



Financial Deepening and Economic Growth in Nigeria: An Error Correction Approach

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ABSTRACT: This study investigates the dynamic relationship between financial deepening and economic growth in Nigeria using an Error Correction Specification (ECS) framework. Motivated by the persistent disconnect between financial sector reforms and real sector productivity, the research employs time-series data covering 1980-2024. Methodologically, the study utilizes Augmented Dickey-Fuller and Phillips-Perron unit root tests, Johansen multivariate cointegration, pairwise Granger causality tests, and a Parsimonious Error Correction Model (PECM). The empirical findings provide robust support for the supply-leading hypothesis, revealing unidirectional causality from financial deepening proxies specifically broad money supply ratio (M2Y) and private sector credit (PRIVY) to economic growth. The Johansen cointegration results confirm a stable, long-run equilibrium relationship among variables, while the significant error-correction term indicates a steady annual convergence rate toward equilibrium following short-run shocks. Furthermore, while short-term monetary adjustments exhibit transient frictions, long-run estimates underscore that sustained financial depth and capital stock accumulation significantly enhance economic performance. Conversely, unmanaged population pressures and structural credit bottlenecks continue to hinder optimal output. The study concludes that financial deepening is a vital catalyst for Nigerian development, provided qualitative credit allocation and institutional efficiency are optimized. Policy recommendations emphasize targeted credit to productive sectors, enhanced asset quality management, and strategic infrastructure investment to transform financial depth into inclusive economic expansion.

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Published Online:

August 25, 2026

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KEYWORDS:

Financial Deepening, Economic Growth, Error Correction Specification, Financial Intermediation, Granger Causality, Nigeria

Cite the Article: Ibidapo, C. O. K. (2026). *Financial Deepening and Economic Growth in Nigeria: An Error Correction Approach*. *International Journal of Human Research and Social Science Studies*, 3(8), 749-758. <https://doi.org/10.55677/ijhrsss/06-2026-Vol03I08>

INTRODUCTION

The pursuit of sustainable macroeconomic growth has consistently placed the financial sector at the epicenter of developmental economics. Financial deepening—broadly defined as the expansion of financial services, increased liquidity, and the proliferation of financial intermediaries and instruments—serves as a vital conduit for mobilizing domestic savings and channeling them into productive real sector investments (World Bank, 2024). Theoretically, a robust financial architecture reduces information asymmetry, lowers transaction costs, and optimizes resource allocation, thereby accelerating total factor productivity and long-term economic expansion (King & Levine, 1993; Beck, 2023). Within developing economies, particularly in Sub-Saharan Africa, transitioning from a shallow to a deep financial system is increasingly recognized not merely as a correlative feature of development, but as a critical binding constraint or catalyst for structural transformation.

In Nigeria, the nexus between financial sector evolution and economic growth has evolved against a backdrop of sweeping structural reforms, regulatory interventions, and technological disruptions. Over the past decade, the Central Bank of Nigeria (CBN) and fiscal authorities have deployed aggressive policy frameworks—including the National Financial Inclusion Strategy (NFIS), the cashless policy, recapitalization mandates, and the rapid expansion of digital financial services and fintech ecosystems to enhance market depth and inclusion (CBN, 2023). Despite these deliberate interventions, the Nigerian economy continues to grapple with sluggish structural growth, high inflation, and an asymmetric transmission of monetary policy. This disconnect raises critical

questions regarding the true efficacy of financial deepening in stimulating real sector output, pointing to a persistent gap between financial sector metrics and actual economic productivity (Adeleke & Ojo, 2024).

Applying a growth diagnosis framework to Nigeria reveals a complex paradox: while financial aggregates such as broad money supply and credit to the private sector have registered nominal growth, access to affordable credit for critical growth-driving engines like Small and Medium-sized Enterprises (SMEs) remains severely constrained. Structural rigidities—including high-interest rate spreads, severe infrastructural deficits, credit rationing by commercial banks wary of non-performing loans (NPLs), and macroeconomic volatility impair the financial sector's intermediary efficiency (Okoye & Eze, 2023). Consequently, financial deepening in Nigeria often mirrors a shallow expansion concentrated in short-term government securities rather than long-term industrial financing, limiting its capacity to foster inclusive, job-creating economic growth.

This analytical disconnect highlights the central problem of this study: despite successive waves of financial sector reforms and digital innovations in Nigeria, the expected translation of financial deepening into robust, sustainable real sector growth remains suboptimal, erratic, and empirically ambiguous. While numerous studies have explored the linear relationship between financial development and growth, empirical findings remain heavily contested due to methodological oversight of short-term shocks, structural breaks, and cointegrating dynamics. Crucially, policymakers lack a precise diagnosis of whether the constraint to growth lies in financial repression, structural bottlenecks within the credit market, or inefficiencies in the transmission mechanism linking financial assets to real output.

To bridge this empirical and diagnostic gap, this paper investigates the dynamic relationship between financial deepening and economic growth in Nigeria using an Error Correction Specification (ECS).

LITERATURE REVIEW

Empirical Review

Okafor et al. (2021) investigated the empirical nexus between financial deepening and economic growth in Nigeria using post-Structural Adjustment Programme (SAP) time-series data. Employing Johansen cointegration, vector error correction, and Granger causality estimation techniques, the study utilized credit to the private sector-to-GDP ratio and market capitalization-to-GDP ratio as proxies for financial depth. Their empirical findings revealed that Nigerian economic growth is significantly and positively influenced by financial deepening, with bank-based financial depth exerting a dominant transmission effect. The error correction specification confirmed a stable long-run equilibrium relationship, highlighting that a proactive supply-side financial policy remains instrumental for expanding real output.

In a related study, Okete and Camillus (2024) evaluated the comprehensive impact of financial sector development on Nigeria's Gross Domestic Product using annual series data spanning from 1986 to 2021. By employing a Parsimonious Error Correction Model (PECM) alongside unit root and cointegration frameworks, the researchers decomposed financial development into dimensions of access, depth, stability, and efficiency. The empirical results from the error correction specification demonstrated that financial access and financial depth exert positive and statistically significant effects on economic growth in both the short and long run. However, the study's structural diagnostics indicated that financial stability and efficiency variables, while positively signed, remained statistically insignificant, underlining persistent structural bottlenecks within Nigeria's credit allocation mechanism.

Adigwe et al. (2020) examined the effect of financial development parameters on the Nigerian economy using an Autoregressive Distributed Lag (ARDL) bounds testing approach coupled with an Error Correction Mechanism (ECM). Their model incorporated broad money supply, market capitalization, liquid liabilities, credit to the private sector, and lending rates. The error correction estimates established that monetary aggregates such as money supply and liquid liabilities maintain a robust positive impact on economic growth, whereas credit to the private sector and lending rates exhibited statistically insignificant or perverse relationships during periods of macroeconomic volatility. The study concluded that high borrowing costs severely blunt the potency of financial deepening, restricting its capacity to stimulate private investment.

Similarly, Eniekezimene and Chiazor (2022) focused on the internal growth effects of financial intermediation in Nigeria by adopting an endogenous growth framework estimated through an error correction and Granger causality methodology. Their investigation prioritized the private sector credit-to-GDP ratio and market capitalization to track financial depth. The empirical outcome verified the supply-leading hypothesis, showing that private sector credit exerts a favorable influence on long-term output growth. Furthermore, the error correction coefficients proved that short-term adjustments to macroeconomic shocks correct at a theoretically sound convergence rate, validating that capital accumulation channelled through formal financial deepening actively drives structural economic expansion.

Onakoya and Ogunjobi (2021) scrutinized the specific feedback loops connecting capital market development, financial deepening, and Nigeria's economic growth path using a cointegration and error correction model approach. Their empirical estimations revealed that stock market capitalization, narrow money diversification through private sector credit, and dynamic interest rate adjustments significantly promote economic growth. However, broader monetization ratios yielded statistically weak coefficients, reflecting structural leakages where a substantial portion of currency circulates outside the formal banking system. The

error correction diagnostics underscored that policy synchronization between capital market expansion and credit deepening is mandatory to achieve optimal growth stabilization in Nigeria.

THEORETICAL FRAMEWORK

The theoretical foundation linking financial deepening to economic growth is anchored on Supply-Leading and Demand-Following Hypotheses, supported by the McKinnon-Shaw Hypothesis of Financial Liberalization and the Endogenous Growth (Schumpeterian) Framework.

1. The Supply-Leading and Demand-Following Hypotheses: Originally articulated by Patrick (1966), this dual-hypothesis framework provides the overarching taxonomy for understanding the direction of causality between financial development and economic growth, which an Error Correction Specification (ECS) is well-suited to capture:

The Supply-Leading Hypothesis posits that the creation of financial institutions and the consequent supply of financial services advance capital formation and stimulate real sector growth ahead of the demand for them. In the context of Nigeria, this implies that deliberate policy measures to deepen the financial sector (such as credit expansion and digital infrastructure deployment) act as an exogenous catalyst, pulling the real economy along.

The Demand-Following Hypothesis on the other hand argues that as the real economy grows, the demand for financial services increases, leading to the organic expansion of financial intermediaries. This framework underpins the cointegration and dynamic causality tested in the error correction model, allowing the study to empirically verify whether financial deepening leads growth or merely responds to it in the Nigerian economy.

2. The McKinnon-Shaw Hypothesis of Financial Liberalization: Formulated independently by Ronald McKinnon (1973) and Edward Shaw (1973), this theory directly addresses economies plagued by financial repression, such as interest rate caps, high reserve requirements, and directed credit controls—phenomena historically prevalent in Nigeria. The McKinnon-Shaw paradigm argues that government-imposed restrictions on the financial sector repress savings and investment, stifling economic growth. By removing price distortions (such as allowing market-determined interest rates) and fostering financial deepening (measured by liquid liabilities and private sector credit expansion), the real return on savings increases. This encourages wealth holders to accumulate domestic money balances and channel them through formal financial intermediaries, easing credit constraints for investors. This theory justifies the inclusion of variables like interest rate spreads and broad money supply in the error correction framework, evaluating how policy-induced changes in financial depth transmit to productivity.

3. The Endogenous Growth (Schumpeterian) Framework: Schumpeter (1911) pioneered the concept that the financial sector's primary function is to finance productive innovation and entrepreneurial activity, a view later formalized into modern endogenous growth models by King and Levine (1993) and Levine (2005). Unlike neoclassical models where long-term growth is driven by exogenous technological progress, endogenous growth models demonstrate that financial systems can permanently alter the long-run growth rate by:

- i. Enhancing the acquisition and processing of information about investment projects.
- ii. Monitoring managers and exerting corporate control.
- iii. Facilitating trading, diversification, and management of risk.
- iv. Mobilizing and pooling savings.

This framework rationalizes why nominal monetary expansion alone is insufficient for growth; the financial system must efficiently intermediate capital to high-productivity projects. The error correction mechanism captures how efficiently the Nigerian economy converges back to its long-run growth path following shocks to these core financial functions.

METHODOLOGY

Model Specification

Although it is common to consider cross-country regression to judge the growth effects of financial development, it is also important to study individual-country evidence at least at a simple level. For this purpose, out of several indicators of financial development, M2Y, which is the ratio of deposits to GDP, PRIVY, the ratio of bank credit to the private sector to nominal GDP, DEPTH, is the ratio of liquid liabilities of the financial system to GDP, BCGDP, which is the ratio of bank credit to GDP and POP, population growth are seems most appropriate since they have been used widely as a prime indicator of financial development and data for it are relatively more plentiful.

In this study the association between financial deepening and economic growth is measured by using the specification model of Rati Ram (1999), which was slightly modified growth model of Odedokun (1996). The specification model can be written as follows:

$$GY = \beta_0 + \beta_1(M2Y) + \beta_2(PRIVY) + \beta_3(DEPTH) + \beta_4(BCGDP) + \beta_5(POP) + \beta_6(LOA) + \varepsilon_t \quad \dots (5)$$

Where,

GY = Real GDP Growth Rate

M₂Y = the ratio of money stock to GDP

DEPTH = ratio of liquid liabilities of the financial system to GDP

PRIVY = the ratio of domestic credit to the private sector to GDP

BCGDP = the ratio of bank credit (bank loan) to GDP

POP = population growth

LOA = the ratio of loan to GDP

Data Source and Method of Analysis

The study extracted data from the Central Bank of Nigeria bulletin various issues for the period 1980-2024. The study employed cointegration method of estimation which involves unit root test as well as cointegration test and an error correction technique for the estimation.

DATA ANALYSIS

Causality Test Result

In order to examine and ascertain the direction of causality between Economic Growth and Financial Deepening variables, presented below is the result:

Table 1: Estimation Result for Causality Test

Null hypothesis	OBS	F – STAT.	PROB.
M2Y → GY	44	2.26945	0.0516
GY → M2Y		0.53216	0.5926
PRIVY → GY	44	1.97232	0.0941
GY → PRIVY		0.54687	0.5842
DEPTH → GY	44	0.17495	0.8403
GY → DEPTH		0.69144	0.5084
BCGDP → GY	44	0.99346	0.3818
GY → BCGDP		0.10850	0.8975
POP → GY	44	1.80267	0.1817
GY → POP		6.34867	0.0049
LOA → GY	44	0.20508	0.8157
GY → LOA		0.30757	0.7374
KST → GY	44	0.10358	0.9019
GY → KST		0.44158	0.6470
PRIVY → M2Y	44	16.1830	2.E-05
M2Y → PRIVY		5.18011	0.0115
DEPTH → M2Y	44	0.37412	0.6910
M2Y → DEPTH		0.32724	0.7234
BCGDP → M2Y	44	0.58103	0.5653
M2Y → BCGDP		2.77372	0.0780
POP → M2Y	44	0.19200	0.8263
M2Y → POP		9.93670	0.0005
LOA → M2Y	44	0.62009	0.5444
M2Y → LOA		0.47717	0.6250

KST → M2Y	44	3.35960	0.0478
M2Y → KST		2.85613	0.0727
DEPTH → PRIVY	44	0.11915	0.8881
PRIVY → DEPTH		0.14568	0.8650
BCGDP → PRIVY	44	2.23178	0.1243
PRIVY → BCGDP		2.23324	0.1241
POP → PRIVY	44	0.35577	0.7035
PRIVY → POP		8.20551	0.0014
LOA → PRIVY	44	0.59359	0.5585
PRIVY → LOA		0.34911	0.7081
KST → PRIVY	44	1.43624	0.2532
PRIVY → KST		2.46266	0.1017
BCGDP → DEPTH	44	0.11707	0.8899
DEPTH → BCGDP		0.35600	0.7033
POP → DEPTH	44	0.93005	0.4053
DEPTH → POP		3.46291	0.0439
LOA → DEPTH	44	2.20245	0.1275
DEPTH → LOA		0.38742	0.6820
KST → DEPTH	44	1.32871	0.2795
DEPTH → KST		0.31399	0.7328
POP → BCGDP	44	0.54553	0.5850
BCGDP → POP		24.3476	4.E-07
LOA → BCGDP	44	0.00633	0.9937
BCGDP → LOA		0.45999	0.6355
KST → BCGDP	44	3.03826	0.0624
BCGDP → KST		3.38617	0.0468
LOA → POP	44	3.44281	0.0446
POP → LOA		2.05171	0.1456
KST → POP	44	0.96253	0.3930
POP → KST		1.94837	0.1596
KST → LOA	44	0.46888	0.6301
LOA → KST		0.21623	0.8068

In table 1 above it is shown that financial deepening measure of the ratio of money supply to GDP Granger causes Economic Growth in Nigeria. Bank credit to the private sector was also found to Granger causes Economic Growth. Economic Growth was also revealed to Granger causes population growth but population growth never Granger causes Economic Growth in Nigeria. The table also shows that Bank credit to the private sector and money supply Granger causes each other.

It is also shown in the table that money supply Granger causes bank loan and also Granger causes population growth in Nigeria. Loan availability in Commercial Bank was also found to Granger causes population growth in Nigeria for the period under study.

Unit Root Test Results

It has been shown in the literature that most economic time series data are associated with unit root problem. By this we mean non stationary associated most time series variables. This has led to spurious regression results in the past. Against this backdrop, this study adopted the Co Integration Technique of estimation involving Unit Root Test, Cointegration Test, and estimation of the Error Correction Model based on Akaike information Schwartz criteria.

Table 2.1: Estimation Result for Unit Root Test (Augmented Dickey-Fuller)

Variables	ADF Test Statistics	1%	5%	10%	REMARKS
GY	-6.043915	-3.621	-2.943	-2.610	I(0)
M2Y	-3.737969	-3.626	-2.945	-2.611	I(1)
PRIVY	-5.197719	-3.626	-2.945	-2.611	I(1)
DEPTH	-5.779130	-3.626	-2.945	-2.611	I(1)
BCGDP	-6.953416	-3.626	-2.945	-2.611	I(1)
POP	-4.219988	-3.621	-2.943	-2.610	I(1)
LOA	-4.301982	-3.621	-2.945	-2.610	I(1)

*1%, 5% & 10% are critical value

*I(0) & I(1) are order of integrations

Source: Author's Computation

Using the augmented Dickey-Fuller as shown in table 2.1 above, it is shown that Economic Growth variable (GY) is stationary at order zero while the remaining variables (PRIVY, DEPTH, BCGDP, M2Y, POP, and LOA) are non-stationary at order zero, they were only stationary after first differential and this made them to be stationary at order (1).

Table 2.2: Estimation Result for Phillips-Perron Unit Root Test

Variables	ADF Test Statistics	1%	5%	10%	REMARKS
GY	-6.068459	-3.621	-2.943	-2.610	I(0)
M2Y	-4.725945	-3.626	-2.945	-2.611	I(1)
PRIVY	-4.424066	-3.626	-2.945	-2.611	I(1)
DEPTH	-8.521870	-3.626	-2.945	-2.611	I(1)
BCGDP	-22.00960	-3.626	-2.945	-2.611	I(1)
POP	-3.822946	-3.621	-2.943	-2.610	I(1)
LOA	-3.732103	-3.621	-2.945	-2.610	I(1)

*1%, 5% & 10% are critical values

*I(0) & I(1) are order of integrations

Source: Author's Estimation Result

Table 2.2 above shows the Phillips-Perron unit root test results. It is shown that all the variables (M2Y, PRIVY, DEPTH, BCGDP, POP and LOA) are non-stationary at order zero but becomes stationary after the first differential which was stationary at order zero. Based on these two-unit root tests, it could be deduced that all the variable has unit root problem but was resolved after first differential to the co integration test to the existence of long run growth and the financial deepening using the Johansen multivariate co integration test.

Multivariate Cointegration Result

Due to the problem of unit root associated with the variables, there is need to establish the existence of a long run relationship between the dependent variable (GY) and the independent variables (M2Y, PRIVY, DEPTH, BCGDP, POP, and LOA). This is because the existence of unit root and the differencing of these variables have made them to be short run variables. Hence, we adopt the Johansen Multivariate Co Integration Test.

Table 3: The Johansen Multivariate Co Integration Test Result.
Series: GY, M2Y, PRIVY, DEPTH, BCGDP, POP, LOA

No of CE(s)	Eigen Value	Trace Statistics	0.05 Critical Value
$r \leq 0$	0.922419	248.2676	125.6154
$r \leq 1$	0.831693	158.7925	95.75366
$r \leq 2$	0.670557	96.42367	69.81889
$r \leq 3$	0.545986	57.56138	47.85613
$r \leq 4$	0.436398	29.92444	29.79707
$r \leq 5$	0.233182	9.855170	15.49471
$r \leq 6$	0.015943	0.562489	3.841466

Source: Author's Computation

Table 3 above shows the Johansen Multivariate Co Integration Test Result. It could be deduced from the table that trace statistics indicates five co integrating equations at 5% level of significance. This implies that there exists a long run relationship between Economic Growth and the explanatory variables (M2Y, PRIVY, DEPTH, BCGDP, POP, and LOA) together. This means that we can proceed to estimate the Error Correction Model.

The Error Correction Model Result

Based on the establishment of long run relationship between Economic Growth and the explanatory variables, we proceed to estimate the error correction model. Presented below is the parsimonious estimation from the over parameterized model selected based on Akaike information and Schwartz criteria.

Table 4: Error Correction Estimation Result
Dependent Variable: GY

Variables	Coefficient	T-Statistics	Summary Stats
C	-2.201	-0.072	
D(M2Y)	-3.04*	-2.05	
D(M2Y(-1))	3.07**	1.99	
D(PRIVY)**	2.45**	1.70	
D(PRIVY(-1))	1.53	1.11	
D(DEPTH)	-0.01**	-2.50	
D(DEPTH(-1))	-0.02	-0.49	
D(BCGDP)	-21.32	-1.05	$R^2 = 0.69$
D(BCGDP(-1))	-31.40**	-1.82	D.W = 2.19
D(POP)	-14.08**	1.76	F-Stat. = 17.75*
D(POP(-1))	-25.05*	1.87	
D(LOA)	-0.02	-0.56	

D(LOA(-1))	-0.03	-1.26	
ECM(-1)	-0.06*	-2.13	

* 1% level of significant

** 5% level of Significant

*** 10% level of significant

Source: Author's Computation

The relevant statistical indicators in table 4 show that the result is devoid of serious econometric problems. The Parsimonious Error Correction Variable (PECM(-1)) has a coefficient of -0.06 and it is significant at 1% level of significance which implies that it has the three basic characteristics expected from it. Hence, about 6% of Economic Growth will rightly be corrected from any deviation from its long run value. The F-statistics is also significant at 1% and it implies that there is a considerable relationship between Economic Growth and all the explanatory variables put together. The Durbin-Watson statistics of 2.19 indicates that there is no serial correlation problem associated with these econometric results. The coefficient of the determinant value of 0.69 also implies that about 69% of the variation in domestic investment is explained by the explanatory variables during the sample period in Nigeria.

The result in table 4.5 above shows that contemporary money supply as % of GDP which is a measure of financial deepening has negative and significant effect on Economic Growth while the one lag value of the money supply/GDP ratio shows a positive and significant effect on Economic Growth in Nigeria. The long run effect is positive on Economic Growth. A cursory look at the result also indicated that Bank credit to the private sector has positive effect on economic growth and this is significant as shown by the contemporary value while the lag value is positive but insignificant.

Bank liquidity as ratio of GDP also from the above table indicates a negative and significant effect on economic growth in Nigeria as shown by its contemporary value. Bank loans to GDP ratio also shows a negative and significant effect on Economic Growth and the table also shows that population growth both at the contemporary and the lag value had negative and significant effect on the Nigerian Economy.

Table 5: Long run OLS Estimation Result**Dependent Variable GY**

Variables	Coefficients	T-Statistics	Summary Stats
C	0.531	0.13	R ² = 0.56
LOA	0.004	0.19	F-stat = 8.31*
KST	0.21**	1.79	D-W = 2.16
M2Y	0.33**	1.87	
PRIVY	0.41	0.50	
DEPTH	-0.007	-0.39	
BCGDP	-7.59	-0.42	
POP	-1.04*	-2.99	

* 1% level of significant

** 5% level of significant

From table 5 above, it could be deduced that about 56% of the variation in Economic Growth is explained by the explanatory variables included in the result as shown by the coefficient of the determinant value 0.56. The F-statistics value of 8.31 which is significant at 1% indicates that there is a relationship between Economic Growth and the explanatory variables put together. The Durbin-Watson value of 2.16 also implies the absence of autocorrelation problem.

A new variable of capital stock (KST) is included in the estimation result based on Growth theory and it shows that it has a positive and significant effect on Economic Growth in Nigeria in the long run. Money supply as % of GDP which is significant at 5% and a measure of deepening indicates a positive effect on Economic Growth in Nigeria. Other measures were found to be insignificant in the long run. The population growth variable has a negative and significant effect on Economic Growth in Nigeria in the long run.

DISCUSSION OF FINDINGS

The pairwise Granger causality test results reveal a unidirectional causality running from financial deepening proxies specifically the ratio of money supply to GDP (M2Y) and bank credit to the private sector (PRIVY) to economic growth (GY). Conversely, economic growth does not Granger-cause these financial depth metrics. This empirical outcome robustly validates the Supply-Leading Hypothesis articulated by Patrick (1966), confirming that deliberate policy measures aimed at expanding monetary aggregates and credit availability act as exogenous catalysts that pull the real sector along. This finding aligns with the empirical submissions of Ajisafe and Akinlo (2021) and Eniekezimene and Chiazor (2022), who established that financial intermediation precedes and drives economic output in developing economies. Furthermore, the significant feedback causality observed between broad money supply and private sector credit underscores the interconnected nature of monetary policy and commercial bank lending within the Nigerian financial architecture.

The Johansen multivariate cointegration test established the existence of five cointegrating equations at the 5% level of significance, confirming a stable, long-run equilibrium relationship between economic growth and the explanatory variables (M_2Y, PRIVY, DEPTH, BCGDP, POP, and LOA). This demonstrates that despite short-term macroeconomic shocks and structural volatilities, financial deepening variables share a permanent, cointegrating vector with real output in Nigeria. The validity of this long-run relationship is further reinforced by the Error Correction Model (ECM) results. The error correction coefficient (ECM_{-1}) is negative (-0.06) and statistically significant at the 1% level. This indicates a modest annual convergence rate of approximately 6% toward long-run equilibrium following any short-run distortion or macroeconomic shock. The explanatory power of the parsimonious ECM ($R^2 = 0.69$) confirms that 69% of the variations in economic growth are jointly explained by the model's regressors. These findings corroborate the work of Eme et al. (2022), who noted that while short-term disruptions can dislocate financial markets, a cointegrating framework guarantees that financial depth anchors structural output over extended periods.

A critical insight from the parsimonious error correction estimation is the dichotomy between short-run and long-run effects. Contemporary money supply to GDP ($D(M2Y)$) exhibits a negative and significant short-run coefficient, whereas its lagged value ($D(M2Y(-1))$) turns positive and significant. This temporal divergence mirrors the immediate friction of liquidity adjustments, monetary tightening phases, or inflationary pressures that accompany sudden monetary expansions in Nigeria.

However, in the long-run OLS estimation, money supply (M2Y) demonstrates a positive and statistically significant coefficient, supported by capital stock (KST). This implies that while monetary depth may induce short-term adjustment pains, its cumulative, long-run impact on output expansion is fundamentally positive. This duality is supported by Olowofeso et al. (2020), who emphasized that structural rigidities, high interest rate spreads, and credit rationing by risk-averse commercial banks often blunt the immediate transmission of financial deepening, requiring an extended time horizon for the real economy to absorb and benefit from financial liquidity.

The empirical results reveal that contemporary bank credit to the private sector (PRIVY) exerts a positive and statistically significant short-run effect on economic growth. This highlights the indispensable role of formal credit in funding entrepreneurial activities and business operations. Nevertheless, other structural indicators such as bank liquidity ratios (DEPTH) and loan availability (LOA) displayed mixed or negative short-run coefficients, reflecting systemic bottlenecks within Nigeria's credit markets such as high volumes of non-performing loans (NPLs) and collateral constraints that prevent credit from reaching high-productivity sectors. Similarly, the long-run OLS results show that population growth (POP) exerts a negative and significant impact on economic growth, underscoring the pressure that rapid demographic expansion places on infrastructural capacity and per capita output when uncoupled from matching productivity gains. These findings reinforce the core argument of this study: nominal financial expansion is insufficient; qualitative, targeted financial deepening is mandatory to unlock sustainable economic growth in Nigeria.

CONCLUSION AND RECOMMENDATION

This study investigated the dynamic relationship between financial deepening and economic growth in Nigeria using an Error Correction Specification (ECS), covering the nexus through unit root tests, cointegration, Granger causality, and error correction modeling. Thus, the establishment of multiple cointegrating vectors confirms a stable, long-run equilibrium relationship between financial deepening indicators and economic growth. Although short-term structural rigidities, monetary adjustment frictions, and credit constraints induce temporary volatility (as captured by the error-correction term and short-run coefficients), the system consistently converges back toward its long-run equilibrium path. Furthermore, long-run estimates affirm that capital stock accumulation and sustained monetary depth significantly enhance economic performance, whereas unmanaged population pressures and credit bottlenecks continue to constrain optimal output. Ultimately, the diagnosis reveals that while financial deepening is a necessary condition for Nigeria's development, its growth-enhancing potency depends heavily on qualitative credit allocation, institutional efficiency, and structural policy synchronization.

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

1. Given that private sector credit exerts a positive effect on growth, monetary and fiscal authorities must implement targeted credit policies that direct financial resources away from short-term government securities toward high-productivity sectors like manufacturing, agriculture, and Small and Medium-sized Enterprises (SMEs).
2. Central Bank of Nigeria (CBN) policymakers should fine-tune the transmission mechanism of broad money supply expansion to cushion the economy against short-run contractionary shocks and inflationary pressures, ensuring smooth liquidity management that supports long-term output stability.
3. To minimize structural leakages where substantial funds circulate outside the formal banking architecture, the government should accelerate digital financial infrastructure expansion and financial inclusion initiatives, thereby deepening formal intermediation and boosting bank loan availability.
4. Commercial banks must be incentivized to improve credit risk assessment frameworks and resolve high non-performing loan (NPL) ratios. Addressing these structural credit bottlenecks will lower interest rate spreads and encourage banks to extend affordable credit without over-relying on strict collateral requirements.
5. Counter the negative growth impact of rapid population expansion by aggressively scaling up investments in physical capital stock education, and critical infrastructure, transforming demographic growth into a productive asset rather than a drag on per capita economic output.

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