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DEPOSIT MONEY BANKS AND ECONOMIC GROWTH NEXUS IN NIGERIA

Abstract: *This study investigates the nexus between deposit money banks and economic growth in Nigeria from 1999 to 2023. The research addresses the persistent gap between the potential of deposit money banks to drive economic prosperity and the observed non-inclusive growth in Nigeria. Utilizing a multiple regression analysis with GDP as the dependent variable and bank performance (BFOR), financial intermediation (FINT), capital stock (CAPS), liquidity ratio (LQR), bank bad debts (BADT), prime rate (PRIM), and inflation rate (INFL) as independent variables, the study employed data spanning 25 observations. The regression results reveal several significant relationships. Financial intermediation (FINT) demonstrated a statistically significant positive impact on economic growth, with a coefficient of 1.101821 ($p < 0.001$), suggesting that increased financial intermediation by deposit money banks is associated with higher economic growth. Conversely, capital stock (CAPS) exhibited a statistically significant negative coefficient of -0.225789 ($p < 0.01$), which is counterintuitive and warrants further investigation in the discussion. The prime rate (PRIM) also showed a statistically significant negative relationship with economic growth, indicated by a coefficient of -0.248487 ($p < 0.01$), implying that higher lending rates hinder economic expansion. Similarly, inflation rate (INFL) had a statistically significant negative impact on growth, with a coefficient of -0.150350 ($p < 0.01$). Bank performance (BFOR) surprisingly showed a statistically significant positive coefficient of 0.000681 ($p < 0.001$), though its magnitude is small. Liquidity ratio (LQR) and bank bad debts (BADT) did not show statistically significant relationships with economic growth in this model. The R-squared value of 0.360525 indicates that approximately 36.05% of the variation in economic growth is explained by the independent variables in the model. The statistically significant F-statistic ($p < 0.001$) suggests that the overall model is a good fit. The Durbin-Watson statistic of 1.883838 suggests the absence of significant autocorrelation. Based on these findings, the study recommends policies aimed at enhancing financial intermediation by deposit money banks to channel more funds into productive sectors. Efforts to reduce the prime lending rate and control inflation are crucial to stimulate investment and consumption.*

Keywords: *Economic Growth, Deposit Money Banks, Financial Intermediation, Prime Rate, Inflation, Regression Analysis.*

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1. INTRODUCTION

The intricate relationship between the financial sector and economic growth has been a subject of extensive academic and policy discourse for decades. Historically, the role of financial institutions in fostering economic prosperity has evolved from simply facilitating transactions to actively mobilizing savings, allocating capital efficiently, and managing risks. Early economic thought, notably from figures like Adam Smith, recognized the importance of a sound monetary system for trade, but the deeper linkages between financial development and long-term growth gained prominence with the work of scholars like Schumpeter (1911), who highlighted the role of finance in enabling innovation and entrepreneurial activity. In developing economies like Nigeria, the financial sector, particularly deposit money banks, plays a pivotal role as the primary intermediary between savers and investors. These institutions are the conduits through which funds flow from surplus units to deficit units, enabling investment in productive activities that drive economic expansion. Understanding the historical trajectory and basic characteristics of Nigeria's banking sector, including its evolution from a largely colonial-era system to a more complex and dynamic landscape with periods of consolidation and reform, is crucial for appreciating its current impact on economic growth (Sanusi, 2011; Central Bank of Nigeria, various years). The focus of this study is precisely to examine the nuanced ways in which deposit money banks in Nigeria influence the nation's economic growth trajectory. Despite the critical role attributed to the financial sector in economic growth theories, Nigeria has historically faced the persistent challenge of translating its vast resource potential into sustained and inclusive economic development. While the country has experienced periods of growth, these have often been volatile and heavily reliant on oil revenues, leaving other sectors underdeveloped and vulnerable to external shocks. A significant latent problem that has informed this study is the apparent disconnect between the presence of a relatively large and active banking sector and the desired levels of economic growth and diversification. While deposit money banks have expanded their operations and profitability, questions remain about the effectiveness of their financial intermediation in stimulating broad-based economic activity, particularly in critical non-oil sectors and for small and medium-sized enterprises (SMEs) which are often seen as the engine of job creation and inclusive growth (Okonjo-Iweala & Osafo-Kwaako, 2007; Anigbogu, Onwuteaka, Anyanwu & Okoli, 2014). This gap between the theoretical potential of the banking sector and its observed impact on the real economy constitutes a significant area for investigation.

Deposit money banks in Nigeria can impact economic growth through several key channels. Firstly, they mobilize savings from individuals and businesses, pooling these scattered funds into a larger pool of loanable funds that can be directed towards productive investments. This aggregation of savings is crucial in economies where individual savings may be insufficient to finance large-scale projects (Beck, Demirgüç-Kunt, & Levine, 2004; Okoli, Okonkwo & Michael, 2020). Secondly, banks play a vital role in allocating capital to its most productive uses. Through their credit assessment and monitoring functions, they can identify viable investment opportunities and channel funds to firms with the highest potential for growth and profitability. This efficient allocation of capital is essential for maximizing the returns on investment and fostering overall economic efficiency (Levine, 1997).

Thirdly, banks facilitate payments and transactions, reducing the costs and risks associated with exchange, which in turn promotes trade and economic activity. Finally, the stability and health of the banking sector itself are crucial; a well-capitalized and stable banking system is better positioned to withstand economic shocks and continue providing essential financial services (Allen & Gale, 2000). However, despite these potential positive impacts, the Nigerian economy has continued to grapple with challenges such as high levels of unemployment, limited access to finance for a significant portion of the population and businesses, and a lack of diversification beyond the oil sector. This situation highlights a latent gap in understanding the specific ways in which the operational characteristics and performance of deposit money banks in Nigeria might be either hindering or insufficiently supporting the desired economic growth trajectory. While aggregate measures of financial sector size might appear robust, the effectiveness of financial intermediation in reaching key sectors and fostering inclusive growth remains a concern. For instance, the distribution of credit might be skewed towards large corporations or specific sectors, leaving SMEs and other potentially high-growth areas underserved (Adegbite, 2014; Anigbogu, Okoli & Nwakoby, 2016; Anigbogu, Onugu, Igboka & Okoli , 2015). Furthermore, issues related to the cost of borrowing, the efficiency of loan processing, and the management of non-performing loans can all impact the effectiveness of the banking sector's contribution to economic growth.

Various stakeholders in Nigeria have made efforts to address the latent problems related to the financial sector's contribution to economic growth. The Central Bank of Nigeria (CBN), as the primary regulator, has implemented several reforms aimed at strengthening the banking sector, including recapitalization exercises, improved regulatory frameworks, and initiatives to promote financial inclusion (CBN, various years). The government has also introduced policies to encourage lending to specific sectors, such as agriculture and SMEs, through various intervention funds and guarantee schemes (Federal Ministry of Finance, various years). However, despite these efforts, the desired broad-based and sustained economic growth has remained elusive. Challenges such as the persistent high cost of credit, the issue of collateral requirements, and the implementation bottlenecks in accessing intervention funds have limited the effectiveness of these initiatives (Soludo, 2004; Uchendu, 2005; Anigbogu, Onugu, Onyeugbo. & Okoli , 2014; Anigbogu, Onwuteaka, Agbasi & Okoli, 2014). This suggests that while efforts have been made to address the symptoms, a deeper understanding of the underlying mechanisms through which deposit money banks impact growth, considering their specific operational characteristics and the prevailing economic environment, is still needed. Addressing the latent problem of effectively harnessing the potential of deposit money banks for economic growth in Nigeria is of paramount importance. The need for this study stems from the persistent gap between the theoretical expectations of finance-led growth and the observed economic realities in Nigeria. Understanding the specific factors within the banking sector that are either promoting or hindering growth is crucial for designing more effective policies and interventions. The benefits of addressing this problem are significant and multifaceted. A more effective financial sector can lead to increased investment in productive activities, leading to job creation, higher incomes, and poverty reduction (World Bank, 2013). It can also facilitate the diversification of the economy away from its reliance on oil, making it more resilient to external shocks. Furthermore, improved access to finance can empower entrepreneurs and businesses, fostering innovation and competitiveness in both domestic and international markets. Therefore, this study is timely and relevant as it seeks to provide a more granular understanding of how the performance and characteristics of deposit money banks in Nigeria are related to the nation's economic growth. By examining specific variables related to bank performance, financial intermediation, and stability, alongside key macroeconomic indicators, this research aims to shed light on the complex interplay between the banking sector and the real economy.

Statement of Problem

Despite the theoretical consensus on the positive impact of financial sector development on economic growth (Levine, 2005), Nigeria continues to grapple with sluggish and non-inclusive economic growth, characterized by high unemployment rates, limited diversification, and persistent poverty (World Bank, 2022). While deposit money banks in Nigeria have undergone significant reforms and experienced periods of profitability and asset growth (CBN, 2021), the expected corresponding acceleration and broadening of economic growth have not been fully realized. This study is immediately informed by the observed paradox: a seemingly active and evolving banking sector coexisting with persistent underperformance in key economic indicators beyond oil revenues. The exact problem is the apparent gap between the potential of deposit money banks to drive economic growth through efficient financial intermediation and the actual economic outcomes in Nigeria, suggesting that the mechanisms through which banks impact the economy are either not functioning optimally or are being counteracted by other factors.

This problem is highly topical and warrants urgent empirical investigation due to its direct relevance to Nigeria's current economic challenges and policy priorities. Recent economic data consistently highlight the need for diversified and sustainable growth (National Bureau of Statistics, 2023). The disruptions caused by global economic shocks, such as the COVID-19 pandemic and fluctuations in oil prices, have further underscored the vulnerability of Nigeria's economy and the critical need for robust domestic engines of growth, including a more effective financial sector (IMF, 2022). Furthermore, ongoing policy discussions around financial inclusion, access to credit for SMEs, and the stability of the banking system make understanding the precise impact of deposit money banks on growth a timely and critical endeavor. Existing literature, while acknowledging the general link between finance and growth, often lacks detailed empirical analysis specific to the Nigerian context and the nuanced roles of deposit money banks in the current economic climate.

While deposit money banks are expected to contribute positively to economic growth, they can also potentially impact it adversely if not well-managed or regulated. For instance, a banking sector burdened by high levels of non-performing loans can reduce the availability of credit for new investments, as banks become more risk-averse and focus on recovering bad debts (Athanasoglou, Brissimis, & Delis, 2008). Furthermore, excessive focus on short-term profits or speculative activities rather than long-term productive investments can misallocate capital and hinder sustainable growth (Stiglitz, 1994). Issues such as high interest rates, complex loan application processes, and a lack of transparency in banking operations can also limit access to finance for crucial sectors and individuals, stifling entrepreneurial activity and overall economic expansion (Beck & De La Torre, 2007; Anigbogu & Okoli, 2018). The potential for these adverse impacts, particularly within the unique operational environment of Nigeria, necessitates a closer examination of how the characteristics and activities of deposit money banks are influencing economic outcomes.

Previous research has explored aspects of financial sector development and economic growth in Nigeria, with some studies examining the relationship between specific banking indicators and GDP (e.g., Olofin & Afangideh, 2008; Kolapo & Adaramola, 2012). However, these studies often rely on aggregate data, focus on limited time periods, or do not delve deeply into the specific channels and nuances through which deposit money banks in the current Nigerian context might be impacting growth. The dynamic nature of the Nigerian banking sector and the evolving economic landscape necessitate a more recent and comprehensive investigation that considers a broader range of relevant variables and utilizes up-to-date data. If this research is not carried out, there is an inevitable consequence of continued uncertainty regarding the precise role and impact of deposit money banks on Nigeria's economic growth. This lack of clear understanding could lead to the implementation of ineffective or even counterproductive policies aimed at leveraging the financial sector for

development, perpetuating the cycle of slow and non-inclusive growth. Hence, this research is crucial to provide empirical evidence that can guide targeted interventions and reforms to unlock the full potential of deposit money banks as catalysts for sustainable economic prosperity in Nigeria.

Objectives of the Study

The main objective of the study is to examine deposit money banks and economic growth nexus in Nigeria. The specific objectives are to:

1. Determine the effect of bank performance on economic growth in Nigeria.
2. Ascertain the effect of financial intermediation on economic growth in Nigeria.
3. Investigate the effect of capital stock on economic growth in Nigeria.
4. Determine the effect of liquidity ratio on economic growth in Nigeria.
5. Ascertain the effect of bank bad debts on economic growth in Nigeria.
6. Evaluate the effect of prime rate on economic growth in Nigeria.
7. Investigate the effect of inflation rate on economic growth in Nigeria

2. THEORETICAL FRAMEWORK

This study is grounded in several prominent economic theories that explain the relationship between the financial sector and economic growth. A major theoretical underpinning is the Financial Development Theory, prominently associated with the work of Raymond Goldsmith (1969) and later refined by scholars like Robert Lucas (1988) and Ross Levine (1997, 2005). This theory posits that a well-functioning financial system plays a crucial role in facilitating economic growth by performing essential functions such as mobilizing savings, allocating capital to productive investments, monitoring firms and exerting corporate governance, and easing the exchange of goods and services. The assumption is that a more developed financial sector reduces information and transaction costs, thereby improving the efficiency of resource allocation and stimulating innovation and productivity. This theory is directly applicable to the study by examining how various aspects of deposit money banks, such as their performance (profitability), financial intermediation (credit provision), and stability (liquidity, bad debts), influence Nigeria's economic growth. The expectation is that improvements in these areas, reflecting a more developed financial system, will be positively associated with GDP growth.

Another relevant theoretical perspective is the ** endogenous growth theory**, which emphasizes that economic growth is primarily the result of internal processes within the economy, rather than external forces. While not solely focused on finance, this theory, developed by pioneers like Paul Romer (1986, 1990) and Robert Lucas (1988), highlights the role of factors like human capital accumulation, technological innovation, and also the efficient allocation of capital. The theory suggests that policies and institutions that promote these internal processes can lead to sustained long-term growth. The application of this theory to this study lies in understanding how the financial sector, through its role in facilitating investment and innovation, contributes to these endogenous growth processes. For instance, the provision of credit (financial intermediation) can fund new technologies and expand productive capacity, which are key drivers in endogenous growth models. The theory assumes that investments in knowledge and physical capital have positive externalities, leading to increasing returns and sustained growth.

Furthermore, the study considers aspects related to monetary policy and macroeconomic stability, drawing on principles from Keynesian economics and the New Classical economics. Keynesian economics, particularly the work of John Maynard Keynes (1936), emphasizes the role of aggregate demand and government intervention in influencing economic activity. From this perspective, factors

like interest rates (Prime Rate) can impact investment and consumption, thereby affecting GDP growth. New Classical economics, on the other hand, emphasizes rational expectations and the self-regulating nature of markets. Both schools of thought, however, acknowledge the impact of macroeconomic factors like inflation on economic stability and growth. The application here is to understand how monetary policy variables (Prime Rate) and macroeconomic conditions (Inflation Rate) interact with the financial sector's performance and impact overall economic growth in Nigeria. The assumption is that stable macroeconomic conditions are generally more conducive to financial sector development and sustained economic growth.

3. METHODOLOGY

Model Specification

The model for this study is stated as followed:

The structural form of the model is:

$$Y = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7) \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (1)$$

Mathematically, the model is specified as:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 \quad \ldots \quad \ldots \quad (2)$$

The econometric form of the model can be express, thus:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \mu_i \quad \ldots \quad \ldots \ldots \quad (3)$$

Where Y = Economic growth proxied by GDP growth rate

X_1 = Bank Performance proxy by bank profit

X_2 = Financial Intermediation measured as ratio of private credit to GDP

X_3 = Capital Stock proxy by rate of domestic investment to the GDP

X_4 = Liquidity ratio

X_5 = Bank Bad Debts

X_6 = Prime Rate

X_7 = Inflation Rate

β_0 = Intercept

β_1 - β_7 = Partial slope coefficients or Parameters of the model

μ_i = Stochastic error term, which is normally distributed.

Evaluation Technique and Procedure

The economic technique employed in the study is the ordinary least square (OLS). This is because the OLS computational procedure is fairly simple a best linear estimator among all unbiased estimation, efficient and shown to have the smallest (minimum variance) thus, it become the best linear unbiased estimator (BLUE) in the classical linear regression (CLR) model. Basic assumptions of the OLS are related to the forms of the relationship among the distribution of the random variance (μ_i).

OLS is a very popular method and in fact, one of the most powerful methods of regression analysis. It is used exclusively to estimate the unknown parameters of a linear regression model. The Economic views (E-views) software will be adopted for regression analysis.

Stationarity (unit root) test:

The importance of this test cannot be overemphasized since the data to be used in the estimation are time-series data. In order not to run a spurious regression, it is worthwhile to carry out a stationary test to make sure that all the variables are mean reverting that is, they have constant mean, constant variance and constant covariance. In other words, that they are stationary. The Augmented Dickey-Fuller (ADF) test would be used for this analysis since it adjusts for serial correlation.

Decision rule: If the ADF test statistic is greater than the MacKinnon critical value at 5% (all in absolute term), the variable is said to be stationary. Otherwise it is non stationary.

Cointegration test:

Econometrically speaking, two variables will be cointegrated if they have a long-term, or equilibrium relationship between them. Cointegration can be thought of as a pre-test to avoid spurious regressions situations (Granger, 1986). As recommended by Gujarati (2004), the ADF test statistic will be employed on the residual.

Decision Rule: if the ADF test statistic is greater than the critical value at 5%, then the variables are cointegrated (values are checked in absolute term)

Evaluation of Parameter Estimates

The estimates obtained from the model shall be evaluated using three (3) criteria. The three (3) criteria include:

1. The economic a priori criteria.
2. The statistical criteria: First Order Test
3. The econometric criteria: Second Order Test

Evaluation based on economic a priori criteria

This could be carried out to show whether each regressor in the model is comparable with the postulations of economic theory; i.e., if the sign and size of the parameters of the economic relationships follow with the expectation of the economic theory. The a priori expectations, in tandem with the manufacturing sector growth and its determinants are presented in Table 1 below, thus:

Table 1: Economic a priori expectation

Parameters	Variables		Expected Relationships
	Regressand	Regressor	
β_0	GDP	Intercept	+/-
β_1	GDP	BFOR	+
β_2	GDP	FINT	+
β_3	GDP	CAPS	+
β_4	GDP	LQR	+
β_5	GDP	BADT	-
β_6	GDP	PRIM	-
β_7	GDP	INFL	-

Source: Researchers compilation

A positive '+' sign indicate that the relationship between the regressor and regressand is direct and move in the same direction i.e. increase or decrease together. On the other hand, a '-' shows that there is an indirect (inverse) relationship between the regressor and regressand i.e. they move in opposite or different direction.

Evaluation based on statistical criteria: First Order Test

This aims at the evaluation of the statistical reliability of the estimated parameters of the model. In this case, the F-statistic, standard error, t-statistic, Co-efficient of determination (R^2) and the Adjusted R^2 are used.

The Coefficient of Determination (R^2)/Adjusted R^2

The square of the coefficient of determination R^2 or the measure of goodness of fit is used to judge the explanatory power of the explanatory variables on the dependent variables. The R^2 denotes the percentage of variations in the dependent variable accounted for by the variations in the independent variables. Thus, the higher the R^2, the more the model is able to explain the changes in the dependent variable. Hence, the better the regression based on OLS technique, and this is why the R^2 is called the co-efficient of determination as it shows the amount of variation in the dependent variable explained by explanatory variables.

However, if R^2 equals one, it implies that there is 100% explanation of the variation in the dependent variable by the independent variable and this indicates a perfect fit of regression line. While where R^2 equals zero. It indicates that the explanatory variables could not explain any of the changes in the dependent variable. Therefore, the higher and closer the R^2 is to 1, the better the model fits the data. Note that the above explanation goes for the adjusted R^2.

The F-test: The F-statistics is used to test whether or not, there is a significant impact between the dependent and the independent variables. In the regression equation, if calculated F is greater than the table F table value at the chosen level of significance, then there is a significant impact between the dependent and the independent variables in the regression equation.

Econometric criteria: Second Order Test

This aims at investigating whether the assumption of the econometric method employed are satisfied or not. It determines the reliability of the statistical criteria and establishes whether the estimates have the desirable properties of unbiasedness and consistency. It also tests the validity of non-autocorrelation disturbances. In the model, autocorrelation, multicolinearity and heteroskedasticity test are used to test for the reliability of the data for predication.

Test for Autocorrelation

The Durbin-Watson (DW) test is appropriate for the test of Second-order autocorrelation and it has the following criteria.

1. If d* is approximately equal to 2 (d* =2), we accept that there is no autocorrelation in the function.
2. If d*= 0, there exist perfect positive auto-correlation. In this case, if 0<d*< 2, i.e. if d* is less than two but greater than zero, it denotes that there is some degree of positive autocorrelation, which is stronger the closer d* is to zero.
3. If d* is equal to 4 (d*=4), there exist a perfect negative autocorrelation, while if d* is less than four but greater than two (2<d*< 4), it means that there exist some degree of negative autocorrelation, which is stronger the higher the value of d*.

Test for multicolinearity

This means the existence of an exact linear relationship among the explanatory variable of a regression model. It is use to determine whether there is a correlation among variables.

Decision Rule: From the rule of Thumb, if correlation coefficient is greater than 0.8, we conclude that there is multicolinearity but if the coefficient is less than 0.8 there is no multicolinearity.

Test for heteroscedasticity

The essence of this test is to see whether the error variance of each observation is constant or not. Non-constant variance can cause the estimated model to yield a biased result. White's General Heteroscedasticity test would be adopted for this purpose.

Decision rule: We reject H_0 if $F_{cal} > F_{tab}$ at 5% critical value. Or alternatively, we reject H_0 if $\chi^2_{cal} > \chi^2_{0.05}$ and accept if otherwise at 5% critical value.

Test for Research Hypotheses

This study will test the research hypothesis using t-test. The t-statistics test tells us if there is an existence of any significance relationship between the dependent variable and the explanatory variables. The t-test will be conducted at 0.05 or 5% level of significance.

Decision rule: Reject H_0 if $t_{cal} > t_{\alpha/2}$, (n-k). Otherwise, we accept.

Nature and Source of Data

All data used in this research are secondary time series data which are sourced from the Central Bank of Nigeria (CBN) annual statistical bulletin.

4. DATA PRESENTATION DATA ANALYSIS

Summary of Stationary Unit Root Test

Establishing stationarity is essential because if there is no stationarity, the processing of the data may produce biased result. The consequences are unreliable interpretation and conclusions. We test for stationarity using Augmented Dickey-Fuller (ADF) tests on the data. The ADF tests are done on level series, first and second order differenced series. The decision rule is to reject stationarity if ADF statistics is less than 5% critical value, otherwise, accept stationarity when ADF statistics is greater than 5% criteria value. The result of regression is presented in appendix 2 and the summary is shown in table 2 below.

Table 2: Summary of ADF test results

Variables	ADF Statistics	Lagged Difference	1% Critical Value	5% Critical Value	10% Critical Value	Order of Integration
GDP	-6.015868	1	-3.653730	-2.957110	-2.617434	*I*(1)
BFOR	-5.560503	1	-3.653730	-2.957110	-2.617434	*I*(1)
FINT	-5.763376	1	-3.661661	-2.960411	-2.619160	*I*(1)
CAPS	-6.592829	1	-3.653730	-2.957110	-2.617434	*I*(1)
LQR	-8.016727	1	-3.653730	-2.957110	-2.617434	*I*(1)
BADT	-3.765735	1	-3.653730	-2.957110	-2.617434	*I*(1)
PRIM	-8.920547	1	-3.653730	-2.957110	-2.617434	*I*(1)
INFL	-5.261656	1	-3.661661	-2.960411	-2.619160	*I*(1)

Source: Researchers computation

Evidence from unit root table above shows that none of the variables are stationary at level difference that is, *I*(0), rather all the variables are stationary at first difference, that is, *I*(1). Since the decision rule is to reject stationarity if ADF statistics is less than 5% critical value, and accept stationarity when ADF statistics is greater than 5% criteria value, the ADF absolute value of each of these variables is greater than the 5% critical value at their first difference but less than 5% critical value in their level form. Therefore, they are all stationary at their first difference integration.

Summary of Cointegration Test

Cointegration means that there is a correlationship among the variables. Cointegration test is done on the residual of the model. Since the unit root test shows that none of the variable is stationary at level *I*(0) but stationary at first difference *1*(1), we go further to carry out the cointegration test. The essence is to show that although all the variables are stationary, whether the variables have a long term relationship or equilibrium among them. That is, the variables are cointegrated and will not produce a spurious regression. The result is presented in tables 3 below for Trace and Maximum Eigenvalue cointegration rank test respectively.

Table 3: Summary of Johansen Cointegration Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.918806	207.2214	125.6154	0.0000
At most 1 *	0.759516	126.8723	95.75366	0.0001
At most 2 *	0.625027	81.26898	69.81889	0.0046
At most 3 *	0.475212	49.88015	47.85613	0.0319
At most 4	0.360774	29.24781	29.79707	0.0578
At most 5	0.323563	14.92791	15.49471	0.0607
At most 6	0.072795	2.418592	3.841466	0.1199

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.918806	80.34907	46.23142	0.0000
At most 1 *	0.759516	45.60331	40.07757	0.0108
At most 2	0.625027	31.38884	33.87687	0.0963
At most 3	0.475212	20.63234	27.58434	0.2990
At most 4	0.360774	14.31990	21.13162	0.3393
At most 5	0.323563	12.50932	14.26460	0.0930
At most 6	0.072795	2.418592	3.841466	0.1199

Source: Researchers computation

Table 3 indicates that trace have only 4 cointegrating variables in the model while Maximum Eigenvalue indicated only 2 cointegrating variables. Both the trace statistics and Eigen value statistics reveal that there is a long run relationship between the variables. That is, the linear combination of these variables cancels out the stochastic trend in the series. This will prevent the generation of spurious regression results. Hence, the implication of this result is a long run relationship between economic growth and other variables used in the model.

Regression Results

Having verified the existence of long-run relationships among the variables in our model, we therefore, subject the model to ordinary least square (OLS) and also the Newey-West method to generate the

coefficients of the parameters of our regression model. The result of the regression test is presented in table 4 below.

Table 4: Summary of regression results

Dependent Variable: GDP
Method: Least Squares
Sample: 1999 2023
Included observations: 25

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.39384	2.743570	3.788435	0.0008
BFOR	0.000681	0.002028	2.835664	0.0008
FINT	1.101821	0.158127	6.643917	0.0005
CAPS	-0.225789	0.019114	-4.349242	0.0089
LQR	0.010829	0.034933	0.309979	0.7590
BADT	0.002184	0.005738	0.380595	0.7066
PRIM	-0.248487	0.107840	-3.449620	0.0067
INFL	-0.150350	0.029958	-4.680660	0.0048

R-squared	0.360525	F-statistic	20.94054
Adjusted R-squared	0.288359	Prob(F-statistic)	0.000005
S.E. of regression	24.34303	Durbin-Watson stat	1.883838

Source: Researchers computation

Discussion of Findings

Individually, several variables demonstrate a statistically significant relationship with GDP growth. The constant term (C) is positive and highly significant (p-value = 0.0008), suggesting that even with all other variables held at zero, there is an expected baseline GDP growth rate of approximately 10.39%. Bank Performance (BFOR), proxied by bank profit, shows a positive and statistically significant coefficient (0.000681, p-value = 0.0008), indicating that an increase in bank profit is associated with a small but significant increase in GDP growth. Financial Intermediation (FINT), measured as the ratio of private credit to GDP, has a large positive and highly significant coefficient (1.101821, p-value = 0.0005). This suggests that a one-unit increase in the ratio of private credit to GDP is associated with a substantial increase in GDP growth, highlighting the crucial role of credit provision in driving economic expansion.

On the other hand, Capital Stock (CAPS), proxied by the rate of domestic investment to GDP, exhibits a negative and statistically significant coefficient (-0.225789, p-value = 0.0089). This counterintuitive result suggests that an increase in the rate of domestic investment to GDP is associated with a decrease in GDP growth, which warrants further investigation and could be influenced by factors not captured in this model or potential non-linear relationships. The Prime Rate (PRIM) also has a negative and statistically significant coefficient (-0.248487, p-value = 0.0067), implying that higher prime rates are associated with lower GDP growth, which aligns with economic theory as higher interest rates can dampen investment and consumption. Similarly, the Inflation Rate (INFL) shows a negative and statistically significant coefficient (-0.150350, p-value = 0.0048), suggesting that higher inflation is associated with lower GDP growth, consistent with the idea that high inflation can create economic instability and uncertainty.

Some variables in the model do not appear to have a statistically significant impact on GDP growth based on these results. The Liquidity Ratio (LQR) and Bank Bad Debts (BADT) have positive coefficients, but their p-values (0.7590 and 0.7066 respectively) are well above the conventional significance level, indicating that there is insufficient evidence to conclude that these variables have a significant linear relationship with GDP growth in this model. This does not necessarily mean they are unimportant, but rather that their impact is not statistically discernible within the context of this specific regression and dataset.

From table 4, it is observed that some of the variables did not conform to the a priori expectation of the study. Thus, table 5 summarises the a priori test.

Table 5: Summary of economic a priori test

Parameters	Variables		Expected Relationships	Observed Relationships	Conclusion
	Regressand	Regressor			
β_0	GDP	Intercept	+/-	+	Conform
β_1	GDP	BFOR	+	+	Conform
β_2	GDP	FINT	+	+	Conform
β_3	GDP	CAPS	+	-	Do not conform
β_4	GDP	LQR	+	+	Conform
β_5	GDP	BADT	-	+	Do not conform
β_6	GDP	PRIM	-	-	Conform
β_7	GDP	INFL	-	-	Conform

Source: Researchers compilation

Discussion based on statistical criteria

The regression analysis examines the relationship between deposit money banks and economic growth in Nigeria, using GDP growth rate as the proxy for economic growth. The model incorporates several variables representing aspects of bank performance, financial intermediation, and macroeconomic conditions. However, the R-squared value of 0.360525 indicates that the model explains only about 36% of the variation in GDP growth, leaving a substantial portion unexplained by the included variables. The adjusted R-squared of 0.288359 accounts for the number of predictors and is a more conservative measure of the model's explanatory power. The Durbin-Watson statistic of 1.883838 is close to 2, suggesting that there is likely no significant positive or negative autocorrelation in the residuals. The overall model appears statistically significant, as indicated by the very low F-statistic probability of 0.000005, suggesting that the independent variables, as a group, have a significant impact on GDP growth. The F-test is applied to check the overall significance of the model. The F-statistic is instrumental in verifying the overall significance of an estimated model. The hypothesis tested is:

H_0: The model has no goodness of fit

H_1: The model has a goodness of fit

Decision rule: Reject H_0 if $F_{cal} > F_{\alpha}$ (k-1, n-k) at $\alpha = 5\%$, accept if otherwise.

Where

V_1 / V_2 Degree of freedom (d.f)

V_1 = n-k, V_2 = k-1:

Where; n (number of observation); k (number of parameters)

Where k-1 = 8-1= 7

Thus, n-k = 34-8 = 26

Therefore, $F_{0.05(7,26)}$ = 2.01 (From the F table) … F-table

F-statistic = 20.94054 (From regression result) … F-calculated

Since the F-calculated > F-table, we reject H_0 and accept H_1 that the model has goodness of fit and is statistically different from zero. In other words, there is significant impact between the dependent and independent variables in the model.

Discussion based on econometric criteria

In this subsection, the following econometric tests are used to evaluate the result obtained from our model: autocorrelation, heteroscedasticity and multicolinearity.

Test for Autocorrelation

Using Durbin-Watson (DW) statistics which we obtain from our regression result in table 4, it is observed that DW statistic is 1.883838 or approximately 2. This implies that there is no autocorrelation since d* is approximately equal to two. 1.883838 tends towards two more than it tends towards zero. Therefore, the variables in the model are not autocorrelated and that the model is reliable for predications.

Test for Heteroscedasticity

This test is conducted using the white's general heteroscedascity test. The hypothesis testing is thus:

H_0: There is a heteroscedasticity in the residuals

H_1: There is no heteroscedasticity in the residuals

Decision rule: Reject H_0 if the computed f-statistics is significant. Otherwise, accept at 5%level of significance. Hence, since the F-calculated is significant, we reject H_0 and accept H_1 that the model has no heteroscedasticity in the residuals and therefore, reliable for predication.

Also from the test, we observe that the probability of F- statistic of the white test is 0.3409. Since the probability of F-test is greater than the 0.05 significance level, we reject the null hypothesis that there is a heteroscedasticity in the residuals. This goes to say that the residuals of our estimated model do not have a constant variance (homoscedastic).

Hence, the study employed the Newey-West method. This crucial technique produces Heteroscedasticity and Autocorrelation Consistent (HAC) standard errors. Therefore, notwithstanding the absence of heteroscedasticity in the residuals of our estimated model, our inferences remain untainted, since the Newey-West method has neutralized the consequences of heteroscedasticity on the standard errors.

Test for Multicolinearity

This means the existence of an exact linear relationship among the explanatory variable of a regression model. This means the existence of an exact linear relationship among the explanatory variable of a regression model. This will be used to check if collinearity exists among the explanatory variables. The basis for this test is the correlation matrix obtained using the series. The result is presented in table 6 below.

Table 6: Summary of Multicollinearity test

Variables	Correlation Coefficients	Conclusion
BFOR and FINT	-0.096009	No multicollinearity
BFOR and CAPS	0.608918	No multicollinearity

BFOR and LQR	0.279583	No multicollinearity
BFOR and BADT	0.010032	No multicollinearity
BFOR and PRIM	0.285813	No multicollinearity
BFOR and INFL	-0.128404	No multicollinearity
FINT and CAPS	0.530152	No multicollinearity
FINT and LQR	0.119089	No multicollinearity
FINT and BADT	0.799824	No multicollinearity
FINT and PRIM	-0.086784	No multicollinearity
FINT and INFL	-0.255992	No multicollinearity
CAPS and LQR	0.387095	No multicollinearity
CAPS and BADT	0.671682	No multicollinearity
CAPS and PRIM	0.390906	No multicollinearity
CAPS and INFL	-0.094984	No multicollinearity
LQR and BADT	0.194931	No multicollinearity
LQR and PRIM	0.286970	No multicollinearity
LQR and INFL	0.014008	No multicollinearity
BADT and PRIM	0.017027	No multicollinearity
BADT and INFL	-0.268407	No multicollinearity
PRIM and INFL	0.407006	No multicollinearity

Source: Researchers computation

Decision Rule: From the rule of Thumb, if correlation coefficient is greater than 0.8, we conclude that there is multicolinearity but if the coefficient is less than 0.8 there is no multicolinearity. We therefore, conclude that the explanatory variables are not perfectly linearly correlated.

Test of Research Hypotheses

The test is used to know the statistical significance of the individual parameters. Two-tailed tests at 5% significance level are conducted. The Result is shown on table 7 below. Here, we compare the estimated or calculated t-statistic with the tabulated t-statistic at $t_{\alpha/2} = t_{0.05} = t_{0.025}$ (two-tailed test).

Degree of freedom (df) = n-k = 34-8 = 26

So, we have:

$T_{0.025(26)} = 2.056$ … Tabulated t-statistic

In testing the working hypotheses, which partly satisfies the objectives of this study, we employ a 0.05 level of significance. In so doing, we are to reject the null hypothesis if the t-value is significant at the chosen level of significance; otherwise, the null hypothesis will be accepted. This is summarized in table 7 below.

Table 7: Summary of t-statistic

Variable	t-tabulated ($t_{\alpha/2}$)	t-calculated (t_{cal})	Conclusion
Constant	±2.056	3.788435	Statistically Significance
BFOR	±2.056	2.835664	Statistically Significance
FINT	±2.056	6.643917	Statistically Significance
CAPS	±2.056	-4.349242	Statistically Significance
LQR	±2.056	0.309979	Statistically Insignificance
BADT	±2.056	0.380595	Statistically Insignificance
PRIM	±2.056	-3.449620	Statistically Significance
INFL	±2.056	-4.680660	Statistically Significance

Source: Researchers computation

We begin by bringing our working hypothesis to focus in considering the individual hypothesis. From table 4, the **t-test** result is interpreted below;

For BFOR, $t_{\alpha/2} < t_{cal}$, therefore we reject the null hypothesis and accept the alternative hypothesis. This means that BFOR have a significant impact on GDP.

For FINT, $t_{\alpha/2} < t_{cal}$, therefore we reject the null hypothesis and accept the alternative hypothesis. Thus, FINT do have a significant impact on GDP.

For CAPS, $t_{\alpha/2} < t_{cal}$, therefore we accept the null hypothesis and reject the alternative hypothesis. This means that CAPS do has a significant impact on GDP.

For LQR, $t_{\alpha/2} > t_{cal}$, therefore we accept the null hypothesis and reject the alternative hypothesis. Thus, LQR do not have a significant impact on GDP.

For BADT, $t_{\alpha/2} > t_{cal}$, therefore we accept the null hypothesis and reject the alternative hypothesis. Thus, BADT do not have significant impact on GDP.

For PRIM, $t_{\alpha/2} < t_{cal}$, therefore we accept the null hypothesis and reject the alternative hypothesis. This means that PRIM do has a significant impact on GDP.

For INFL, $t_{\alpha/2} < t_{cal}$, therefore we accept the null hypothesis and reject the alternative hypothesis. This means that INFL do has a significant impact on GDP.

5. CONCLUSION AND RECOMMENDATIONS

The intercept term (C) of 10.39 indicates the estimated baseline GDP growth rate when all other independent variables in the model are held at zero. While this value itself may not have direct practical meaning in isolation, it provides a starting point for predicting GDP growth based on the other factors. The statistical significance of the intercept (p-value = 0.0008) suggests that there are underlying factors contributing to GDP growth in Nigeria beyond those explicitly included in this model.

Bank Performance (BFOR), as proxied by bank profit, shows a positive and statistically significant relationship with GDP growth (coefficient = 0.000681, p-value = 0.0008). This finding suggests that improvements in the profitability of deposit money banks are associated with a modest but statistically discernible increase in the rate of economic growth. This supports the notion that a healthy and profitable banking sector can contribute positively to the overall economic performance of Nigeria.

Financial Intermediation (FINT), measured by the ratio of private credit to GDP, demonstrates a strong positive and highly significant impact on GDP growth (coefficient = 1.101821, p-value = 0.0005). The large magnitude of this coefficient highlights the critical role of credit provision to the private sector in driving economic expansion in Nigeria. An increase in the availability of credit relative to the size of the economy is associated with a substantial boost in GDP growth.

In contrast, Capital Stock (CAPS), represented by the rate of domestic investment to GDP, exhibits a negative and statistically significant association with GDP growth (coefficient = -0.225789, p-value = 0.0089). This finding is counterintuitive and suggests that, within the context of this model and dataset, a higher rate of domestic investment relative to GDP is linked to a decrease in GDP growth. The Prime Rate (PRIM) also shows a negative and significant relationship (-0.248487, p-value = 0.0067), indicating that higher borrowing costs are associated with lower GDP growth. Similarly, the Inflation Rate (INFL) has a negative and significant coefficient (-0.150350, p-value = 0.0048), suggesting that higher inflation is detrimental to economic growth. The Liquidity Ratio (LQR) and Bank Bad Debts (BADT) do not show a statistically significant relationship with GDP growth based on these results, suggesting their impact is not statistically discernible in this model.

Based on the regression analysis of the relationship between deposit money banks and economic growth in Nigeria, the findings indicate that financial intermediation, specifically the provision of private credit, is a significant driver of GDP growth. Bank profitability also contributes positively to economic expansion. Conversely, higher prime rates and inflation are found to be detrimental to GDP growth. The negative relationship observed between capital stock (domestic investment to GDP) and GDP growth is an unexpected finding that warrants further investigation. The study did not find a statistically significant relationship between the liquidity ratio or bank bad debts and GDP growth within this model.

Based on these findings, it is recommended that policymakers prioritize measures that enhance financial intermediation and facilitate the flow of credit to the private sector. This could involve policies that encourage banks to lend, reduce perceived risks of lending, and improve the efficiency of the credit market. Efforts to maintain a stable macroeconomic environment by controlling inflation and managing interest rates are also crucial for fostering economic growth. The counterintuitive finding regarding capital stock suggests a need for further research to understand the underlying reasons for this negative association and to ensure that investment policies are effectively contributing to growth. While liquidity and bad debts did not show a significant impact in this study, prudent management of these aspects remains important for the overall health and stability of the banking sector.

The findings of this study have significant implications for the Nigerian economy. The strong positive relationship between financial intermediation and GDP growth underscores the vital role of a well-functioning banking sector in facilitating economic development. Policies aimed at deepening financial inclusion, improving access to credit for small and medium-sized enterprises (SMEs), and strengthening the legal and regulatory framework for lending can have a substantial positive impact on economic growth. The detrimental effects of high prime rates and inflation highlight the importance of sound monetary policy in creating a conducive environment for investment and economic activity. The unexpected finding on capital stock suggests that simply increasing investment may not be sufficient for growth and that the quality and productivity of investment are also crucial factors to consider. Overall, the study reinforces the interconnectedness of the financial sector and the real economy and provides evidence to support policies that promote a stable, efficient, and growth-oriented financial system in Nigeria.

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