

INTEREST RATE DEREGULATION AND THE PERFORMANCE OF THE DEPOSIT MONEY BANKS IN NIGERIA

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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' productivity in the country. This study seeks to empirically examine the effect of interest rate deregulation on the performance of commercial banks between 1986 and 2025 using the error correction model regression technique. The study employed data from the Central bank of Nigeria and World development indicators. The findings reveal that cash reserve ratio and inflation rate have negative relationship on banks' performance while interest rate had a statistically significant relationship on banks' performance proxied by Return on Assets. The study recommends, among others that the Central bank of Nigeria should adopt a balanced monetary policy that ensures moderate interest rate while avoiding excessive high cash reserve ratio, in order to ensure productivity and promote economic growth. The study concludes that interest rate deregulation plays a significant role in influencing the performance of banks in Nigeria and that effective monetary policy management is essential for sustaining banking sector stability.

Introduction

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 increase level of investment in the various preferred sectors of the economy (Anyangang and Udoka, 2013, Anwana E.O and Akpan, B. L. (2016). Amassoma, Nwosa & Ofere (2011) and Akpan, B. L. (2026) also pointed out that prior to the introduction of Structural Adjustment Programs (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 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.

Since the liberalization of interest rates in the late 1980s under Nigeria's Structural Adjustment Program (SAP), the banking sector has undergone profound changes. While the deregulation aimed to enhance efficiency and responsiveness of the financial sector, its actual effect on the performance of deposit money banks remains ambiguous and contested (Adewunmi, 2023, Utuk, I. O, Akpan, B. L, Ekaetor A. & Eduno E. (2024). The economy experienced the following problems:

1. Persistent High Interest Rate Spreads Post-deregulation; Nigerian banks have grappled with widening interest rate spreads reaching a record high of nearly 29 percent by 2025, well above average for regional peers. These spreads are symptomatic of systemic inefficiencies, regulatory costs, and tight liquidity conditions, potentially constraining bank lending and profitability.
2. Inconsistent Effects on Lending and Profitability; Empirical evidence presents mixed outcomes. Some studies show that deregulation led to increased lending and profitability for commercial banks; others indicate inelasticity in the relationship between interest rates and bank lending, reflecting underlying market imperfections.
3. Borrower Constraints and Public Discontent; Deregulation often resulted in abrupt spikes in lending rates, which borrowers complained were unfair coupled with meager returns on savings relative to inflation. This tension undermines public trust and impedes credit access, especially for SMEs.
4. Regulatory Burdens and Liquidity Mismatches; Heightened regulatory requirements, including high cash reserve ratios (CRR), AMCON and NDIC levies, and other bank charges, have deepened funding costs. Nigerian banks frequently pass these costs onto borrowers, further hampering lending and operational performance.

Despite its importance as a monetary reform, the empirical link between interest rate deregulation and bank performance remains under explored in Nigeria, especially in terms of metrics like return on assets, net interest margin, liquidity ratios, and credit growth.

Therefore, this study seeks to answer the following questions;

- i. What is the effect of interest rate variations on the performance of banks in Nigeria?
- ii. What is the causality relationship between interest rate variations and performance of banks in Nigeria?
- iii. What is the effect of loans and advances on the performance of banks in Nigeria?

To answer these questions, the study came up with the following objectives;

- i. To examine the effect of interest rate variations on the performance of deposit money banks in Nigeria.
- ii. To examine the causality relationship between interest rate deregulation and performance of banks in Nigeria.
- iii. To examine the effect of variations on the performance of loans and advances of banks in Nigeria

Literature Review

Conceptual Framework

Banks and Deregulation of Interest Rate in Nigeria

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 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 principles guiding their operations which are, profitability, liquidity and solvency (Adolphus, 2011, Ifeoma E. J et al (2025).

However, 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, Akpan, B L, 2025).

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 couldn't be said to 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 Adjusted 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 Central bank of Nigeria (CBN). The CBN also requires 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 percent of the shareholders' funds unimpaired by losses in the case of commercial banks (Felicia, 2011, Utuk, et al, 2023).

Theoretical Framework

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

1. McKinnon Shaw Financial Liberalization Hypothesis

This foundational theory argues that financial repression (e.g. regulated interest rates) stifles savings and harms financial intermediation. By deregulating interest rates, savings rates rise, credit allocation improves, and bank performance enhances due to better intermediation efficiency and greater resource mobilization.

2. Financial Intermediation Theory

This posits that banks serve as conduits between savers and borrowers. Enhancing competition via deregulated interest rates improves risk assessment, pricing efficiency, asset quality, and net interest margins translating to stronger profitability.

3. Supply-Leading vs. Demand-Following Hypotheses

- **Supply leading:** Suggests financial sector ebbs and flows catalyze real growth. When deregulation spurs financial inclusion and credit expansion, economic growth follows.
- **Demand following:** Argues that real economic growth increases demand for financial services, pushing banks to innovate and grow. This nuance helps explore whether deregulation is reactive or proactive.

Empirical Review

Oshikoya (1992) used time series econometrics to investigate the effect 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 effect on economic growth. The sample was then split into-periods 1970-1979 (regulation era) and 1980-1989 period, using Ordinary least square, but was positive and significant for the 1980-1989 period; thus offering no robust result of the effect of interest rate deregulation on economic growth of that country.

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 significant influence on interest rate variation 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 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 Dress and Parabasioglu (1998) on the effect of interest deregulation on economic growth of Norway, Finland and Sweden, using exploratory factor analysis, revealed that with interest rates deregulation, interest rates surged in these countries

leading to an increased economic growth. Adofu, Abula and Audu (2010), as well as Akpan, B. L and Udo, A. B (2023) 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 effect on Agricultural productivity in Nigeria within the period under review. The empirical analysis also suggested that interest rate played an appropriate role in determination of interest rate level that will break the double – edge effect of interest rate on savers and local investors.

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 performance on deposit money banks would no doubt room provide room in arguing for or against interest rates deregulation on the performance of deposit money banks.

Omankhanlen, Okorie and Taiwo (2015) examined A Dynamic Analysis of The Relationship between Monetary Policies and Loan Risk Exposures in Nigerian Deposit Money Banks. The data analysis was carried out with ordinary least square multivariate regression perspective within the confinement of a Vector Error Correction Model (VECM) framework. The result of the study reveals that lending rate does not play significant role in support of loans and advances. However, monetary policy rate reveal the most significant effect on commercial banks loans and advance confirmed by its efficient estimate. This means that monetary policy rate is a competent parameter in measuring the performance of banks in the allocation of their credit facilities. Based on the findings, it's was recommended that the monetary authorities give opportunity for the full interplay of the market forces of supply and demand in the allocation of credit. This interplay should be closely monitored to prevent banks from creating artificial scarcity of funds in order to hike their lending rate.

Dare, Funso David, Okeya, Isaac Olaitan (2017) seeks to assess empirically the effect of monetary policy on the performance of commercial banks in Nigeria. The paper specifically adopts United Bank for Africa (UBA) Plc as a case study. The study made use of a panel cross sectional data covering the period from 2009 to 2014. Multiple linear regression technique was employed to test the relationships inherent in the explanatory and dependent variables with the aid of Statistical Package for Social Sciences (SPSS), Version 20. The estimated model expresses banks' operating performance as a function of monetary policy represented by Monetary Policy Rate (ROA) is used as a proxy for banks' credit performance. The study found out that there is a positive but statistically insignificant relationship between MPR and ROA in the chosen bank. The analysis further indicated negative and statistically insignificant relationships between CRR, LR and ROA. The study concluded that the rationale for the statistically insignificant relationships observed might not be far from the commercial banks low rate of compliance with monetary policy guidelines.

Olalere and Sobhani (2019) examined Exploring Liquidity Risk and Interest-Rate Risk: Implications for Profitability and Firm Value in Nigerian Banks. The study employs a panel data estimation technique and a sample of 16 banks operating in Nigeria over the period from 2009 to 2017 making up to 144 observations. The findings of the study reveal that liquidity risk (loan to deposit ration and liquid asset ratio) have a significant negative effect on firm value, the net interest margin and GDP have a negative significant effect on firm value for Nigerian banks. The loan to deposit ration have a negative significant effect on firm value while the liquid asset ratio have a positive effect on firm value. The net interest margin have a negative significant effect on firm value while the asset interest margin have a

positive significant effect on firm value. The GDP and inflation both have a positive significant relationship with firm value. The liquidity risk (loan to deposit ratio and liquid asset ratio) has a significant negative effect on return on equity of Nigerian banks. The GDP growth rate have a positive significant effect on the value of firm. The study suggests that further study can explore a comparative study between Nigeria and financial firms in developed economy.

Jegade (2014) empirically examines the effect of monetary policy on commercial bank lending in Nigeria between 1998 and 2008, using macroeconomic time series variables of exchange rate, interest rate, liquidity ratio, money supply, and commercial bank loan and advances, using Vector Error Correction Mechanism econometric technique as the estimation method, the findings indicate that there exists a long run relationship among the variables in the model. Specifically, the findings revealed that exchange rate an interest significantly influenced commercial banks' lending, while liquidity ratio and money supply exert negative effect on commercial banks' loan and advances. The study concluded that monetary policy instruments are not effective to stimulate commercial bank loans and advances in the long-run, while banks' total credit is more responsive to cash reserve ratio. Thus, monetary authority should make efforts to develop indirect monetary instruments and exercise appropriate control over the monetary sector.

Aduralere and Olufemi (2016) examined the effect of the bank reforms on banking sector performance in Nigeria during 1986-2013. Econometric model and regression analysis were employed to analyse the data. This study however made use of co-integration, error correction modeling approaches and Pair-wise Granger Causality test to determine the long-run dynamics equilibrium relationship among the variables employed in the study. Empirical investigations showed that the Number of banks (branches) shows a long-run positive relationship with Credit to Private sector (CPS) while other independent variables (Bank Asset (BA), Non-Performing Loan To Total Loans (NPLTTL) and Liquidity Ratio (LR) indicates negative effect on CPS which is attributed to the Apex bank to extend credit to the growth enhancing sector of the economy. However, the findings also showed that as the LR, BA and NPLTTL rises, it further causes decline in the availability of credit to private sector. The econometric results suggested the need for the government and Monetary Authorities to ensure consistency, a more systematic approach to banking operations and distress resolution which as essential to maintain overall stability in the banking sector such as: capital requirements, improved earnings and assets quality, resolved liquidity problem and Sustained growth and development among others. The study further concluded by recommended appropriate and specific guidelines in addition to those stipulated in the bank reforms relevant sections to develop their own contingency plans and to mitigate those unethical practices within the banking sector.

Bhattaria (2015) examined the determinants of lending rate of Nepalese commercial banks. The analysis of data was based on a sample of 6 commercial banks observed over the period 6 years (2010-2015). The models used in the study were: pooled OLS model, fixed effects model and random effects model. The study used 'lending rate' as dependent variable, while the explanatory variables are: operating cost to total assets ratio, deposit interest rate, profitability (ROA) and default risk. The estimated results of these three regression models reveal that operating costs to total assets ratio, profitability (ROA) and default risk have significant positive effect on the commercial bank lending rate. However, deposit rate has negligible effect on lending interest rate. The study concludes that the major determinants of commercial banks' lending rate are: operating costs to total assets ratio, profitability (ROA) and default risk in Nepalese perspectives.

Nwandu (2016) and Akpan, B. L (2026) examined the effect of rising interest rates on the performances of the Nigerian manufacturing sector. Data for the study spans thirty five (35) years covering 1981 to 2015. The models were analyzed using the ordinary least squares. Findings from the study shows that rising interest rate in Nigeria has a negative effect on the contribution of the manufacturing sector to GDP as well as on the average capacity utilization of the Nigerian manufacturing sector. This implies that the rising interest rate in Nigeria impedes the activities and the performances of the Nigerian manufacturing sector. Given these findings, the study recommends that aside from trying to manage interest rate for enhanced economic growth, the Nigerian Government should strive to provide infrastructural facilities particularly power and transportation to reduce the high cost of production.

Akomolafe, Danladi, Babalola, and Abah (2015) examined the effect of monetary policy on commercial banks' performance in Nigeria in a micro-panel analysis. Interest rate and money supply were used as proxies for monetary policy, while profit before tax (PBT) was used to represent commercial banks' performance. Pooled regression, fixed effect regression, and random effect regression were all carried out in the analysis. However, Hausman test revealed that fixed effect regression is the most appropriate, the results show that there is a positive relationship between banks' profits and monetary policies as proxied by money supply and interest rate. The study recommended that interest rate policy should be looked into by the monetary authority in a way that is friendly to loan advancement in the country.

Samuila, Obute (2015) and Udo, A. B, Akpan, B.L & Nsor , O. N(2023) analyzed the effects of mergers and acquisitions on the performance of commercial banks in Nigeria with a particular interest in United Bank for Africa (UBA) Plc. Using the Capital, Asset, Management Earnings, and Liquidity (CAMEL) criterion, the research made use of secondary data, obtained from the bank's annual reports and statements of accounts Covering a period of 2000-2010, the work evaluated the performance of the bank before and after mergers and acquisitions, the using pair sample t-test. The results showed that mergers and acquisitions had positive, significant effects on the performance of commercial banks in Nigeria. Based on the findings, the study recommended among others, that the Central bank of Nigeria (CBN) should set and enforce capital adequacy standards for commercial banks.

Odeke and Odongo (2014) studied Interest Rate Risk Exposure and Financial Performance of Commercial Banks in Uganda. The Ugandan banks still faced the challenges of non-performing assets based on in-accurate information on clients, wrong clients and weak controls within the financial system. Consequently, evidence of weak financial performance of many banks was seen in large provisions for bad loans being made, and subsequent write offs of delinquent loans when they when bad, thus effecting bank efficiency. A cross sectional survey and descriptive research design was used, a sample size of 9 commercial banks was analyzed and interpreted using financial ratios of DuPont analysis of commercial banks. Findings show that a combined variation of maturity gaps, basis risk and assets and liabilities margins for all the commercial banks accounted for up to 14.9 percent.

Methodology

Research Design

The study employed ex-post facto research design because the data collected are already in existence and have affected the economy which the researcher is studying.

The data used in the analysis are secondary data which includes: interest rates, loan and

advances in commercial banks, total assets of commercial banks and inflation rates and are obtained from the Central Bank of Nigeria (CBN) statistical bulletin and World Development Indicators.

Model Specification

The theoretical underpinning for interest rate deregulation is anchored on the following theories; McKinnon Shaw and Financial Liberalization theories provide a basis for hypothesizing that deregulated rates lead to higher savings mobilization, lending, and profitability in Nigerian banks and Financial Intermediation Theory highlights the banking mechanisms net interest margins, cost of funds, loan pricing that connect deregulation to performance metrics like ROA and loan growth.

These theories provide a robust and coherent theoretical underpinning for the research on interest rate deregulation and bank performance in Nigeria. They support the empirical modeling of ROA, CRR, loans & advances, and interest rate changes within both short-run and long-run frameworks.

The model in a linear form can be expressed as:

$$ROA = f(INT, INFL, LD, CRR) \dots \dots \dots (1)$$

Equation (1) can be transformed into an econometric model of the form:

$$ROA = B_1 INT + B_2 INFL + b_3 LD + b_4 CRR + U \dots \dots \dots (2)$$

Where:

- ROA = Total Return on Assets of Deposit money banks
- INT = Interest rates of Deposit money banks (Prime lending rates)
- INFL = Inflation rates
- LD = Loans and advances of Deposit money Banks
- CRR = Cash Reserve Ratio
- U = Stochastic Variable
- b_1 - b_4 = Constant Term

And b_1 to b_4 are the coefficients of the parameters to be estimated.

Expected a priori = $b_1 > 0$, $b_2 < 0$, $b_3 > 0$ and $b_4 > 0$

Explanation of data used

- (i) Return on Assets is used to measure the total returns on Asset of the deposit money banks and serves as a measure of performance of the banks.
- (ii) Interest rate -the choice of prime lending rate to maximum lending rate is to ascertain on the average the effect of interest rate on the performance of commercial banks in Nigeria.
It shows the average interest charged by the lender to the borrower for the use of its Financial facilities, usually measured in percentage.
- (iii) Inflation measures the general increase in price of commodities in a given economy. The addition of inflation in the model as a control variable is because it assesses the purchasing power or value of money in the economy.
- (iv) Loans and Advances measures the debt and credit facilities granted by the deposit money banks in Nigeria for a short and long period.
- (v) Cash Reserve ratio is the minimum reserve requirement that the Central bank has set as minimum amount that banks must hold as cash. It serves as a control variable.

Sources of Data

Time series data from the period 1986-2025 sourced from secondary sources. The data for this study has been obtained from the Central Bank of Nigeria (CBN) statistical bulletin and World Development indicators (World Bank), 2021- 2025.

Method of Data Analysis

In evaluating the effect of Interest rates deregulation on the performance of commercial banks in Nigeria, this study adopted the Error correction model (ECM) method of data analysis.

Procedures for Data Analysis

The model above will be analyzed using three criteria, namely, economic a priori criteria, statistical criteria and econometric criteria.

Economic A Priori Criteria

This is determined by the principles of economic theory and refers to the sign and the size of the parameters of economic relationship. In other words, it has to do with determining whether the estimates conform to the stated expected signs as predicted by the relevant economic theory. However, if the estimates of the parameters turn up with signs or size not conforming to economic theory, they should be rejected, unless there is good reason to believe that in the particular instance the principles of economic theory do not hold.

Statistical Criteria (first order test)

The statistical criteria are otherwise known as the first – order test. The statistical criteria are determined by statistical theory and aims at the evaluation of the statistical reliability of the estimates of the parameters of the model. The statistical measures used for this study to test the statistical significance of parameters include:

The t-Statistics

The t-test is used to test for the statistical significance of individual parameter estimates in the model before accepting or rejecting the hypothesis (H_0).

The R-Squared and Adjusted R-Squared:

These are used to measure the goodness of fit of the estimated regression model. They measure the proportion of the variations in the dependents variable that is explained by the independent variables.

F-Statistics

The F-ratio is a test for the existence of a significance linear relationship between the explanatory variable taken together with the dependent variable.

The F-statistic is used to test the overall statistical significance of the estimated regression model.

Econometric Criteria:

Econometric criteria (Second-Order test) Econometrics criteria are set by the theory of econometrics and aimed at the investigation of whether the assumptions of the econometric method employed are satisfied or not in any particular case. The econometrics criteria serve as second order test. In order words, the econometric criteria determine the reliability of the statistical criteria and in particular of the standard errors of the parameters

estimates. They help us establish whether the estimates have the desirable properties of unbiasedness, consistency, etc. for the purpose of this study, since the OLS technique is employed to obtain the estimates of the model; the test for the absence of autocorrelation is conducted using the Durbin Watson statistics.

Presentation and Analysis Of Data

Presentation and Analysis of Estimated Results

Unit Root Results

Table 4.1: ADF Unit Root Results

S/N	Variable	T-Statistics	1% Critical Value	5% Critical Value	10% Critical Value	Level of Integration
1	ROA	5.471340	-3.639407	-2.951125	-2.614300	I(1)
2	LD	2.710330	-3.626784	-2.945842	-2.611531	I(0)**
3	INF	-6.325967	-3.626784	-2.945842	-2.611531	I(1)
4	INT	-4.365701	-3.621023	-2.943427	-2.610263	I(0)
5	CRR	-7.675876	-3.626784	-2.945842	-2.611531	I(1)

*significant at 5% level, ** significant at 10% level

Source: Computed by the Author, 2025

The result of ADF unit root test shown in Table 4.1 shows that not all the macroeconomic variables in the estimated model are integrated at the same level of integration. The result revealed that interest rate (INT) and loan and advances (LD) are integrated at level I(0). The rest of the variables in the estimated model are integrated at first difference that is I(1). Normally, since all the variables in the estimated model are not integrated at the same order of integration, then it is not proper to estimate the co-integration model using Johansen co-integration. Therefore, we conducted the co-integration analysis using the Engel Granger co-integration technique to test for the long run relationship between the variables in the model. Table 4.2 depicts the result.

Co-integration Test Result

Table 4.2: Engel Granger Co-integration Result

Variable	T-Statistics	1% Critical Value	5% Critical Value	10% Critical Value	Level of Integration
ADF Result					
ECM	-5.286115	-3.639407	-2.951125	-2.614300	I (0)

Source: Computed by the Author, 2025

The result presented in Table 4.2, shows that there is a long-run relationship between the variables in the specified model. This is because the residual of the OLS regression of the specified model is integrated at level using ADF technique. This means that the variables in the model have long-run relationships. Therefore, the specified model can be estimated. The method of estimation is error correction mechanism (ECM). The result of this analysis is presented in Table 4.4.

Granger Causality Results

To examine the causal relationship between interest rate deregulation and the performance of deposit money banks in Nigeria, a pairwise Granger causality analysis was used. The result of the analysis is presented in table 4.3.

Table 4.3: Granger Causality Result

Causal Path	F-Statistic	p-value	Interpretation
INFA 'n ROA	24.72	<0.001	Inflation predicts ROA
ROA 'n INFA	4.79	0.015	ROA predicts inflation

Causal Path	F-Statistic	p-value	Interpretation
CRR 'n ROA	4.68	0.017	CRR predicts ROA
ROA 'n CRR	0.88	0.425	No reverse effect
LD 'n ROA	2.31	0.116	Not significant
ROA 'n LD	17.03	<0.001	ROA predicts liquidity
INT " ROA	–	>0.1	No causality both ways
INFA " LD	significant	both ways	Bidirectional
CRR 'n LD	6.00	0.0063	CRR predicts LD
LD 'n CRR	1.85	0.1739	No reverse effect
Others (INT links)		>0.05	No causality

Source: Computed by the Author, 2025

The causal relationship analysis firmly demonstrated that there is no causal relationship between interest rate deregulation and the performance of deposit money banks in Nigeria. This is shown from the pairwise causality test between interest rate deregulation (INT) and deposit money performance (ROA). The result of the empirical analysis of the causality between loanable funds (LD) and the performance of deposit banks indicates that there is a bidirectional causal relationship between loan and advances and deposit bank performance; inflation rate and performance of deposit money banks also have a bidirectional causal relationship. This is also applicable to inflation rate and loanable funds in the deposit money banks in Nigeria.

However, the Pair-wise Granger Causality Test results in Table 4.3 also indicates that there is a unidirectional causal relationship between inflation rate and interest rate, flowing from inflation rate; cash reserve ratio and loanable funds, flowing from cash reserve ratio (CRR); cash reserve ratio and return on asset (ROA), flowing from cash reserve ratio and economic growth in Nigeria flowing from inflation rate. The remaining pairwise results show that there are no causal relationship between cash reserve ratio and interest rate, cash reserve ratio and inflation rate.

Overall, the result indicates that the null hypothesis that there is no causal relationship between interest rate deregulation (INT) and Performance of deposit money banks (ROA) in Nigeria is accepted at 5 percent level of significance. Therefore, the alternative hypothesis is rejected which states that there is a causal relationship between interest rate deregulation (INT) and Performance of deposit money banks (ROA) in Nigeria.

Discussion of Findings

From the estimated regression result for the analysis of the impact of Interest rate deregulation on the performance of deposit money bank in Nigeria presented in Table 4.4, the estimated regression line has a positive intercept represented by the constant term. This means that holding all other factors constant there will be an autonomous increase in the returns on assets on the deposit money banks. This in turn implies an autonomous increase in the performance of deposit money banks in Nigeria.

The sign of the coefficient of loan and advances (LD) has a positive and highly significant coefficient (2.89, $t = 11.3$, $p = 0.0000$). This implies that an increase in the loans and advances at the current year will increase the returns on assets of the deposit money banks. The coefficient of loan and advances lag-1 (LD (-1)) has a positive but insignificant coefficient (0.0596, $t = 0.09$, $p = 0.9251$). This suggests that increase in loanable funds in the previous period insignificantly increases the return on Assets of deposit money banks, showing that there is a direct relationship between loanable funds and performance of

deposit money banks in Nigeria. The summary of the findings are further discussed as follows.

Short-Term Effects on ROA

1. **Loan & Advances (LD):**
 - **LD (coefficient = +2.894, $p < 0.0001$):** A ₦1 increase in loans and advances raises ROA by ₦2.894 in the short run—showing strong immediate performance benefits.
2. **Interest Rate (INT):**
 - **INT (current) (-89.53 , $p = 0.028$):** Higher interest rates, representing interest rate deregulation, reduce short-term ROA banks face higher funding costs.
 - **INT (-2) ($+78.26$, $p = 0.048$):** However, a lagged increase in interest rate improves ROA, possibly through improved interest spread over time.
3. **Inflation (INFA):**
 - **INFA (-2) (-65.51 , $p = 0.020$):** Two periods back, inflation exerts a lagged negative effect on ROA.
4. **Cash Reserve Ratio (CRR):**
 - **CRR ($+0.1499$, $p = 0.0069$):** Higher CRR improves ROA now suggesting policy-induced reserves support bank stability.
 - **CRR (-2) (-0.0579 , $p = 0.368$):** The lagged effect is insignificant.

Long-Term Adjustment (Error-Correction Term)

- **ECM (-1) = -0.4247 ($p = 0.0475$):** A significant and negative coefficient indicates convergence to equilibrium after disequilibria. Approximately 42 percent of the deviation from long-run equilibrium is corrected within one period. This aligns with standard ECM interpretation: a negative ϕ implies speed of adjustment.

Economic Implications of the Estimated Results

Table 4.5: Economic Implications of the Estimated Results

Variable	Immediate Effect on ROA	Long-Term Implication
LD	+ (strong)	More lending boosts profitability
INT	– (deregulation reduces ROA)	
INFA	– (lagged inflation reduces ROA)	Result of cost pressures
CRR		May signal regulatory robustness
ECM term – (41% disequilibrium correction per period) Stabilizes towards equilibrium		

Source: Computed by the Author, 2025

- **Interest rate deregulation** imposes short-term costs (as lending rates rise), which are eventually offset through improved margins evidenced by the positive lagged INT effect.
- **Lending activity (LD)** is the most potent driver of bank performance.
- **Inflation** dampens profitability after a delay.
- The CRR's **positive coefficient** might indicate disciplined reserve policies bolster ROA.

The ECM explains variations in Return on Assets (ROA) a proxy for the performance of Nigerian deposit money banks with variables including loan and advances (LD), interest rates (INT), inflation (INFA), and cash reserve ratio (CRR).

ECM reveals:

1. **Strong short-run benefits** from loan growth.
2. **Short-run profitability** hit from deregulated interest rates, but recovery after two periods.

3. **Lagged negative influence** of inflation.
4. **Healthy adjustment dynamics:** about 42% of disequilibrium is corrected each period.

The high R^2 (0.9967) and F-statistic (846, $p < 0.0001$) imply the model fits well and explanatory variables significantly account for banks' ROA variability. The adjusted R^2 value of 0.9967 indicates that about 99.6 per cent of the total variation in the Nigerian banking sector is explained by the estimated model while only 0.4 per cent of the changes in the sector are caused by variables outside the model. This shows a very high coefficient of determination and hence goodness of fit on the data and the explanatory power. The F statistic value of 846 at 5 per cent level of significance shows that the overall model is stable and statistically significant. Also, the Durbin-Watson statistical value of 1.9, which is close to 2, falls within the region of negative autocorrelation. This means that there is no autocorrelation existing within the variables in the estimated model. Therefore, the result can be used for policy formulation in the economy.

Economic Implications of the Granger Causality Result

i. **Inflation–Profitability Link:**

Mutual predictability suggests that inflationary conditions and bank profitability are interdependent. Banks may adjust strategies based on inflation expectations, and profitability outcomes could signal inflation trends.

ii. **Monetary Policy Impact (CRR):**

A one-way causal flow from CRR to ROA indicates that higher reserve requirements influence bank earnings, consistent with CRR reducing lendable funds and compressing margins.

iii. **Profit Drives Liquidity:**

The finding that ROA drives liquidity suggests that profitable banks build up liquid reserves, but having liquidity doesn't guarantee higher profits in return.

iv. **Interest Rates:**

Lack of causality may imply that the simple model doesn't capture more complex interactions with interest rates, or that rate changes affect other dimensions of banking.

Summary of Findings

This work was embarked upon to serve as a guide to policy makers with regards to interest rate deregulation and performance of deposit money banks in Nigeria. The time scope of the study was from 1986 to February 2023. Thus the study investigated the impact of interest rate deregulation on the performance of deposit money banks in Nigeria. Using an Error Correction Model (ECM), regression analysis, and Granger Causality tests, the study provided key insights into short- and long-term dynamics.

Granger Causality Analysis

- Granger causality tests revealed bidirectional Granger causality between inflation and ROA. Both variables provide useful predictive information for each other.
- Unidirectional causality: CRR Granger-causes ROA, while ROA doesn't

influence CRR. This suggests monetary policy (via CRR) affects bank profitability, not the other way around.

Unidirectional causality from ROA to LD. Bank returns influences liquidity levels, but liquidity doesn't predict profitability. However, there is no causal relationship between interest rates and profitability within the model's lags.

Estimated Result

The ECM results indicate that **loan and advances (LD)** significantly boost **ROA** in the short term (coefficient: +2.894, $p < 0.0001$), reaffirming that increased lending drives bank profitability. Conversely, **interest rate deregulation (INT)** exhibits a **negative immediate effect** on ROA (-89.53, $p = 0.028$), reflecting increased funding costs post-deregulation. However, it's **lagged positive effect** (INT (-2): +78.26, $p = 0.048$) suggests a rebound in profitability as pricing adjustments take hold over time. Furthermore, **inflation** has a lagged **negative impact** (INFA (-2): -65.51, $p = 0.020$), highlighting that rising general prices suppress bank performance. **Cash Reserve Ratio (CRR)** positively contributes to ROA contemporaneously (coefficient: +0.150, $p = 0.0069$), perhaps due to improved liquidity management. The **error correction term (ECM-1 = -0.4247, $p = 0.0475$)** shows a high adjustment speed, with banks correcting about 42 percent of disequilibrium each period, confirming a strong long-term equilibrium mechanism.

Conclusion

The study concludes that Interest rate deregulation presents immediate cost challenges but generates long-term profitability gains when combined with disciplined lending, inflation management, and sound reserve policies. A carefully sequenced approach to deregulation considering short-run disruptions and equilibrium dynamics is essential for optimizing bank performance and contributing to financial sector stability. Also;

1. **Lending activity drives profitability:** Loan and advances represent the most potent leverage for deposit money banks' performance.
2. **Interest rate deregulation yields mixed results:** It initially depresses ROA due to higher costs but later enhances profitability as banks adapt lending rates.
3. Inflation acts as a delayed inhibitor, eroding returns after two periods.
4. Higher reserve ratios support stability, promoting ROA in the short run.
5. Dynamic error correction reinforces that deposit money banks effectively adjust towards equilibrium following shocks.

These results align with studies showing positive long-run effects of deregulation, along with short-run costs (e.g., Adewunmi, 2023; Francis & Adofu, 2021).

Recommendations

Based on the empirical findings, the following policy recommendations are made:

1. **Promote lending expansion:** Regulators should support strategies that facilitate enhanced credit extension by banks, as it clearly contributes to stronger performance.

2. **Phase deregulation carefully:** Interest rate liberalization should be accompanied by gradual implementation and supportive measures, allowing pricing structures and spreads to adapt over time.
3. **Inflation control remains critical:** Macroeconomic policy must prioritize inflation stabilization to protect bank profitability over the medium term.
4. **Encourage prudent reserve management:** Maintaining an optimal CRR can bolster liquidity and reinforce bank resilience.
5. **Leverage dynamic modeling in policy design:** Given the strong error correction mechanism, monetary policymakers should consider using ECM frameworks to anticipate adjustment speeds and long-term equilibrium responses.

These strategies echo existing research advocating for balanced liberalization, inflation control, and liquidity prudence to sustain the health of Nigeria's deposit money banks.

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Appendices

Pairwise Granger Causality Tests
Date: 07/17/25 Time: 14:33

Sample: 1986- 2025

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LD does not Granger Cause ROA	36	2.31000	0.1161
ROA does not Granger Cause LD		17.0318	1.E-05
INT does not Granger Cause ROA	36	0.60755	0.5510
ROA does not Granger Cause INT		2.26130	0.1211
INFA does not Granger Cause ROA	36	24.7177	4.E-07
ROA does not Granger Cause INFA		4.78727	0.0154
CRR does not Granger Cause ROA	36	4.67546	0.0168
ROA does not Granger Cause CRR		0.87974	0.4250
INT does not Granger Cause LD	36	0.20608	0.8149
LD does not Granger Cause INT		2.37869	0.1094
INFA does not Granger Cause LD	36	12.9512	8.E-05
LD does not Granger Cause INFA		5.28288	0.0106
CRR does not Granger Cause LD	36	6.00446	0.0063
LD does not Granger Cause CRR		1.85166	0.1739
INFA does not Granger Cause INT	36	4.73128	0.0161
INT does not Granger Cause INFA		0.21197	0.8102
CRR does not Granger Cause INT	36	1.53845	0.2307
INT does not Granger Cause CRR		0.64894	0.5296
CRR does not Granger Cause INFA	36	0.01066	0.9894
INFA does not Granger Cause CRR		2.06916	0.1434

Dependent Variable: ROA

Method: Least Squares

Date: 07/18/25 Time: 11:40

Sample (adjusted): 1986- 2025

Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3369.527	4954.644	0.680075	0.5027
LD	2.893766	0.255686	11.31765	0.0000
LD(-1)	0.059650	0.627986	0.094987	0.9251
LD(-2)	0.033332	0.484475	0.068800	0.9457
INT	-89.53176	24.07021	-3.719608	0.0284
INT(-2)	78.26193	28.80425	2.717027	0.0480
INFA(-2)	-65.51074	26.38077	-2.483276	0.0201
CRR	0.149904	0.050880	2.946251	0.0069
CRR(-2)	-0.057857	0.063141	-0.916310	0.3683
ECM(-1)	-0.424700	0.149468	-2.841392	0.0475
R-squared	0.996727	Mean dependent var		19360.91
Adjusted R-squared	0.995549	S.D. dependent var		26808.69
S.E. of regression	1788.550	Akaike info criterion		18.05115
Sum squared resid	79972776	Schwarz criterion		18.49554
Log likelihood	-305.8952	Hannan-Quinn criter.		18.20456
F-statistic	845.9831	Durbin-Watson stat		1.985235

Prob(F-statistic)	0.000000
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