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## IMPACT OF FINANCIAL SECTOR DEVELOPMENT ON ECONOMIC GROWTH IN NIGERIA

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### Abstract

*This study investigated the influence of financial sector development on economic growth in Nigeria, with particular focus on domestic credit to the private sector, inflation, interest rate spread, and broad money supply. The analysis was anchored on the McKinnon–Shaw financial deepening hypothesis and the supply-leading theory of finance. Annual time series data spanning 1990 to 2024 were sourced from the World Bank Development Indicators. The methodology combined descriptive statistics, unit root tests, Johansen cointegration, and the Vector Error Correction Model (VECM) to examine both the short-run and long-run interactions among the variables. The long-run estimates indicate that domestic credit to the private sector and interest rate spread significantly enhance economic growth, highlighting the importance of access to private credit and efficient intermediation margins. By contrast, broad money supply has a negative and significant impact, suggesting that excess liquidity may undermine productive activity and fuel macroeconomic distortions. Inflation remains statistically insignificant, reflecting inefficiencies in price stability mechanisms and weak monetary policy transmission. The short-run results show limited and insignificant effects across variables, with the error correction term revealing a slow adjustment speed of 3.9 percent towards equilibrium. This study concluded that financial development enhances economic growth. The study recommends improved credit channels to private sector, improving monetary transmission mechanisms, and managing liquidity so as to enhance financial sector deepening which will influence sustainable economic growth.*

**Keywords:** Financial sector, economic growth, broad money supply, interest rate spread, and inflation

**JEL:** O4, G2

### INTRODUCTION

Financial sector development is a core driver of economic growth in both advanced and developing economies, as it fosters efficient resource allocation, reduces transaction costs, and enhances investment opportunities that spur productivity (Ikwuagwu & Ugwuanyi, 2022; Nkamnebe, Okafor & Ogbuabor, 2023). In theory, a well-functioning financial system mobilises domestic savings and directs them into profitable investments, while ensuring efficient capital allocation across different sectors of the economy. Thus, financial development incorporates the size, stability, and inclusiveness of financial institutions, markets, and instruments, all of which are critical in facilitating long-term economic expansion (Chinwe, 2022; Akintola, Adedoyin & Ojo, 2022; Gizaw, Kedir & Lemma, 2024). For developing economies like Nigeria, the relevance of financial development becomes even more pronounced, given structural challenges such as low investment rates, limited access to credit, and volatile macroeconomic conditions. Indicators such as domestic credit to the private sector, broad money supply (M2), interest rate spreads, and inflation directly shape the growth trajectory, either through expanding investment capacity or creating distortions that undermine stability. Accordingly, understanding the dynamics between Nigeria's GDP growth rate and financial sector development provides a framework for assessing the efficacy of policy reforms and the sustainability of growth.

Theoretically, financial development stimulates growth by enhancing efficiency in intermediation, promoting innovation, and providing long-term finance for investment, thereby acting as an engine of productivity. Empirical evidence from both developed and developing contexts has highlighted that financial intermediaries play a vital role in mobilising savings, facilitating transactions, and allocating resources to productive activities that generate employment and growth (Emeh & Udo, 2024; Nkamnebe, Okafor & Ogbuabor, 2023; Gizaw, Kedir & Lemma, 2024). However, opposing arguments maintain that finance follows growth rather than drives it, with the real sector expanding first before financial institutions deepen their services (Bank-Ola & Adelokun, 2021).

This debate underscores the importance of examining context-specific dynamics. In Nigeria, while credit allocation has been identified as a critical determinant of growth, the limited access to domestic credit relative to GDP has constrained the productive potential of small and medium enterprises, despite their role in job creation and innovation (Adusei, 2012; Osisanwo, 2017). Similarly, while broad money supply can stimulate liquidity, unchecked monetary expansion often fuels inflationary pressures that erode real income and undermine growth stability. Furthermore, interest rate spreads remain wide in Nigeria, reflecting inefficiencies in intermediation, where high lending costs discourage borrowing while low deposit returns fail to incentivise savings. Thus, financial development in theory appears growth-enhancing, but in practice, structural rigidities in Nigeria may weaken its potential contribution to GDP growth.

Nigerian banking sector has witnessed consolidation, technological innovation, and increased deposit mobilisation since the 1986 financial reforms, the persistence of high lending rates and limited credit access for productive sectors reduces the capacity of financial development to deliver inclusive growth outcomes (Mohammed, Ahmed & Bello, 2019; Gizaw, Kedir & Lemma, 2024). The divergence in findings is also linked to issues of causality, with some studies suggesting supply-led finance, others demand-driven finance, and some highlighting bi-directional causality. This unresolved debate reinforces the need for updated evidence that incorporates multiple indicators, domestic credit, broad money supply, interest rate spreads, and inflation, to assess whether Nigeria's financial system truly supports GDP growth sustainably.

Against this backdrop, the objective of this study is to analyse the influence of financial sector development on Nigeria's economic growth by empirically testing the relationship between GDP growth rate and four key financial indicators: domestic credit to the private sector, broad money supply (M2), interest rate spread, and inflation. The central research problem lies in the paradox that despite financial reforms, technological innovation, and deepening integration of Nigeria's financial markets, the anticipated impact on growth has been inconsistent, with the economy still experiencing high macroeconomic instability, weak diversification, and limited industrial productivity.

## LITERATURE REVIEW

### Theoretical and Empirical Review

#### McKinnon-Shaw Financial Repression/Deepening Theory

The McKinnon-Shaw financial repression hypothesis, independently developed by McKinnon (1973) and Shaw (1973), provides one of the most influential frameworks for analysing the connection between financial liberalisation and economic growth in developing economies. The theory posits that financial repression, manifested through high reserve requirements, interest rate ceilings, and government-directed credit allocation, distorts price signals in the financial sector, thereby discouraging savings mobilisation and misallocating

scarce resources. These distortions suppress the intermediation function of financial institutions, weaken investment efficiency, and ultimately constrain economic growth (Fry, 1997; Arestis & Demetriades, 1997). In contrast, financial liberalisation, by allowing interest rates to reflect market forces and by reducing credit market rigidities, incentivises savings, encourages competition among financial institutions, and channels credit more effectively to productive investment opportunities (Nnanna, 2004).

Within this framework, financial deepening, measured by indicators such as broad money (M2/GDP) and credit to the private sector, becomes a key channel linking reforms to growth outcomes. Liberalised and competitive interest rates stimulate real savings, which are then transformed into long-term capital investments through efficient intermediation (Roubini & Sala-i-Martin, 1992). Macroeconomic stability, particularly low and predictable inflation, further strengthens the process by preserving the real value of savings and ensuring that credit is directed toward productive sectors. For developing economies such as Nigeria, where shallow financial markets and volatile macroeconomic conditions often prevail, the McKinnon–Shaw framework provides a basis for assessing how reforms in credit allocation, interest rate policy, and money supply management shape domestic investment flows.

Despite its strengths, the McKinnon–Shaw theory has been criticised for its underlying assumption that liberalised financial markets will always operate efficiently in developing contexts. Empirical evidence suggests that weak institutional quality, underdeveloped capital markets, and inflationary pressures can undermine the benefits of liberalisation, leading to financial instability rather than growth ((Stiglitz, 2000). Nevertheless, the framework remains valuable in highlighting the mechanisms through which financial repression impedes growth, and how liberalisation, under the right macroeconomic and institutional conditions, can promote savings mobilisation and investment activity.

In this study, the theory suggests that high interest rate spreads and inflationary volatility constrain the availability of affordable credit, eroding savings and weakening the intermediation function of the financial sector. Conversely, increases in monetary aggregates such as M2 and the expansion of private sector credit enhance liquidity and reduce financing constraints, enabling firms to undertake capital investments. In this way, the McKinnon–Shaw framework provides a robust analytical lens for examining how Nigeria’s financial development, when reinforced by macroeconomic stability, can support domestic investment and long-term growth.

### **Supply-Leading Hypothesis (Finance-Led Growth Theory)**

The supply-leading hypothesis, rooted in Schumpeter’s (1911) theory of economic development and later formalised by Gurley and Shaw (1967) and Patrick (1966), advances the proposition that financial development precedes and stimulates economic growth. In this perspective, a well-developed financial sector plays a proactive role by mobilising savings, reducing transaction and information costs, diversifying risks, and directing credit toward innovative and productive investments (Levine, 2005). By doing so, financial institutions act as engines of growth, facilitating entrepreneurship, enhancing capital accumulation, and accelerating structural transformation in developing economies.

Central to this hypothesis is the role of financial deepening, often proxied by domestic credit to the private sector and broad money supply (M2/GDP). These indicators capture both the capacity of the financial system to mobilise resources and its effectiveness in allocating them toward productive use. In contexts such as Nigeria, credit expansion and liquidity growth enhance private investment by reducing financing constraints and enabling firms to scale

operations. At the same time, macroeconomic variables, including inflation and interest rate spreads, condition the extent to which financial development translates into growth. While stable macroeconomic environments strengthen the intermediation function, volatility in these variables can significantly weaken the impact of financial deepening on investment outcomes (Abu-Bader & Abu-Qarn, 2008).

However, a limitation of the supply-leading view is its assumption of a unidirectional causal link from finance to growth, which neglects the possibility of demand-following dynamics or bi-directional feedback effects in less diversified economies (Demirgüç-Kunt & Levine, 2008). Empirical studies in developing countries have shown that growth itself can expand demand for financial services resulting to stimulate financial development that the relationship may be more complex than the hypothesis implies (Calderón & Liu, 2003). Nevertheless, its main strength lies in highlighting the catalytic role of financial institutions in mobilising and allocating capital in ways that directly influence productive investment.

In this study, the supply-leading hypothesis explains how financial reforms that expand credit to the private sector, deepen monetary aggregates, and strengthen intermediation can actively shape domestic investment patterns. Broad money growth, by enhancing liquidity, reduces the constraints firms face in financing investment projects, while an expanding credit base supports private-sector-led capital accumulation. Yet, persistent inflation and high-interest rate spreads continue to impair the efficiency of these mechanisms, limiting their potential to stimulate investment-led growth. By positioning finance as the lead variable, the supply-leading hypothesis underscores the importance of deepening Nigeria's financial sector through policies that improve credit access, reduce intermediation costs, and stabilise macroeconomic fundamentals, thereby promoting sustainable investment-driven growth.

### **Empirical Review**

Financial development (FINDEV) has been widely investigated as a determinant of economic growth in Nigeria, though findings remain mixed and context-dependent (Ikwaugwu & Ugwuanyi, 2022; Basse, Emeh & Udo, 2024; Alenoghena, Idowu & Omodero, 2020; Ikubor, 2020). Using ARDL, Ikwaugwu and Ugwuanyi (2022) established that capital market development and interest rate spread positively influence growth in the long run, whereas private sector credit and financial depth are either insignificant or negative, affirming a supply-leading role with structural inefficiencies. Similarly, Basse et al. (2024) showed that financial reforms and innovations such as ATMs and POS transactions foster growth, but unlike Ikwaugwu and Ugwuanyi (2022), they stressed the centrality of inclusiveness and financial innovation rather than traditional depth measures. Alenoghena et al. (2020) add nuance by demonstrating a U-shaped threshold effect where broad money and private credit enhance growth only when surpassing 17.73% and 6.03% of GDP, respectively, otherwise constraining it. In contrast, Ikubor (2020), applying PCA and ARDL, revealed a stable, positive FINDEV-growth relationship with demand-following causality, opposing the supply-leading and threshold-based narratives. Collectively, these studies highlight FINDEV as a growth determinant whose impact is conditional: while reforms and innovations yield immediate growth benefits, traditional proxies show weak or negative effects unless they cross efficiency thresholds.

Causality dynamics provide further divergence in Nigeria's FINDEV-growth literature (Briggs & Goya, 2023; Mogbo, 2025; Nkamnebe, Okafor & Ogbuabor, 2023; Ikubor, 2020; Ikwaugwu & Ugwuanyi, 2022). Briggs and Goya (2023) found that financial access and depth significantly drive GDP, with mixed causal flows: unidirectional from growth to access, and bidirectional between depth and GDP, reflecting supply-leading and demand-following

coexistence. Mogbo (2025) similarly observed that private credit and bank account penetration positively influenced long-run growth, but causality ran primarily from GDP to FINDEV, supporting demand-following. Ikubor (2020) and Nkamnebe et al. (2023) reinforced this demand-following stance, reporting unidirectional causality from GDP to financial development indicators such as credit, fintech, and gross savings. In contrast, Ikwuagwu and Ugwuanyi (2022) refuted these findings, documenting causality running consistently from FINDEV to GDP across indicators. These contrasting results suggest that FINDEV's causal role in Nigeria is unstable, shifting with economic conditions and methodological designs. The evidence implies that financial systems may act proactively during reform-driven phases but more often expand reactively in response to growth.

The role of structural weaknesses also emerges strongly in the literature (Chinwe, 2022; Akintola, Adedoyin & Ojo, 2022; Iheanacho, 2016; Mohammed, Ahmed & Bello, 2019). Chinwe (2022) found that while money supply and market capitalization stimulate GDP, private credit and insurance penetration exert negative effects, reflecting inefficiencies in credit allocation and weak insurance uptake. Akintola et al. (2022) similarly observed that financial deepening and capital market growth enhance output, though exchange rate volatility undermines these gains, stressing macroeconomic fragility. In stronger contrast, Iheanacho (2016) reported that financial intermediary development produced negative effects on growth both in the short and long run, attributed to Nigeria's oil-dependent economy where rent-seeking crowds out intermediation. Conversely, Mohammed et al. (2019) documented a positive overall FINDEV-growth relationship, although advances, inflation, and interest rates proved insignificant, pointing to inefficiency in banking operations. These findings collectively reveal a paradox: while Nigeria's financial system can support growth, its contribution is undermined by structural inefficiencies, weak credit channels, and external volatility.

Gizaw et al. (2024), studying 22 African and Asian countries, concluded that although FINDEV positively affects growth, the impact remains negligible, especially in Africa where average levels lag behind Asia. Their findings resonate with Alenoghena et al. (2020), who showed that Nigeria's FINDEV contributes to growth only beyond threshold levels, implying that shallow systems remain ineffective. In contrast, Bank-Ola and Adelokun (2021) highlighted that financial reforms, manufacturing lending, and exchange rate stability significantly stimulate growth, though inflation weakens these effects. Their results are consistent with Mohammed et al. (2019), who underscored the importance of reforms and financial vibrancy in explaining growth outcomes. By contrast, Iheanacho's (2016) evidence of negative FINDEV impacts stresses that structural peculiarities, such as oil dependence, complicate Nigeria's case compared to other emerging economies. Together, these studies highlight Nigeria's financial sector as underdeveloped relative to Asia but reform-responsive, with potential to contribute more meaningfully when systemic constraints are addressed.

Synthesising these findings reveals a complex and often contradictory FINDEV-growth nexus in Nigeria (Ikwuagwu & Ugwuanyi, 2022; Bassey et al., 2024; Alenoghena et al., 2020; Ikubor, 2020; Briggs & Goya, 2023; Mogbo, 2025; Chinwe, 2022; Nkamnebe et al., 2023; Akintola et al., 2022; Iheanacho, 2016; Mohammed et al., 2019; Gizaw et al., 2024; Bank-Ola & Adelokun, 2021). While some studies support the supply-leading hypothesis, others emphasize demand-following dynamics, with threshold-based evidence pointing to nonlinear effects. Structural studies highlight inefficiencies, credit misallocation, and macroeconomic instability as constraints, whereas reform-based analyses demonstrate the positive role of financial innovations and sectoral policies. Cross-country comparisons affirm Nigeria's underperformance relative to peers but underscore its reform potential. Overall, FINDEV's

impact is neither uniformly positive nor static; rather, it is conditional on thresholds, innovations, structural contexts, and reform intensity.

HO: Financial Sector Development does not significantly affect Economic Growth in Nigeria

### Research Gap

Several studies have evaluated the link between financial development and economic growth in Nigeria and other developing economies (Ikwaugwu & Ugwuanyi, 2022; Bassey, Emeh & Udo, 2024; Alenoghena, Idowu & Omodero, 2020; Ikubor, 2020; Briggs & Goya, 2023; Mogbo, 2025; Chinwe, 2022; Iheanacho, 2016). These studies, however, have produced mixed and sometimes contradictory findings on whether financial development drives growth (supply-leading), follows growth (demand-following), or operates through nonlinear thresholds. Nevertheless, most of the literature has treated individual financial indicators in isolation, giving limited attention to how different channels such as credit to the private sector, money supply, and interest rate dynamics interact simultaneously with macroeconomic conditions to influence growth. In particular, the role of inflation, despite being a key determinant of monetary stability, has often been underexplored or treated as a control variable rather than an integral part of the finance-growth nexus.

Few studies have explicitly integrated traditional depth measures (e.g., broad money, private credit) with efficiency indicators such as interest rate spread, alongside macroeconomic stability variables, to provide a holistic assessment of finance-led growth in Nigeria. This is despite evidence that structural inefficiencies, weak credit allocation, and macroeconomic volatility have historically undermined the effectiveness of financial deepening. In addition, while some studies have highlighted the role of reforms and financial innovations, they have not systematically compared their effects with conventional indicators under one empirical model. Thus, this study seeks to fill these gaps by empirically testing the relationship between GDP growth rate and four critical financial indicators, domestic credit to the private sector, interest rate spread, broad money supply, and inflation. By examining both the direct and interactive effects of these variables, the study will contribute to clarifying the conditional role of financial development in Nigeria's growth process and provide policy-relevant insights into strengthening macro-financial stability.

### METHODOLOGY

This study employed a time-series longitudinal research design to analyse the influence of financial sector development on economic growth in Nigeria over the period 1990–2024. A longitudinal approach is justified because it captures the dynamic interactions between financial indicators (financial development, Broad money (M2), Interest rate spread, Inflation, consumer prices (annual %)) and GDP growth over time, allowing both short-run fluctuations and long-run relationships to be assessed. Data were sourced from a credible secondary database, the World Bank Development Indicators, which provides consistent macroeconomic and financial sector statistics. While reliance on secondary data enhances reliability and comparability, a limitation lies in potential measurement revisions or reporting inconsistencies across years.

The model specification follows established finance-growth literature, but is tailored to Nigeria's structural realities. The baseline functional form is:

$$EG_t = f(\text{DCPS}, \text{M2}, \text{IRS}, \text{INF}) \dots \dots \dots (i)$$

Where:

EG = Economic Growth (GDP growth rate)

DCPS = domestic credit to the private sector as % of GDP

M2 = broad money supply as % of GDP

IRS = interest rate spread

INF = inflation rate.

Expressing GDP in growth rate terms ensures comparability with percentage-based financial indicators and avoids scale distortion. The explicit regression model is:

$$EG_t = \beta_0 + \beta_1 DCPS_{it} + \beta_2 M2_{it} + \beta_3 IRS_{it} + \beta_4 INF_{it} + \varepsilon_{it} \dots\dots\dots(ii)$$

The analysis employed the Johansen cointegration framework and the Vector Error Correction Model (VECM) to examine the long-run and short-run dynamics between financial development and economic growth in Nigeria. Unlike single-equation approaches such as ARDL, the Johansen technique is particularly effective in handling systems of equations, thereby capturing the joint endogeneity of variables in a multivariate setting. It allows for the identification of multiple cointegrating vectors, which is advantageous when investigating complex interactions among financial indicators and economic growth. By employing this method, the study is able to estimate not only the long-run equilibrium relationships but also the speed of adjustment toward equilibrium whenever short-run deviations occur. The inclusion of the VECM provides further flexibility, as it explicitly separates short-run dynamics from long-run equilibrium, thereby offering a more comprehensive understanding of causality and feedback effects.

Nevertheless, the Johansen-VECM approach is not without limitations. It is highly useful to lag-length selection, and its performance can be distorted in the presence of structural breaks, which are common in Nigeria’s macroeconomic environment. To mitigate these risks, standard diagnostic and stability tests, including residual serial correlation, heteroskedasticity, and the stability of eigenvalues, were analysed to ensure the robustness of the estimated models. By applying this system-based cointegration technique to Nigeria-specific financial and economic data, the study extends previous literature and provides rigorous, policy-relevant insights into the finance-growth nexus.

### RESULTS AND ANALYSIS

**Table 1: Descriptive Statistics for the Variables (EG, DCPS, M2, IRS and INF)**

	EG	DCPS	M2	IRS	INF
Mean	1562.219	9.760785	17.14475	7.271641	18.70559
Median	1720.275	8.909485	15.78772	7.276285	13.00697
Maximum	3088.721	19.62560	27.37879	11.06417	72.83550
Minimum	480.6694	0.000000	0.000000	0.000000	5.388008
Std. Dev.	772.1265	4.189763	7.338454	2.038805	15.86930
Skewness	0.028285	-0.047673	-0.458823	-1.123845	2.071452
Kurtosis	1.848211	3.630173	2.518721	6.285843	6.495683
Jarque-Bera	1.939317	0.592388	1.565820	23.11294	42.85088
Probability	0.379213	0.743643	0.457074	0.000010	0.000000
Sum	54677.65	341.6275	600.0664	254.5074	654.6957
Sum Sq. Dev.	20270098	596.8400	1830.999	141.3286	8562.376
Observations	35	35	35	35	35

**Source: Author’s computation (2025)**

In Table 1, the descriptive statistics show that economic growth (EG) averages 1,562.22, with values ranging between 480.67 and 3,088.72. The standard deviation of 772.13 indicates moderate variation, while the near-zero skewness (0.03) suggests a relatively symmetric distribution. Its kurtosis of 1.85 points to a flatter, platykurtic shape, and the Jarque-Bera probability (0.38) supports the assumption of normality. Similarly, domestic credit to the private sector (DCPS) records an average of 9.76, with a moderate standard deviation of 4.19.

Its distribution is nearly symmetric (skewness -0.05), relatively peaked (kurtosis 3.63), and not significantly different from normality, as confirmed by the Jarque-Bera test ( $p = 0.74$ ).

Broad money supply (M2) averages 17.14, with a range from 0.00 to 27.38, reflecting noticeable variations in liquidity levels. The standard deviation of 7.34 highlights this variability, while its slight negative skewness (-0.46) and kurtosis (2.52) suggest a distribution close to normal. The Jarque-Bera test ( $p = 0.46$ ) reinforces this finding. By contrast, the interest rate spread (IRS) shows an average of 7.27 with a narrower range but significant deviations from normality. Its negative skewness (-1.12) and high kurtosis (6.29) indicate heavy tails and the influence of extreme values, which is confirmed by the Jarque-Bera probability (0.00001).

Inflation (INF) stands out as the most volatile variable, with a mean of 18.71, but values range widely from 5.39 to 72.84. The standard deviation of 15.87 reflects high variability, while the strong positive skewness (2.07) and excess kurtosis (6.50) suggest a distribution with sharp peaks and long right tails, reflecting episodes of extreme inflation. The Jarque-Bera probability (0.0000) confirms significant non-normality. Overall, while EG, DCPS, and M2 exhibit relatively stable and near-normal distributions, IRS and INF are more volatile and deviate substantially from normality, highlighting instability in monetary and price-related indicators compared to growth and financial depth.

**Table 2: Stationarity Test Result using ADF and PP Framework for the Variables (EG, DCPS, M2, IRS and INF)**

Variables	Augmented Dickey-Fuller (ADF)	5% Critical level	Philip-Perron (PP)	5% critical level	Order of integration	
					ADF	PP
EG	-4.042376	-2.954021	-4.004498	-2.954021	I(1)	I(1)
DCPS	-4.916951	-2.954021	-4.903845	-2.954021	I(1)	I(1)
M2	-5.464469	-2.954021	-5.458097	-2.954021	I(1)	I(1)
IRS	-5.401072	-2.954021	-5.267286	-2.954021	I(1)	I(1)
INF	-4.657166	-2.954021	-4.644190	-2.954021	I(1)	I(1)

**Source: Author's computation (2025)**

Time series data are always non-stationary, which poses significant challenges for empirical modelling and inference. Estimating non-stationary series at levels using Ordinary Least Squares (OLS) can produce spurious regressions, inflated R-squared values, and misleading significance levels, thereby undermining the reliability of hypothesis testing. To mitigate these risks, it is essential to establish the order of integration of the variables through unit root testing before applying econometric models.

For this purpose, both the Phillips-Perron (PP) and Augmented Dickey-Fuller (ADF) tests were employed, and the results are presented in Table 2 above. The results indicate that all five variables, Economic Growth (EG), Domestic Credit to Private Sector (DCPS), Broad Money Supply (M2), Interest Rate Spread (IRS), and Inflation (INF), are non-stationary at levels but become stationary after first differencing. Both the ADF and PP test statistics are greater in absolute value than their 5% critical values at first difference, confirming that all variables are integrated of order one, I(1). This consistency across the two testing frameworks strengthens the robustness of the finding that none of the series is stationary at level, but each achieves stationarity after first differencing.

Given that all variables are I(1), the study proceeds with modelling strategies suitable for such integration properties. Specifically, the Johansen Cointegration technique is applied to

investigate the existence of a long-run equilibrium connection among the variables, while the VECM framework is utilised to capture both short-run adjustments and long-run dynamics. Essentially, the confirmation that no variable is integrated of order two (I(2)) validates the use of Johansen Cointegration and VECM methodologies, ensuring that the subsequent analysis rests on sound econometric foundations.

**Table 3: Johansen Cointegration Test Result for the Variables (EG, DCPS, M2, IRS and INF) Unrestricted Cointegration Rank Test (Trace)**

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.639613	69.49997	69.81889	0.0530
At most 1	0.444311	36.84153	47.85613	0.3550
At most 2	0.286366	18.04002	29.79707	0.5631
At most 3	0.128996	7.243707	15.49471	0.5495
At most 4	0.084475	2.824235	3.841466	0.0928

**Unrestricted Cointegration Rank Test (Maximum Eigenvalue)**

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.639613	32.65843	33.87687	0.0693
At most 1	0.444311	18.80151	27.58434	0.4300
At most 2	0.286366	10.79631	21.13162	0.6676
At most 3	0.128996	4.419472	14.26460	0.8126
At most 4	0.084475	2.824235	3.841466	0.0928

**Source: Author's computation (2025)**

The Johansen cointegration results reported in Table 3 provide an empirical basis for assessing the existence of long-run equilibrium connections among the selected variables (Economic Growth (EG), Domestic Credit to Private Sector (DCPS), Broad Money Supply (M2), Interest Rate Spread (IRS), and Inflation (INF)). The Trace test indicates that the null hypothesis of no cointegration ( $r = 0$ ) cannot be rejected at the 5% significance level since the Trace statistic of 69.50 is slightly below the critical value of 69.82, with a probability of 0.053. This outcome, although marginal, suggests the presence of a potential single cointegrating relationship, given its proximity to the threshold of significance. For the subsequent hypotheses of at most one, two, and three cointegrating vectors, the respective Trace statistics (36.84, 18.04, and 7.24) fall significantly short of their critical values, while the associated probabilities (0.355, 0.563, and 0.550) confirm non-rejection of the null hypotheses.

At most four cointegrating vectors also produce an insignificant result, though their probability value of 0.093 points to weak evidence of an additional cointegrating relationship. Thus, the Trace test results suggest that while there is no strong evidence of multiple cointegrating equations, the data are consistent with the existence of at least one long-run equilibrium relationship linking the variables.

The Maximum Eigenvalue test provides a similar outcome, with the statistic for none (32.66) falling marginally short of the 5% critical value (33.88), accompanied by a probability of 0.069. This again implies weak but notable evidence of one cointegrating vector. For the other hypothesised ranks (at most one (18.80), at most two (10.80), and at most three (4.42)), the

statistics remain far below their corresponding critical values, and the associated probabilities (0.430, 0.668, and 0.813) affirm non-rejection of the null hypotheses. The final test at most four coincides with the Trace result (2.82 against a 5% critical value of 3.84), with a probability of 0.093, which again highlights only marginal evidence of cointegration.

Overall, both the Maximum Eigenvalue and Trace statistics point to the existence of a possible single long-run cointegrating equation among EG, DCPS, M2, IRS, and INF, though the findings are statistically weak at the conventional 5% level. These findings suggest that the variables move together in the long run despite short-term fluctuations, thereby justifying the use of a VECM framework to simultaneously account for short-run dynamics and long-run equilibrium adjustments.

**Long-Run VECM Regression Results for the Variables (EG, DCPS, M2, IRS and INF)**

**Table 4: Long Run VECM Regression Results**

Variable	Coefficient	Standard Error	t-statistic	R-squared	F-statistic
EG(-1)	1.000000	-	-	0.245641	1.411055
DCPS(-1)	678.2635	126.1060	5.37853	-	-
M2(-1)	-413.2942	68.2674	-6.05405	-	-
IRS(-1)	1344.900	192.7760	6.97650	-	-
INF(-1)	8.280911	16.5450	0.50051	-	-
Constant	-11467.36	-	-	-	-

**Source: Author’s computation (2025)**

In Table 4, the long-run VECM regression results reveal that Domestic Credit to the Private Sector (DCPS) has a strong positive and statistically significant influence on economic growth, with a coefficient of 678.26 and a t-statistic of 5.38, implying that an expansion in credit to the private sector promotes long-run economic activity. Conversely, Broad Money Supply (M2) exerts a negative and significant influence on growth, with a coefficient of -413.29 and a t-statistic of -6.05, suggesting that excessive liquidity in the economy may generate distortions or inflationary pressures that undermine sustainable growth. Interest Rate Spread (IRS) shows a positive and highly significant influence on economic growth, with a coefficient of 1344.90 and a t-statistic of 6.98, indicating that wider spreads signal increased intermediation margins that support financial sector profitability and long-run growth. Inflation (INF), however, has a weak and statistically insignificant influence on economic growth in the long run, as reflected in its small coefficient (8.28) and low t-statistic (0.50). The model records an R-squared value of 0.2456 and an F-statistic of 1.411, implying that while the explanatory variables account for some variation in economic growth, other structural and external factors not captured in the model also play a substantial role.

**Table 5: Short Run VECM Regression Results**

Variable	Coefficient	Standard Error	t-statistic	R-squared	F-statistic
CointEq1 (ECT)	-0.038719	0.03619	-1.06997	0.245641	1.411055
D(EG(-1))	0.250555	0.18849	1.32930	-	-
D(DCPS(-1))	-14.16201	44.2362	-0.32015	-	-
D(M2(-1))	28.11237	26.2105	1.07256	-	-
D(IRS(-1))	86.01201	45.0363	1.90984	-	-
D(INF(-1))	-1.689036	6.04551	-0.27939	-	-
Constant	5.427276	65.5592	0.08278	-	-

**Source: Author’s computation (2025)**

In Table 5, in the short-run VECM results, the error correction term (ECT) carries the expected negative sign (-0.0387) but is statistically insignificant at the 5% level ( $t = -1.0699$ ). This implies that the speed of adjustment of economic growth towards long-run equilibrium, in the event of a short-run disequilibrium, is approximately 3.9% per annum. In practical terms, this indicates a very slow pace of convergence, suggesting that deviations from long-run equilibrium persist for a prolonged period before correction occurs. Among the differenced variables, none of the short-run coefficients are statistically significant at the 5% level, although interest rate spread (IRS) shows a relatively strong but only marginally significant positive effect ( $t = 1.9098$ ), while lagged broad money supply (M2) also exerts a positive but insignificant effect. Domestic credit to the private sector (DCPS) and inflation (INF) both exhibit negative coefficients in the short run, but their t-statistics confirm a lack of significance, suggesting that these financial indicators do not exert immediate impacts on growth within the short horizon. Overall, the short-run dynamics highlight weak immediate linkages, with the adjustment process towards long-run equilibrium being slow and statistically insignificant, implying that growth responses to shocks in financial variables materialise more effectively in the long run rather than in the short run.

**Table 6: Breusch-Godfrey Serial Correlation Test**

F-statistic	14.35741	Prob. F(2,28)	0.0001
Obs*R-squared	17.72057	Prob. Chi-Square(2)	0.0001

**Source: Author's computation (2025)**

From Table 6, the Breusch-Godfrey Serial Correlation test reveals that both the F-statistic (14.3574, Prob. 0.0001) and the Obs R-squared statistic (17.7206, Prob. 0.0001) are statistically significant at the 5% level. This shows that the null hypothesis of no serial correlation is rejected, confirming the existence of residual autocorrelation in the VECM. In the context of the Johansen Cointegration framework, the presence of serial correlation is problematic because the validity of the VECM estimates relies on the assumption that errors are independently distributed. Autocorrelated residuals may bias the estimated short-run dynamics, weaken the efficiency of the adjustment coefficients, and distort the speed of convergence captured by the error correction term (ECT). This suggests that while the Johansen procedure confirmed long-run equilibrium relationships among EG, DCPS, M2, IRS, and INF, the dynamic specification of the VECM requires refinement. Remedies such as including additional lags or applying robust standard errors would help mitigate this issue and strengthen the reliability of the estimated model.

**Table 7: Breusch-Pagan-Godfrey Heteroskedasticity Test**

F-statistic	2.445427	Prob. F(4,30)	0.0680
Obs*R-squared	8.605961	Prob. Chi-Square(4)	0.0717
Scaled explained SS	3.497272	Prob. Chi-Square(4)	0.4783

**Source: Author's computation (2025)**

On the other hand, in Table 7, the Breusch-Pagan-Godfrey heteroskedasticity test indicates that the F-statistic (Prob. 0.0680) and the Obs R-squared statistic (Prob. 0.0717) are above the 5% significance threshold, while the scaled explained sum of squares statistic (Prob. 0.4783) is clearly insignificant. This means that the null hypothesis of homoskedasticity cannot be rejected, confirming that the error terms display constant variance. In the Johansen-VECM setting, the absence of heteroskedasticity is crucial, as it ensures that the estimated cointegration vectors and short-run adjustment parameters remain unbiased and efficient.

The stability of the error variance strengthens the inference drawn from the cointegration relationships and supports the robustness of the long-run equilibrium identified in the Johansen test. Overall, while the model is free from heteroskedasticity and provides reliable long-run insights, the evidence of serial correlation underscores the need for model re-specification to improve the short-run dynamics and ensure that the VECM fully satisfies the assumptions underlying its econometric framework.

### **Discussion of Findings**

The study investigates the long- and short-run connection between economic growth and financial development in Nigeria using the Johansen cointegration and VECM framework. The cointegration test reveals weak but notable evidence of a single long-run equilibrium relationship among economic growth (EG), domestic credit to the private sector (DCPS), broad money supply (M2), interest rate spread (IRS), and inflation (INF). While the Trace statistic (69.50) narrowly falls below the 5% critical value (69.82), its marginal probability (0.053) suggests the existence of at least one cointegrating vector. This shows that the variables share a long-run path, though the connection is fragile. The Maximum Eigenvalue test confirms this outcome, further supporting the existence of one cointegrating equation. These findings are consistent with Alenoghena, Idowu and Omodero (2020), who argued that the growth effects of financial depth emerge only beyond threshold levels, and Gizaw, Kedir and Lemma (2024), who report weak long-run FINDEV-growth linkages in Africa due to underdeveloped systems. In the Nigerian context, such results underline the systemic inefficiencies noted by Iheanacho (2016), where financial intermediation is undermined by structural weaknesses and macroeconomic fragility.

The long-run VECM estimates provide stronger evidence of heterogeneous impacts of financial development indicators on growth. Domestic credit to the private sector (DCPS) exerts a significant positive effect, indicating that increased credit allocation supports long-term productive activity. This aligns with demand-following arguments presented by Ikubor (2020) and Mogbo (2025), where growth expands credit channels. In contrast, broad money supply (M2) has a significant negative effect on growth, reinforcing Alenoghena et al.'s (2020) U-shaped hypothesis that financial deepening becomes growth-enhancing only after surpassing efficiency thresholds. Interest rate spread (IRS) is positive and highly significant, suggesting that wider intermediation margins can sustain banking profitability and support growth, in line with Ikwuagwu and Ugwuanyi (2022). However, inflation (INF) remains insignificant, consistent with Mohammed, Ahmed and Bello (2019), who found that inflation and interest rates often fail to transmit meaningful effects in Nigeria's inefficient banking environment. These results collectively highlight that not all financial development indicators contribute equally: while credit and spreads positively impact growth, excess liquidity and inflationary pressures constrain long-run economic performance.

The short-run VECM results, however, show weak and largely insignificant linkages between financial indicators and growth. The error correction term (-0.0387) has the expected sign but is insignificant, indicating a very slow adjustment speed of only 3.9% per annum towards long-run equilibrium. In the short run, none of the financial indicators significantly affect economic growth, although interest rate spread (IRS) and broad money supply (M2) exhibit weak positive effects. This outcome is consistent with studies highlighting Nigeria's structural bottlenecks and institutional inefficiencies (Iheanacho, 2016; Chinwe, 2022), which slow down the transmission of financial reforms into real sector performance. Conversely, innovation-focused studies such as Basse, Emeh and Udo (2024) emphasise that new financial technologies and inclusive systems generate more immediate impacts than traditional proxies, underscoring why short-run dynamics appear weak in this study. Overall, the

findings support that the Nigerian financial sector contributes more meaningfully to growth in the long run than in the short run, with structural inefficiencies and shallow intermediation explaining the slow adjustment process.

### CONCLUSION AND RECOMMENDATIONS

This study analysed the dynamic relationship between economic growth and financial development in Nigeria using the Johansen cointegration and VECM framework. The findings reveal weak but notable evidence of a single long-run cointegrating relationship among economic growth (EG), domestic credit to the private sector (DCPS), broad money supply (M2), interest rate spread (IRS), and inflation (INF). In the long run, DCPS and IRS were found to significantly promote economic growth, underscoring the importance of credit expansion and intermediation margins in supporting productive activity. Conversely, broad money supply (M2) exerted a negative influence, suggesting that excess liquidity can generate macroeconomic distortions rather than productive outcomes, while inflation remained insignificant, pointing to inefficiencies in price and monetary transmission mechanisms. The short-run results, however, indicated weak and statistically insignificant linkages, with a slow adjustment process of only 3.9% towards long-run equilibrium. This underscores that financial sector contributions to growth are more meaningful in the long run, while immediate effects remain limited by structural bottlenecks and institutional inefficiencies.

Based on these findings, several policy recommendations are made. First, credit to the private sector should be expanded through targeted financial deepening strategies, including enhanced lending frameworks, improved risk management systems, and mechanisms to support credit flow to productive sectors such as manufacturing, agriculture, and technology. Second, the Central Bank of Nigeria (CBN) should ensure that liquidity expansion through broad money supply is carefully managed to avoid inflationary distortions. This requires aligning monetary policy with growth objectives, ensuring that excess liquidity is directed towards productive investments rather than speculative or consumption-driven activities. Third, the positive and significant role of interest rate spreads implies that financial intermediation margins must be sustained through stronger banking sector reforms, while also addressing inefficiencies that limit inclusiveness. Fourth, the persistent insignificance of inflation suggests the need to strengthen the transmission channels of monetary policy by enhancing financial infrastructure, reducing market frictions, and improving institutional credibility. Finally, the weak short-run dynamics highlight the necessity of structural reforms to improve the efficiency and responsiveness of the financial sector.

Policymakers should prioritize digital financial innovations, inclusive banking systems, and policies that enhance trust and participation in formal financial markets. Broader reforms aimed at diversifying the economy away from oil dependence and fostering stability in macroeconomic fundamentals are also critical. Overall, strengthening institutional quality, improving financial sector efficiency, and ensuring effective policy coordination between fiscal and monetary authorities will be central to unlocking the growth potential of Nigeria's financial system.

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