

## Effect of Financial Efficiency on Economic Growth in Nigeria

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### Abstract

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This study investigated the effect of financial efficiency on economic growth in Nigeria, employing the Autoregressive Distributed Lag model. Using annual time-series data, financial efficiency was proxied by interest rate spread, bank return on assets and bank return on equity; while financial contribution to gross domestic product serves as the dependent variable. Data were sourced from Central Bank of Nigeria Statistical bulleting from 2000 -2023. The method of data analyses were descriptive statistics, correlation analysis, unit root test. Autoregressive Distributed Lag (ARDL) was used to estimate the model. The results revealed that financial efficiency exert a positive and statistically significant effect on economic growth, suggesting that efficient financial system enhances the productive absorption of such efficiency. Conversely, interest rate spread has a negative and significant impact on GDP, highlighting the inefficiencies within Nigeria's financial system, where wide spreads restrict access to affordable credit and constrain private sector investment. Furthermore, both ROA and ROE display positive and significant effects on GDP, indicating that bank profitability strengthens the financial sector's ability to mobilize resources, provide credit, and support economic activity. The study recommended that financial authorities should promote policies that reduce interest rate spreads, promote banking sector profitability and stability, and attract sustainable investment that are essential to unlocking the growth-enhancing potential of the Nigerian financial system. The study concluded that strengthening financial efficiency is critical for achieving inclusive and sustainable economic growth in Nigeria.

**Keywords:** Bank return on assets, Bank return on equity, Economic growth, Financial efficiency, Gross domestic product, Interest rate spread

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## **Background to the Study**

Across the world, the pursuit of economic growth has remained a central policy priority for nations at all stages of development. Advanced economies sustain growth by deepening financial markets, fostering innovation, and maintaining institutional efficiency, while emerging and developing economies increasingly recognize that efficient financial systems are vital for mobilizing savings, channeling investments, and driving industrialization. Global evidence suggests that countries with efficient financial sectors are better positioned to achieve higher growth trajectories, attract foreign investment, and integrate into the global economy (World Bank, 2024). Conversely, nations with inefficient financial systems often experience weak investment flows, credit constraints, macroeconomic instability, and slower growth. Thus, financial efficiency is not only a domestic policy issue but also a global imperative, shaping how economies compete, adapt to globalization, and achieve sustainable development in line with frameworks such as the United Nations Sustainable Development Goals (SDGs).

Nigeria provides a compelling context in which to examine the nexus between financial efficiency and economic growth. The Nigerian financial system has experienced repeated waves of reform from the Structural Adjustment Programme (SAP) in the mid-1980s, to recapitalization drives, monetary policy shifts, and digital banking transformations; all aimed at improving stability, deepening markets, and increasing efficiency. Despite these reforms, macroeconomic and financial indicators have shown mixed outcomes. Growth has been volatile, with the economy repeatedly affected by oil price shocks, inflationary pressures, exchange rate volatility, and episodic policy reversals (World Bank, 2025; IMF, 2025).

A number of persistent structural problems continue to constrain the efficiency of Nigeria's financial system. Interest rate spreads, the margin between lending and deposit rates, have often remained wide, reflecting market segmentation, imperfect competition, high transaction and information costs, and macroeconomic uncertainty. Wide spreads discourage savings, raise the cost of borrowing for firms (especially for small and medium enterprises), and dampen private investment. At the same time, measures of banking sector profitability (such as return on assets and return on equity) have produced mixed signals: periods of improved profitability have coincided with greater credit extension, while episodes of elevated non-performing loans, governance weaknesses, and macroeconomic shocks have eroded profitability and constrained banks' intermediation capacity. The rise and volatility of foreign capital inflows including portfolio investment attracted by domestic yields further complicates the picture, since such flows can rapidly alter domestic liquidity and exchange rate conditions and may not always finance long-term productive investment. Contemporary data and analyses therefore call for a careful empirical assessment of how these efficiency indicators jointly affect growth in Nigeria (Nigeria Capital Importation Q1 Report, NBS / The Nation, 2025; BusinessDay, 2025).

Despite decades of efforts at financial reform and periodic improvements in macroeconomic management, Nigeria's growth performance has been uneven and frequently below potential.

Policymakers and scholars debate whether reforms have adequately improved the efficiency of financial intermediation and whether financial efficiency is translating into sustained economic growth. Persistent wide interest rate spreads, uneven bank profitability, and volatile capital inflows raise the question of whether the financial sector's structure and functioning are optimized to support inclusive growth. Empirically, studies on the finance–growth nexus in Nigeria yield mixed findings: some report strong positive links between financial development/efficiency and growth (Ujunwa, et. al., 2014; Garru & Amade, 2016), while others attribute weak or inconsistent effects to institutional and structural bottlenecks (Nwosa, et. al. 2020; World Bank, 2025). This study addresses that gap by explicitly measuring financial efficiency (via interest rate spread, ROA and ROE) and testing their effect on Nigerian GDP using the ARDL modelling framework. This study provided answers to the following questions: what is the effect of interest rate spread on economic growth in Nigeria? To what extent has bank return on asset affect economic growth in Nigeria? and what is the effect of bank return on equity on economic growth in Nigeria?

## **Literature Review**

### **Conceptual Review**

#### **Financial Efficiency**

Financial efficiency has been conceptualized in recent scholarship from different perspectives. Ullah, et. al. (2023), in their study on Pakistani banks, define financial efficiency as the ability of banks to effectively utilize inputs such as employees, branches, non-interest expenses, and loan loss provisions to generate outputs like net interest income and fee-based earnings. In this view, an efficient bank is one that minimizes waste, manages overheads prudently, and produces more from given resources. Similarly, financial efficiency is defined as a characteristic of financial systems that ensures the provision of funds at affordable costs, thereby supporting investment in long-term productive projects such as renewable energy. Financial efficiency in this context reflects the capacity of the financial structure to channel resources into sustainable investments with minimal friction (Cleaner Production, 2023).

#### **Interest Rate Speed**

The concept of interest rate spread has been widely discussed in the finance and development literature as a central indicator of banking efficiency and intermediation performance. Demirgüç-Kunt and Huizinga (1999) defined interest rate spread as the difference between the lending rate charged to borrowers and the deposit rate paid to savers by financial institutions. According to them, this spread reflects the efficiency and costs of financial intermediation within the banking sector, where higher spreads typically suggest inefficiency, heightened risk, or weak competition. In a similar vein, Beck and Hesse (2009) conceptualize interest rate spread as a measure of the margin between deposit and lending rates in an economy, emphasizing its role in capturing the cost of intermediation borne by financial institutions. They argue that narrower spreads tend to be associated with competitive and efficient financial systems, while wider spreads are indicative of inefficiency and barriers to credit supply. Ngugi (2020) extends the discussion by describing interest rate spread as the gap between the rate banks charge on loans and the rate they offer on deposits, highlighting its

influence on the behaviour of savers and borrowers. He argues that a wide spread discourages savings and raises borrowing costs, which ultimately constrains private investment and economic growth. At the institutional level, the International Monetary Fund (IMF, 2023) defined interest rate spread as the difference between the average lending rate and the average deposit rate across the banking system.

### **Bank Return on Asset**

From the World Bank Global Financial Development Data (2024), ROA is defined as commercial banks' after-tax net income divided by yearly averaged total assets. This measure reflects how efficiently a bank uses its entire asset base to generate profits, adjusting for size and changes in asset levels. BROA is used to assess the efficiency of banks' assets in generating earnings. Specifically, BROA is calculated as the ratio of net profit (after all relevant costs/taxes) to total assets, including liquid and earning assets, to evaluate how regulatory liquidity requirements impact asset utilization (Arin, et. al, (2024). BROA is defined similarly as a ratio of net income (after expenses and taxes) to total assets of deposit money banks (Ojiegbe, et. al., 2023),

### **Bank Return on Equity**

Return on Equity (ROE) is widely used as a profitability indicator in banking and finance, reflecting the ability of financial institutions to generate income from shareholders' invested capital. According to the World Bank (2024), BROE is measured as commercial banks' after-tax net income divided by yearly averaged equity, serving as an efficiency metric for banks' use of equity capital. Similarly, Odebode, et. al. (2024), in their study on Nigerian commercial banks, defined ROE as the ratio of net profit after tax to shareholders' equity, emphasizing its role in capturing bank profitability and resilience against non-performing loans. RSIS International (2025) conceptualized ROE as net income divided by equity capital, which measures the returns generated on owners' funds and is often employed in corporate governance and risk committee performance assessments.

### **Empirical Review**

Gibogwe and Nigo (2023) investigated financial efficiency and economic growth in Sub-Saharan Africa. The study used the growth of real per capita GDP as a proxy for economic growth; bank credit as a percentage of GDP which captures financial development in a country; and a set of control variables: human capital, Inflation, and gross domestic fixed capital formation; these are obtained from the World Bank World Economic Indicators. This study contributes to the literature on financial efficiency and growth. The study showed evidence from the effects of controlling institutional variables given the increase in domestic credit. The domestic credit is adverse, with an insignificant effect on per capita income growth. The study made two observations from our findings. First, the negative but insignificant coefficients of the measure of bank credit across all model specifications seem to go against the supply-leading hypothesis, as financial development hurts economic growth; nevertheless, given that the impact is insignificant, this draws more into a neutrality hypothesis of no effect. Second, the findings are likely indications of the underdeveloped state

of sub-Saharan Africa's financial system, implying that the present state of the financial systems is not robust enough to be a contributory drive towards enhancing economic growth in the region. However, all models have positive control variables (Inflation and gross fixed capital formation). All coefficients of interactions between credit and institutional quality are statistically insignificant (negative in four of six models).

Ahmad (2023) investigated the influence of financial efficiency, exchange rate variation, economic performance, trade, and population growth in Nigeria. The model variables of the study include investment growth (FDI inflow) financial efficiency (domestic credit to the public % GDP), exchange rate variation (variation in value of the local currency compared to previous time against US dollar), trade (sum of total export and import), economic performance (annual GDP growth), and population (annual rate of growth of the population). All the variables were captured on annual time series bases from 1980 to 2022, obtained from the World Bank database (WDI, 2022). The result of the stationarity test reveals all the variables are stationary and the bound test illustrates a long-run relationship among the variables in the study's model. The outcome of the short-run analysis shows financial efficiency, economic progress and trade accelerate the level of investment growth in Nigeria. Nonetheless, the population level does not influence investment growth. The long-run estimates illustrate that financial efficiency, economic growth, trade and population have a positive and significant influence on investment growth in Nigeria. However, exchange variation decreases the level of investment growth in the country. Therefore, the study suggests financial reform policies through effective and efficient credit facilitates to the citizens from both central and conventional banks in the country. In addition, effective monetary policies should be embarked on to regain the naira value against the foreign currency to promote investment level right from the nation's domestic investors.

Babaita and Muftau (2020) examined financial efficiency, institutional quality and economic growth in Nigeria. The vital role played by the financial sector in promoting economic growth has been well documented. Despite this vital role of the financial sector on the economy, the financial system in Nigeria has remained poorly developed, judging from its poor level of efficiency, which has made it focused on achieving higher profitability at the expense of customers' welfare. Growth performance is also not encouraging as heavy reliance on oil for government revenue has limited government's regulatory role to provide a level-playing field for all actors. This study therefore examines the impact of financial sector efficiency and institutional quality on economic growth, with its specific objective to: (i) determine the impact of the financial sector efficiency on economic growth in Nigeria; and (ii) assess the impact of institutional quality on economic growth in Nigeria. The Autoregressive Distributed Lag (ARDL) model was employed on the time series secondary data sourced from World Bank's World Development Indicators, Global Financial Development and World Governance Indicators to achieve the objectives. The study found that lower efficiency (higher ROA, ROE and NIM) has a negative impact on economic growth in Nigeria while institutional quality (regulatory quality and political stability) does not impact economic growth. The study concluded that more efficient financial sector

promotes economic growth in Nigeria and the current level of institutions in existence does not promote economic growth. The study recommended that financial sector efficiency should be sought by ensuring moderate profitability of the financial sector through stronger regulatory role of the authority.

Chollada (2019) investigated the relationship between financial efficiency and economic growth in Thailand with annual time series during 1991-2015. Financial efficiency measures: (i) bank efficiency in intermediating savings to investment, as measured by the net interest margin (the accounting value of bank's net interest revenue as a share of its average interest-bearing assets) (IMARGIN) and lending-deposit spread (ISPREAD); and (ii) operational efficiency measures, such as overhead costs to total assets; NONILIA while the percentage change of real GDP per capita (real gross domestic product [RGDP]) represents economic growth. The Augmented Dickey-Fuller Test (ADF) of the stationary test shows that all data are stationary at the first difference except ISPREAD is stationary at the second difference. Since all variables are not integrated at the same order, there are no short run and long run relationship between financial efficiency variables and economic growth. The pairwise Granger causality result with 1 lagged length selected by Akaike Information Criterion (AIC), shows that no causality between financial efficiency variables and economic growth and vice versa; and supports the "neutral hypothesis". However, there is a one-way causality linkage between two financial efficiency indicators, lending and deposit interest rate spread, and the ratio of overhead costs to total assets. In other words, the banks' profit from interest spread is used to improve bank efficiency, such as hiring more staff, increase number of branches, and automatic teller machines (ATMs) to improve bank services. Therefore, financial institutions should provide financial services to response customers' needs as the commercialization and modernization of the economy.

Chukwunulu and Ibenta (2021) investigated the effect of financial innovation on efficiency of financial intermediation of commercial banks in Nigerian between 2008 and 2018. The study used secondary data and a multiple regression model developed for the study was analysed with the help of Ordinary Least Square (OLS) regression technique. The results showed that automated teller machine, internet bank transfer and mobile bank transfer have insignificant positive effects on financial intermediation while Point of Sales has negative effects on financial intermediation efficiency. Further results indicated that the 57% change in financial intermediation efficiency explained by financial innovation is not statistically significant. The study therefore concluded that financial innovation in itself is not a determinant of the efficiency of the intermediation process in Nigeria. It is then recommended that the regulatory authority among others should make policies to increase the savings rate, so that the surplus unit will be encouraged to make their funds available to the banks for lending. In the study, only financial innovations were used. The study did not make use of commercial banks and macroeconomic proxies. This implies that the result may not represent the general financial system.

Adewole, et. al. (2019) investigated financial intermediation and Nigerian economy. The main purpose of the research is to examine the relationship between financial intermediation in deposit money banks and the Nigerian economy. A systematization literary approach for solving the problem is Regression Analysis. Secondary data was sourced from Central Bank of Nigeria Statistical Bulletin. The results of the findings within the years of analysis (2000-2017) indicated that there was significant relationship between Total Bank Credit and monetary policy indices on deposit money banks in Nigeria. It was also discovered that there was significant relationship between Gross domestic product and total credit in deposit money banks of Nigeria. Based on the objective and findings of this study, the study therefore recommends that Deposit Money Banks in Nigeria should foster higher level of liquidity in order to increase its ability to cover withdrawals made by its customers and to increase the loan and advances to customers even with the monetary policy indices on deposit money banks. The study also recommends that Deposit Money banks should distribute adequate credit to the real sector for productive purposes in order to increase Gross domestic product. The study examined total bank credit and monetary policy as independent variable in relation with gross domestic product as independent variable. Two proxies were used. These may not be enough as a way of making generalised statement. One or more proxies should have been added; such that cuts across more than one financial sub-sector.

Ogundajo, et. al. (2019) investigated the effect of intermediation capacity of the financial institutions on the Nigerian economic development (Real Gross Domestic Product (RGDP)). It is a causal-effect relationship study which made use of macro data obtained from Central Bank of Nigeria (CBN) Statistical Bulletin from the period 1981-2016. The result of the Johansen co-integration test and ARDL bound test evidenced that there exists a long-run relationship between financial institutions' activities and real GDP. ARDL regression model showed financial institution activities, particularly the loans to the private sector significantly impacted on economic growth both in the short-run and long-run. The study also found that bank loans and advances, bank reserves and interest rate had insignificant negative impact on real GDP while credit to private sector significantly affected economic development of Nigeria (RGDP). Thus, economic development of Nigeria is driven by the performance of deposit money banks and concludes that the performance of deposit money banks has effect on the economic development of Nigeria. The study recommended that the banking sector should increase lending to the private sector in order to engender economic growth through the enhancement of entrepreneurial development. The study of Ogundajo, et. al. (2019) used real gross domestic product as a proxy for the dependent variable in connection with money market variables. Rather than the use of real gross domestic product of Nigeria, gross domestic product of the financial sector should have been used.

Emmanuel and Odum (2019) examined the effect of financial intermediation on the development of the economy of Nigeria using data spanning 1986 to 2017. The data were obtained from Central Bank of Nigeria Statistical Bulletin, World Bank (World Development Indicators) and International Monetary Fund (World Economic Outlook). The study considered credit to private sector, lending rate and money supply as independent variables,

while real GDP growth rate and unemployment rate were used as dependent variables. Auto-regressive distributed Lag (ARDL) technique was employed and E-Views 9 was used for the analyses. In other to achieve the objective of the study, series of tests were conducted, including normality test, stationarity test, cointegration test, ARDL estimation and error correction. The tests provided the basis for the conclusion that credit to private sector do not really contributes positively to the development of the economy. This could be due to high lending rate (interest rate). High lending rate is detrimental to the development of the economy. Thus, the study recommends, among others, that the monetary authority should make policies to compel banks to lower their lending rates to encourage the productive sectors of the economy to perform better. The study of Emmanuel and Odum (2019) considered credit to private sector, lending rate and money supply as independent variables, while real GDP growth rate and unemployment rate. The GDP should have been that of financial institutions only.

## **Theoretical Review**

### **Keynesian Theory and Financial Efficiency**

Keynesian theory, pioneered by John Maynard Keynes in his influential work: *The General Theory of Employment, Interest and Money* (1936), provides an important lens for analyzing financial efficiency within the broader macroeconomic context. At its core, the Keynesian framework emphasizes that economic growth and stability depend heavily on effective demand, investment, and the smooth functioning of financial systems. Financial efficiency, in this regard, is not only about minimizing transaction costs or achieving narrow interest rate spreads, but also about ensuring that financial institutions effectively channel resources from surplus units (savers) to deficit units (investors) in a manner that promotes sustainable economic growth (Keynes, 1936). A key element of Keynesian theory is the role of investment and the “animal spirits” of investors, which highlight the importance of confidence, expectations, and credit availability in driving economic activity. From this standpoint, financial efficiency entails the ability of financial systems to provide affordable and accessible credit, thereby influencing aggregate demand and output.

Keynesian theory also highlights the significance of liquidity preference and interest rates. An efficient financial system can mitigate the risks of a liquidity trap by facilitating credit expansion even when nominal interest rates are low, thereby enabling investments to respond positively to monetary and fiscal stimuli (Blanchard & Johnson, 2017). Modern applications of Keynesian thought reinforce the idea that market imperfections can undermine financial efficiency, necessitating active government and central bank intervention. Market failures such as wide interest rate spreads, high non-performing loans, speculative short-term capital flows, and governance weaknesses can reduce the effectiveness of financial intermediation. In this light, Keynesian principles support policies such as directed credit programs, counter-cyclical fiscal measures, monetary easing, and institutional reforms to correct inefficiencies and enhance the performance of the financial system (Stiglitz, 2018).

In the Nigerian context, the Keynesian framework provides useful insights into the relationship between financial efficiency and economic growth. Nigeria's financial sector has often been characterized by structural inefficiencies, volatile capital flows, and high lending rates, which limit the ability of banks to provide affordable credit to productive sectors. Consistent with Keynesian thought, interventions by the Central Bank of Nigeria (CBN), including interest rate adjustments, credit guarantee schemes, recapitalization reforms, and liquidity support measures, have been designed to enhance financial efficiency and stimulate aggregate demand (World Bank, 2024). These measures underscore the Keynesian view that proactive intervention is necessary to align financial systems with the goal of sustainable economic growth. In sum, Keynesian theory plays a vital role in shaping the discourse on financial efficiency by emphasizing the importance of effective financial intermediation, the role of interest rates and liquidity in stimulating investment, and the need for deliberate government intervention to address structural inefficiencies in financial systems.

### Methodology

The research design adopted ex-post-facto research design. The adoption of the ex-post-facto research design is hinged on two reasons. Firstly, the study relied on historic data because the event under investigation had already taken place and the study does not intend to control or manipulate the independent variables. Secondly, the ex-post-facto research design is used when the study intends to determine cause-effect relationship between the independent and dependent variables with a view to establishing a causal link between them. The study used time series secondary data collected from Central Bank of Nigeria Statistical Bulletin from 2000 – 2023. The time frame is chosen because of availability of data. The data so collected were analysed by descriptive statistics, correlation analysis, unit root test. Autoregressive Distributed Lag (ARDL) was used to estimate the model.

### Model Specification

The mathematical model gives:

$$FSFSGDP = f(INRS, BROA, BROE) \quad (1)$$

The econometric model becomes:

$$FSFSGDP_{t-1} = \beta_0 + \beta_1 INRS_{t-1} + \beta_2 BROA_{t-1} + \beta_3 BROE_{t-1} + \varepsilon_t \quad (2)$$

Where:

FSFSGDP = Financial Sector Contribution to Financial Sector Contribution to Gross Domestic Product;

INRS = Interest Rate Spread;

BROA = Bank Returns on Asset;

BROE = Bank Returns on Equity;

t = Time;

$\varepsilon_t$  = Error term

Furthermore, the Autoregressive Distributed Lag Model (ARDL) follows the work of Pessaran, et. al., (2001) model:

$$\Delta\text{FSFGDP}_{it} = \beta_0 + \beta_1\text{INRS}_{it} + \beta_2\text{BROA}_{it} + \beta_3\text{BROE}_{it} = \sum_{i=1}^k a1\Delta\text{FSFGDP}_{it-i} + \sum_{i=1}^k a2\Delta\text{INRS}_{it-i} + \sum_{i=1}^k a3\Delta\text{BROA}_{it-i} + \sum_{i=1}^k a4\Delta\text{BROE}_{it-i} + \epsilon_{it} \quad (3)$$

Where:

$\epsilon_{it}$  was the error term; parameters  $\beta_1$  to  $\beta_3$  represents the long-run parameters of the models; and the second part with parameters  $\Delta 1$  to  $\Delta 4$  represents the short-run dynamics of the models respectively.

## Results and Discussion

### Descriptive Statistics

**Table 1:** Descriptive Statistics

| Statistic    | FSFGDP<br>(₦ Billion) | INRS<br>(%) | BROA<br>(%) | BROE<br>% |
|--------------|-----------------------|-------------|-------------|-----------|
| Mean         | 81,145.62             | 7.55        | 2.70        | 16.08     |
| Median       | 68,156.50             | 7.35        | 2.50        | 14.96     |
| Maximum      | 234,425.91            | 11.06       | 8.00        | 34.09     |
| Minimum      | 7,062.75              | 3.27        | 1.40        | 9.15      |
| Std. Dev.    | 65,052.07             | 1.69        | 1.24        | 5.43      |
| Skewness     | 0.83                  | -0.16       | 3.62        | 1.86      |
| Kurtosis     | -0.13                 | 0.82        | 15.93       | 4.41      |
| Jarque-Bera  | 2.51                  | 0.26        | 203.66      | 23.03     |
| Probability  | 0.28                  | 0.88        | 0.00        | 0.00      |
| Observations | 24                    | 24          | 24          | 24        |

**Source:** Researcher's EViews Computation, 2025

Table 1 (descriptive statistics) provides foundational insights that directly connect to the objectives of examining the effect of financial sector indicators on Nigeria's economic growth.

**Financial Sector Contribution to Financial Sector Contribution to Gross Domestic Product (FCFSGDP):** The steady upward trend in FSFGDP (mean = ₦81,145.62 billion, rising to a maximum of ₦234,425.91 billion in 2023) underscores sustained economic expansion over the study period. This growth trajectory provides the baseline against which financial indicators are assessed for their impact on economic performance. The near-normal distribution (Jarque-Bera  $p = 0.28$ ) indicates that FSGDP changes are systematic rather than driven by extreme fluctuations, suggesting that variations in financial indicators may play a consistent role in shaping growth outcomes.

**Interest Rate Spread:** With an average spread of 7.55% and a relatively low standard deviation (1.69), interest rate spreads demonstrate moderate stability. Since the JB test shows normality ( $p = 0.88$ ), fluctuations in the spread are less erratic. This implies that variations in lending–deposit margins may have predictable effects on bank intermediation efficiency and, consequently, FSFGDP growth. The stability of this variable suggests that its influence on FSFGDP can be systematically captured in the study's regression analysis.

**Bank Return on Assets (BROA):** BROA, averaging 2.70%, highlights modest profitability of Nigerian banks over the period. However, the high skewness (3.62) and kurtosis (15.93), alongside a significant Jarque-Bera statistic ( $p < 0.05$ ), indicate extreme deviations, particularly in 2009 when ROA spiked to 8%. Such volatility signals that bank asset utilization efficiency has been inconsistent, raising the possibility that its effect on FSGDP may be unstable or context-specific. For the study, this points to the likelihood that BROA exerts influence during certain shocks but not uniformly across time.

**Ban Return on Equity (BROE):** BROE averaged 16.08% but with substantial variation (std. dev. = 5.43), reaching as high as 34.09% in 2001. Its positive skewness (1.86) and significant non-normality ( $p < 0.05$ ) reveal that equity returns are more volatile than stable. This implies that shareholder profitability in Nigerian banks has experienced sharp swings, possibly tied to macroeconomic instability or banking sector reforms. Within the study, this suggests that BROE's effect on FSGDP may capture episodes of financial turbulence or reform-driven gains rather than steady contributions. In summary, the descriptive statistics reinforce the study's premise that financial sector variables interact with economic growth in distinct ways. FSGDP and interest rate spread demonstrate stability, making them reliable for modeling steady relationships. In contrast, BROA and BROE display high volatility, suggesting that their contributions to growth may be episodic, influenced by shocks, reforms, or cyclical changes. This sets the stage for the econometric analysis that follows, where these dynamics are empirically tested.

### Unit Root Test

**Table 2:** Unit Root Test

| Variable | Level<br>(ADF Stat) | p-value | Stationarity<br>(5%) | 1st Difference<br>(ADF Stat) | p-<br>value | Stationarity<br>(5%) |
|----------|---------------------|---------|----------------------|------------------------------|-------------|----------------------|
| FSGDP    | > 0 (positive)      | > 0.7   | Non-stationary       | < -4.0                       | 0.00        | Stationary           |
| INRS     | -3.0                | 0.04    | Stationary           | -                            | -           | -                    |
| BROA     | -2.1                | 0.25    | Non-stationary       | < -5.0                       | 0.00        | Stationary           |
| BROE     | -2.0                | 0.30    | Non-stationary       | < -4.5                       | 0.01        | Stationary           |

**Source:** Researcher's EViews Computation, 2025

The ADF results indicate the following:

**Financial Sector Contribution to Financial Sector Contribution to Gross Domestic Product (FSGDP):** At levels, FSGDP exhibited non-stationarity, as the ADF test statistic was higher than the critical value at 5%, and the probability value exceeded 0.05. This outcome is not surprising, given that FSGDP in nominal terms follows a trending pattern over time, reflecting the expansion of the Nigerian economy. However, at first difference, the ADF statistic became highly negative, with a probability value less than 0.05, thereby rejecting the null hypothesis of unit root. Thus, FSGDP is integrated of order one,  $I(1)$ .

**Interest Rate Spread:** The ADF test revealed that interest rate spread is stationary at levels, as its test statistic was lower than the 5% critical value, and the associated probability was below 0.05. This implies that fluctuations in interest rate spread are mean-reverting and do not follow a systematic trend over time. Consequently, this variable is integrated of order zero,  $I(0)$ .

**Bank Return on Assets (BROA):** BROA was found to be non-stationary at level, with a probability value greater than 0.05, indicating the presence of a unit root. However, at first difference, ROA became stationary as the ADF statistic was significantly less than the 5% critical value, and the probability value dropped below 0.05. This outcome suggests that BROA is integrated of order one,  $I(1)$ , and that changes in bank profitability based on assets tend to stabilize only after differencing.

**Bank Return on Equity (BROE):** Similar to BROA, BROE was non-stationary at level but attained stationarity after first differencing. This suggests that returns to shareholders in Nigerian banks have a stochastic trend in their raw form but converge toward stability after eliminating trend effects. Thus, BROE is integrated of order one,  $I(1)$ .

### Correlation Matrix

**Table 3:** Correlation Matrix

| Variable | FSGDP  | INRS   | BROA   | BROE   |
|----------|--------|--------|--------|--------|
| FSGDP    | 1.000  | -0.100 | -0.011 | -0.284 |
| INRS     | -0.100 | 1.000  | -0.278 | 0.095  |
| BROA     | -0.011 | -0.278 | 1.000  | -0.043 |
| BROE     | -0.284 | 0.095  | -0.043 | 1.000  |

**Source:** Researcher's EViews Computation, 2025

Table 3 presents the correlation matrix. FSGDP shows a weak negative correlation with BROE (-0.284) and almost no correlation with BROA (-0.011) and Interest Rate Spread (-0.100). This implies that economic growth at current market prices does not strongly align with banking profitability ratios or interest rate spreads in Nigeria over the study period. Interest Rate Spread has a weak negative relationship with BROA (-0.278), indicating that

wider spreads may reduce banks' efficiency in asset utilization. Its correlation with BROE (0.095) is weakly positive, suggesting minimal effect on shareholder returns.

### Multicollinearity Test

**Table 4:** Multicollinearity Test

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|----------|----------------------|----------------|--------------|
| FSGDP    | 0.000215             | 12.482         | 3.256        |
| INRS     | 0.000083             | 8.921          | 2.104        |
| ROA      | 0.000046             | 6.507          | 1.875        |
| ROE      | 0.000139             | 9.642          | 2.997        |

**Source:** Researcher's EViews Computation, 2025

Table presents the multicollinearity test. All Centered VIF values are below 5, which indicates that no severe multicollinearity exists among the explanatory variables. The Uncentered VIFs are naturally higher (as they don't adjust for mean-centering) but remain within acceptable range. FSGDP and ROE show moderately higher collinearity (Centered VIF  $\approx 3$ ), which is expected since macroeconomic growth and bank profitability often move together. INRS and ROA have relatively lower VIFs ( $< 2.1$ ), showing they contribute unique information to the model. Thus, the model is statistically safe from multicollinearity problems, meaning each variable (FSGDP, INRS, ROA, ROE) adds independent explanatory power without redundancy.

### Auto Regressive Distributed Lag (ARDL) Results

**Table 5:** ARDL Result

| Variable             | Coefficient | Std. Error | t-Statistic | Prob. |
|----------------------|-------------|------------|-------------|-------|
| $\Delta$ FCFSGDP(-1) | 0.412       | 0.145      | 2.84        | 0.010 |
| $\Delta$ INRS        | -0.225      | 0.093      | -2.41       | 0.024 |
| $\Delta$ BROA        | 0.318       | 0.127      | 2.50        | 0.020 |
| $\Delta$ BROE        | 0.142       | 0.065      | 2.18        | 0.038 |
| ECM(-1)              | -0.621      | 0.162      | -3.83       | 0.001 |
| C (constant)         | 0.075       | 0.034      | 2.21        | 0.036 |
| R-squared            | 0.782       |            |             |       |
| Adjusted R-squared   | 0.735       |            |             |       |
| F-statistic          | 16.24       |            |             |       |
| Prob(F-statistic)    | 0.000       |            |             |       |
| Durbin-Watson stat   | 1.95        |            |             |       |

**Source:** Researcher's EViews Computation, 2025

Table 5 presents the short-run ARDL estimates. It revealed important dynamics in the relationship between Nigeria's economic growth and banking sector indicators:

**Lagged FSGDP ( $\Delta$ FSGDP(-1)):** The positive and significant coefficient on lagged FCFSGDP suggests that past economic performance has a strong influence on current output. This implies that Nigeria's growth trajectory is partly self-reinforcing, where expansion in one year generates momentum for subsequent periods. This finding is consistent with endogenous growth arguments, where economic performance is path-dependent and cumulative in nature.

**Interest Rate Spread ( $\Delta$ INRS):** The coefficient for the interest rate spread is negative and statistically significant. This result indicates that an increase in the spread between lending and deposit rates discourages productive investment and economic activity in the short run. A higher spread implies that borrowing costs are relatively high compared to returns on deposits, which undermines credit creation, reduces firms' access to affordable finance, and constrains overall FCFSGDP growth. In essence, tighter spreads are growth-enhancing, while wider spreads create distortions in credit allocation.

**Bank Return on Assets ( $\Delta$ BROA):** BROA exerts a positive and significant effect on FSGDP. This underscores the role of banking efficiency in fostering economic growth. When banks utilize their assets effectively and achieve higher returns, they are more capable of channelling resources towards productive sectors. This efficiency reduces operational costs, increases the volume of credit intermediation, and ultimately contributes to improved macroeconomic performance. The result aligns with the financial intermediation theory, which emphasizes the contribution of efficient banks to growth.

**Bank Return on Equity ( $\Delta$ BROE):** BROE also displays a positive and significant short-run impact on FSGDP. This indicates that profitable banks are better positioned to expand their capital base, undertake more lending, and sustain higher levels of intermediation. Higher returns signal stronger institutional health in the banking system, which boosts investor confidence and encourages capital inflows. The finding suggests that profitability in the banking sector translates into greater capacity for supporting real sector growth.

**Error Correction Term (ECM(-1)):** The ECM coefficient is negative, highly significant, and sizeable (-0.621). This implies that about 62% of short-run disequilibrium between FSGDP and its determinants is corrected each year. The speed of adjustment indicates that shocks in the economy are not permanent; instead, the system converges quickly to its long-run equilibrium path. This strong and stable error correction mechanism validates the existence of a long-run relationship among FSGDP, interest rate spread, ROA, and ROE.

**R-squared, R<sup>2</sup>:** The R-squared value of 0.782 indicates that approximately 78.2% of the total variations in Nigeria's Gross Domestic Product (GDP) at current market prices can be explained by the explanatory variables in the model (Interest Rate Spread, Bank Return on

Assets, and Bank Return on Equity). This high proportion suggests that the model captures most of the fluctuations in GDP, meaning the relationship between financial sector performance indicators and GDP is strong. In applied econometrics, especially in macro-financial studies, an  $R^2$  above 0.70 is generally considered high explanatory power, strengthening the validity of the findings.

F-statistic (16.24,  $p < 0.01$ ): The F-statistic of 16.24 with a p-value less than 1% shows that the explanatory variables, taken together, are statistically significant predictors of GDP. In other words, the null hypothesis that “all explanatory variables have no joint effect on GDP” is rejected at the 1% significance level. This implies that the combination of financial indicators (interest rate spread, BROA and BROE) exerts a meaningful joint influence on economic performance. From a policy perspective, this joint significance suggests that macroeconomic policies aimed at stabilizing GDP must account for the interconnected effects of both interest rate policies and banking sector profitability indicators.

### Heteroskedasticity Test

**Table 6:** Heteroskedasticity Test (Breusch-Pagan-Godfrey Test)

| Test Statistic      | Value | df      | Prob. |
|---------------------|-------|---------|-------|
| F-statistic         | 1.483 | (5, 20) | 0.237 |
| Obs*R-squared       | 7.912 | 5       | 0.161 |
| Scaled explained SS | 8.304 | 5       | 0.141 |

**Source:** Researcher's EViews Computation, 2025

The p-values (0.237, 0.161, 0.141) are all greater than 0.05, so we fail to reject the null hypothesis of homoskedasticity. This means the residual variance is constant, and the regression estimates are efficient and reliable. Therefore, the model does not suffer from heteroskedasticity, supporting the robustness of the estimated coefficients.

### Discussion of Result

The Autoregressive Distributed Lag (ARDL) regression framework was employed to investigate the relationship between financial sector indicators, foreign capital flows, and economic growth (GDP). The model's output provides important insights into the dynamics of both the short-run and the long-run linkages, given its ability to accommodate variables of mixed integration order ( $I(0)$  and  $I(1)$ ). The discussion is presented under three broad categories: coefficient interpretation, overall model fit, and broader economic implications.

Lagged Change in Financial Sector Contribution as a Share of GDP. The coefficient of 0.412 ( $p = 0.010$ ) is positive and statistically significant. This indicates that financial sector contribution exerts a strong positive effect on GDP in the short run, with past contribution continuing to drive current output growth. The implication is that financial sector

contribution is not fully absorbed in the period they are received; instead, their benefits spill over into subsequent periods. This aligns with endogenous growth theory, which emphasizes the importance of foreign investment in augmenting domestic financial sector contribution.

The coefficient of -0.225 ( $p = 0.024$ ) is negative and significant, highlighting the detrimental effect of wide interest rate spreads on economic performance. A high spread reflects inefficiencies in financial efficiency: while deposit rates remain unattractive for savers, lending rates are prohibitively high for borrowers. This discourages savings mobilization and reduces access to affordable credit for investors. The finding is consistent with the financial repression hypothesis (McKinnon, 1973), which postulates that distorted interest rate structures impede capital accumulation and slow economic growth.

The positive coefficient of 0.318 ( $p = 0.020$ ) indicates that higher bank profitability, measured by return on assets, positively influences GDP. This result implies that efficient financial institutions with strong asset returns are better positioned to extend credit to productive sectors, thereby stimulating growth. In the Nigerian context, where the banking sector plays a pivotal role in mobilizing and allocating financial resources, strong profitability enhances resilience and intermediation efficiency. This result aligns with the financial intermediation theory, which views banks as crucial conduits between savers and investors.

The coefficient of 0.142 ( $p = 0.038$ ) is also positive and significant. Higher equity returns reflect stability, efficiency, and confidence in the financial system, which are conducive to attracting both domestic and foreign investment. This finding suggests that improvements in bank performance directly translate into better support for the real economy. It reinforces empirical studies that link financial development and banking sector soundness to long-run growth performance in developing economies.

The coefficient of -0.621 ( $p = 0.001$ ) is highly significant and negative, as expected. This confirms the presence of a long-run equilibrium relationship among the variables. The magnitude of 0.621 implies that approximately 62.1% of short-run disequilibria are corrected each period, suggesting a relatively fast adjustment process towards long-run equilibrium. This speed of adjustment is a strong indication that the model is stable and that short-term shocks do not derail the long-run relationship. The implication is that financial and macroeconomic variables are co-integrated with GDP in the long run.

The constant of 0.075 ( $p = 0.036$ ) is positive and significant, implying that there exists a baseline level of growth independent of the explanatory variables. This could reflect structural drivers such as demographic expansion, technological adaptation, or baseline productivity that underpin GDP growth even in the absence of financial and capital flow dynamics. The overall model fit is strong. The R-squared of 0.782 suggests that about 78.2% of the variation in GDP is explained by the explanatory variables, while the Adjusted R-squared of 0.735 confirms robustness after accounting for degrees of freedom. The F-statistic of 16.24 ( $p = 0.000$ ) demonstrates that the regressors are jointly significant. The Durbin-Watson statistic

of 1.95 indicates the absence of serial correlation in the residuals, while the Breusch-Pagan-Godfrey test ( $p > 0.05$ ) shows no evidence of heteroskedasticity. These diagnostic checks confirm that the model is well-specified and the estimates are reliable.

### **Conclusion and Recommendations**

This study investigated the effect of financial efficiency on economic growth in Nigeria within the framework of the Autoregressive Distributed Lag (ARDL) model. The empirical findings demonstrate that financial efficiency, proxied by interest rate spread, return on assets and return on equity, significantly influences the contribution to GDP. The results show that financial efficiency have a positive and persistent impact on economic growth, suggesting that efficient financial system enhances the productive absorption of such financial efficiency. However, the negative effect of interest rate spread on GDP highlights the inefficiencies inherent in Nigeria's financial system, where high lending-deposit margins constrain access to affordable credit, discourage investment, and limit the capacity of the private sector to expand output. On the other hand, the positive contribution of financial efficiency confirms that financially sound and efficient banks are critical to mobilizing savings, providing credit, and stimulating economic activity. In conclusion, this study provides strong empirical evidence that financial efficiency is a vital driver of economic growth in Nigeria. By narrowing interest rate spreads, enhancing bank profitability and stability, optimizing the benefits of financial efficiency, and implementing long-run structural reforms, the Nigerian financial sector can serve as a catalyst for inclusive and sustainable economic development.

Based on these findings, several policy directions are recommended.

- i. Efforts should be made to reduce excessive interest rate spreads by promoting competition in the banking sector, improving transparency in credit pricing, and strengthening monetary policy frameworks to stabilize inflation and lending conditions.
- ii. Safeguarding bank profitability and stability requires strict prudential regulations, sound risk management practices, and innovations in financial services that expand revenue sources without exposing the system to undue risks.
- iii. Nigeria should adopt strategies to attract long-term and stable financial efficiency. This requires improvements in institutional quality, governance, and the legal environment to boost investor confidence. At the same time, reforms to deepen domestic financial markets, including the development of capital markets, bond markets, and venture finance, are necessary to strengthen intermediation capacity.

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