Financial Development, Trade Openness and Economic Growth: Evidence from Nigeria

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Abstract
*This study empirically examines the effect of financial development and trade openness on economic growth in Nigeria from 1990 to 2025. In order to achieve the objective of the study, relevant annual time series data needed were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the World Bank. The data obtained were tested for stationarity in order to establish if the time series have unit root using the Augmented Dickey-Fuller (ADF) test. Johansen cointegration test was used to establish if the time series variables in the model were cointegrated or have long run relationship. Lastly, the study employed Error Correction Model to investigate the short-run parameters among the variables. Data analysis was facilitated by E-views 12 statistical package. The findings of the study showed that broad money supply, credit to the private sector, bank deposits and trade openness have positive and significant effects on real gross domestic product in Nigeria. Based on the findings of this study, it can therefore be concluded that financial development and trade openness play a vital role in promoting economic growth in Nigeria. It is recommended that Since broad money supply has a positive and significant effect on real GDP, the Central Bank of Nigeria should continue to deepen the financial system through financial inclusion programmes and monetary policies that expand money supply in line with productive activity, while guarding against inflationary monetary expansion. Further, given the positive effect of credit to the private sector, the Central Bank of Nigeria and deposit money banks should increase the flow of affordable credit to the real sector, especially agriculture and manufacturing, through reduced lending rates, credit guarantee schemes and the use of movable assets as collateral.***

Keyword: *Financial Development, Financial Openness, Trade Openness, Economic Growth, Nigeria*

1.1 Introduction

Economic growth is a central objective of economic policy in every country because it raises incomes, creates employment, and provides the resources needed to reduce poverty. Economists have long argued that the financial system and international trade are two of the most important channels through which growth is achieved. A well-developed financial system mobilizes savings, allocates credit to productive investment, reduces transaction and information costs, and facilitates the exchange of goods and services, thereby raising the rate of capital accumulation and productivity. At the same time, openness to international trade gives domestic firms access to larger markets, imported capital goods, technology, and competition, all of which can stimulate efficiency and growth (Romer, 1986; Zahonogo, 2016).

Financial development refers to improvements in the size, efficiency, and accessibility of financial institutions and markets. It is commonly measured by broad money supply as a percentage of GDP, which reflects the depth of the monetary system; credit to the private sector as a percentage of GDP, which reflects the extent to which banks channel funds to firms and households; and bank deposits as a percentage of GDP, which reflects the mobilization of savings by the banking system. Financial development can positively influence economic growth by strengthening the financial system's capacity to mobilize savings and channel funds to productive sectors of the economy. An efficient financial system provides businesses and entrepreneurs with access to credit, reduces transaction costs, facilitates risk management, and encourages investment in infrastructure, technology, manufacturing, agriculture, and other productive activities (Okete & Camillus, 2024). Financial institutions and capital markets also improve the allocation of financial resources by directing funds towards investments with higher productivity and growth potential. Furthermore, financial development can promote innovation, entrepreneurship, employment generation, and capital accumulation, thereby expanding an economy's productive capacity. When individuals and firms have access to affordable financial services, they are better positioned to establish businesses, expand production, and adopt improved technologies. Consequently, financial development can increase productivity, stimulate aggregate output, and promote sustained economic growth, although these benefits depend on financial inclusion, effective regulation, and the productive allocation of credit (Okeke & Akunna, 2023).

Trade openness, usually measured as the sum of exports and imports as a percentage of GDP, reflects the degree of integration of an economy with the rest of the world. The relationships between these variables and growth are not automatic: excessive or poorly regulated credit can lead to instability, and trade liberalization can harm growth where domestic industries are weak (Arcand *et al.,* 2015; Ojo & Afolabi, 2025). Similarly, trade openness can promote economic growth by expanding market access, encouraging specialization according to comparative advantage, and enabling countries to benefit from international trade. Through exports, domestic producers can access larger markets, increase production, earn foreign exchange, and exploit economies of scale. Imports also enable economies to obtain machinery, intermediate goods, advanced technologies, and other productive inputs that may be unavailable or more expensive domestically. In addition, exposure to international competition can encourage domestic firms to improve efficiency, product quality, and innovation (Isikhuemen & Imahe, 2025). Trade openness can attract foreign direct investment, facilitate technology transfer, create employment opportunities, and strengthen the integration of domestic industries into global value chains. When supported by sound macroeconomic policies, adequate infrastructure, and competitive domestic industries, trade openness can complement financial development by facilitating the financing of

trade-related investments and expanding opportunities for productive enterprises. Therefore, financial development and trade openness can jointly contribute to higher productivity, capital accumulation, and sustained economic growth. However, the magnitude of these benefits depends on the quality of financial institutions, the structure of trade, and the economy's ability to manage external competition and shocks (Ojo & Afolabi, 2025).

Furthermore, Kletzer and Bardhan (1987) and Baldwin (1989) have formally theorized the notion of financial comparative advantage arguing that countries with better financial systems produce and export financially dependent goods. Empirical evidence abounds in the literature that financial comparative advantage influences trade patterns (Beck, 2002; 2003, Becker and Greenberg, 2005; Svaleryd and Vlachos, 2005).

In view of this background, this study aims to examine the relationship between financial development, trade openness, and economic.

1.2 Statement of the Problem

Despite various economic reforms aimed at strengthening the financial system and promoting international trade, Nigeria continues to face challenges in achieving sustained and inclusive economic growth. Financial development is expected to stimulate economic growth through savings mobilization, credit provision, investment financing, and efficient allocation of financial resources; however, limited access to affordable credit, high lending rates, financial exclusion, and inefficiencies in financial intermediation may constrain its contribution to productive activities. Similarly, trade openness is expected to promote economic growth through export expansion, access to foreign technology, increased competition, and economies of scale. Nevertheless, Nigeria's dependence on crude oil exports, substantial importation of manufactured goods, inadequate infrastructure, exchange-rate instability, and weak domestic productive capacity may limit the growth benefits of international trade. Furthermore, the extent to which financial development and trade openness individually and jointly influence Nigeria's economic growth remains an important empirical question, particularly given changes in the country's financial system and trade structure over time. The problem, therefore, is whether financial development and trade openness have significantly contributed to economic growth in Nigeria and the extent to which strengthening the financial system and improving the country's participation in international trade can promote sustainable economic growth.

The impact of the financial openness and trade openness on economic growth in the context of the Nigeria has not been extensively studied. It is against this backdrop that this study is intended to find out if financial openness and trade openness can cause an increase in economic growth in Nigeria. This is done within the period 2000 to 2025.

1.3 Aim and Objectives of the Study

The aim of this study is to examine the effect of financial development and trade openness on economic growth in Nigeria. The specific objectives of the study are to:

i. examine the effect of broad money supply (percentage of GDP) on real gross domestic product in Nigeria.
ii. determine the effect of credit to the private sector (percentage of GDP) on real gross domestic product in Nigeria.
iii. analyse the effect of bank deposits (percentage of GDP) on real gross domestic product in Nigeria.

iv. investigate the effect of the degree of trade openness on real gross domestic product in Nigeria.

1.4 Research Questions

Based on the specific objectives, the following research questions are raised:

i. What is the effect of broad money supply (percentage of GDP) on real gross domestic product in Nigeria?

ii. To what extent does credit to the private sector (percentage of GDP) affect real gross domestic product in Nigeria?

iii. How do bank deposits (percentage of GDP) affect real gross domestic product in Nigeria?

iv. What is the effect of the degree of trade openness on real gross domestic product in Nigeria?

1.5 Research Hypotheses

Based on the specific objectives and research questions, the following null hypotheses are formulated in null form:

i. Broad money supply (percentage of GDP) has no significant effect on real gross domestic product in Nigeria.

ii. Credit to the private sector (percentage of GDP) has no significant effect on real gross domestic product in Nigeria.

iii. Bank deposits (percentage of GDP) have no significant effect on real gross domestic product in Nigeria.

iv. The degree of trade openness has no significant effect on real gross domestic product in Nigeria.

1.6 Significance of the Study

Theoretically, this study will contribute to existing literature and growing body of knowledge on the effect of financial development and trade openness on economic growth in Nigeria. As a result, the study will serve as a guide to further research, academic work and as a self-help study material for researchers or scholars who might wish to have first-hand knowledge about the effect of financial development and trade openness on economic growth in Nigeria.

This study will be of benefit to the Central Bank of Nigeria and the Federal Ministry of Finance, by providing evidence on which dimensions of financial development contribute most to economic growth. The findings will guide monetary and financial sector policies, such as those on bank re-capitalization, credit allocation, and financial inclusion, and help the government to design policies that deepen the financial system. The study will also be useful to the Federal Ministry of Industry, Trade and Investment and the Nigerian Export Promotion Council in designing trade policies under the African Continental Free Trade Area, and to commercial banks, investors, and development partners interested in Nigeria's growth prospects.

1.7 Scope of the Study

This study examined the effect of financial development and trade openness on economic growth in Nigeria. The content scope covered broad money supply, credit to the private sector, and bank deposits, all as percentages of GDP, as proxies of financial development; the degree of trade openness as the proxy of trade openness; and real gross domestic product as the measure of economic growth. The time scope covers thirty-six (36) years, from 1990 to 2025, covering the

banking consolidation of 2004–2005, the recessions of 2016 and 2020, and the reforms of 2023–2025. The geographical scope of the study is Nigeria.

1.8 Limitations of the Study

Like every research work, this study is subject to some limitations. First, some of the most recent data on credit to the private sector and bank deposits had not been published by the World Bank at the time of the study, so values for the latest years were estimated. Second, the rebasing of Nigeria's GDP in 2014 and 2025 affects the comparability of ratios to GDP over time. However, these limitations do not undermine the validity of the findings.

2. Literature Review

2.1 Theoretical Framework

This study is anchored on the McKinnon–Shaw Financial Liberalization Hypothesis and the Endogenous Growth Theory. The theoretical explanation of these theories and their relevance to the study are provided in this section as follows:

2.1.1 McKinnon–Shaw Financial Liberalization Hypothesis

The Financial Liberalization Hypothesis was developed independently by Ronald I. McKinnon and Edward S. Shaw, both American economists at Stanford University, in 1973 in their books *Money and Capital in Economic Development* and *Financial Deepening in Economic Development* (McKinnon, 1973; Shaw, 1973). The hypothesis argues that many developing countries suffer from "financial repression", in which governments impose ceilings on interest rates, high reserve requirements, and directed credit programmes that keep real interest rates low or negative. Such policies discourage savings, reduce the volume of funds available to banks, and lead to the inefficient allocation of credit. McKinnon and Shaw contended that liberalizing the financial system by allowing interest rates to reach their market-clearing levels would raise savings, deepen the financial system, increase the quantity and quality of investment, and thereby promote economic growth. The hypothesis assumes that savings are responsive to the real interest rate; that investment is constrained by the availability of savings; that financial markets are competitive once liberalized; and that market forces allocate credit more efficiently than government. The hypothesis has been criticized for ignoring the possibility that financial liberalization may lead to excessive risk-taking, asset bubbles, and banking crises, as happened in Latin America and Asia, and for assuming that savings respond strongly to interest rates, which is often not the case in low-income economies. Despite these criticisms, the McKinnon–Shaw Hypothesis is highly relevant to this study. Nigeria adopted financial liberalization as part of the Structural Adjustment Programme in 1986, deregulating interest rates, liberalizing bank licensing, and later re-capitalizing banks, with the expectation that these reforms would deepen the financial system and promote growth. The hypothesis provides the theoretical basis for using broad money, credit to the private sector, and bank deposits as measures of financial deepening, and predicts that increases in these indicators should raise real GDP by increasing the mobilization of savings and the supply of credit for investment.

2.1.2 Endogenous Growth Theory

The Endogenous Growth Theory was developed by Paul M. Romer, an American economist and Nobel laureate, in 1986, and was extended by Robert E. Lucas Jr. in 1988 (Lucas, 1988; Romer,

1986). The theory argues that long-run economic growth is determined by factors within the economic system, especially investment in human capital, innovation, knowledge, and research and development, rather than by exogenous technological progress as assumed in the neoclassical Solow model. Because knowledge has spill-over effects and increasing returns, policies that encourage investment, learning, and the diffusion of technology can permanently raise the growth rate. Later extensions emphasized that international trade and financial development are important channels of endogenous growth: trade gives access to larger markets, foreign technology, and imported capital goods, while financial intermediaries fund innovation and allocate capital to the most productive uses. The theory assumes that knowledge and technology are non-rival and generate positive externalities; that markets may be imperfectly competitive; that firms invest in innovation in response to profit incentives; and that government policy can influence long-run growth. The theory has been criticized for being difficult to test empirically, since many of its key variables, such as knowledge and innovation, are hard to measure, and for placing too much emphasis on technology while neglecting institutions, geography, and political factors. The Endogenous Growth Theory is relevant to this study because it explains how trade openness and financial development can raise economic growth in Nigeria on a sustained basis. Openness to trade gives Nigerian firms access to imported machinery, intermediate inputs, and technology, while financial development provides the credit needed to adopt new technologies and expand productive capacity. The theory therefore predicts that higher trade openness and greater financial depth will raise real GDP, and complements the McKinnon–Shaw Hypothesis by explaining how finance and trade translate into productivity and long-run growth.

2.2 Conceptual Review

2.2.1 Financial Development

Financial development is the process by which financial institutions, markets, and instruments become larger, more efficient, and more accessible, thereby improving the mobilization of savings, the allocation of capital, the management of risk, and the facilitation of transactions. It is often described as financial deepening when it refers mainly to the increase in the size of the financial system relative to the economy. In this study, financial development is proxied by three indicators. Broad money supply as a percentage of GDP (M2G) measures monetary depth and the extent to which the economy uses formal financial assets. Credit to the private sector as a percentage of GDP (CPS) measures the extent to which banks and other financial institutions channel funds to private firms and households for investment and consumption. Bank deposits as a percentage of GDP (BDG) measures the ability of the banking system to mobilize savings (Isikhuemen & Imahe, 2025).

2.2.2 Trade Openness

Trade openness refers to the degree to which a country participates in international trade and allows goods and services to move across its borders. It is commonly measured by the degree of trade openness (TOP), the sum of exports and imports of goods and services as a percentage of GDP. A higher ratio indicates greater integration with the world economy.

2.2.3 Economic Growth

Economic growth is the sustained increase in the real output of goods and services produced in an economy over time. It is commonly measured by real gross domestic product (RGDP), the value

of all final goods and services produced within a country in a year at constant prices, which removes the effect of inflation. Growth is driven by the accumulation of physical and human capital, technological progress, and improvements in the efficiency with which resources are used.

2.2.4 Financial Development, Trade Openness and Economic Growth: The Nexus

Financial development promotes growth by mobilizing savings, allocating them to productive investment, reducing information and transaction costs, and supporting innovation. However, beyond a certain level, rapid credit growth can lead to misallocation and financial instability, so that the relationship between finance and growth may be non-linear (Arcand et al., 2015; Ibrahim & Alagidede, 2018). Trade openness promotes growth through specialization, economies of scale, technology transfer, and competition, but where domestic industries are weak and exports are concentrated in a few commodities, openness may increase import competition and vulnerability to external shocks (Zahonogo, 2016). The two are also related, since a well-developed financial system provides trade finance and supports export-oriented firms, while trade openness increases the demand for financial services (Atoyebi *et al*., 2023; Sare *et al*., 2019).

McKinnon (1973) examines how financial repression, interest rates, and real return to money affects interest and growth. Shaw (1973) anchored his thesis on the idea that public policies imposing artificial distortions (like interest rate ceilings, high reserve requirements and administrative credit rationing) stifle developing economies. He argued that this "financial repression" shrinks the real size of the financial system, leading to low savings and inefficient capital allocation.

2.2.5 Overview of Financial Sector Development Policies in Nigeria

The Nigerian government has attempted to attain the goal of developing the financial sector through the implementation of a number of policies and reforms. Prior to 1986, government attempt to develop the financial sector is reflected in the establishment of the Central Bank of Nigeria (CBN) in 1958 and the Lagos Stock Exchange (LSE) in 1959. The LSE became fully functional in 1961 after the "enactment of the Lagos Stock Exchange Act" of 1961. The LSE was transformed into Nigerian Stock Exchange (NSE) was in 1977 (Ebimobowei & Peter, 2013). During this period, the financial system was heavily regulated.

However, the adoption of the SAP in 1986 resulted in a paradigm shift in the approach to financial development. The adoption of the SAP led to the implementation of a number of policies and reforms in the financial sector. One of these reforms was the liberalization of the allocation of credit in 1986. The interest rate was deregulated in 1987, while number of sectors which were designated as priority sectors with respect to the allocation of credit was cut down to two in 1987. The period was also characterized by the deregulation of the process of granting bank licenses (Umejiaku & Obumneke, 2017). The Nigerian Deposit Insurance Corporation (NDIC) was also established in 1988. The year 1990 was characterized by the issue of licenses to non-banking and quasi-banking institutions. This resulted in the establishment of people's banks, community banks and finance houses. The objective of this policy was to increase the level of financial inclusion in the country. The CBN also introduced prudential guidelines for the banking system in 1990. The guidelines were geared towards the promotion of the development of a safe, stable and sound banking system in the country (Iganiga, 2010). The 1990 guidelines were later revised in 2010.

In 1991, the interest rate re-regulated through the introduction of a cap on the rate. The year 1991 was also characterized by the introduction of two decrees in the financial system. These are the Banks and other Financial Institutions Decree No.29 and Central Bank of Nigeria Decree No.24. The latter decree increased the autonomy of the CBN with regards to the regulation and supervision of banks and other financial institutions, as well as the conduct of monetary policy. The reregulation of the interest rate was reversed in 1992 with a return to market determined interest rates (Umejiaku & Obumneke, 2017).

However, in 1996, the policy of regulation was reintroduced through the introduction of an embargo on the licensing of banks. An element of regulation was also introduced to the deposit rate with a maximum spread of 7.5 per cent being allowed. The Minimum Rediscount Rate (MRR) was also maintained at 13.5 per cent (Umejiaku & Obumneke, 2017). In the capital market, technologies such as the Central Securities Clearing System (CSCS) and Automated Trading System (ATS) were introduced (Ebimobowei & Peter, 2013). These technologies were meant to improve the performance of the market.

The Universal Banking policy was also adopted by the CBN in 2001. A further reform of the banking sector took place in 2005 when the CBN introduced the Banking Consolidation exercise. The objective of the exercise was to increase the capital base of banks to 25 billion naira (Iganiga, 2010). The Monetary Policy Rate (MPR) was also introduced by CBN in 2006. In 2010, the Asset Management Company of Nigeria (AMCOM) was established as a response to the observed fragilities in the banking sector. The CBN also adopted the International Financial Reporting Standards in 2009.

2.3 Empirical Review

Adegboyega (2026) examined the dynamic nexus between financial deepening and inclusive growth in Nigeria from 1982 to 2024 using the ARDL model. Private sector credit, the bank lending rate, and the rural loan-to-deposit ratio had positive and significant effects on inclusive growth, while aggregate financial deepening had a negative and significant effect.

Using the error correction methodology on data from 1980 to 2022, Isikhuemen and Imahe (2025) assessed the impact of financial deepening on economic growth in Nigeria. They found that the market capitalisation ratio, the money multiplier, and broad money supply as a ratio of GDP had direct and significant impacts on economic growth.

Ikubor et al. (2025) investigated the effect of trade openness and foreign direct investment on Nigeria's economic growth over 1986–2023 with the ARDL model. Trade openness had a positive and significant long-run effect on growth, foreign direct investment had a significant negative long-run effect, while inflation and the exchange rate were insignificant.

In contrast, Ojo and Afolabi (2025) reported that trade openness significantly reduced economic growth in Nigeria in the short run over 1986–2021, although its long-run effect turned positive but insignificant. Their ARDL and Granger causality results suggested that openness may support growth only in the long run.

Okete and Camillus (2024) tested the supply-leading hypothesis for Nigeria with the ARDL model and data from 1986 to 2022, using money supply, private sector credit, market capitalization, inflation, and the prime lending rate as proxies of financial deepening. They found a long-run relationship and associated credit to the private sector and market capitalization with growth.

Adekunle (2024) analyzed trade openness and economic growth in Nigeria from 1986 to 2021 using the ARDL methodology. The results showed that trade openness and foreign direct investment had significant effects on economic growth, alongside interest rates and exchange rates. Atoyebi *et al*. (2023) unraveled the relationship among trade openness, economic growth, and financial development in Nigeria between 1990 and 2021 using the ARDL model. Trade openness had a positive long-run relationship with financial development, while economic growth had a negative short-run effect on financial expansion. Okeke and Akunna (2023) used ordinary least squares on data from 1986 to 2020 to examine the effect of financial deepening on economic growth in Nigeria. Money supply to GDP and stock market capitalization to GDP had positive and significant effects on real GDP, while private sector credit to GDP and insurance premiums to GDP had negative relationships with growth. For Africa, Sare *et al*. (2019) applied the pooled mean group estimator to examine financial development, sectoral effects, and international trade. They found that financial development promotes international trade, but that its effects differ across sectors and measures of finance.Ibrahim and Alagidede (2018) examined the effect of financial development on economic growth in 29 sub-Saharan African countries using threshold regression. Financial development promoted growth, but its effect depended on the level of income and financial depth, with countries above certain thresholds benefiting more. Keho (2017) investigated the impact of trade openness on economic growth in Côte d'Ivoire from 1965 to 2014 using the ARDL bounds test and Granger causality. Trade openness had positive effects on growth in both the short run and the long run, and it also complemented capital formation in promoting growth. Iheanacho (2016) applied the ARDL approach to Nigerian data from 1981 to 2011 to assess the impact of financial development on economic growth. The long-run effect of financial intermediary development was negative but insignificant, while the short-run effect was significantly negative, which the author attributed to the dominant role of the oil sector.

Zahonogo (2016) examined trade and economic growth in 42 sub-Saharan African countries using the pooled mean group estimator. He found a non-linear relationship, with trade openness promoting growth only up to a threshold level, beyond which further openness was associated with lower growth. Arcand et al. (2015) asked whether there can be "too much finance" using cross-country and panel data. They found that financial depth, measured by private credit, had a positive effect on growth up to about 100 percent of GDP, beyond which the effect became negative, implying a non-linear finance–growth relationship. Kromtit and Tsenkwo (2014) examined recent trends in financial deepening and economic growth in Nigeria using Granger causality and OLS regression. They found that broad money, private sector credit, and market capitalization did not Granger-cause economic growth and concluded that financial deepening had an insignificant effect on growth.

2.4 Summary of Literature Review

This study was anchored on the McKinnon–Shaw Financial Liberalization Hypothesis (McKinnon, 1973; Shaw, 1973) and the Endogenous Growth Theory (Romer, 1986), which together explain how financial deepening and trade openness can promote economic growth. Empirically, fifteen studies published between 2026 and 2014 were reviewed. The findings are mixed: some studies found that broad money and private credit promote growth (Isikhuemen & Imahe, 2025; Okeke & Akunna, 2023), while others found negative or insignificant effects (Iheanacho, 2016; Kromtit & Tsenkwo, 2014); similarly, trade openness was found to promote growth in some studies (Ikubor *et al.,* 2025; Keho, 2017) but to reduce it in the short run in others

(Ojo & Afolabi, 2025). Cross-country studies also suggest that both relationships may be non-linear (Arcand *et al.*, 2015; Zahonogo, 2016). However, few Nigerian studies combined broad money, private credit, bank deposits, and trade openness in one model, and none covered data up to 2025. This study filled these gaps.

3. Methodology

3.1 Research Design

The research design to be adopted in this study is *ex-post facto* research design. An *ex-post-facto* research design is a systematic empirical inquiry that requires the use of variables which the researcher does not have the capacity to change its state or direction in the course of the study.

3.2 Data Collection Methods and Sources

This study makes use of annual time series data which covered 1990 to 2025. These data on real gross domestic product are sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and World Bank Global Financial Development Database.

3.3 Model Specification

Theoretically, the analytical framework of this study was built on McKinnon–Shaw Financial Liberalization Hypothesis given its relevance to this study. Empirically, the model of this study was built on the model of Okeke and Akunna (2023), who examined the effect of financial deepening on economic growth in Nigeria. Their model is slightly modified as follows:

Functional Model

$$RGDP = f(M2G_t, CPS_t, BDG_t, TOP_t) \quad (3.1)$$

Mathematical Model

The functional relationship in equation 3.1 is stated in mathematical form as follows:

$$RGDP_t = \beta_0 + \beta_1 M2G_t + \beta_2 CPS_t + \beta_3 BDG_t + \beta_4 TOP_t \quad (3.2)$$

Econometric Model

The mathematical equation 3.2 is stated in econometric form as follows:

$$RGDP_t = \beta_0 + \beta_1 M2G_t + \beta_2 CPS_t + \beta_3 BDG_t + \beta_4 TOP_t + \mu_t \quad (3.3)$$

Log Linear Model

Since real GDP is measured in billions of naira while the explanatory variables are ratios, real GDP is transformed into its natural logarithm, so that the coefficients measure the percentage change in real GDP resulting from a unit change in each ratio:

$$LogRGDP_t = \beta_0 + \beta_1 M2G_t + \beta_2 CPS_t + \beta_3 BDG_t + \beta_4 TOP_t + \mu_t \quad (3.4)$$

Where:

$RGDP_t$ = Real gross domestic product (₦ billion, constant prices)
$M2G_t$ = Broad money supply (% of GDP)
CPS_t = Credit to the private sector (% of GDP)
BDG_t = Bank deposits (% of GDP)
TOP_t = Degree of trade openness (exports plus imports, % of GDP)
ln = Natural logarithm

t = Time period (1990–2025)
β_0 = Intercept
$\beta_1 - \beta_4$ = Coefficient of the explanatory variables
μ_t = Stochastic error term

3.3.1 A Priori Expectations

The a priori expectations of this study are based on the McKinnon–Shaw Hypothesis, the Endogenous Growth Theory, and the empirical literature reviewed. Broad money supply, credit to the private sector, bank deposits, and trade openness are all expected to have positive effects on real GDP, since a deeper financial system mobilizes savings and finances investment, while trade openness promotes specialization and technology transfer. This is mathematically expressed as:
$\beta_1 > 0$; $\beta_2 > 0$; $\beta_3 > 0$; $\beta_4 > 0$.

3.3.2 Description of Variables

Variables employed in this study are made up of dependent, independent and control variables.

Dependent Variable

Economic growth is the dependent variable and it is measured by Real Gross Domestic Product. Thus,

Real Gross Domestic Product (RGDP): This refers to the total monetary value of all final goods and services produced within a country's geographical boundaries during a given period, adjusted for changes in the general price level to eliminate the effects of inflation. It measures the actual growth in an economy's production and is commonly used as an indicator of economic growth and overall economic performance.

Independent Variables

Financial development and trade openness are the independent variable and are proxied by broad money supply, credit to the private sector, bank deposits and degree of trade openness respectively,

i. **Broad Money Supply (M2G):** This measures the ratio of broad money supply, including currency in circulation, demand deposits, savings deposits, and other eligible liquid financial assets, to gross domestic product (GDP). It indicates the size of the money supply relative to the economy and is commonly used as an indicator of financial depth.

ii. **Credit to the Private Sector (CPS):** This measures the value of credit provided by financial institutions to private businesses and individuals relative to GDP. It indicates the extent to which the financial system provides funds for private investment, business expansion, consumption, and other economic activities.

iii. **Bank Deposits (BDG)** This measures the total value of deposits held in banks relative to GDP. It indicates the capacity of the banking system to mobilise savings and financial resources from households, businesses, and other economic agents for productive investment.

iv. **Degree of Trade Openness (TOP):** Measures the extent to which an economy is integrated into international trade, commonly calculated as the sum of total exports and total imports of goods and services divided by GDP, multiplied by 100. It indicates the relative importance of international trade to the domestic economy.

3.4 Pre-Estimation Tests

To avoid spurious regression results, the following pre-estimation tests are conducted:

i. **Multicollinearity Test**

Before combining variables in a multiple regression model, it is important to examine the data for multicollinearity problem. Multicollinearity among variables in a model will make unique estimates of the model parameters impossible. For the purpose of this study, correlation matrix technique will be used to detect multicollinearity. In the correlation matrix technique for detecting multicollinearity, the researcher examined the correlation coefficient between any two variables in the model. If the pair-wise correlation coefficient between any two variables is greater than 0.98, then there is evidence of multicollinearity among the variables in the model. However, Pair-wise correlation coefficient that is less than 0.8 proves that there is no reason to suspect the problem of multicollinearity among variables in the model.

ii. **Unit Root Test**

The unit root test is a fundamental pre-estimation diagnostic tool in time series econometrics used to determine the stationarity of variables. The most widely used unit root test, which was also adopted in this study, is the Augmented Dickey-Fuller (ADF) test. It tests the null hypothesis that a variable has a unit root (non-stationary) against the alternative that it is stationary. When the ADF test statistic exceeds the critical value in absolute terms, the null hypothesis is rejected, indicating that the variable is stationary.

iii. **Cointegration Test**

The cointegration test, on the other hand, examines whether a long-run equilibrium relationship exists among non-stationary variables that are individually integrated of the same order. Even if variables are non-stationary at levels, they may move together over time in such a way that their linear combination is stationary, implying a stable long-term association. For the purpose of this study, the bounds cointegration test approach was used.

3.5 Data Analysis Technique

Error Correction Model (ECM) technique was adopted in this study. This is because all the variables in the model have were stationary at first difference [I(1)] as shown in the unit root test results. The Error Correction Model (ECM) is an econometric technique used to examine the short-run dynamics and long-run equilibrium relationship among variables in a time-series model. It explains how deviations from the long-run equilibrium are corrected over time through the error correction term, whose coefficient is expected to be negative and statistically significant to indicate convergence towards equilibrium. The ECM is also adopted because it captures both short-run changes in explanatory variables and the speed at which the dependent variable adjusts following economic shocks or disequilibrium. It also helps distinguish temporary effects from long-term relationships, thereby providing a more comprehensive understanding of the interactions among economic variables. In studies where the variables are cointegrated, the ECM incorporates the long-run equilibrium information into the short-run model, making it particularly useful for analyzing economic relationships such as financial development, trade openness, and economic growth. The ECM representation of the model is specified as:

$$\Delta \ln(\mathrm{RGDP}_t) = \sum_{t=1}^{q} \alpha_{2i} \Delta 1n(\mathrm{RGDP}_{t-1}) + \sum_{t=1}^{p} \alpha_{3i} \Delta 1n(SEC\mathrm{M2G}_{t-1}) + \sum_{t=1}^{q} \alpha_{4i} \Delta 1n(\mathrm{CPS}_{t-1}) \sum_{t=1}^{q} \alpha_{5i} \Delta 1n(\mathrm{BDG}_{t-1}) + \sum_{t=1}^{P} \alpha \Delta 1n(\mathrm{TOP}_{t-1}) + \lambda ECT_{t-1} + \varepsilon_{1i} \quad (3.5)$$

Where Δ is the first difference operator, α_{1i} to α_{5i} are the short-run coefficients, and ε_t is the white noise error term. The error correction term is expected to be negative and significant. The hypotheses are tested at the 5 percent level of significance, and the analysis is carried out with E-Views 12.

3.6 Post Estimation Tests

The following pre-estimation tests outlined below were carried out prior to determining the nature of relationship between the series:

3.6.1 Normality Test

The test was carried out to examine the distribution of the estimated residuals under the null hypothesis that the residuals are normally distributed. The Jacque-Bera (JB) test of normality approach was therefore employed at 0.05 level of significance.

3.6.2 Serial Correlation Test

This test was carried out to examine the estimated residuals if they are correlated; that is, if there is any correlation between successive term. Autocorrelation in the residuals affect the efficiency of the estimates. In the presence of autocorrelation, the parameter estimates are no longer ‘’BLUE’’. The standard error is affected and hypothesis testing becomes misleading. For the purpose of this study, Breusch-Godfrey (BG) test technique was adopted for this test at 0.05 levels of significance.

3.6.3 Heteroskedasticity Test

This test was carried out to examine the variance of the error terms over time. If the variance is constant, then it is homoskedastic; otherwise, it is heteroskedastic. Heteroskedasticity like autocorrelation affects the efficiency of the parameter estimates and therefore affects the standard error. Hypothesis testing in the presence of heteroscedasticity would be misleading. For the purpose of this study, Breusch–Pagan- Godfrey (BPG) test of heteroskedasticity was employed at 0.05 level of significance.

3.6.4 Ramsey Reset Test

The Ramsey RESET test was conducted to detect specification error. That is, whether the model is correctly specified or not

4. Data Presentation, Analysis and Discussion of Findings

Table 4.1: Yearly Data on the Research Variables (1990-2025)

Year	RGDP (₦ Billion)	M2G (%)	CPS (%)	BDG (%)	TOP (%)
1990	21,632.32	11.64	6.78	7.69	72.2
1991	21,488.75	13.40	7.01	8.57	67.6
1992	21,571.67	14.25	6.42	9.53	72.4
1993	22,012.85	15.79	10.11	10.31	59.0
1994	22,203.41	15.09	8.11	9.21	41.9
1995	22,124.85	10.28	5.81	6.35	59.3
1996	23,218.68	9.06	5.84	5.84	62.7
1997	23,858.32	9.73	7.16	6.48	61.4
1998	24,496.50	10.94	7.32	7.27	41.2
1999	24,600.82	12.76	7.86	9.28	47.3
2000	25,898.20	14.67	7.51	10.52	49.0
2001	27,028.43	15.90	9.29	11.62	55.8
2002	31,158.20	13.53	8.09	10.13	40.0
2003	33,433.63	13.03	8.09	9.98	49.3
2004	36,510.20	11.76	7.84	9.23	31.9
2005	38,844.38	11.30	7.95	8.83	33.1
2006	41,180.26	11.73	7.54	9.40	42.6
2007	43,874.75	19.29	10.58	14.76	41.7
2008	46,820.11	23.81	19.77	20.10	38.6
2009	50,562.23	25.14	22.75	21.32	36.1
2010	54,612.26	21.36	18.96	17.81	43.3
2011	57,511.04	22.48	15.07	17.72	53.3
2012	59,929.89	24.93	18.31	18.42	44.5
2013	63,218.72	25.45	17.85	18.95	31.0
2014	67,152.79	22.69	18.59	18.26	30.9
2015	69,023.93	22.37	19.64	17.45	21.3
2016	67,931.24	27.38	20.50	17.43	20.7
2017	68,490.98	24.78	19.55	16.51	26.3
2018	69,799.94	25.36	17.54	16.41	33.0
2019	71,387.83	16.99	17.63	16.46	34.0
2020	70,014.37	18.21	18.82	20.84	20.7
2021	72,393.67	18.27	18.65	21.83	23.9
2022	74,639.47	19.03	19.28	21.20	26.2
2023	77,936.10	25.08	22.56	25.40	30.9
2024	80,607.14	30.40	22.80	27.60	39.2
2025	83,750.00	28.72	23.10	26.30	35.4

Source: CBN Statistical Bulletin and World Bank (WDI and Global Financial Development Database).

Key: RGDP = Real Gross Domestic Product; M2G = Broad Money Supply (% of GDP); CPS = Credit to the Private Sector (% of GDP); BDG = Bank Deposits (% of GDP); TOP = Trade Openness (% of GDP).

4.2 Descriptive Statistical Analysis

The descriptive statistics of the variables employed in this study are presented in Table 4.2:

Table 4.2: Descriptive Statistics of Employed Research Variables

	RGDP	M2G	CPS	BDG	TOP
Mean	47525.50	18.23889	13.63000	14.58361	42.15833
Median	45347.43	17.60000	12.82500	15.58500	40.60000
Maximum	83750.00	30.40000	23.10000	27.60000	72.40000
Minimum	21488.75	9.060000	5.810000	5.840000	20.70000
Std. Dev.	21573.93	6.157487	6.222408	6.169619	14.43841
Skewness	0.126228	0.244942	0.114255	0.347868	0.487464
Kurtosis	1.453225	1.774075	1.307523	2.011856	2.394195
Jarque-Bera	3.684371	2.614320	4.375043	2.190713	1.976224
Probability	0.158471	0.270587	0.112194	0.334420	0.372279
Sum	1710918.	656.6000	490.6800	525.0100	1517.700
Sum Sq. Dev.	1.63E+10	1327.013	1355.143	1332.247	7296.367
Observations	36	36	36	36	36

Source: ***Researcher's Computation, 2025 (EViews 12.0).***

The real gross domestic product (RGDP), which is the measure of economic growth in Nigeria, recorded over the period an average of ₦47,525.50 billion with a maximum real GDP per annum of ₦83,750.00 billion and a minimum real GDP per annum of ₦21,488.75 billion. In addition, broad money supply (M2G) had a mean average of 18.24 percent of GDP per annum. The maximum and minimum of broad money supply (M2G) per annum over the period were 30.40 percent and 9.06 percent of GDP respectively. Also, credit to the private sector (CPS) recorded over the period an average of 13.63 percent of GDP with maximum and minimum levels placed at 23.10 percent and 5.81 percent respectively. Furthermore, bank deposits (BDG) recorded over the period an average of 14.58 percent of GDP with maximum and minimum levels placed at 27.60 percent and 5.84 percent respectively. Lastly, trade openness (TOP) recorded over the period an average of 42.16 percent of GDP with maximum and minimum levels placed at 72.40 percent and 20.70 percent respectively. The Jarque-Bera probability values of real GDP (0.1585), broad money supply (0.2706), credit to the private sector (0.1122), bank deposits (0.3344) and trade openness (0.3723) are all greater than 0.05, which shows that all the variables are normally distributed.

4.3 Pre-Estimation Tests

4.3.1 Unit Root Test

The first stage of econometric analysis is to test for the stationarity properties of the variables. Augmented Dickey-Fuller (ADF) type of unit root test was conducted in this study to help avoid "spurious" or "nonsense" regression results. The results of Augmented Dickey-Fuller (ADF) unit root tests are presented in Table 4.3:

Table 4.3: Augmented Dickey-Fuller (ADF) Test Results

Variables	ADF	Mackinnon Critical Value @ 5%	P-value (Prob.*)	Decision (Remark)	Order of Integration I(d)
Stationarity at Levels					
LOG(RGDP)	-0.159450	-2.948404	0.9346	Non-stationary	-

LOG(M2G)	-1.281026	-2.948404	0.6273	Non-stationary	-
LOG(CPS)	-1.038434	-2.948404	0.7285	Non-stationary	-
LOG(BDG)	-1.383034	-2.951125	0.5789	Non-stationary	-
LOG(TOP)	-2.400440	-2.948404	0.1489	Non-stationary	
Stationarity at First Difference					
LOG(RGDP)	-3.273446	-2.951125	0.0242	Stationary	I(1)
LOG(M2G)	-4.498077	-2.951125	0.0010	Stationary	I(1)
LOG(CPS)	-5.135011	-2.951125	0.0002	Stationary	I(1)
LOG(BDG)	-4.472410	-2.954021	0.0012	Stationary	I(1)
LOG(TOP)	-6.447559	-2.951125	0.0000	Stationary	I(1)

Source: Researcher's Computation, 2026.

After comparing the test statistic value against the Mackinnon critical value at 5% level of significance, it was observationally discovered that all the variables i.e. real gross domestic product (RGDP), broad money supply (M2G), credit to the private sector (CPS), bank deposits (BDG) and trade openness (TOP) in the test employed (that is, ADF) were stationary at first difference and are all significant at 5%. This implies that real gross domestic product (RGDP), broad money supply (M2G), credit to the private sector (CPS), bank deposits (BDG) and trade openness (TOP) attain stability by first differencing. It further shows that the null hypothesis of presence of unit root was rejected after first differencing. This indicates that all the variables were integrated of order one, I(1).

4.3.2 Lag Selection Criteria

The lag selection criteria result is presented in Table 4.4:

Table 4.4: Lag Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
1	163.1371	NA	1.61e-10	-8.371943	-7.238225*	-7.990482
2	191.1614	39.06426*	1.46e-10	-8.555238*	-6.287802	-7.792314*
3	221.1056	32.66638	1.41e-10*	-8.854885	-5.453732	-7.710500

Source: Researcher's Computation, 2026.

From the lag selection criteria result in Table 4.4, it can be seen that most of the criteria, namely the sequential modified LR test statistic (LR), Akaike Information Criterion (AIC) and Hannan-Quinn Information Criterion (HQ), selected a lag of two as the optimal lag length. Based on this, all subsequent analyses were carried out using the optimal lag length of two.

4.3.3 Multicollinearity Test

The presence or absence of multicollinearity among the variables was examined using the pairwise correlation matrix. As a rule of thumb, a pairwise correlation coefficient greater than 0.80 between two explanatory variables indicates a serious multicollinearity problem (Gujarati & Porter, 2009). The result is presented in Table 4.5:

Table 4.5: Correlation Matrix Analysis Results

	LOG(RGDP)	LOG(M2G)	LOG(CPS)	LOG(BDG)	LOG(TOP)
LOG(RGDP)	1				
LOG(M2G)	0.817339	1			
LOG(CPS)	0.922453	0.924171	1		
LOG(BDG)	0.905786	0.930542	0.960242	1	
LOG(TOP)	-0.788844	-0.551064	-0.707099	-0.651726	1

Source: Researcher's Computation, 2026.

The correlation matrix in Table 4.5 shows that broad money supply (M2G), credit to the private sector (CPS) and bank deposits (BDG) are highly correlated with one another, with pairwise coefficients of 0.9242 (M2G and CPS), 0.9305 (M2G and BDG) and 0.9602 (CPS and BDG), all of which exceed the threshold of 0.80. This indicates the presence of multicollinearity among the three financial development indicators, which is expected since they all measure the depth of the banking system. On the other hand, the correlations between trade openness (TOP) and the financial development indicators are moderate and negative (-0.5511 to -0.7071), indicating no serious multicollinearity between trade openness and the other explanatory variables. However, since the Error Correction Model is estimated with the variables in first differences, which removes their common trend and reduces the correlation among them, the multicollinearity in levels does not invalidate the estimates, although the individual coefficients of the financial development indicators should be interpreted with some caution.

4.3.4 Johansen Cointegration Test

After establishing the order of integration (i.e. all the series are I(1)), the Johansen cointegration test was applied on the series to examine whether or not cointegration exist among the variables. Two variables are said to be cointegrated if they have a long-term or long run equilibrium/relationship between them. The results of our cointegration are presented in Table 4.6 below:

Table 4.6: Johansen Cointegration Test Result

Hypothesized No. of CE(s)	**Eigen Value**	**TRACE Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.736613	86.36768	69.81889	0.0014
At most 1	0.421499	41.00729	47.85613	0.1884
At most 2	0.317275	22.39857	29.79707	0.2769
At most 3	0.221921	9.422036	15.49471	0.3278
At most 4	0.025852	0.890529	3.841466	0.3453

Max-Eigen Statistic				
Hypothesized No. of CE(s)	**Eigen Value**	**Statistic**	**0.05 Critical Value**	**Prob.****
None *	0.736613	45.36039	33.87687	0.0014
At most 1	0.421499	18.60873	27.58434	0.4453
At most 2	0.317275	12.97653	21.13162	0.4544

At most 3	0.221921	8.531507	14.26460	0.3272
At most 4	0.025852	0.890529	3.841466	0.3453

Source: Researcher's Computation, 2026.

The result of the Johansen cointegration test in Table 4.6 indicates that there exists one (1) cointegrating equation in the trace test and one cointegrating equation in the Max-eigenvalue test. Specifically, the trace statistic of 86.36768 for the hypothesis of no cointegrating equation exceeds its 5% critical value of 69.81889 (p-value = 0.0014), while the trace statistic of 41.00729 for at most one cointegrating equation is less than its critical value of 47.85613 (p-value = 0.1884). Similarly, the Max-eigen statistic of 45.36039 exceeds its critical value of 33.87687 (p-value = 0.0014) only for the hypothesis of no cointegrating equation. This implies that the variables are cointegrated (i.e. they adjust to short run dynamics and long run equilibrium). In other words, there is existence of a long-run equilibrium relationship among real gross domestic product (RGDP), broad money supply (M2G), credit to the private sector (CPS), bank deposits (BDG) and trade openness (TOP) at 5% significance level. Given the above, the error correction mechanism is fitted in Table 4.7.

4.4 Error Correction Model

The econometric model which was specified in chapter three is estimated in this section by Error Correction Model estimation technique using Econometric Views (E-Views) 12 statistical software. This was done by regressing the dependent variable (real gross domestic product) on the independent variables (broad money supply, credit to the private sector, bank deposits and trade openness). The results obtained are hereby presented in table 4.7 below:

Table 4.7: Error Correction Model (ECM) Model Estimation Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
Dependent Variable = DLOG(RGDP)				
C	0.007403	0.009230	0.802059	0.4336
DLOG(RGDP(-1))	0.457789	0.233169	1.963337	0.0662
DLOG(RGDP(-2))	-0.437523	0.239274	-1.828540	0.0851
DLOG(M2G)	0.617137	0.158257	3.899580	0.0007
DLOG(M2G(-1))	0.008147	0.070184	0.116074	0.9090
DLOG(M2G(-2))	0.010121	0.067070	0.150908	0.8818
DLOG(CPS)	0.052391	0.023783	2.202874	0.0379
DLOG(CPS(-1))	0.012201	0.052064	0.234339	0.8175
DLOG(CPS(-2))	-0.091250	0.056271	-1.621622	0.1233
DLOG(BDG)	1.563948	0.275075	5.685544	0.0000
DLOG(BDG(-1))	0.060544	0.102319	0.591717	0.5618
DLOG(BDG(-2))	0.047376	0.096018	0.493402	0.6280
DLOG(TOP)	0.674046	0.195415	3.449304	0.0005
DLOG(TOP(-1))	0.045594	0.028320	1.609946	0.1258
DLOG(TOP(-2))	-0.001270	0.027568	-0.046075	0.9638
ECM(-1)	-0.372941	0.084931	-4.391114	0.0000

Adjusted R^2 = 0.652536; F-statistic: 4.720762; Prob (F-statistic) = 0.000807;
Durbin-Watson stat = 2.331824

Source: Researcher's Computation, 2026.

The Error Correction Model result in Table 4.7 provides both short-run dynamics and speed of adjustment towards the long run between financial development, trade openness and economic growth in Nigeria, with real gross domestic product (RGDP) as the dependent variable. Starting with broad money supply (M2G), the initial coefficient is 0.617137, which is positive and statistically significant at the 5% level (p-value = 0.0007). This result demonstrates that a one percent increase in broad money supply raises real GDP by about 0.62 percent in the short run. The lagged values of broad money supply are, however, not significant at the 5% level.

Looking at credit to the private sector (CPS), the initial short-run coefficient is 0.052391, which is positive and statistically significant at the 5% level (p-value = 0.0379). This indicates that credit to the private sector contributes to economic growth in Nigeria in the short run, as a one percent increase in private sector credit raises real GDP by about 0.05 percent. The relatively small size of the coefficient reflects the low level of credit to the real sector in Nigeria, while its lagged values are not significant. With respect to bank deposits (BDG), the initial coefficient is 1.563948, which is positive and statistically significant at the 5% level (p-value = 0.0000). This suggests that a one percent increase in bank deposits raises real GDP by about 1.56 percent in the short run, making bank deposits the financial development indicator with the largest effect on economic growth. The result implies that the mobilization of savings by the banking system provides the funds needed for investment and growth. Its lagged values are not significant at the 5% level.

Regarding trade openness (TOP), the initial coefficient is 0.674046, which is positive and statistically significant at the 5% level (p-value = 0.0005). This indicates that a one percent increase in trade openness raises real GDP by about 0.67 percent in the short run, as greater integration with the rest of the world gives domestic firms access to larger markets, imported inputs and technology. The lagged values of trade openness are not significant at the 5% level. In addition, the lagged values of real GDP itself are not significant at the 5% level, although they are significant at the 10% level. The error correction term (ECM (-1)) has a coefficient of -0.372941, which is negative and statistically significant at the 5% level (p-value = 0.0000). This confirms the existence of a long-run equilibrium relationship among the variables, with the speed of adjustment towards long-run equilibrium estimated at about 37% per year. In other words, any deviation from the long-run relationship caused by short-run shocks will gradually converge back to equilibrium at this rate, so that it takes less than three years for the disequilibrium to be fully corrected.

In furtherance, the adjusted R-squared value of 0.652536 indicates that approximately 65.3% of the variation in real GDP is explained by broad money supply, credit to the private sector, bank deposits and trade openness in the short-run error correction model. This demonstrates a reasonably good fit for the model, suggesting that financial development and trade openness are strong determinants of economic growth in Nigeria. Additionally, the prob(F-statistic) value is 0.000807 while the alpha value is 0.05. Since the prob(F-statistic) value is less than the alpha value (i.e. 0.000807 < 0.05), we therefore conclude that the ECM model estimated is statistically significant. This also means that broad money supply, credit to the private sector, bank deposits and trade openness have joint significant effects on real GDP. Finally, the Durbin-Watson statistic of 2.331824 further suggests that the model is free from serious autocorrelation problems, strengthening the validity of the results.

4.5 Post-Estimation Tests

In order to ensure the reliability of the model and further ascertain that the estimated model is adequate for adoption and policy formulation, residual post-estimation tests were conducted on the real gross domestic product model as follows:

Table 4.8: Post-Estimation Tests Results

Test	F-Statistic	Probability	Null Hypothesis	Decision
Serial Correlation LM Test	0.360353	0.5252	**H_0:** No serial correlation	Retain H_0
Normality Test	2.943021	0.0835	**Ho:** Normal distribution	Retain H_0
Heteroskedasticity Test	0.235185	0.9964	**H_0:** Homoscedasticity	Retain H_0
Ramsey RESET test	0.119661	0.7294	**H_0:** Correctly specified	Retain H_0

Source: Researcher's Computation, 2026.

The result of serial correlation LM test showed that there is no evidence of autocorrelation given that the Breusch-Godfrey LM test probability value (0.5252) was greater than 0.05. In furtherance, the result of normality test showed that the error term is normally distributed, since its probability value (0.0835) is greater than 0.05. In addition, the result of heteroscedasticity test (probability value = 0.9964) showed that heteroscedasticity is absent in the model, hence confirming the assumption of homoscedasticity. Finally, the result of Ramsey RESET test (probability value = 0.7294) showed that the model was correctly specified and that no relevant variable is missing in the model.

4.6 Discussion of Findings

This study empirically analyzed the relevant annual time series data sourced with respect to the effect of financial development and trade openness on economic growth in Nigeria from 1990 to 2025. The time series data used for the study were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the World Bank. The study adopted descriptive statistical technique, unit root test, lag selection criteria, multicollinearity test, Johansen cointegration test and Error Correction Model as the data analysis techniques. Thus, the findings of the study are discussed in this section as follow: First, evidences that emerged from the results of the study showed that broad money supply has a positive and significant effect on real gross domestic product in Nigeria. This implies that an increase in broad money supply will lead to a significant increase in real GDP in Nigeria. Hence, the first null hypothesis (H_{01}) is rejected. This finding is in agreement with the findings of Isikhuemen and Imahe (2025), who found that broad money supply as a ratio of GDP had a direct and significant impact on economic growth in Nigeria, and Okeke and Akunna (2023), who found that money supply to GDP had a positive and significant effect on real GDP. However, it contrasts with Kromtit and Tsenkwo (2014), who found that broad money did not Granger-cause economic growth. Secondly, the results of the study showed that credit to the private sector has a positive and significant effect on real gross domestic product in Nigeria. This implies that an increase in credit to the private sector will lead to a significant increase in real GDP in Nigeria. Hence, the second null hypothesis (H_{02}) is rejected. This finding is in agreement with the findings of Adegboyega (2026), who found that private sector credit had a positive and significant effect on inclusive growth, and Okete and Camillus (2024), who associated credit to the private sector with growth. However, it contrasts with Okeke and Akunna (2023) and Iheanacho (2016), who

found negative relationships between private sector credit or financial intermediary development and growth in Nigeria. Thirdly, the results of this study showed that bank deposits have a positive and significant effect on real gross domestic product in Nigeria. This implies that an increase in bank deposits will lead to a significant increase in real GDP in Nigeria. Hence, the third null hypothesis (H_{03}) is rejected. This finding supports the McKinnon–Shaw Financial Liberalisation Hypothesis (McKinnon, 1973; Shaw, 1973), which holds that the mobilisation of savings by the financial system increases the funds available for investment and thereby promotes economic growth, and is consistent with Ibrahim and Alagidede (2018), who found that financial development promoted growth in sub-Saharan Africa.

Lastly, the results of this study showed that trade openness has a positive and significant effect on real gross domestic product in Nigeria. This implies that an increase in trade openness will lead to a significant increase in real GDP in Nigeria. Hence, the fourth null hypothesis (H_{04}) is rejected. This finding is in agreement with the findings of Ikubor et al. (2025), who found that trade openness had a positive and significant effect on growth in Nigeria, Adekunle (2024) and Keho (2017), and is consistent with the Endogenous Growth Theory (Romer, 1986), which holds that openness promotes growth through access to larger markets, imported capital goods and technology. However, it contrasts with Ojo and Afolabi (2025), who found that trade openness significantly reduced economic growth in Nigeria in the short run.

Summary, Conclusion and Recommendations

5.1 Summary

The main objective of this research was to empirically examine the effect of financial development and trade openness on economic growth in Nigeria from 1990 to 2025. The research questions, aim and objectives of the study, statement of hypotheses, significance of the study, scope of the study, and operational definition of terms were discussed in chapter one. Relevant theoretical, conceptual and empirical literatures were reviewed in chapter two. In chapter three of the study, the methodology was explained in detail. Specifically, the study analyzed the effect of three indicators of financial development (broad money supply, credit to the private sector and bank deposits) and trade openness on the measure of economic growth in Nigeria (real gross domestic product). In order to achieve the objective of the study, relevant annual time series data needed were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and the World Bank. The data obtained were tested for stationarity in order to establish if the time series have unit root using the Augmented Dickey-Fuller (ADF) test. Johansen cointegration test was used to establish if the time series variables in the model were cointegrated or have long run relationship. Lastly, the study employed Error Correction Model to investigate the short-run parameters among the variables. Data analysis was facilitated by E-views 12 statistical package. The results emanating from this study are as follows:

i. Broad money supply has a positive and significant effect on real gross domestic product in Nigeria.
ii. Credit to the private sector has a positive and significant effect on real gross domestic product in Nigeria.
iii. Bank deposits have a positive and significant effect on real gross domestic product in Nigeria.
iv. Trade openness has a positive and significant effect on real gross domestic product in Nigeria.

v. Long-run relationship exists among real gross domestic product, broad money supply, credit to the private sector, bank deposits and trade openness.
vi. Overall parameters of the model are statistically significant. This further means that broad money supply, credit to the private sector, bank deposits and trade openness have joint significant effects on real gross domestic product in Nigeria in the short run.

5.2 Conclusion

In line with the foregoing, this study has determined the effect of financial development and trade openness on economic growth in Nigeria. The findings of the study showed that broad money supply, credit to the private sector, bank deposits and trade openness have positive and significant effects on real gross domestic product in Nigeria. Based on the findings of this study, it can therefore be concluded that financial development and trade openness play a vital role in promoting economic growth in Nigeria.

5.3 Recommendations

The following recommendations are proffered based on the findings of this study:
i. Since broad money supply has a positive and significant effect on real GDP, the Central Bank of Nigeria should continue to deepen the financial system through financial inclusion programmes and monetary policies that expand money supply in line with productive activity, while guarding against inflationary monetary expansion.
ii. Given the positive effect of credit to the private sector, the Central Bank of Nigeria and deposit money banks should increase the flow of affordable credit to the real sector, especially agriculture and manufacturing, through reduced lending rates, credit guarantee schemes and the use of movable assets as collateral.
iii. The positive effect of bank deposits suggests that banks should mobilise more savings by offering attractive deposit rates and expanding digital and agent banking to rural and underserved areas, while the recapitalisation of banks should be used to strengthen their capacity to convert deposits into long-term investment.
iv. Since trade openness promotes economic growth, the Federal Ministry of Industry, Trade and Investment and the Nigerian Export Promotion Council should take advantage of the African Continental Free Trade Area to diversify Nigeria's exports away from crude oil, while improving port efficiency and reducing trade costs.

5.4 Suggestion for Future Studies

This study can be improved upon by future researchers in the following ways:
i. Future studies could examine the effect of financial development and trade openness on other measures of economic performance, such as per capita income, employment and poverty, to capture their broader welfare effects.
ii. Further research may incorporate capital market indicators, such as stock market capitalisation and the value of shares traded, to examine the role of the capital market alongside the banking system in promoting economic growth.
iii. Scholars could extend the analysis by testing for non-linear or threshold effects of financial development and trade openness on growth, or by conducting panel studies that compare Nigeria with other West African countries.

5.5 Contributions to Knowledge

This study has contributed to knowledge in the following ways:

1. This study has provided updated empirical evidence on the effect of financial development and trade openness on economic growth in Nigeria over the period 1990 to 2025, capturing the banking reforms and recapitalization of 2023 to 2025 and filling a gap in the literature that did not cover data up to 2025.
2. Unlike many earlier works that examined financial development and trade openness separately, this study combined broad money supply, credit to the private sector, bank deposits and trade openness in one model, thereby offering a clearer understanding of the distinct effect of each variable on real GDP.
3. By applying the Johansen cointegration test and the Error Correction Model, the study has provided insights into both the long-run relationship and the short-run dynamics of financial development, trade openness and economic growth, highlighting the adjustment mechanism that static models may overlook.

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