity principle. A comparison of Fishers theory and Keynes theory indicate that both theories are dependent on income and availability of profitable investments. The willingness (indifference) principle is a function of income just like the transactional and precautionary motive while the investment opportunity principle just like speculative motive is a function of the opportunity cost of profitable investments (for example, the interest rate). However, while Keynes explains his theory using liquidity preference, Fisher concentrated on time preference.

Opponents of this theory have declared that it is an indeterminate and narrow theory. It is also viewed as a theory that explains the existence of interest rate but does not actually provide a methodological process for the determination of interest rate.

### **2.3. Loanable Fund**

The loanable funds theory is a flow theory that determines the interest rate by the demand for and supply of loanable funds. Supply of loanable fund comes from savings, disharding and bank credits while the demand of loanable fund according to this theory, has primarily three sources; government, businessmen and consumers who need them for purposes of investment, hoarding and consumption. This theory is generally considered to be a superior theory to classical theory because of its inclusion of real as well as monetary factors, recognition of the role of bank credits as a constituent of money supply and its regard of money as an active factor in the determination of interest rate. However, Robertson (1930) assertion of the theory as a commonsense explanation of the determination of interest rate has not veiled it from criticism by prominent economist, Hansen (1941) as being an indeterminate theory

### **2.4. Classical Theory**

This theory states that the rate of interest is determined by the supply and demand of capital. While the supply of capital is governed by time preference, the demand for capital is governed by the expected productivity of capital. Interest rate is determined at the intersection of the demand curve and the supply curve at a given level of income Yunana (2010). The theory is a real theory of interest because it is based on real forces of demand and supply side. It regards productivity on the demand side and thrift on the side of supply and completely neglects monetary influences on interest rate. The weakness of this theory flows from its assertion that money is merely a veil, a passive factor influencing the rate of interest. This theory also completely ignores the effect of investment on income as it is based on the unrealistic assumption of full employment of resources. Opponents of the theory also opine that the classical confuse the amount saved with the propensity to save Taussig (1998).

### **2.5. Modern Theory**

The submission that previous theories on determination of interest rate were inadequate and indeterminate propelled the propounding of a new theory of interest rate Irving (1936). This theory takes into consideration both the real and monetary factors that influence interest rate. This theory brings together loanable funds formulation and Keynesian liquidity preference formulation to provide an adequate and well integrated theory of rate of interest. Hicks, Somers, Lerner, Hansen and others opined that the rate of interest, along with the level of income is determined by four factors: (i) the investment demand function (MEC). (ii) The saving (consumption) function. (iii) The liquidity preference function, and (iv) the quantity of money function. The equilibrium condition of these four variables together determines the rate of interest. According to Hansen, equilibrium is reached when the desired volume of cash balances equals the quantity of money. When the marginal efficiency of capital is equal to the rate of interest and finally when the volume of investment is equal to normal or desired volume of saving.

### **2.6. Empirical Review**

Oshikoya (1992) used time series econometrics to investigate the impact of interest rate deregulation on economic growth in Kenya. Using data from 1970 to 1989, he found real interest rate to have a significant and negative impact on economic growth. The sample was then split into sub-periods 1970-1979 (regulation era) and 1980-1989 (deregulation era). The real interest rate had a negative and significant coefficient for the 1970-1979 periods, but was positive and significant for the 1980-1989 period; thus offering no robust result of the impact of interest rate deregulation on economic growth of that country.

## Effect of Interest Rates Deregulation on the Performance of Deposit Money Banks in Nigeria

Eregha (2010) examined variations in interest rate and investment determination in Nigeria. The study employed dynamic model of two equations using instrumental variable technique of estimation on data from the World Development Indicator. The study revealed that variation in interest rate played a negative and highly significant role in investment decision in the economy and demand for credit also had negative and significant influence on interest rate variations in both the short run and long run. The researcher noted that though investment has an indirect relationship with interest rate variation, other variables such as debt burden, economic stability, foreign exchange, shortage and lack of infrastructure affected gross domestic investment. The author recommended that improvement in these key macro-economic variables is a necessary condition towards facilitating investment in Nigeria.

A study conducted by Drees and Parabasioglu (1998) on the impact of interest deregulation on economic growth of Norway, Finland and Sweden revealed that with interest rates deregulation, interest rates surged in these countries leading to an increased economic growth. Adofu, Abula and Audu (2010) in their study on the changes in Agricultural production since the deregulation of interest rate in 1986 using ordinary least square method to examine data from 1986 to 2005, found that interest rate deregulation has significant and positive impact on Agricultural productivity in Nigeria within the period under review. The empirical analysis also suggested that interest rate played 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.

**Table1.** Summary of Other Empirical Review

S/N	TOPIC	AUTHOR	YEAR	OBJECTIVES	METHODOLOGY	FINDING/CONCLUSION
1	The impact of bank lending rate on the performance of Nigerian Deposit Money banks between 2000 and 2010	Okoye and Eze	2013	-To determine the effect of interest rate and monetary Policy rate on the performance of Nigerian Deposit Money banks.	-Secondary data was used using Ordinary Least square regression analysis.	-they found out that monetary interest rate has significant and positive effect on the performance of Nigerian Deposit Money banks.
2	Impact of Interest Rate Policy and Performance of Deposit Money Banks in Nigeria.	Enyioko.N.	2012	-To analyse the relationship between interest rate and bank performance.	-secondary data is also used using Regression and error correction methods.	He found that interest rate policies have actually improved the overall performance of banks significantly especially in the area of Return on Assets (ROA).
3	Monetary Policy and the Performance of Commercial Banks in Nigeria	Uchendu,O.	1995	-To investigate the effect of monetary policies on the performance of Nigerian Commercial banks.	-Secondary data is used using ordinary least squares (OLS), single equation estimation technique	-He found out that the dominant factors influencing bank profitability are interest rates and banking structure particularly when ROA is used as measure of profitability.
4	Trends in Profitability of Banks in Nigeria before and during Interest Rate Regulation	Ahmad, H.	2003	-To Investigate the effects of interest rates on loans and advances.	- Secondary data was also collected using Ordinary Least square regression analysis and Fixed effect model.	-He concluded that interest rate has significant positive impact on loans advancements of Deposit Money banks.

The above reviewed literatures are indications of studies that have been conducted which relates to this study. Divergent in focus, however, this study seeks to investigate the effect of interest rates deregulation on the performances of deposit money banks in Nigeria using different methods of analysis. This study on the effect of interest rates deregulation on performances of deposit money banks would no doubt provide room in arguing for or against interest rates deregulation on the performances of deposit money banks.

This study seeks to find out the extent to which deregulated interest rate has significantly impacted on the loans and advances of deposit money banks. Secondly, to fine out the extent to which deregulated interest rate has significantly impacted on the returns of assets of deposit money banks.

## 2.7. The Role of Deposit Money Banks in the Nigeria Economy

The traditional role of banks is to accept deposits and make loans and derive a profit from the difference in the interest rates paid and charged to depositors and borrowers respectively. The process performed by banks of taking in funds from a depositor and then lending them out to a borrower is known as financial intermediation (Sanderson, 2013).

Through the process of financial intermediation, certain assets are transformed into different assets or liabilities. As such, financial intermediaries channel funds from people who have extra money or surplus savings (savers) to those who do not have enough money to carry out a desired activity (borrowers). Banking thrives on the financial intermediation abilities of financial institutions that allow them to lend out money and receiving money on deposit. The bank is the most important financial intermediary in the economy as it connects surplus and deficit economic agents. Sanderson (2013) summarized roles of deposit money banks to include:

- **Credit provision:** Credit fuels economic activity by allowing businesses to invest beyond their cash on hand, households to purchase homes without saving the entire cost in advance, and governments to smooth out their spending by mitigating the cyclical pattern of tax revenues and to invest in infrastructure projects.
- **Liquidity provision:** Businesses and households need to have protection against unexpected needs for cash. Banks are the main direct providers of liquidity, both through offering demand deposits that can be withdrawn any time and by offering lines of credit. Further, banks and their affiliates are at the core of the financial markets, offering to buy and sell securities and related products at need, in large volumes, with relatively modest transaction costs.
- **Risk management services:** Banks allow businesses and households to pool their risks from exposures to financial and commodity markets. Much of this is provided by banks through derivatives instruments transactions. Banks also enable individuals and businesses to take part in the global foreign exchange and commodity markets indirectly. It would be very difficult for example for a small company needing only a few million Japanese yen to import a vehicle from Japan to get onto the global currency markets without the aid of a bank.
- **Remittance of Money:** Cash can be transferred easily from one place to another and from one country to another by the help of a bank. It has facilitated transactions in distant places. This, in turn, has expanded the internal and external trade and market. The men have become free of the risks of carrying cash, gold, silver etc. The credit instruments issued by banks such as cheque, draft, Real time gross settlement, credit cards have facilitated the transfer of money.
- **Rapid Economic Development:** the banks make available loans of different periods to agriculture, industry and trade. They make direct investments in industrial sectors. They provide industrial, agricultural and commercial consultancy hence facilitating the process of economic development.

## 2.8. Deposit Money Banks and Deregulation of Interest Rate in Nigeria

Deposit money banks are the most important savings, mobilization and financial resource allocation institution. Consequently, these roles make them an important phenomenon in economic growth and development. In performing this role, it must be realized that banks have the potential, scope and prospects for mobilizing financial resources and allocating them to productive investments and in return promote their performance. 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, deposit money banks decisions to lend out loans are influenced by a lot of factors such as the prevailing interest rate, the volume of deposits, the level of their domestic and foreign investment, banks liquidity ratio, prestige and public recognition to mention just but a few.

Lending practices in the world could be traced to the period of industrial revolution which increase the pace of commercial and production activities thereby bringing about the need for large capital outlays for projects. Many captains of industry at this period were unable to meet up with the sudden upturn in the financial requirements and therefore turn to the banks for assistance (Ezirim, 2005). However, the emergence of banks in Nigeria in 1872 with the establishment of the African Banks

Corporation (ABC) and later appearance of other banks in the scene during the colonial era witnessed the beginning of banks' lending practice in Nigeria. Though, the lending practices of the then colonial banks were biased and discriminatory and could not be said to be a good lending practice as only the expatriates were given loans and advances. This among other reasons led to the establishment of indigenous banks in Nigeria. Prior to the advent of Structural Adjustment Programme (SAP) in the country in 1986, the lending practices of banks were strictly regulated under the close surveillance of the bank's supervisory bodies. The SAP period brought about some relaxation of the stringent rules guiding banking practices.

The Bank and Other Financial Act Amendment (BOFIA) 1998, requires banks to report large borrowing to the CBN. The CBN also require that their total value of a loan credit facility or any other liability in respect of a borrower, at any time, should not exceed 20% of the shareholders' funds unimpaired by losses in the case of commercial banks (Felicia, 2011).

This study becomes imperative because deposit money banks in Nigeria need to understand how to manage these huge assets in terms of their loans and advances. For the banks to balance their main objectives of liquidity, profitability and solvency, lending must be handled effectively and the banks must behave in a way that their potential customers are attracted and retained.

### **3. METHODOLOGY OF DATA ANALYSIS**

The time series econometric procedures were used in order to examine the effect of interest rate deregulation on the performance of money deposit banks in Nigeria. There are two steps involved in estimating the relationships. The first step is to test the stationarity of the series or their order of integration, as the series ought to be stationary. The second step is the linear estimation of the relationship. The linear estimation technique aims at achieving unique parameter estimates that would enable us to interpret the regression coefficients and consequently give a slightly better fit.

The estimation was conducted using the econometric computer software package, E-Views version 7.0.

#### **3.1. JUSTIFICATION OF METHOD**

The ordinary least square (OLS) method of the classical linear regression model is the econometric technique adopted in this study which shall cover an annual period of (1986 – 2014). The preference for the use of the ordinary least square (OLS) estimation method is because the computational procedure is simple compared to other econometric techniques. The Ordinary Least Square estimator equally has smaller variance than any other linear unbiased estimator; they are linear and normally distributed; are efficient; consistent and are symmetrically unbiased. Therefore, the Ordinary Least Square (OLS) is said to be the Best Linear Unbiased Estimator (BLUE).

#### **3.2. Model Specification**

Taking inference from the empirical findings and theories, the two models are expressed below to test the two research hypotheses as:

$$ROA = f(IR) \tag{1}$$

$$LA = f(IR) \tag{2}$$

Thus, linearizing equation (1 and 2), we obtain:

$$ROA = \beta_0 + \beta_1 IR + \mu \tag{3}$$

$$LA = \beta_0 + \beta_2 IR + \mu \tag{4}$$

Where;

$\beta_0$  = The intercept or autonomous parameter estimate

$\beta_1, \beta_2$  = Parameter estimate representing the coefficient of deregulated interest rates

ROA = Represent the return on assets

LA = Loans and advances

$\mu$  = Error term (or stochastic term).

### 3.3. A Priorisign Expectation and Decision Making Criteria

This refers to the supposed relationship between and or among the dependent or independent variables of the model as determined by the postulations of economic theory. The result or parameter estimates of the models will be interpreted on the basis of the supposed signs of the parameters as established by economic theory put differently, the parameter estimates of the model will be checked to find out whether they conform to the postulations of economic theory.

We then differentiate partially with respect to of each variable to obtain apriorisign expectation of equation (2);

$$\frac{\partial ROA}{\partial IR} = \beta_1 > 0 \tag{5}$$

$$\frac{\partial LA}{\partial IR} = \beta_2 > 0 \tag{6}$$

On the *apriori* expectations, the positive  $\beta_1$  and  $\beta_2$  depicts a direct relationship between ROA and IR and between LA and IR; it shows that on *apriori* basis, the ROA and LA increases due to an increase in IR.

## 4. DATA PRESENTATION AND ANALYSIS

Table 2 presents data collected from CBN Statistical Bulletin (2014), National Bureau of Statistics (2014) and Fact fish (2014). These data include the loans and Advances, deregulated Interest Rate and also, the Return on Assets of Deposit Money Banks ranging annually from 1986 to 2014.

**Table2.** Commercial banks loans and Advances (LA), deregulated Interest rates (IR) and Return on Assets (ROA), 1986-2014

Year	LA(Millions)	IR (%)	ROA(Billions)
1986	373.6	10.50	478673.00
1987	492.8	17.50	347546.00
1988	659.9	16.50	267232.00
1989	3,721.1	26.80	312343.00
1990	4,730.8	25.5	185897.00
1991	5,962.1	20.01	161764.00
1992	75,456.3	29.8	389435.00
1993	88,821.0	18.32	395987.00
1994	143,516.8	21	185435.00
1995	204,090.6	20.18	208784.00
1996	254,853.1	19.74	232429.00
1997	311,358.4	13.54	238012.00
1998	366,544.1	18.29	296512.00
1999	449,054.3	21.32	177,450.00
2000	587,999.9	17.98	268,895.00
2001	844,486.2	18.29	392,249.00
2002	948,464.1	24.85	191,853.90
2003	1,203,199.0	20.71	434,299.00
2004	1,519,242.7	19.18	677,957.40
2005	1,991,146.4	17.95	701,667.30
2006	2,609,289.4	17.26	610,389.30
2007	4,820,695.7	16.94	778,128.20
2008	7,799,400.1	15.14	869,667.80
2009	9,667,876.7	18.99	1,104,565.07
2010	9,198,173.1	17.59	1,329,896.34
2011	9525961.4	16.02	1,424,592.41
2012	10071002.6	16.79	2,786,501.87
2013	12205690	15.8	3,424,592.12
2014	23213272	16.7	4,454,647.19

Sources: CBN statistical Bulletin (2014); NBS (2014) and Fact fish (2014)

**4.1. Normality Statistics Test**

The variables used in the study are expected to have normal distribution. The normality statistics for the variables: ROA, IR, and LA, are as shown in Table 2.

**Table3.** Summary of Normality Statistics (Eview-7)

	ROA	IR	LA
Mean	804393.1	18.93759	3383294.
Median	392249.0	18.29000	587999.9
Maximum	4454647.	29.80000	23213272
Minimum	161764.0	10.50000	373.6000
Std. Dev.	1033789.	3.949535	5435516.
Skewness	2.370930	0.804583	2.035676
Kurtosis	7.833720	4.149259	7.159420
Jarque-Bera	55.40220	4.724834	40.93432
Probability	0.000000	0.094192	0.000000
Sum	23327401	549.1900	98115534
Sum Sq. Dev.	2.99E+13	436.7671	8.27E+14
Observations	29	29	29

The mean for LA, IR, and ROA shows different values. This indicates that the variables exhibit significant variation in terms of magnitude, suggesting that estimation of the variables in levels will not introduce some bias in the results. The Jarque-Bera statistics for all the variables are significant as all their probability values are all less than 0.05; hence we reject the null hypothesis and conclude that the series are normally distributed (or have a normal distribution).

**4.2. Unit Root Test**

Unit root test therefore is a test of stationarity or non-stationarity of series data used in the model. As is the case with similar studies, the Augmented Dickey-Fuller (ADF) test was used to ascertain whether the three variables of the study exhibit unit root property. This is to find out if the relationship between economic variables is spurious or nonsensical.

**Table4.** Summary of Unit Root Test Results (Eview-7)

Variables	ADF Test Statistic(at first difference)	Order of Integration
ROA	-3.526535 (-3233456)***	I(0)
LA	-3579866(-3.243079)***	I(1)
IR	-7.418621 (-4.273277)*	I(1)

From the Table 4, it was discovered that ROA was found stationary at levels and at order zero at 10% level of significance. However all the other two variables used in the analysis were found stationary at first difference. LA and IR were found stationary at 10% level and 1%level respectively; these stationary variables were subsequently used for analysis in computing and analyzing of our results.

**4.3. Model Evaluation and Test of Hypothesis**

The two hypotheses formulated in this study were tested using student t-statistics. The level of significance for the study is 5%, for a two tailed test. The decision rule is that we shall accept the null hypothesis if the critical/t-value ( $\pm 1.96$ ) is greater than the calculated value, otherwise reject the null hypothesis. That is, using the student t-test (t-statistic), we say that a variable is statistically significant if  $t^*$  (t-calculated) is greater than the tabulated value of  $\pm 1.96$  under 95% (or 5%) confidence levels and it is statistically insignificant if the  $t^*$  is less than the tabulated value of  $\pm 1.96$  under 95% (or 5%) confidence levels. Thus;

$H_0: \beta_0 = 0$  (Null hypothesis)

$H_1: \beta_1 \neq 0$  (Alternative hypothesis)

4.3.1. Hypotheses One:  $H_{01}$ : deregulated interest rates have no significant impact on the ROA of deposit money banks

Model one:  $ROA = \beta_0 + \beta_1 IR + \mu$  ----- 1

**Table5. Regression Result IR and ROA**

Dependent Variable: LOG(ROA)				
Method: Least Squares				
Date: 06/29/15 Time: 18:42				
Sample (adjusted): 1987- 2014				
Included observations: 28 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.91972	0.612821	22.71417	0.0000
IR	0.038905	0.031602	2.231078	0.0298
ECM(-1)	0.921715	0.152462	6.045551	0.0000
R-squared	0.674904	Mean dependent var		13.10558
Adjusted R-squared	0.648896	S.D. dependent var		0.934657
S.E. of regression	0.553822	Akaike info criterion		1.757008
Sum squared resid	7.667956	Schwarz criterion		1.899745
Log likelihood	-21.59812	Hannan-Quinn criter.		1.800644
F-statistic	25.95017	Durbin-Watson stat		2.238103
Prob(F-statistic)	0.000001			

$$ROA = 13.91 + 0.03IR \text{-----} -2$$

$$SEE = 0.61 \quad 0.03$$

$$t^* = 22.71 \quad 2.23$$

$$F^* = 25.95; \text{ Prob (F-statistic)} = 0.000001$$

$$R^2 = 0.6749; \text{ Adj.}R^2 = 0.6488$$

$$DW = 2.23$$

Test of Hypotheses One:  $H_{01}$

From the regression result in table 4.4.1, the calculated t-value for IR is 2.23 and its greater than the critical value of 1.96(that is  $2.23 > 1.96$ ) it thus falls in the rejection region and hence, we reject the first null hypothesis ( $H_{01}$ ). The conclusion here is that **deregulated interest rates had significant impact on the ROA of deposit money banks between 1986 and 2014**

4.3.2. Hypotheses Two:  $H_{02}$ : Deregulated interest rates have no significant relationship with deposit money banks loans and advances.

$$\text{Model two: } LA = \beta_0 + \beta_2 IR + \mu \text{-----} -3$$

**Table6. Regression Result on LA and IR**

Dependent Variable: LOG(LA)				
Method: Least Squares				
Date: 06/29/15 Time: 18:41				
Sample (adjusted): 1987 2014				
Included observations: 28 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.42982	0.873664	14.22724	0.0000
IR	0.034264	0.544951	2.762266	0.0030
ECT(-1)	0.943399	0.052158	18.08739	0.0000
R-squared	0.940253	Mean dependent var		12.95625
Adjusted R-squared	0.935473	S.D. dependent var		3.019084
S.E. of regression	0.766912	Akaike info criterion		2.408069
Sum squared resid	14.70387	Schwarz criterion		2.550805
Log likelihood	-30.71296	Hannan-Quinn criter.		2.451705
F-statistic	196.7149	Durbin-Watson stat		2.235160
Prob(F-statistic)	0.000000			

$$LA = 12.42 + 0.03IR \text{-----} -4$$

$$SEE = 0.87 \quad 0.54$$

$$t^* = 14.22 \quad 2.76$$

$F^* = 196.71$ ; Prob(F-statistic)=0.000000

$R^2 = 0.9402$ ;  $Adj.R^2 = 0.9354$

$DW = 2.23$

*Test of Hypotheses Two:  $H_0$*

From Table 6, the calculated t-value for IR is given as 2.76 (in LA model) and the tabulated value is given as  $\pm 1.96$ , under 95% confidence levels. Since the calculated t-value is greater than the tabulated value ( $2.76 > -1.96$ ), we therefore, reject the null hypothesis ( $H_0$ ). We conclude that ***Deregulated interest rates have significant relationship with deposit money banks loans and advances.***

## **5. SUMMARY AND CONCLUSION**

This study focused on effects of interest rate and monetary policy rate on the performance of Nigerian Deposit Money Banks with the analysis of effects of deregulated interest rate policy on the return on assets (ROA) of deposit money banks as its major thrust. Focus was on periods succeeding the SAP regime to assess the effect of intervening policies impacting on interest rate applicable to deposit money banks. The ultimate objective of financial liberalization under SAP was to bring about improved financial intermediaries; enhance the role of banks in effectively mobilizing domestic savings and optimally allocating investable resources, thus, enabling them to play this historic role as an engine of economic growth.

The study revealed that deregulated interest rates have positive and significant impact on the ROA of deposit money banks. It showed that as interest rates increases, the ROA also appreciates. It was found that interest rate and monetary policy rate has significant and positive effects on the performance of Nigerian deposit money banks. Furthermore, the findings revealed that deregulated interest rates have positive and significant relationship with the loans and advances of deposit money banks which accounts for the higher the rates of interests and higher the performance of deposit money banks observed in the analysis. It was also observed from the study that deposit money banks are the most important savings, mobilization and financial resource allocation institutions. These roles make them an important phenomenon in economic growth and development. In performing this role, it must be realized that banks have the potential, scope and prospects for mobilizing financial resources and allocating them to productive investments and in return promote their performance. 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.

This study becomes imperative because deposit money banks in Nigeria need to understand how to manage these huge assets in terms of their loans and advances. For the banks to balance their main objectives of liquidity, profitability and solvency, lending must be handled effectively and the banks must behave in a way that their potential customers are attracted and retained.

Some recommendations that will enhance the performance of Deposit Money Banks in Nigeria are:

- Central Bank should consider a gradual phase out of unnecessary control on banks with regard to sectoral distribution of their loans and advances. The central Bank should also remove credit ceiling for all banks. This is to prevent smaller banks who are exempted from ceiling on the ground that they have not attained a total deposit of N50m from engaging in cut throat competitions which does not make for sanity in the financial market.
- Banks should improve their total asset turnover and diversify in such a way that they can generate more income on their assets and adequate efforts should be made by banks to increase their level of investments as that will help in generating reasonable returns on their assets. The bank regulatory authority need to ensure that certain policy tools such as the money supply, liquidity ratio, maximum lending rate, monetary policy rate are effectively managed to enhance good corporate governance and better performance of the banking industry.
- Commercial banks' customers should realize that the banking system is dynamic and that the deregulation will eliminate all ineffective and inefficient lending. To attract loans for themselves, first they should bear in mind that they are making use of other people's money. They should realize that loanable fund is a repayable fund. This will make them think twice before demanding for loan.

---

**REFERENCES**

- Abiodun, R. (1987). "Implications of Deregulating Interest Rates" Business times: September 7. Pp10.
- Adofu, I., Abula, M. and Audu, S. I. (2010). An Assessment of the Effects of Interest Rate Deregulation in Enhancing Agricultural Production in Nigeria. *Current Research Journal of Economic Theory*. Pp. 82 –86.
- Adolphus, J. (2011). Modeling Bank Management, Rural Lending and Small Business Finance in Nigeria, *Global Journal of Management and Business Research*, Vol. 11(1), ISSN: 0975–5853, Pp. 30-46.
- Ahmed, H. (2003). *Frontiers of Islamic Banking: A Synthesis of Social Role and Micro finance*. Islamic Research and Training Institute Islamic Development Bank, Jeddah, Saudi Arabia.
- Amassoma, J., Nwosa, P., & Ofere, A. (2011). "The Nexus of Interest Rate Deregulation, Lending Rate and Agricultural Productivity in Nigeria," *Current Research Journal of Economic Theory*, Vol. 3, No. 2, 2011, pp.53-61.
- Anyingang, R. & Udoka, C. (2012). "The Effect of Interest Rate Fluctuation on the Economic Growth of Nigeria, 1970-2010". *International Journal of Business and Social Science* Vol. 3 No. 20, Pp. 295-302.
- Banks and Other Financial Institution Acts (BOFIA) (2004). Laws of Federal Republic of Nigeria.
- CBN (2009), External Sector Statistics, Statistical Bulletin Pp. 256-297.
- CBN (2014) Statistical Bulletin, Vol. 25.
- CBN Statistical Bulletin Various Editions.
- Drees, B., & Parabasioglu, C. (1998). "The Nordic Banking Crises: Pitfalls in Financial Liberalization", *IMF Occasional Paper*, No. 161.
- Enyioko, N. (2012). Impact of Interest Rate Policy and Performance Deposit Money Banks in Nigerian. *Global Journal of Management and Business Research* Volume 12 Issue 21 Online ISSN: 2249-4588.
- Eregha, P. (2010). Interest Rate Variation And Investment Determination In Nigeria, *International Business Management*, 4 (2), Pp. 41-46.
- Ezirim, B. (2005). *Finance dynamics: Principles, applications and techniques*. Port Harcourt: Markowitz Centre for Research and Development.
- Felicia, S. (2011). Profitability of the Korean Banking Sector: Panel Evidence on Bank Specific and Macroeconomic Determinants. *Journal of Economics and Management* 7(1), 43-72. *Financial review* Vol. 1 No. 1 (June).
- Greenwood, J. & Jovanovic, B. (1990). *Ibid*, 2005; Abiodun, 1988. (Cite in Akin, E. & Adofu, I. (2007)). Interest rate deregulation and investment in Nigeria. *J. Econ. Manag. Stud.*, 2(1).
- Hansen, A. (1941). *Fiscal Policy and Business Cycles*. New York: Norton. 1953. *A Guide to Keynes*. New York: McGraw-Hill.
- Hossain H. (2012). Multi collinearity Problem In Regression Line. *Hossain Academy* [https:// www.sayedhossain.com](https://www.sayedhossain.com); <https://www.youtube.com/user/sayedhos...> Accessed April 6, 2014.
- Ikhide, S. (1990). 'On the Deregulation of Interest Rates in Nigeria – myths and Realities', *Nigerian Financial Review*, vol. 3, No. 1. March.
- Irving, F. (1936). *The Theory of Interest*, New York: Macmillan.
- Irving, F. (1930). *The theory of interest as determined by impatience to spend income and opportunity to invest it*; New York: Macmillan.
- Iyoha, M. (1996). *O.M.O and the Efficacy of Monetary Policy in Nigeria: The Nigeria Economic and*
- Keynes, J. (1936). *The general theory of employment, Interest and money*. New York: Harcourt Brace and World.
- Keynes, J.M. (1973): *The General Theory of Employment, Interest and Money* Collected Writing vol.2. Macmillan London.
- Mckinnon, R. (1973). *Money and Capital in Economic Development*. Washington, D.C. Brookings Institution

- Melad, A. (2014). "Impact of the change in interest rate on the economies of developing countries", case study of Algeria.
- National Bureau of Statistics, (2013).Gross Domestic Product for Nigeria, 2012 and Estimates for Q1-Q3 2013.
- Nwankwo, G. (1989). Nigeria Financial System. Macmillan Publishers Ltd.
- Ojo, M. (1988).Agricultural and Policy under Structural Adjustment Programmed in Nigeria. A paper Presented at the 1988 Annual Conference of the Economic Society at Obafemi Awolowo University, Ile Ife, Nigeria.
- Okoye, V., &Eze, O. (2013).Effect of Bank Lending Rate on the Performance of Nigerian Deposit Money Banks. International Journal of Business And Management Review Vol. 1, No. 1, March 2013, Pp.34-43 Published By European Centre For Research Training And Development UK (Www.EaJournals.Org)
- Oshikoya, T. (1992). "Interest Rate Liberalization, Savings, Investment and Growth: The Case of Kenya, Savings and Development", vol. 16, No.3, Pp. 305-320.
- Robertson, D. (1930). The loan able funds doctrine theory of the market interest rate.
- Robertson, D. (1958). Liquidity Preference and Loan able Funds: Stock and Flow Analysis.
- Sanderson, L., & Fabling, R. (2013). Exporting and performance: Market entry, investment and expansion. Journal of International Economics, (89), Pp. 422-431.
- Shaw, E. (1973). Financial Deepening in Economic Development. New: Oxford University press.
- Uchendu, O.(1995). Monetary Policy and the Performance of Commercial Banks in Nigeria, Central Bank of Nigeria Economic and Financial Review, Volume 33, No, 2, June: Pp. 156-170.
- Udoka, C., & Anying ang, R. (2012).The Effect of Privatization on Economic Growth of Nigeria: 1979 - 2007 in Retrospect. Wikipedia (2005).
- Yunana, T. (2010). The effects of money supply on interest rate in Nigeria, A Thesis submitted to the post-graduate school, Ahmadu Bello University, Zaria in partial fulfillment of the requirement for the award of degree of Masters of Science (Economics).