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Deposit Money Banks' Credit Facilities and Private Sector Investment: The Role of Institutions in Nigeria

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Abstract

The study investigates the influence of deposit money banks' credit facilities and institutional quality on private sector investments in Nigeria from 1984 to 2024. It emphasizes that access to finance and reduced investment risks—achieved through the interaction between bank credit and institutional quality—are crucial for stimulating private investment. Using data from the World Development Indicators (WDI), World Governance Indicators (WGI), and the Central Bank of Nigeria, the study analyzes variables such as credit to the private sector, institutional quality index, their interaction, total private investment, lending rates, and government capital expenditure. Employing the Autoregressive Distributed Lag (ARDL) model, the findings reveal that credit to the private sector, its interaction with institutional quality, and government capital expenditure have significant and positive effects on private investment in both the short and long term. Although institutional quality alone shows a positive impact, its effect is relatively weak. Conversely, lending rates exert a significant negative influence on private sector investment. The study concludes that the synergy between bank credit and institutional quality is essential for enhancing private investment in Nigeria. To foster growth in the private sector, it recommends that deposit money banks offer more accessible and investor-friendly financial services. Additionally, strengthening institutional frameworks is necessary to mitigate investment risks and build investor confidence. Together, these measures are expected to significantly boost private sector investment and contribute to Nigeria's economic development.

Keywords: *Money Banks' Deposit, Credits to private sector, Private Investment, Institutional Quality, Nigeria, ARDL Process*

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Background to the Study

The pivotal role of deposit money banks' credit facilities in stimulating private sector investment in Nigeria cannot be overstated, as it is a crucial driver of economic growth and development (Levine, 2005; Beck *et al.*, 2000). However, the effectiveness of these credit facilities is severely hampered by Nigeria's weak institutional framework, which perpetuates a cycle of low credit access, high interest rates, limited investment opportunities and economic growth (North, 1990; Acemoglu, *et al.*, 2001; Nnanna, *et al.*, 2020; Adegbite & Ayeni, 2022).

In Nigeria, deposit money banks' loan facilities have been identified as a significant factor in promoting private sector investment (Olofin & Salami, 2015; Iyola & Oriakhi, 2022). The deposit money banks provide loanable facilities for private businesses, thereby facilitating their investments and expansion plans (Levine, 2005; Beck, *et al.*, 2000), as well as reducing information asymmetry between borrowers and lenders, enabling private businesses to access credit at lower costs (Stiglitz & Weiss, 1981). Additionally, deposit money banks provide advisory services to private sector investors as well as mitigate risk (Berger & Udell, 2002). The Central Bank of Nigeria's (CBN's) financial inclusion strategy has increased access to credit for individuals and businesses, particularly in rural areas (Demirguc-Kunt, *et al.*, 2018). As a result, 64 percent of the adult population now has access to financial services (CBN, 2020). Credit facilities have supported agricultural development, increasing lending to the sector by 34.6 percent in 2020 (CBN,2020). This has enabled farmers to expand production, improving food security and reducing import dependence (Adegbite & Ayeni, 2022). Furthermore, Deposit money banks' credit facilities have supported small and medium-scale enterprises (SMEs), promoting entrepreneurship and job creation (Klapper, *et al.*, 2015). Credit facilities have enabled SMEs to compete effectively with larger businesses, driving economic growth (Olofin & Salami, 2020).

However, the impact of credit facilities on private sector investment is hindered by various institutional challenges, including regulatory inefficiencies, corruption, and inadequate financial infrastructure (Iyola & Oriakhi, 2015; Nnanna, *et al.*, 2017; Nwosu *et al.*, 2020; Olawale, *et al.*, 2023; CBN, 2020). Macroeconomic instability affects credit facilities through inflation, exchange rate volatility and interest rate fluctuations. Regulatory challenges, including complex requirements and frequent policy changes, also hinder credit growth. Risk aversion due to high non-performing loans (NPLs) limits credit expansion. Infrastructure deficits increase credit risks, while corruption, governance, high interest rate and insufficient collateral issues affect credit allocation and utilization (Merton & Bodie, 1995; Iyoha & Oriakhi, 2022).

The role of institution in facilitating credit access and private sector investment is well documented in the literature (North, 1990; Acemoglu, *et al.*, 2001; Rodrik, *et al.*, 2004). Institution provides the framework for economic activities, influencing the behavior of economic agents and the allocation of resources (North, 1990). In the context of deposit money banks' credit facilities, institutions determine the availability, affordability and accessibility of credit to the private sector (Beck, *et al.*, 2003). In addition, Nigeria's institutional framework has contributed to financial development through effective monetary

policy implementation and financial regulation (CBN, 2020), foster financial inclusion initiatives through programs like the National Financial Inclusion Strategy (NFIS) which have expanded access to financial services (CBN,2020).

However, Nigeria's institutional framework is plagued by weak governance and corruption (Acemoglu & Robinson, 2012). The Country ranked 146 out of 180 in Transparency International's Corruption Perceptions Index (2020). Corruption undermines institutional effectiveness, discourages investment and hampers economic growth (Oyedele,2020). Nigeria's regulatory framework is often inadequate, inconsistent and poorly enforced, and this create uncertainty for investors and business, hence hindering economic growth. Consequently, the study aims to investigate the impact of deposit money banks' credit facilities and institutional quality on private sector investment in Nigeria.

Research Questions:

1. What is the nature of relationship between banks' credit to the private sector and private investment in Nigeria?
2. How does institutional quality influence private sector investment?
3. How does credit to private sector and institutional quality interaction impact on private investment in Nigeria.

Study Objectives:

The primary objective of the study is to examine the influence of banks' credit facilities, institutional quality, and their interaction on private sector investment. Therefore, the study is specifically set out to:

1. Examine the effect of banks' credit to private sector on private investment,
2. Assess the impact of institutional quality on private investment, and
3. Investigate the influence of credit to private sector-institutional quality interaction on private investment in Nigeria.

Review of Related Literature

Theoretical Review

The relationship between deposit money banks' credit facilities and private sector investment in Nigeria is complex and influenced by various institutional factors. This literature review examines the theoretical frameworks and empirical evidence about the impact of deposit money banks' credit facilities on private sector investment, with consideration of the role of institutional environment in greasing credit allocation.

a) Financial Development Theory

The theory of financial development was developed by Shaw and McKinnon in 1973. According to this theory, financial liberalization has a positive effect on economic growth rates as interest rates and exchange rates move towards market equilibrium if resources are efficiently allocated. According to them, positive real deposit rates increase savings, deepen financial activities, and raise investment, thereby increasing growth. Using two hypotheses, the theory examined the functional relationship between economic growth and financial

development: a demand-leading hypothesis argued that economic growth drives financial development (Patrick, 1966) and a supply-led hypothesis posits that financial development precedes economic growth and also emphasized the general expansion of the financial system leading to economic growth. Patrick (1966) argues that financial development follows economic growth in terms of financial services demand. Mckinnon (1973) financial development through liberalization leads to financial markets unification, and the best strategy is to freely float interest and exchange rate (Shaw, 1973; Kisaka, *et al*. 2015). Besides, Romer (1986) affirmed that financial development and economic growth are interdependent. While Abbas & Mustifa (2022), Bist (2018), Guru and Yadav (2018), Puatwoe and Serge (2017), Khan and Senhadji (2020) affirmed on the long-run relationship between bank's credit and economic growth.

Factors Influencing Financial Development:

1. Institutional Framework: Strong institutions promote financial development, (North, *et al*. 2019) emphasized the importance of institutional quality in facilitating financial development while Beck, *et al*. (2020) find that institutional strength is positively correlated with financial depth.
2. Macroeconomic Stability: Low inflation and stable exchange rates support financial development (Fischer, 1995), IMF (2020) highlights the importance of macroeconomic stability for financial innovation and development. Ghosh, *et al*. (2019) show that low inflation and stable exchange rate promote financial inclusion
3. Financial Innovation: New financial instruments and technologies drive financial development: Merton and Bodie (2019) discuss the role of financial innovation in promoting financial development while Frame, *et al*. (2020) examine the impact of fintech on financial inclusion
4. Globalization and Trade: openness to trade and investment facilitates financial development; Kose, *et al*. (2019) find that globalization promotes financial development and Rodrik (2018) highlights the importance of trade openness for financial sector growth.
5. Human Capital: education and financial literacy promote financial development; Beck, *et al*. (2018) indicates that human capital is positively correlated with financial development and Atkinson and Messy (2019) emphasize the importance of financial literacy for financial development.
6. Regulatory Framework: Effective Regulatory policies on financial sector development is crucial for financial development; Barth, *et al* (2019) and Ioannidou, *et al*. (2020) find that effective regulation promotes financial sector stability.

b) Acceleration Theory of Investment

The Acceleration theory of investment also known as the Accelerator Principle is a model in economics that explains how investment decisions are made in response to change in economic activity. The theory of investment remains a fundamental thinking for understanding investment decisions and business cycles. Gbanador (2007) asserted that the accelerator theory of investment operates on the root of fixed capital to output ratio, which means, in order to produce marginal outputs of goods and services, firms must adjust

investments to meet changing demand. It is assumed that firms need to maintain relatively fixed ratio between their current output production and their existing stock of fixed capital assets.

Acceleration theory emphasized on the key principles:

i. Induced investment: investment responds to changes in economic activity.
ii. Acceleration effect: investment accelerates or decelerates with output growth
iii. Non-Linear relationship: small changes in output lead to large investment responses (Dixit & P indyck, 1994)

Empirical Review

Amadi, *et al*. (2024) empirically evaluated the effect of deposit money banks' credit on private sector investment in Nigeria with data set from 1981 to 2021 using ADF and Autoregressive Distributed Lag technique. The result showed that there is a positive and significant effect of deposit money banks' credit on private investment. Adejumo, *et al*. (2024) did a cross-sectional study of 30 deposit banks using multi-regression analysis and structural equation model (SEM) to check the nexus between deposit money banks' credit facilities and private sector development in Nigeria from 2015 to 2022. The results indicated that under the regression analysis, credit volume and credit-to-deposit ratio positively impacted private sector development while interest rate negatively impacted growth and this is consistent with the structural equation model. Evaluating the impact on private sector investment of credit to private sector, Okorie and Chikwendu (2019) applied ARDL model of analysis and found positive and significant impact from credit to private sector to investments in the sector in the short-run, while the long run output revealed positive but insignificant impact from private sector credit to Nigeria's private investment.

Oladosu and Oyeladun (2020) empirically determined how real sector growth in Nigeria is influenced by credit to the private sector, using regression techniques on annual data sets from 1986 to 2018. As a result, Nigeria's real sector growth has been significantly influenced by credit to the private sector. Afolabi, *et al* (2022) examined the impact of financial sector development and Nigeria's manufacturing industry using data from 1991-2020. The study utilized autoregressive distributed lag model (ARDL) and found money supply had a significate positive impact on the manufacturing sector while private sector credit, and prime lending rate had a negative but significant impact on the manufacturing sector output. Ademola (2023) focused on the determinants of deposit money banks' credit to manufacturing sector in Nigeria, Augmented Dicky-Fuller Test (ADF) and Autoregressive Distributed Lag (ARDL) were used on annual data from 1986 to 2021. The result indicated that prime lending rate and inflation had positively significant effects in the short run and negative in the long run while liquidity ratio affected banks' credit negatively both in the short and in the long run. Idachaba, *et al* (2019) explored the influence of banks' credits on the Nigerian economy from 1980 to 2017. The cointegration test affirmed a positive and significant relationship.

Ademola and Adekunle (2022) examined the effects of monetary policy instruments on the allocation of credit to small and medium sized enterprises by deposit money banks during the period 1991 to 2020. An auto-regressive distributed lag bounds test was conducted on the data. Results of the study revealed that credit to rural SME's and its determinants had a positive and significant effect on the private sector in the long run, whereas money supply had a positive and significant effect on the private sector. Using annual data from 1981 to 2021, Maimuna and Ngele (2023) estimated the empirical impact of loans on private sector growth. The findings of the study revealed that in the long run, the private sector, the lending rate and the assets of deposit money banks were cointegrated with growth. Ighoroje and Akpokereke (2022), the correlation between bank credit facilities and the performance of small and medium-sized enterprises in Nigeria was examined using bank loans, bank advances, and bank overdrafts. According to the study, bank credit extension contributes significantly to the performance of SMEs, provided that the cost of credit and deposit rates are reduced, which is in accordance with the study completed by Agboola, *et al* in 2021.

Nafiu and Sopelola (2024) utilized ARDL model on data from 1992 to 2022 to investigate the long run and short run relationship between credit financing and the growth of small and medium enterprises in Nigeria. They concluded that bank credit to SMEs had positive and insignificant impact on the SMEs growth. This disagrees with the study of Osabohie, Mordi and Ogundipe (2020), who focused on the agricultural sector and access to bank credit. The study concluded that commercial bank credit significantly increased agricultural sector performance.

Zaagha and Ebike (2020) argued on the relationship between deposit money bank policy and private sector funding in Nigeria. The study was evaluated using parsimonious error correction model in a data set from 1985 to 2018. The study highlighted that deposit money banks policy has no significant effect on credit to private sector and credit to core private sector, but have significant relationship with credit to small and medium scale enterprises. Ogbonna, *et al* (2021) used regression analysis on the data from 2015 to 2020 to analyze the impact of deposit money banks' credit facilities on private sector growth in Nigeria, the result affirmed that there is significant impact of deposit money banks' credit facilities on private sector growth. Also, Egwaikhide, *et al* (2021) employed a systematic review of thirty studies and content analysis to examine the relationship between bank credit and private sector development in Nigeria, the study agreed that there is a significant impact of bank credit on private sector development in Nigeria, other studies that argued in favour are (Okoroafor, 2019; Akpan, 2017) while Olowe (2015) assessed the effectiveness of bank credit facilities in Nigeria with survey questionnaire and interviews in an sample of 300 respondents with bank officials and private sector operators. The result indicated that bank credit facilities are inadequate for private sector development due to high interest rates, collateral requirement and bureaucratic loan application process.

Does macroeconomic and credit policies matter for investment? Shakour (1990) argued on the effect of macroeconomic policies on investment for group of developing countries using strategic review. The study emphasized on the important role of policies on investment and

saving. Adeyemi (2020) using descriptive statistics and thematic analysis on 200 respondents tried to evaluate the effectiveness of government policies on bank credit facilities for private sector development. The study concluded that government policies had moderate impact on bank credit facilities to private sector development, policy inconsistencies, inadequate infrastructure and corruption hinder effective implementation. IMF (2023) focused on the interrelationship between monetary policy and credit policies and how it affects firm-level investment in China macro economy. Also, Sinha & Shastri (2023) employed the Autoregressive Distributed Lag (ARDL) bounds test to check the long-run relationship between financial development on domestic investment. The finding suggests positive short-run and long-run impact of financial development on investment in an Indian economy.

Other studies have focused on whether institutional framework matter for investment. Ali, Fiess and MacDonald (2008) tried to answer the question "does institutional matter for foreign direct investment" with large panel of 107 countries during 1981 and 2005 using a novel data set. The finding indicates that institution does not matter for FDI in primary sector but institutional quality matters for FDI in manufacturing and service sector. Other studies that agreed the institutional framework is important for investment are (Chipo, *et al*. 2022; Hayat, 2017; Farole & Winkler,2012; Jude & Levieuge, 2015; Ali, Fiess and MacDonald, 2010). On the contrast, Donu and Janíčko (2018) empirically answered the question "Do institutions still matter for investors? Using selected 35 European countries on a dataset from 2000 to 2015. The study employed a fixed effects and generalized method of moments model. The result showed that macroeconomic fundamentals matter more than do institutional factors. While Grigoli and Mills (2014) added that quality of governance and infrastructure matter for investment alongside institutional framework. Danjuma and Sardaram (2024) explored the role institution play on determining investment and economic growth with 37 SSA Countries from 1996 to 2017 using dynamic panel data model for developing countries in Asia, Europe and Latin America. The result confirmed that the measures of institutional variables and their interaction with investment have a positive and significant impact. Beside this study, Khanna and Zyla (2024) emphasized that corporate governance is critical factor in emerging market investment decisions.

Data and Method

This study examined the effects of deposit money banks' credit facilities and institutional quality on private sector investment in Nigeria by employing annual time series data encompassing the period. 1984 to 2024. Private sector investment is measured by total private investment (in billion naira) in Nigeria. Deposit money banks' credit facilities is measured by the ratio of bank credit to the private sector to GDP (%), which is an indicator of the banking sector's role in facilitating investments and economic activities in the private sector of Nigeria through credit extension. The institution is captured as composite institutional quality index, and the multiplicative product of banks' credit to private sector and institutional quality index is employed as the interactive variable while interest rate and government capital expenditure are introduced as supportive variables in the empirical analysis to account for the influence of associated policy variables that could affect the volume of private investment in Nigeria. These factors among others have been identified as important determinants of private investment

(Oladosu & Oyeladun, 2020; Chipo, *et al*. 2022). Table 3.1 below provides summarized information on all variables:

Table 1: List of Variables

Variables	Definitions	Sources
PIVN	Total private investment (₦'B)	World Development Indicators (WDI), World Bank
CPS	Credit to private sector by deposit money banks (% of GDP)	World Development Indicators (WDI), World Bank
IQN	Institutional Quality Index	World Governance Indicators (WGI), World Bank
CPS*IQN	Credit to private sector interaction with institutional quality index: Generated as multiplicative product of both variables.	Generated, Using Data from World Development Indicators (WDI), World Bank and World Governance Indicators (WGI), World Bank
LDR	Interest rate, utilized as deposit banks' lending rate.	Central Bank of Nigeria (CBN) Statistical Bulletin
GCX	Government capital expenditure (₦'B)	Central Bank of Nigeria (CBN) Statistical Bulletin

Source: Researchers' Preparation, (2025)

Model Specification

The analytical framework of this study is hinged on Financial Development Theory. Empirically, the econometric model of this study is adapted from the model of Chipo, *et al*. (2022) with slight modifications in order to incorporate all the variables in line with the broad and specific objectives of this study. The modified model is stated as follows:

Functional Model

$$PIVN = f(CPS, IQN, CPS * IQN, LDR,\ GCX) \quad (1)$$

Mathematical Model

The functional relationship in Equations (1) is adjusted to mathematical form as follows:

$$PIVN = \beta_0 + \beta_1 CPS + \beta_2 IQN + \delta_3 CPS * IQN + \beta_4 LDR + \beta_5 GCX \quad (2)$$

Econometric Model

The expression in Equation (2) is restated explicitly to include the error term, thus:

$$PIVN = \beta_0 + \beta_1 CPS + \beta_2 IQN + \delta_3 CPS * IQN + \beta_4 LDR + \beta_5 GCX + u_t \quad (3)$$

The preceding Equation (3) is stated in log linear form as follows:

$$InPIVN = \beta_0 + \beta_1 InCPS + \beta_2 InIQN + \delta_3 InCPS * IQN + \beta_4 InLDR + \beta_5 InGCX + u_t \quad (4)$$

Where:
PIVN = Total private investment, *CPS* = Credit to private sector, *IQN* = Institutional quality index, *CPS*IQN* = Credit to private sector interaction with institutional quality index, *LDR* = Lending rate, *GCX* = Government capital expenditure, β_0 = Regression Intercept, β_1 - β_5 = Parameters of independent variables (deposit money banks' credit facilities and institutional quality), μ_t = Disturbance or error term

A Priori Expectation
The expected relationship between proxies of deposit money banks' credit facilities and institutional quality (Credit to private sector, institutional quality index, private sector credits' interaction with institutional quality index, lending rate and government capital expenditure) and the measure of private sector investment (total private investment) in this study are mathematically stated as: $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 < 0, \beta_4 > 0$.

Data Analysis Techniques
For the purpose of this study, the ARDL bounds cointegration test is employed to determine existence of cointegration among the proxies of the dependent variable and the independent variables (regressors). According to Pesaran, Shin and Smith (2001), bounds cointegration test can be used to test for cointegration in a mixture orders of I(0) and I(1) variables. Furthermore, the long-run and short-run estimations are conducted using the Autoregressive Distributed Lag (ARDL) technique. The Autoregressive Distributed Lag (ARDL) technique is a popular econometric approach used to model the relationship between a dependent variable and one or more independent variables both in the short and long-run. The ARDL approach is particularly useful in this study since all the variables in the model are integrated at different orders, meaning some variables are stationary at level I(0) and others at first difference I(1). Therefore, the fitted single Autoregressive Distributed Lag (ARDL) long-run and short-run model for this study is presented below.

$$\begin{aligned}\Delta ln(PIVN_t) = {} & \delta_o + \beta_{1i}\Delta ln(PIVN_{t-1}) + \beta_{2i}\Delta ln(CPS_{t-1}) + \beta_{3i}\Delta ln(IQN_{t-1}) \\ & + \beta_{4i}\Delta ln(CPS * IQN_{t-1}) + \beta_{5i}\Delta ln(LDR_{t-1}) + \beta_{6i}\Delta ln(GCX_{t-1}) \\ & + \sum_{t=1}^{p} \alpha_{1i}\Delta 1n(PIVN_{t-1}) + \sum_{t=1}^{q} \alpha_{2i}\Delta 1n(CPS_{t-1}) + \sum_{t=1}^{p} \alpha_{3i}\Delta 1n(IQN_{t-1}) \\ & + \sum_{t=1}^{q} \alpha_{4i}\Delta 1n(CPS * IQN_{t-1}) \sum_{t=1}^{q} \alpha_{5i}\Delta 1n(LDR_{t-1}) + \sum_{t=1}^{P} \alpha_{6i}\Delta 1n(GCX_{t-1}) \\ & + \lambda ECT_{t-1} + \varepsilon_{1i} \qquad (5)\end{aligned}$$

Where: *In* = Natural log, Δ = Difference operator, t-1 = Time lag; δ_0 = Constant variables, $\beta_1 - \beta_6$ = Long-run dynamic coefficients of the model, $\alpha_1 - \alpha_6$ = Short-run dynamic coefficients of the model, λ = coefficient of the error correction term, ECT = the error correction term, ε_{1i} = Serially uncorrelated stochastic term with zero mean and constant variance.

Data Analysis and Discussion

Table 2: Descriptive Statistics

	$InPIVN_t$	$InCPS_t$	$InIQN_t$	$InCPS * IQN_t$	$InLDR_t$	$InGCX_t$
Mean	9099.843	10313.35	3.601463	32305.48	17.62585	862.9832
Median	8827.910	1421.660	3.300000	4438.437	17.50000	498.0300
Maximum	17354.92	61580.93	9.280000	212454.2	29.80000	5157.460
Minimum	2017.220	12.46000	0.040000	5.607000	9.250000	4.100000
Std. Dev.	3139.374	15162.92	2.240777	52739.91	4.198624	1165.655
Skewness	0.282531	1.746415	0.450118	1.926646	0.623168	2.212771
Kurtosis	3.834441	5.620797	2.424287	6.020860	3.952137	7.748760
Jarque-Bera	1.734962	32.57525	1.950693	40.95465	4.202361	71.98259
Probability	0.420008	0.000000	0.377062	0.000000	0.122312	0.000000
Sum	373093.6	422847.5	147.6600	1324525.	722.6600	35382.31
Sum Sq. Dev.	3.94E+08	9.20E+09	200.8433	1.11E+11	705.1376	54350035
Observations	41	41	41	41	41	41

Source: Authors' Computation, 2025.

As presented in Table 2, total private investment (PIVN) has a mean value of N9099.84 billion with a maximum of N17354.92 billion and minimum of N2017.22 billion per annum. The standard deviation of total private investment (PIVN) is N3139.37 billion and this indicates that total private investment (PIVN) has high level of dispersion from the mean over the study period. In addition, credit to private sector (CPS) recorded over the study period a mean value of N10313.35 billion with a maximum of N61580.93 billion and minimum of N12.46 billion per annum. The standard deviation of credit to private sector (CPS) is N15162.92 billion and this also shows that credit to private sector (CPS) has high dispersion from the mean over the research time period. Furthermore, institutional quality index (IQN) recorded over the period a mean value of 3.6% with a maximum of 9.28% and minimum of 0.04% per annum. The standard deviation of institutional quality index (IQN) is 2.24% and this indicates that institutional quality index (IQN) has low dispersion from the mean. Moreover, credit to private sector interaction with institutional quality index (CPS*IQN) has a mean value of N32305.48 billion with a maximum of N212454.2 billion and minimum of N5.61 billion per annum. The standard deviation of credit to private sector interaction with institutional quality index (CPS*IQN) is N52739.91 and this indicates that the interaction variable (CPS*IQN) has high deviation from the mean over the study period. Also, lending rate (LDR) recorded over the study period a mean value of 17.63% with a maximum of 29.8% and minimum of 9.25% per annum. The standard deviation of lending rate (LDR) is 4.20% and this indicates lending rate (LDR) has high deviation from the mean. Lastly, government capital expenditure (GCX) recorded over the period a mean value of N862.98 billion with a maximum of N5157.46 billion and minimum of N4.1 billion per annum. The standard deviation of government capital expenditure (GCX) is N1165.66 billion, which indicates that government capital expenditure (GCX) has high dispersion.

Unit Root Test

It has become a necessity in econometric modelling to determine the order of integration of series. Accordingly, the Augmented Dickey Fuller (ADF) method was applied in this study to check for unit root. The aim of conducting this test is to avoid spurious regression which comes from regressing one non-stationary variable upon another non-stationary variable. The results of the Augmented Dickey-Fuller tests are presented in Table 3 below:

Table 3: Augmented Dickey-Fuller (ADF) Test Results

Augmented Dickey-Fuller (ADF)						
Variables	**Level**	**5% Critical Value**	**1st Difference**	**5% Critical Value**	**Integration Order**	**Stationary @**
$lnPIVN_t$	-0.980254	-2.936942	-4.002282***	-2.938987	I(1)	1st Diff.
$lnCPS_t$	-1.344149	-2.936942	-4.777454***	-2.938987	I(1)	1st Diff.
$lnIQN_t$	-4.690941***	-2.936942	-	-	I(0)	Level
$lnCPS * IQN_t$	-1.889523	-2.936942	-8.683584	-2.938987	I(1)	Level
$lnLDR_t$	-3.148613	-2.936942	-	-	I(0)	Level
$lnGCX_t$	-1.736065	-2.936942	-7.185807***	-2.938987	I(1)	1st Diff.

Note: *, **, and *** denote significance at 10%, 5% and 1%, respectively
Source: Authors' Computation, 2025.

As summarized above, the ADF's unit root test results showed that institutional quality index (IQN) and lending rate (LDR) are stationary at levels and integrated at order zero [i.e., I(0)]. On the other hand, total private investment (PIVN), credit to private sector (CPS), credit to private sector interaction with institutional quality index (CPS*IQN) and government capital expenditure (GCX) appeared stationary at first difference and integrated at order one [i.e., I(1)]. Therefore, the attainment of mixed stationarity [I(0) and I(1)] in the unit root test result necessitated the use of ARDL in the estimation of the long-run relationship among the variables and the error correction model.

Multicollinearity Test

Correlation matrix is used to detect multicollinearity in this study. Detecting multicollinearity using a correlation matrix involves examining the correlation coefficients between pairs of independent variables. The result of the correlation matrix is presented in Table 4

Table 4: Correlation Matrix

	$InPIVN_t$	$InCPS_t$	$InIQN_t$	$InCPS * IQN_t$	$InLDR_t$	$InGCX_t$
$InPIVN_t$	1					
$lnCPS_t$	0.306078	1				
$lnIQN_t$	0.288158	0.031317	1			
$lnCPS * IQN_t$	0.447252	0.037692	0.376664	1		
$lnLDR_t$	0.15309	-0.19956	0.232052	-0.10429	1	
$lnGCX_t$	0.165607	0.457716	0.193579	0.354911	-0.10162	1

Source: Authors' Computation, 2025.

The results as reported in Table 4 shows that credit to private sector (CPS), institutional quality index (IQN), credit to private sector interaction with institutional quality index (CPS*IQN), lending rate (LDR) and government capital expenditure (GCX) all have mixed positive and negative but weak relationships with each other as well as total private investment (PIVN) over the research period. The implication of this is that there is absence of multicollinearity problem among the independent variables. This therefore provides us confidence to proceed with our econometric analysis.

ARDL Bound Cointegration Test

The bounds cointegration test was carried out using Autoregressive Distributed Lag (ARDL) bound approach. The result of ARDL bounds cointegration test is presented in Table 5:

Table 5: ARDL Bounds Cointegration Test Results

Significant Level	I(0) Bound	I(1) Bound	Hypothesis	F-Statistics
10%	2.08	3	H0: There is no cointegration	
5%	2.39	3.38		5.172740***
2.5%	2.7	3.73		
1%	3.06	4.15		
F_{INPIVN}(InPIVN/CPS, InIQN, InCPS*IQN, InLDR, InGCX)			K = 5	

Note: Null hypothesis: No level relationship; K = number of regressors; *, ** and *** denote significance at 10%, 5% and 1% level, respectively.
Source: Authors' Computation, 2025.

Table 5 showed the ARDL bounds cointegration test result that there is cointegration among deposit money banks' credit facilities indicators and institutional quality (Credit to private sector, institutional quality index, credit to private sector interaction with institutional quality index, lending rate and government capital expenditure) and private sector investment indicator (total private investment), which emphasize the relevance and significance of the long-run concept. Specifically, the computed F – statistic value of 5.172740 is greater than the upper bound critical values of 3.0, 3.38, 3.73 and 4.15 at 10%, 5%, 2.5% and 1% significance levels respectively. Hence, the null hypothesis of no cointegration is rejected and this confirms

the presence of cointegration among variables the confirmation of long-run dynamics among the variables further necessitated estimation of the extent of the relationship between the dependent and independent variables through estimation of Autoregressive Distributed Lag (ARDL) model.

Autoregressive Distributive Lag (ARDL) Long-Run and Short-Run Dynamics

Table 6: ARDL Long-Run and Short-Run Estimation Results

Dependent Variable = *lnPIVN*				
Selected Model: ARDL (1, 2, 3, 3, 3, 2)				
ARDL Long-Run Results				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
$lnCPS_t$	0.126976	0.058471	2.171621	0.0435
$lnIQN_t$	0.044461	0.056018	0.793694	0.4377
$lnCPS * IQN_t$	0.223801	0.049430	4.527650	0.0003
$lnLDR_t$	-0.012572	0.004674	-2.690051	0.0150
$lnGCX_t$	0.223801	0.039474	5.669536	0.0000
C	7.994571	0.403413	19.81732	0.0000
*EC = ln(PIVN) - (0.1270*ln(CPS) + 0.0445*ln(IQN) + 0.2238*ln(CPS*IQN) - 0.0126*ln(LDR) + 0.2238*ln(GCX) + 7.994571)*				
ARDL Short-Run Results				
$D(lnCPS_{t-1})$	0.259301	0.074837	3.464857	0.0028
$D(lnCPS_{t-1})$	0.082410	0.072159	1.142066	0.2684
$D(lnIQN_t)$	0.004624	0.011644	0.397068	0.6960
$D(lnIQN_{t-1})$	-0.030316	0.015295	-1.982090	0.0629
$D(lnCPS * IQN_t)$	0.059583	0.024062	2.476269	0.0234
$D(lnCPS * IQN_{t-1})$	0.065376	0.026435	2.473062	0.0236
$D(lnLDR_t)$	-0.009093	0.003392	-2.680914	0.0153
$D(lnLDR_{t-1})$	0.014507	0.003607	4.022378	0.0008
$D(lnGCX_t)$	0.107907	0.041708	2.587225	0.0186
$D(lnGCX_{t-1})$	0.029960	0.135972	0.220342	0.8281
*CointEq(-1)**	-0.369899	0.067975	-5.441713	0.0000
Adjusted R^2 = 0.745680	Durbin-Watson stat = 2.233330			

Source: Authors' Computation, 2025.

The long-run estimates of the ARDL model in Table 6 reveal that credit to private sector exerted positive (0.126976) and significant (0.0435 < 0.05) effects on total private investment in Nigeria. The implication of this is that one percent increase in credit to private sector will lead to about 13 percent increase in total private investment in the long-run. Also, the short-run estimates of the ARDL model results revealed that credit to private sector is positive (0.259301) and significant (0.0028 < 0.05) on total private investment in Nigeria. The implication of this is that a percentage increase in credit to private sector will lead to about 26 percent boost in total private investment in the short-run.

Furthermore, the long-run estimates of the ARDL model in Table 6 reveal that institutional quality index positively (0.044461) and non-significantly (0.4377 > 0.05) impacted on total private investment in Nigeria. The implication of this is that an increase in institutional quality index by a percentage will lead to approximately 4 percent increase in total private investment in the long-run. Also, the short-run estimates revealed that institutional quality index had positive (0.004624) and non-significant (0.6960 > 0.05) effects on the regressand. The implication is that one percent improvement in institutional quality index will lead to about 0.4 percent rise in total private investment in the short-run.

Moreover, the long-run estimates revealed that credit to private sector interaction with institutional quality index had positive (0.223801) and significant (0.0003 < 0.05) effects on total private investment. This implies that one percent improvement in the interaction will lead to approximately 22 percent boost in total private investment. Also, the short-run estimates revealed that this interactive variable exerted positive (0.059583) and significant (0.0234 < 0.05) effects on the explained variable, suggesting that if the interaction is enhanced by one percent, total private investment will grow by about 6 percent in the short-run.

Additionally, the long-run estimates established that lending rate negatively (-0.012572) and significantly (0.0150 < 0.05) impacted on total private investment in Nigeria. Thus, suggesting that one percent reduction in lending rate will lead to about 1.25 percent increase in total private investment in the long-run. Also, the short-run established that lending rate had negative (-0.009093) and significant (0.0153 < 0.05) effects on total private investment. The implication is that a percentage fall in lending rate will lead about 0.9 percent rise in total private investment in the short-run

Also, the long-run estimates showed that government capital expenditure had positive (0.223801) and significant (0.0000 < 0.05) effects on total private investment in Nigeria. The implication is that one percent expansion in government capital expenditure will lead to about 22 percent increase in total private investment in the long-run. Also, the short-run results revealed that regressor had positive (0.107907) and significant (0.0186 < 0.05) effect on total private investment in Nigeria, implying that one per improvement in government capital expenditure will lead to about 11 percent enhancement of total private investment in the short-run.

In furtherance, the results of the short-run dynamic coefficients associated with the long-run relationships obtained from the error correction model are given in Table 5. The signs of the short-run dynamic interactions are consistent with that of the long-run relationship. The estimated error correction coefficient of -0.369899 (with p-value of 0.0000) is highly significant, has the correct sign, and implies a considerable speed of adjustment to equilibrium after short run shock. This further indicates that approximately 37% of disequilibria from the previous year's shock converge back to the long-run equilibrium in the current year.

Lastly, the Adjusted R-squared value of 0.745680 from the results of the short-run estimates shown in Table 5 indicated that the estimated model is well fitted as the systematic changes in

the explanatory variables (Credit to private sector, institutional quality index, credit to private sector interaction with institutional quality index, lending rate and government capital expenditure) explained approximately 75 percent (R-squared) variation in total private investment while the remaining 25% is explained by other variables of factors outside the model.

Post-Estimation Tests

The results of the post-estimation tests are presented in Table 7.

Table 7: Post-Estimation Test Results

Test	Null Hypothesis (H_0)	Test Type	F-stat.	Prob.
Normality Test	Normal distribution exists	Jarque-Bera Test	1.269665	0.5301
Serial Correlation Test	Serial correlation does not exist	Breusch-Godfrey LM Test	1.951636	0.1744
Heteroscedasticity Test	Homoscedasticity exists	Breusch-Pagan-Godfrey	1.407652	0.2363
Functional Form Test	Model is stable	Ramsey RESET	0.919945	0.3509

Source: Authors' Computation, 2025.

The Jarque Bera (Normality) test result in Table 6 shows that the model is normally distributed. In addition, the Breusch-Godfrey Serial Correlation LM test result reveals that the model has no serial correlation problem. Also, the Breusch-Pagan-Godfrey heteroskedasticity test result indicates that relevant variables were not omitted. Lastly, the Ramsey RESET test result implies that the functional form of the model is correct.

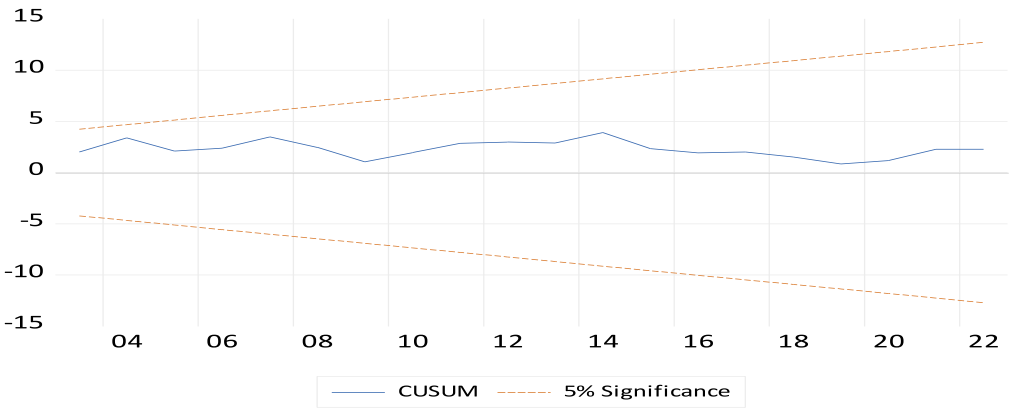

Figure 1: Stability Cusum Test

The cumulative sum (CUSUM) indicates that the CUSUM line stayed within the 5 percent critical bound while neither did CUSUM plot crosses the 5 percent critical lines. The implication of this is that there is stability of the long-run coefficients of the study variables.

Discussion of Findings

This study has empirically analyzed the sourced annual time series data to determine effects of deposit money banks' credits and institutional quality on private sector investment in Nigeria from 1984 to 2024. The study found that credit to private sector, credit to private sector interaction with institutional quality index and government capital expenditure have positive and significant effect on total private investment in Nigeria in both short-run and long-run. On the other hand, lending rate has negative and significant effect on total private investment in Nigeria in both short-run and long-run. However, it was established that institutional quality index has a positive and non-significant effect on total private investment in Nigeria in both short-run and long-run. This finding is supported by the empirical results of Amadi, *et al*. (2024) which showed that there is a positive and significant effects of deposit money banks' credit on private investment in Nigeria. The finding also relates to the finding of Ogbonna, *et al* (2021) who found that there is significant impact of deposit money banks' credit facilities on private sector growth. Also, Maimuna and Ngele (2023) found that in the long run, the private sector, the lending rate and the assets of deposit money banks were cointegrated with growth

Conclusion and Recommendations

Drawing from the foregoing, this study has examined the effects of deposit money banks' credit facilities and institutional quality on private sector investment in Nigeria. Premised on the findings, the study generally concluded that deposit money banks' credits and institutional quality play a vital role in promoting and enhancing private sector investment in Nigeria. Based on the findings, the study recommended that since effective utilization of bank credit depends on the strength of reliable institutional frameworks such as rule of law, regulatory quality, and control of corruption, the government should invest in improving these institutions to reduce risks and enhance investor confidence to ensure that credit to the private sector translates into productive investments. Also, deposit money banks should be incentivized, through targeted policies and guarantees, to extend credit specifically to high-potential sectors such as manufacturing, agriculture, and technology. Policymakers can introduce credit guarantee schemes, sectoral interest rate caps, or concessional lending arrangements to ensure that credit contributes meaningfully to private sector capital formation and job creation. In addition to this, Central Bank of Nigeria (CBN) should pursue moderate and investment-friendly interest rate policies, possibly through monetary easing or differential rates for critical sectors. Deposit money banks can also be encouraged to adopt flexible loan terms for SMEs and start-ups to improve credit uptake. Lastly, policies aimed at increasing private sector credit should be designed in tandem with reforms in contract enforcement, property rights protection, and anti-corruption. This synergy ensures that credit leads to real investments rather than speculative or diverted uses.

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