EFFECT OF INTEREST RATE FLUCTUATION ON INVESTMENT AND ECONOMIC GROWTH IN NIGERIA

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Abstract
The study examines the impact of interest rate fluctuations on Investment (Gross Fixed Capital Formation (GFCF), Private Sector Investment (PSINV)) and Economic Growth (Real Gross Domestic Product (RGDP) The Central Bank of Nigeria (CBN) Statistical Bulletin and World Development Indicators were used as sources for the annual time-series data. The short-run dynamics and the long-run relationships between the variables were analyzed through the use of unit root and Johansen cointegration tests, respectively and the Vector Error Correction Model (VECM) was employed. These outcomes indicated that the short-run changes in interest rates have a negative impact on GFCF, PSINV and RGDP, but not statistically significant. The other two variables, GFCF and PSINV, also had weak and statistically non-significant negative relationships with economic growth; and marginally significant negative relationships with economic growth, respectively. An error correction term was negative and statistically significant which means that around 37.6 per cent of the short run disequilibrium were corrected towards long-run equilibrium in every period. The study results indicate that the interest rate volatility in the longer-term period has a weak direct impact but strong indirect impact on investment and economic growth. The study suggests continuity and stability in interest rates for productive investment and sustainable growth of the Nigerian economy.

Keywords: Interest rate fluctuation; investment, economic growth, gross fixed capital formation, private sector investment, monetary policy.

JEL Classification: E43; E44; E52; E22; O47; C32.

1.0 Introduction

An important pathway by which monetary policy affects investment and economic activity is via interest rates. There is also a negative effect on the cost of borrowing and willingness to save money by the fluctuation of interest rate, while the costs of making long-term investments are not certain (Mukhtar & Usman, 2021; Magaji, & Ismail, 2025; Ozili, 2023; Olasehinde-Williams et al., 2024). The higher the interest rate, the more expensive the capital to the firm and will make it harder, if not impossible, to make the decision to undertake a moderate-return project as the interest rate increases will cause the returns of the project to decrease. Also, the volatility adds additional risk to investment decisions. The impact of these effects are stronger in developing countries with less protection against risk-hedging and less developed financial markets (Adetokunbo, Sobowale & Dada, 2025; Cui, 2025; Apere, 2021; Oladipo, 2020).

Sensitivity to interest rate fluctuations is higher in developing countries because financial markets are shallow, funds are sourced from banks and long-term credit is scarce. Thus, firms with binding credit constraints are exposed to higher lending rates, which may slow down the gross fixed capital formation, productivity, and structural transformation (Suleiman & Azeez, 2022). Monetary authorities in sub-Saharan have a knack for adjusting interest rates in response to inflation pressures, exchange rate pressures and external shocks. The adjustments may be needed in order to maintain macroeconomic stability but the size and control of any adjustments might be sufficient to affect private investment in the economy and undermine the positive effect of monetary policy on growth (Asiamah, 2024; Babatunde & Adeoti, 2023). Monetary policy can affect productive investment and growth if not properly managed with the real sector (Mukhtar & Usman, 2021; El-Yaqub, et all, 2024))), which can reduce its impact.

These relationships are explored in the context of Nigeria, which experienced a number of monetary reforms in the past and is also experiencing high macro-economic volatility. Since the deregulation of interest rates under Structural Adjustment Programme, Nigeria has been running a predominantly market driven interest rate regime, although its interest rate spreads remain large, interest rates fluctuate rapidly, and there have been some money tightening periods that have been impacting on investment performance (Adewale & Ogwuche, 2023). Weaker monetary policy transmission is a worrying factor, which can be attributed to monetary policy rate changes not always coinciding with commercial lending rate changes (El-Yaqub, Musa & Ismail, 2024). This means that even in times of monetary easing, high borrowing rates can persist, which may lead to uncertainty and lower the impact of monetary policy on boosting investment (Jibrilla & Balami, 2022; Oyadeyi, 2022). Lack of credit, strict collateral requirements, and low financial inclusion particularly for small and medium enterprises, compound Nigeria's low level of investment (Oyadeyi, 2023).

Nigeria's susceptibility to external shocks on interest rate and investments comes from the fact that oil dependency makes the country vulnerable. Oil prices in the global market have a significant impact on fiscal conditions, exchange rates, inflation and macroeconomic stability because crude oil export is an important source of government revenues and foreign exchange earnings (Mgbomene et al., 2025). This can result in reduced government revenues, reduced government fiscal capacity, and monetary policy makers can try to influence the economy by changing interest rates to curb inflation and stabilize the currency. Such transformations can cause investors to be uncertain of returns and experience interest rate volatility (Ahmadu et al., 2025; Mgbomene et al., 2025). These policy measures are intended to sustain macroeconomic stability, however, high lending rates are likely to limit domestic investments and consequently decrease its role in economic growth, making output more volatile (Enyioko et al., 2023; Suleiman & Azeez, 2022; Musa, & Ismail, 2023).

While there has been a proliferation of literature on interest rate, investment and economic growth in Nigeria, the findings have not been conclusive, and some of the reasons that explain this is that there are not many studies that expressly link interest rates and economic growth, and there are not many studies that link investment to other economic outcomes. Furthermore, methodologies and data frequencies and study periods have also led to mixed observations (Apere, 2021; Udo & Mohammed, 2022). Since Nigeria has been hit by periodical interest rate fluctuations, financial constraints and external shocks, an integrated study on the impact of fluctuations in interest rates on investment and economic growth is necessary. This evaluation can offer proof regarding the circumstances under which interest rate administration can facilitate private investment and aid in continual economic development in Nigeria (Oyadeyi, 2023; Mukhtar & Usman, 2021).

2.0 Literature Review and Theoretical Framework

Interest Rate Fluctuation: This occurs as a result of the unpredictable and irregular changes in the interest rates over time owing to monetary policy, market demand and supply, expectations about the inflation rate, liquidity conditions and other macro-economic conditions (Jibrilla & Balami, 2022). The uncertainty associated with interest rate fluctuation arises when firms and households have difficulty anticipating the future interest rate that they will be able to borrow at since there is no steady level of interest rates. Some of the factors that influence such fluctuations in Nigeria are some of the monetary policy instruments of the Central Bank of Nigeria which includes among others the Monetary Policy rate (MPR), Cash Reserve ratio (CRR), Liquidity ratio (LR), Open Market Operations (OMO) which affect liquidity, money supply and market loan rates (Udo & Mohammed, 2022; Jibrilla & Balami, 2022; Magaji & Ismail, 2025).

The effect of interest rate fluctuation is more significant for investment as frequent fluctuations in interest rates may change the firms' expectations about the profitability and the financing cost of investment projects. Interest rates have an impact on investment decisions, while Apere (2021) and David (2024) have specifically pointed out that interest rate volatility leads to uncertainty which can result to delay or cut in investment by firms. So, the negative impact of interest rate instability could come from either a very high interest rate or the rate's volatility and unpredictability, which adversely affect long-term investment planning.

Other macro-economic and structural factors such as oil price volatility, inflation, fiscal deficit, small scale financial deepening, predominance of short term government securities and limited availability of long term credit are also responsible for the instability of interest rates in the Nigerian context (Udo & Mohammed, 2022; Oyadeyi, 2023; Suleiman & Azeez, 2022). The market may have more dramatic swings in interest rates and private investors may find it more difficult to plan for these fluctuations. The interest rate will keep changing over time, which can discourage long term capital formation, reduce the investment of the private sector, cause a drop in productive capacity and economic growth. Therefore, an examination of the level of fluctuation of the interest rates is crucial to understanding its effect on Nigeria's investment behavior and economic performance apart from just the average of the interest rates.

Investment

Investment is the application of financial resources, capital resources, capital assets to achieve productive purposes in order to generate returns in the future (Apere, 2021), one of the elements of the productive capacity, jobs, technology advancements and economic growth. In Nigeria, investment is generally taken to be Gross Fixed Capital Formation (GFCF) which involves expenditure of machinery, infrastructure, industrial equipment and construction (Oladipo, 2020). The availability and cost of capital affect the level of demand for investment, because an increase in interest rates will result in reduced borrowing of money and consequently investment, while a decrease in interest rates will make it easier to invest in the growth of a business, equipment and other productive activities (Jibrilla & Balami, 2022; Udo & Mohammed, 2022; David, 2024). Other factors that impact investment, however, are government policies, taxes, subsidies, infrastructure, inflation, policy inconsistencies and political uncertainty. Lack of sufficient long-term investments, particularly in technological innovation and human and physical capital, are also important factors affecting productivity and competitiveness, and Nigeria's infrastructure is also substandard (Suleiman & Azeez, 2022; Oyadeyi, 2023). Therefore, the channel of investment is an important channel through which interest rate policies impact the production capacity and economic growth of the economy (David, 2024; Apere, 2021; Udo & Mohammed, 2022).

Economic Growth

Economic growth is the steady rise in production of goods and services over a period of time and is generally quantified as the increase in Gross Domestic Product (GDP). It reflects the economy's ability to increase productive capacity, improve living standards and create jobs, and, can also contribute to income generation, poverty alleviation and social welfare (Suleiman & Azeez, 2022). IMF (2022) and World Bank (2022) identified monetary and fiscal policy, investment, oil price volatility and structural reforms among the factors that influence economic growth in Nigeria. Investment continues to be a key determinant of economic growth as it contributes to the improvement of productive capacity, technological advancement, production, employment and competitiveness and the effect of interest rates on investment influences the accumulation of capital (David, 2024; Udo & Mohammed, 2022; Apere, 2021). The interest rates also have an effect on the consumption and aggregate demand as low interest rates might stimulate a rise in consumption and production and high interest rates might reduce the consumption of households (Oladipo, 2020). Nigeria's growth has been cushioned by the easing of restrictions due to the COVID-19 pandemic, but oil dependence, inflation, inadequate infrastructure, uncertainty over policy measures, and external shocks are all potential risks to the growth trajectory that would benefit from a stable interest rate regime and effective policy coordination to support productive investment and sustainable growth (IMF, 2021; Oyadeyi, 2023; Jibrilla & Balami, 2022; Apere, 2021).

Theoretical Framework

The choice of Monetary Transmission Mechanism (MTM) Theory from the main theoretical framework is due to the fact that it provides a clear path on how the interest rate of the monetary policy is transmitted through the financial sector to investment decisions and ultimately to economic growth. Another channel of interest is particularly interesting: Interest rate changes and instability have an impact on the cost and availability of credit, and hence on the uncertainty of financing costs and expected returns from investment project. To the extent that firms postpone, cut or cancel investments because of higher interest rates or unpredictable interest rate movements, lower Gross Fixed Capital Formation (GFCF) and Private Sector Investment (PSINV) could result. An expansion of borrowing, higher capital formation and the resulting higher investment may be effected as a result of more stable and favourable interest rate conditions, thus leading to higher GFCF and PSINV. The resulting changes on the investment result in Real Gross Domestic Product (RGDP) change which is used to measure economic growth in this study, through the effects on capital accumulation and productive capacity, employment and aggregate output. The imperfect credit markets, high interest rate, weak financial intermediation, and asymmetric information in Nigeria may make investment choices more interest rate-sensitive (Apere, 2021; Oyadeyi, 2022). In this way, the MTM Theory is the direct link between fluctuation in interest rate (INTR), investment (as measured by GFCF), and growth of economy (as measured by RGDP) which provides basic theoretical framework for studying the effect of instability in interest rates on investment behaviour and consequently on economic growth in Nigeria.

Empirical Review

Oyadeyi (2025) explored the impact of interest rate and inflation on economic growth in Nigeria, which aims to determine if there is a threshold effect between monetary conditions and economic growth that is nonlinear. The study used time-series data for the year on year basis for Nigeria from the governmentally published macroeconomic data, which included monetary and national accounts statistics. A threshold regression method was used, a technique that enables us to determine threshold values where interest rate and inflation influences on growth begin to vary considerably. The results showed that high interest rates have a negative effect on economic growth after a certain level, but moderate interest rates are growth friendly. The same nonlinear characteristics were observed for inflation. The study has found that excessive tightening of interest rates is a negative factor for long-

term growth, and that monetary authorities are urged to have a more growth-sensitive interest rate framework, taking into account threshold effects, when they are designing monetary policy.

Olasehinde-Williams et al. (2024) examined the impact of interest rate volatility on economic growth in Nigeria, using a long time series and advanced quantile methods. The study covered 1981-2020 and constructed an interest-rate volatility series (deviations from trend via HP filter) to capture the instability of interest rates rather than only level effects; data were obtained from official macro time-series sources cited in the paper (CBN and national accounts series). Methodologically, the authors employed the Quantile Autoregressive Distributed Lag (QARDL) framework to estimate quantile-specific short-run and long-run relationships and complemented these with Granger causality tests to check predictive directions. The main findings show that interest rate volatility has an adverse effect on Nigeria's economic performance in both short and long runs, with the short-run negative impact being larger when the economy is weak and the long-run negative impact larger when the economy is strong evidence that volatility harms growth across state-dependent regimes. The authors concluded that full interest-rate liberalization is not Pareto-efficient for Nigeria and recommended greater supervision of the interest-rate corridor and measures to reduce persistent upward or downward bias in rates; they also suggested policy moderation to reduce volatility and careful sequencing of liberalization reforms.

Ndukwu and Nwala (2024) investigate the impact of interest rates on investment decisions in Nigeria, focusing on the long-run relationship between deposit/market interest rates and gross fixed capital formation. The paper uses annual time-series data (1990–2021) sourced from international and national databases (World Development Indicators and CBN series) to construct the key variables GFCF (investment), deposit/market interest rates, exchange rate and inflation. Methodologically, the authors adopt a quasi-experimental design employing Vector Error Correction Model (VECM) and cointegration techniques to capture both short-run dynamics and long-run equilibria; they perform unit-root, cointegration and structural diagnostics. Their findings indicate a negative and significant long-run relationship between interest rates and investment decisions in Nigeria, while short-run responses may be positive or transitory depending on other macro conditions. The study documents stationarity properties and cointegration among variables and recommends that monetary authorities pursue policies to improve deposit mobilization and loanable funds while ensuring interest-rate management that supports private investment including measures to increase savings and allow the CBN operational independence for effective open-market operations.

Olatubosun (2024) examines the impact of financial deepening (including interest-rate effects) on domestic investment in Nigeria over the period 2005-2022, explicitly incorporating broad money supply, private sector credit, stock market capitalization and the monetary policy interest rate as regressors. The study used secondary macro time-series data (CBN, WDI, stock market data) and applied the Autoregressive Distributed Lag (ARDL) bounds testing approach selected because the variables were of mixed integration orders complemented by diagnostic tests (unit root, CUSUM/CUSUMSQ for stability). The empirical results show broad money supply, private sector credit and stock market capitalization exert positive and significant long-run impacts on domestic investment, while the interest rate has a negative effect on domestic investment in the long run. The paper concludes that deeper financial intermediation supports investment, whereas higher policy interest tends to deter it; policy recommendations emphasize deepening financial markets, expanding private credit, and designing monetary strategies that balance liquidity expansion with price stability to stimulate domestic investment.

Maduike et al. (2024) examines causal relationships among agricultural investments (private, government, FDI), inflation and interest rates in Nigeria, thereby focusing on sectoral investment

responses to macro conditions. Using annual series for 1981-2020 drawn from the Central Bank of Nigeria (CBN) and Food and Agriculture Organization (FAO) databases, the study employed Granger causality tests to identify directional linkages among variables. The authors report uni-directional causality from government and private agricultural investment to agricultural FDI, and uni-directional causality from inflation to interest rates (at standard significance levels). The implication is that domestic public and private agricultural investments help attract foreign agricultural capital, and macroeconomic instability (inflation) feeds into interest-rate movements. Based on these findings, the authors recommend targeted public and private investments in agriculture to attract FDI and policies to stabilize inflationary expectations and interest rates so as to create a conducive environment for agricultural capital formation.

Eze et al. (2024) assess private domestic investment responsiveness to the interest rate in Nigeria during the period 1986-2019, taking special consideration on structural breaks and short and long run impact. The paper relied on secondary time-series data, and employed the Auto-Regressive Distributed Lag (ARDL) framework along with structural-break tests and cointegration analyses to make sure the analysis is robust against regime shifts. The empirical results not only replicated the negative and statistically significant interest rate-private domestic investment relationship in both short and long time horizons but also revealed the presence of several structural breaks, particularly in 2002, 2009 and 2014, which had a significant effect on the short and long-term dynamics of the relationship and underscored the importance of policy and macro shock effects on the relationship. The study ends by recommending that monetary authorities keep interest rates low and stable to create private domestic investment that will make it harder to raise the volatility of rates and stimulate investment, thereby creating jobs and boosting productivity.

In this study, Osuka et al. (2024) examines the relationship between interest rates and capital formation (GFCF) in Nigeria using time-series data from 1990 to 2021 of the Central Bank of Nigeria (CBN) Statistical Bulletin and the World Bank Database. Multiple regression (OLS) analysis, cointegration, VAR analysis and pairwise Granger causality analysis were used to determine direction of causality and long run relationships between the variables including GFCF. Their cointegration analysis reveals cointegration among the variables, causal relationship in one direction only (GFCF causing the prime lending rate) and mixed effects of the various interest rates on capital formation, suggesting that the relationship between capital formation and prime lending rate is complex and dynamic. Policy conclusions highlight the need to increase the savings rate, control the interest rate of loans and improve macroeconomic variables that facilitate capital formation and call for the careful management of interest rates and policies to boost domestic savings and long-term credit flows for investment.

From the available national financial series and market data, Adekunle et al. (2024) study the impact of interest rate, exchange rate and inflation on stock market returns and volatility for monthly data of Nigeria ranging from January 2000 to September 2022. The study employed ARDL framework for the returns relationship and the GARCH family model for the volatility dynamics, and the proper diagnostic corrections (HAC / Newey-West). The results indicated that stock market volatility was significantly influenced by prime/maximum lending rates and other interest rates, with prime lending rate showing significance with short lags for stock market returns and exchange rate and inflation had less consistent significance for the stock market returns for the sample. The authors believe that monetary policy instruments have an important effect on stock market behavior, and that policy makers should be attentive to their effect on the stabilization of financial markets, as well as their impact on both capital market returns and volatility.

The study by Oyadeyi (2023) examines the impact of financial development on interest-rate pass-through and the interest-rate channel of monetary policy in Nigeria as well as the effect of changes in

monetary policy rate on the money market and retail banks rates of interest. A Nigerian time series data from the Central Bank of Nigeria Statistical Bulletin (1981–2021) and complemented with internationally accepted financial development indicators of Beck et al., the study used the principal component analysis technique to generate a composite financial development index to avert the problem of multicollinearity. The result of the empirical analysis showed that the pass-through of interest rates in Nigeria is generally incomplete and asymmetric, that is, increases and decreases of the policy rate have different responses on the retail bank rates. Contrary to the prevailing view, the results also showed that the interest-rate pass-through effect is weaker to the rise in financial development, which means that the rise in interest rates has a lower effect on the interest rates on borrowing, investment and aggregate economic activity. The study revealed that the flow of policy messages within the financial system was hindered by structural inefficiencies, market rigidities and adjustment costs, which minimized the impact of policy messages on investment and the economic growth outcomes. It therefore recommended for the financial system to become deeper, more competitive and have fewer frictions to enhance the transmission of policy messages to investment and economic growth outcomes.

Olorunfemi and Adeleke (2023) investigate the relationship between the monetary policy rate and investment growth in Nigeria, given the Central Bank of Nigeria's numerous changes in the monetary policy rate and the fluctuations in the private sector's investment. The study used time series macroeconomic data from the official sources in Nigeria, investment proxies include gross fixed capital formation, private domestic investment, some of the control variables include inflation and money supply. They adopted the basic time-series econometric approach and obtained the relationship between the monetary policy rate and growth of investment in Nigeria in both the short and long run. The empirical evidence showed a positive relationship between the monetary policy rate and the increase in borrowing costs, as well as between the money supply increase and improved credit conditions with a positive effect on cushioning the adverse effects of tight monetary policy, which also negatively affected the growth of investments. The study also revealed that investment planning is affected by uncertainty and slows down long-term investments, especially long-term capital accumulation, due to frequent rate changes. In this study, the authors therefore, arrived at the conclusion that while monetary policy is one of the major macroeconomic stabilization tools, excessive tightening of monetary policy can negatively affect investment and growth and recommended a more balanced and predictable monetary policy regime that can help ensure price stability, while simultaneously stimulating investment and growth in Nigeria.

Gap in Literature

While a lot of research has been undertaken in the interest rates and investments and economic growth area of interest in Nigeria, there is still scope for further research in the areas of sectoral analysis, interest rate inflation relationship, availability of credit and volatile exchange rates. Previous research has focused on the national level relationships and direct interest rate effects on investment with little focus on threshold effects, short- and long-run dynamics as well as nonlinear relationships and sectoral differences between agriculture, services, manufacturing and infrastructure (Oladipo, 2020; Apere, 2021; Oyadeyi, 2023; Enyioko et al., 2023). Besides, the use of long span time series data is limited and strong econometric techniques such as ARDL, VECM, Granger Causality, Threshold regression and some studies rely on working papers and institutional reports, (Udo & Mohammed, 2022). Furthermore, the existing literature has paid little attention to the effects of the economic shocks of 2020-2023; the volatility of oil prices; monetary tightening; and the effects of these on investment and growth; interest rates; and credit availability. The current knowledge on the topic is limited at the sector level and lacks recent policy interventions and macroeconomic interactions, limiting the applicability of the findings. Accordingly, this study is geared towards closing the gap identified by providing a comprehensive data-informed study of the impact of interest rate adjustments on investment and

economic growth in Nigeria, while also taking into account of the sectors, macroeconomic interactions, new policy developments, and short and long run dynamics.

3.0 Methodology

The study was based on interest rates sensitivity to investment and economic growth in Nigeria (1990-2025), ex-post facto research design was adopted while time-series data were analysed at annual frequency. Two indicators of investment, namely Gross Fixed Capital Formation (GFCF) and Private Sector Investment (PSINV) were used. The selection of GFCF was chosen because it is a measure of expenditure on the capital stock which is a measure of the economy's ability to produce goods and services. PSINV was formed to include investments by private-sector companies, whose investment and expansion plans are particularly sensitive to interest rates and credit conditions. Overall fixed capital formation is split from private sector investment activities with the use of both measures giving a more complete picture of investment. To measure the economic growth of the economy, real Gross Domestic Product (RGDP) was used. The real economic activity of the economy was expressed in the inflation adjusted value of the goods and services produced, and was therefore suitable for comparison of economic activity over time. Such measures are in line with the theoretical analysis which suggests that the interest rates change affects investment decisions through the borrowing rate and availability of credit, and investment changes in turn affects the accumulation of capital, productive capacity and consequently real output. The Vector Error Correction Model (VECM) was employed since it enables estimation of both the short run dynamics and the long run equilibrium relationships among the series which are cointegrated. The estimation has been done in EViews 9.0. To identify the order of integration of the variables, unit root tests were applied prior to estimation, and to see if there was a long-run equilibrium relation, Johansen cointegration test was applied. The VECM model was estimated to bound cointegration and to estimate the adjustment speed as well as the short-run reactions of investment and economic growth to interest rate changes.

The analysis was cognizant of the fact that Nigeria also faced significant economic shocks and changes in the monetary and fiscal policy regimes, which could have an impact on the behaviour of the variables given the relatively long study period (1990- 2025). These include monetary and banking-sector shocks, monetary policy changes, the major oil-price shocks, the 2008–2009 global financial crisis, the oil-price decline of 2014–2016, the disruption caused by Covid-19 and related changes in monetary policies and macroeconomic conditions. These events can cause structural breaks in the underlying time-series relationships and can potentially impact the validity of the conventional estimates of unit-root, cointegration and VECM. The study, therefore, also introduced consideration of structural breaks both in the pre-estimation phase and in the model diagnostics, using the series to see if there were any evidence of abnormal changes occurring during major economic and policy periods, and evaluating the stability of the estimated relationships. If evidence of a structural change was found the implications for the interpretation of the estimated coefficients and long-run relationship were considered. For further evaluation of the estimated model, t-statistics, R^2, adjusted R^2, F-statistic, Durbin-Watson statistic and other diagnostic and stability tests were used in order to check the reliability and robustness of the results. This way, the estimated interest rate fluctuation-investment-economic growth relation is analyzed in the context of the other economic and policy conditions that existed during the entire study period, 1990-2025.

Model Specification

To test the impact of interest rate fluctuation on investment and economic development in Nigeria (1990-2025), the following model was considered and adapted from Enyioko et al. (2023) who used 1990–2021-time period to test the interest rate and investment relationship in Nigeria.
This model is expressed as:
INV = f(INTR, INF, RGDP, CRE) ... (3.1)

INV: Investment
INTR: Interest Rate
INF: Inflation Rate
Explained as the GDP in constant dollars.
CRE: Credit Availability
The new model is therefore defined in this way;
RGDP = B0 + B1INTR + B2GFCF + B3PSINV + B4INF + Ut
dRGDP = a1 + a1(dINTR) + a2(dGFCF) + a3(dPSINV) + a4(dINF) + Vt
Where:
A country's economic growth is measured by Real Gross Domestic Product (RGDP).
INTR = Interest Rate
GFCF = Gross Fixed Capital Formation
PSINV is the private sector investment.
INF = Inflation Rate
Bo = Intercept Term
B1 – B4 = Partial Slopes
U = Error Term
t = Time
The model that was considered in this study was the effect of interest rate fluctuation on investment and economic growth in Nigeria 1990-2025. RGDP as the dependent variable was measured as a function of independent variables which are Interest Rate, Gross Fixed Capital Formation, Private Sector Investment and Inflation Rate.

A Priori Expectations
As per the economic theory, it is expected that Interest Rate (INTR) and Inflation Rate (INF) will have a negative relationship with RGDP, whereas Gross Fixed Capital Formation (GFCF) and Private Sector Investment (PSINV) will have a positive relationship with RGDP. These were a priori expectations, which can be described mathematically as follows:

$B1 < 0, B2 > 0, B3 > 0, B4 < 0$

Variables Measurement and Discussion
For this study the variables are:
The dependent variable to be measured is the Real Gross Domestic Product (RGDP) which is the most important indicator of economic growth in Nigeria. It has been calculated as the total of all the final goods and services produced in the country, deflated by the price index to reflect the actual value of the quantity of goods and services produced. This study provides an assessment of Nigeria economy's overall health and growth from the fluctuation in the interest rate finally.

The Interest Rate (INTR) is the main independent variable and is measured in terms of the Monetary Policy Rate (MPR) of the Central Bank of Nigeria or the prime lending rate. This is a measure of the cost of borrowing money by business and individuals. Expect a negative relationship between interest rates and growth (B1 should be negative), since when interest rates are high, capital expansion is more expensive and less likely to be done.

Gross Fixed Capital Formation (GFCF) represents the total investments in fixed assets in the economy including investments in machinery, equipment and infrastructure. It is calculated in the percentage of GDP or in constant local currency. This variable reflects the country's actual expansion of productive capacity, and should be positive and contribute positively to economic growth ($B2 > 0$).

The contribution of capital stock of the country by private businesses is called Private Sector Investment (PSINV). It is normally expressed in terms of credit supplied to the private sector by commercial banks, or the data from private domestic investment. There is a positive relationship between private investment and economic growth (B3 > 0) and private investment is an important source of innovation and job creation.

The control variable used as an indicator of the state of macro-economic stability in Nigeria is inflation rate (INF). It can be measured using the year-on-year change in the Consumer Price Index (CPI). It is expected that high inflation (B4 > 0) will have a negative relationship since high inflation tends to create uncertainty and will diminish the real value of returns on investments.

Nature and Sources of Data

To test the relationship between these variables, their annual time series data were used for model estimation and comes from the Central Bank of Nigeria (CBN) publication and World Bank Development Indicators (1990-2025).

Estimation and Evaluation Techniques and Procedures

The specified model above is estimated using the Vector Error Correction Model (VECM). According to this study, there are four reasons for the adoption of VECM. The first is that the VECM is suitable for the analysis of non-stationary time series variables that are cointegrated, since it reflects the long run relationship between these variables and also their short run adjustments. Secondly, the VECM does not encounter the issue of spurious regression which occurs when estimating relationships between non-stationary variables. Last, the VECM has been extensively applied to macroeconomic research on the interest rate-investment-growth relationship in developing countries. Finally, the error correction mechanism will provide useful insights into the time taken for variables to return to their long-run equilibrium after a shock.

The study employs the analytical technique of the Econometric Views E-Views 9.0 Software Package. Various diagnostic and summary statistics including t statistics, coefficient of multiple determination (R^2), adjusted R^2, F statistic, Durbin-Watson (d) statistic, etc. were used to test the reliability of the regression estimates obtained. These test statistics are defined below.

Coefficient of Multiple Determination (R^2)

This is the square of correlation coefficient (R). It is a measure of how much of the change in the value of the dependent variable is caused by the change in the value of the independent variable. It is the most commonly used measure of the goodness of fit of the regression line. It cannot be negative as its value ranges between 0 and 1 i.e., $0 < R^2 < 1$; if it is 1, it depicts a perfect goodness of fit and if it is 0 it depicts no fit at all.

Adjusted R-squared

The coefficient of determination is adjusted to take into account or take care of the number of degrees of freedom used up in estimating the regression model. The adjusted R-square is symbolically defined as R-bar squared and its value lies between 0 and 1, i.e., 0 < R-adj < 1; if it is 1, it depicts a perfect goodness of fit and if it is 0 it depicts no fit at all.

F-Test

This is the overall impact of the model. It is used to examine the goodness of fit of a model. The decision rule is that F-cal > $F_{0.05}$, we reject the null hypothesis (H_0) that the model parameters are jointly significant and adequate to predict and make policies, otherwise F-cal < $F_{0.05}$, we reject the alternative hypothesis (H_1).

T-Statistic Test
The individual significance of the parameters of a regression model is tested with the t-statistic. If t-ratio is greater than t-critical, then the null hypothesis (H_0) is rejected and if t-ratio is less than t-critical, then the alternative hypothesis (H_1) is rejected.

Durbin–Watson (D-W) Statistic
A test for the degree of first order autocorrelation is the D-W statistic. It is between 0 and 4. The value D-W = 0 shows that there is perfect positive autocorrelation, and the value D-W = 4 shows that there is perfect negative autocorrelation. The following hypothesis is used to test for the autocorrelation for D-W statistic:
H_0: No First Order Autocorrelation.
H_1 = There is first order autocorrelation.

Johansen Cointegration Test
The Johansen cointegration test is used to test for the presence of long-run relationships between non-stationary variables that have the same degrees of integration. The test is of trace and maximum eigenvalue statistic. If the test statistic is greater than the critical value at the desired significance level, then the null hypothesis is rejected that the series are not cointegrated. The cointegration confirms the suitability of using the VECM and confirms that the variables follow each other in the long run even if they do not follow each other in the short run.

Error Correction Term (ECT)
The error correction term reflects the rate of correction of the deviation from the long-run equilibrium in the dependent variable. A negative ECT coefficient with significant statistical value represents a stable long-run relationship and is the percentage of disequilibrium corrected in each period. The ECT is an integral part of the VECM, and is essential in differentiating this model from common VAR models and offer proof of cointegration.

4.0 Data Presentation and Analysis of Results
All of the tests mentioned in the previous chapter were used in the results presented in this chapter. In the following, all the results are derived from EViews 9.0 software statistical package.

Data Analysis
Table 1.
Summary Statistics

	RGDP	INTR	GFCF	PSINV	INF
Mean	1.34E+14	14.36444	17161.87	15206.86	18.86611
Median	1.29E+14	13.50000	7741.695	6558.135	13.13000
Maximum	2.29E+14	27.25000	72450.00	82150.00	72.84000
Minimum	6.17E+13	6.000000	262.7700	45.20000	5.390000
Std. Dev.	5.96E+13	4.678708	23396.44	21283.66	15.67047
Skewness	0.069550	1.200095	1.557737	1.824169	2.059703
Kurtosis	1.378106	4.686184	3.886490	5.749516	6.547089
Jarque-Bera	3.974832	12.90620	15.73805	31.30530	44.32703
Probability	0.137049	0.001576	0.000382	0.000000	0.000000
Sum	4.82E+15	517.1200	617827.3	547446.8	679.1800
Sum Sq. Dev.	1.24E+29	766.1607	1.92E+10	1.59E+10	8594.726
Observations	36	36	36	36	36

Source: Author's Computation (E-View 9.0, 2026).

Descriptive statistics of RGDP, INTR, GFCF, PSINV and INF are summarized in Table 4.1, which shows the central tendencies, variations, distribution and normality. Although there was a considerable spread of data, the approximately symmetric distribution of RGDP with a platykurtic distribution and

a Jarque-Bera probability of 0.137049 suggest that this distribution is not significantly different from normal. INTR showed a large range of interest rates, from 6.00 to 27.25, with a mean of 14.36444, showing very high interest rate fluctuations, positive skewness, leptokurtic distribution and significant non-normality. The change in investment patterns and economic conditions over the period are reflected in the substantial variance observed in both the mean values of GFCF (17,161.87) and PSINV (15,206.86), both of which were also positively skewed and significantly non-normal. INF had a high mean level of 18.86611; a high level of variability (min. 5.39, max. 72.84); positive skewness (0.89); leptokurtosis (16.46); non-normality (3.24); and appeared to experience significant inflationary pressures and economic shocks during the period of study. The statistics show a significant volatility in both interest rates and investment growth, as well as in inflation rates, but the distributional characteristics of RGDP were fairly stable.

Stationarity Result

Table 2:

Unit Root (Stationarity) Test

Time Series	ADF Statistics	Critical Value (1%)	Critical Value (5%)	Critical Value (10%)	Probability	Stationary Status
RGDP	-3.141405	-3.639407	-2.951125	-2.614300	0.0328	I(1)
INTR	-5.061022	-3.646342	-2.954021	-2.615817	0.0002	I(1)
GFCF	-3.928830	-3.639407	-2.951125	-2.614300	0.0048	I(1)
PSINV	-4.925505	-3.639407	-2.951125	-2.614300	0.0003	I(1)
INF	-4.064016	-3.679322	-2.967767	-2.622989	0.0039	I(1)

Source: Author's Computation (E-View 9.0, 2026).

The critical values for rejection of hypothesis of unit root were from MacKinnon (2015) as reported in E-views

The Augmented Dickey-Fuller (ADF) unit root test is used to check for stationarity of RGDP, INTR, GFCF, PSINV and INF as indicated in Table 4.2. The findings indicate that the five variables are non-stationary at levels but become stationary following first differencing because the ADF statistics of all variables are higher than the MacKinnon (1996) critical values and probability values are statistically significant. In particular, the values of the probability test for RGDP, INTR, GFCF, INF, and PSINV are 0.0328, 0.0002, 0.0048, 0.0039, and 0.0003, respectively, which indicate that all variables are integrated of order one (I(1)). The results suggest that the variables have the same order of integration and thus give the ground for further analysis using cointegration and a Vector Error Correction Model (VECM) to analyze the short run dynamic and the long run equilibrium relations of the variables.

Cointegration Test

Table 3:

Johansen's Cointegration Result

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.935068	152.8157	69.81889	0.0000
At most 1 *	0.526929	59.84556	47.85613	0.0025
At most 2 *	0.470069	34.39626	29.79707	0.0138
At most 3	0.312529	12.80599	15.49471	0.1221
At most 4	0.001909	0.064981	3.841466	0.7988
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.935068	92.97010	33.87687	0.0000
At most 1	0.526929	25.44930	27.58434	0.0915
At most 2 *	0.470069	21.59027	21.13162	0.0431
At most 3	0.312529	12.74101	14.26460	0.0858
At most 4	0.001909	0.064981	3.841466	0.7988
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Author's Computation (E-View 9.0, 2026).

Max-eigenvalue test suggests that there is 1 cointegrating eqn(s) at the 5% significance level.
(nonsignificant) means that the hypothesis is not rejected at the level of significance of 0.05
MacKinnon-Haug-Michelis (1999) p-values

Table 3 shows the Johansen Cointegration test for RGDP, INTR, GFCF, PSINV and INF of Nigeria for the period of 1990 to 2025. The Trace test shows that there are no cointegrating equations at rank 0, there is no cointegrating equation at rank 1 and there is no cointegrating equation at rank 2: the null hypotheses of no cointegrating or at most one or at most two cointegrating equations are not accepted at the 5% level of significance, and there are not more than three cointegrating equations. The Maximum Eigenvalue test on the other hand, indicates one cointegrating relationship, and the null hypothesis of no cointegrating relationship is rejected, but the one at most one cointegrating relationship is not rejected. In view of this difference the study uses more conservative Maximum Eigenvalue result and as a result at least one long run result is established between the variables. This means that the relationship between RGDP, interest rate, gross fixed capital formation, private sector investment and inflation is stable in the long-run period but fluctuates in the short-run period, which makes it possible to use the Vector Error Correction Model (VECM) for further analysis.

Vector Error Correction Mechanism

Table 4. Vector Error Correction Mechanism Result
Dependent Variable: **d (RGDP)**

Independent Variables	**Coefficient**	**Standard Error**	**t-Statistic**	**P Value**
ECT	-0.375900	0.08642	-4.34955	0.0002
D(LOG(RGDP(-1)))	0.161369	0.14077	1.14636	0.2632
D(LOG(INTR(-1)))	-0.032789	0.02011	-1.63032	0.1153
D(LOG(GFCF(-1)))	-0.011889	0.03589	-0.33124	0.7434
D(LOG(PSINV(-1)))	-0.054275	0.02706	-2.00563	0.0558
D(LOG(INF(-1)))	-0.007376	0.00971	-0.75957	0.4548
C	0.046982	0.01095	4.29236	0.0002
R^2	0.647920	**F-Statistic**	8.281169	
Adjusted R^2	0.569679	**DW-Statistic**	2.088415	

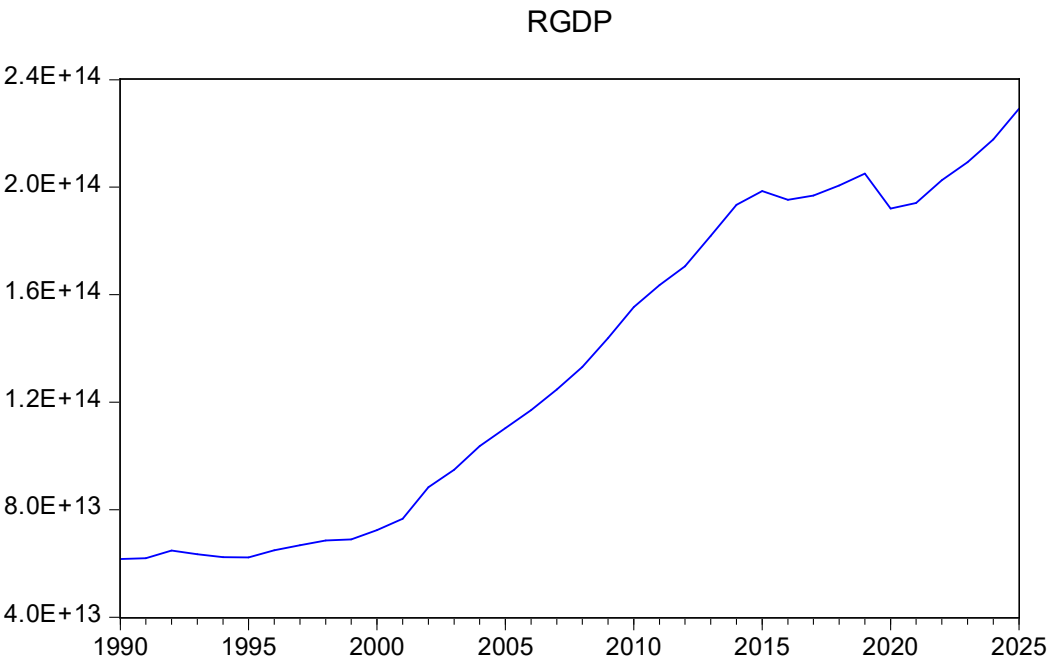
Source: Author's Computation (E-View 9.0, 2026).
The data used is from Author's Computation based on E-View 9.0 (2026).
The result of the regression equation is presented below:
d(RGDP) = 0.0470 - 0.3759ECT(-1) + 0.1614d(RGDP(-1)) - 0.0328d(INTR(-1)) - 0.0119d(GFCF(-1)) - 0.0543d(PSINV(-1)) - 0.0074d(INF(-1))

t (4.2924) (-4.3496) (1.1464) (-1.6303) (-0.3312) (-2.0056) (-0.7596)
R^2 = 0.647920
Adjusted R^2 = 0.569679
F-Statistic = 8.281169
DW Statistic = 2.088415

The outcome of VECM analysis shows that economic growth in Nigeria is statistically significant with the long run equilibrium relation between RGDP, interest rate, GFCF, private sector investment and inflation ranging from 1990 to 2025. The negative error correction term is statistically significant at the 1% level at (−0.3759; p = 0.0002) signifying that about 37.6% of the short-run disequilibrium is corrected toward long-run equilibrium in each period. In the short run, lagged RGDP is statistically insignificant and positive, and interest rate, GFCF and inflation are negative and statistically insignificant. The same applies to private sector investments (negative effect and only marginally significant at the 10% level: −0.0543; p = 0.0558). The model accounts for about 64.8% of the economic growth's variation and the adjusted R^2 is 56.97%, and the significant F-statistic reaffirms the significance of the explanatory variables. The Durbin-Watson statistic of 2.0884 also indicates that there is a lack of serious autocorrelation, implying the validity of the VECM estimates.

Trend in the Analysis
The trend analysis reveals the trends of the momentum of the Real Gross Domestic Product (RGDP), Interest Rate (INTR), Gross Fixed Capital Formation (GFCF), Private Sector Investment (PSINV), and Inflation Rate (INF) in Nigeria from 1990 to 2025. Consider Figure 4.1, 4.2, 4.3, 4.4 and 4.5.

Fig. 4.1: REAL GROSS DOMESTIC PRODUCT (RGDP) TREND



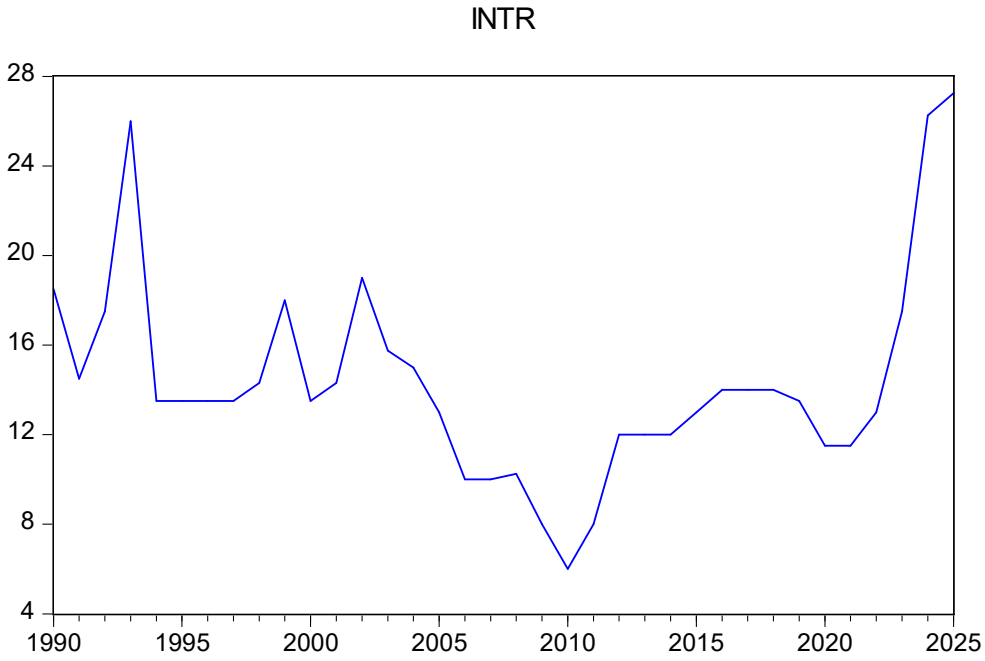
Source: Author's Computation Using E-View 9.0, 2026.

The general trend of Real Gross Domestic Product over the years has been on the upward trend as shown in Figure 4.1, which represents significant growth in the Nigerian economy over the years. The value of RGDP in 1990 was 6.17E+13 Naira, growing steadily to reach 1.29E+14 Naira by 2007. There was a consistent increase reported in the period between 2010 and 2014, with RGDP going up from 1.55E+14 Naira to 1.93E+14 Naira. The economic recession in 2016, occasioned by the weak oil prices and exchange rate volatility, however, had a negative effect on RGDP which dropped to 1.95E+14

Naira in 2016. However, this trend picked up after 2017, and the amount hit an all-time peak of 2.29E+14 Naira in 2025.

This means that the economy grows but some shocks occur, but the growth rate has been small in comparison to population growth.

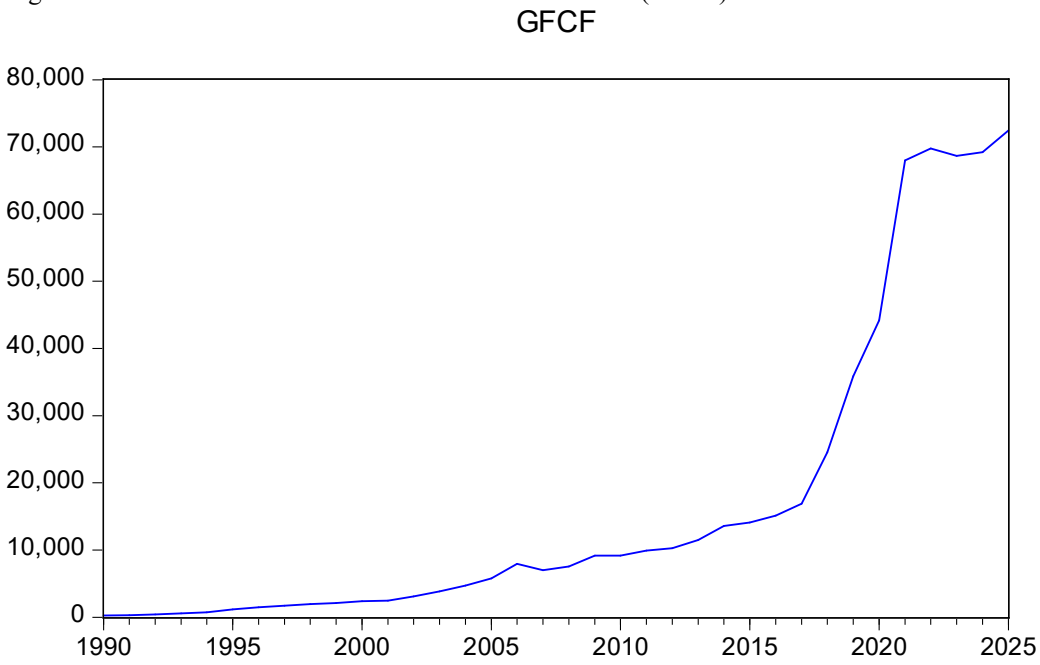
FIG. 4.2 INTEREST RATE (INTR) TREND



Source: Author's Computation Using E-View 9.0, 2026.

In Figure 4.2, Interest Rate stayed high at 18.5% in 1990 and had a significant amount of fluctuation during the early 1990s, reaching 26% in 1993 at the time of the structural adjustment and monetary tightening. There was a steady drop in rates beginning in 1994, when rates were 13.5% and were relatively stable until 1999. Between 2000 and 2005, the rates were slightly lower, ranging from 13.5% to 15.75%, indicating relative macroeconomic stability during that time period. There was a sharp drop after 2006, dropping to 10% in 2006-07 and down to 6% in 2010, the lowest since the creation of the data series, after the global financial crisis. The rates during 2011-2020 were relatively moderate ranging from 6% to 14%, with the Monetary Policy Rate (MPR) being adjusted from time to time to ensure liquidity management and price stability. During the post-COVID era (2022-2025), however, the tightening trend continued, with interest rates climbing from 13% in 2022 to 17.5% in 2023 and then jumping to 27.25% in 2025. This is attributed to the Central Bank of Nigeria's (CBN) pro-active monetary tightening in response to pressures from inflation due to exchange rate depreciation and fiscal deficits, which may have restricted credit and investment by the private sector.

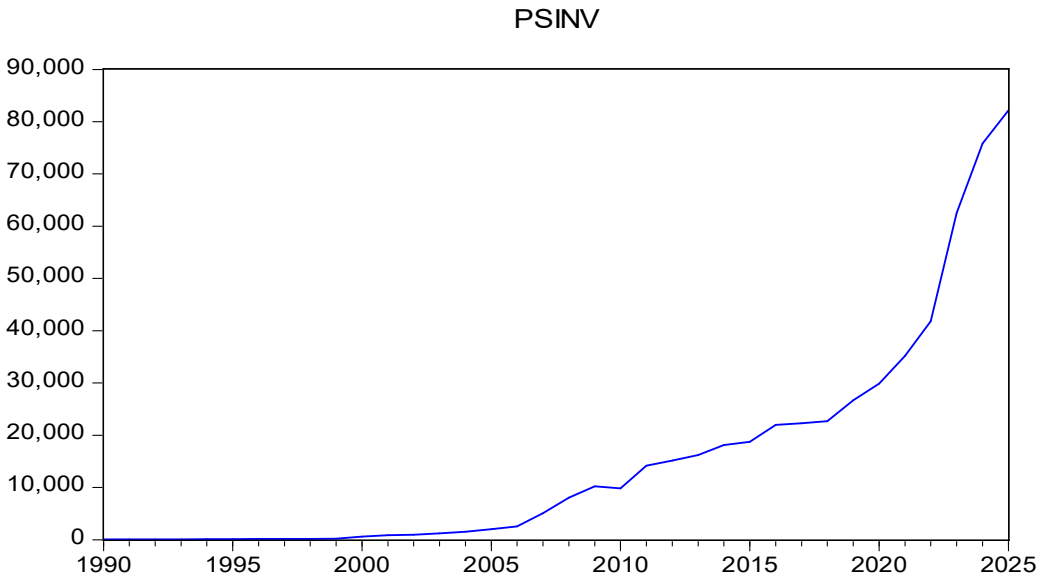
Fig. 4.3 Trend of GROSS FIXED CAPITA FORMATION (GCFC)



Data Source: Author's Computation with E-View 9.0, 2026.

Gross Fixed Capital Formation has generally increased over the period under consideration, and increased considerably in recent years, as shown in the above figure. GFCF stood at 262.77 billion Naira in 1990 and has been relatively low till 1999 when it was 2,098.54 billion Naira. The period 2000-2010 witnessed steady expansion, with GFCF rising from 2,404.82 billion Naira in 2000 to 9,183.06 billion Naira in 2010. The GFCF increased steadily from 2011 to 2019, from N9.897,20 billion to N35.864,00 billon. The situation was the most severe in 2020 when GFCF increased to 44,187.00 billion Naira, 67,977.46 billion Naira in 2021 and recorded an unprecedented figure of 72,450.00 billion Naira in 2025. This pattern is driven by growing public and private investment expenditure, but their quality and productivity are policy concerns.

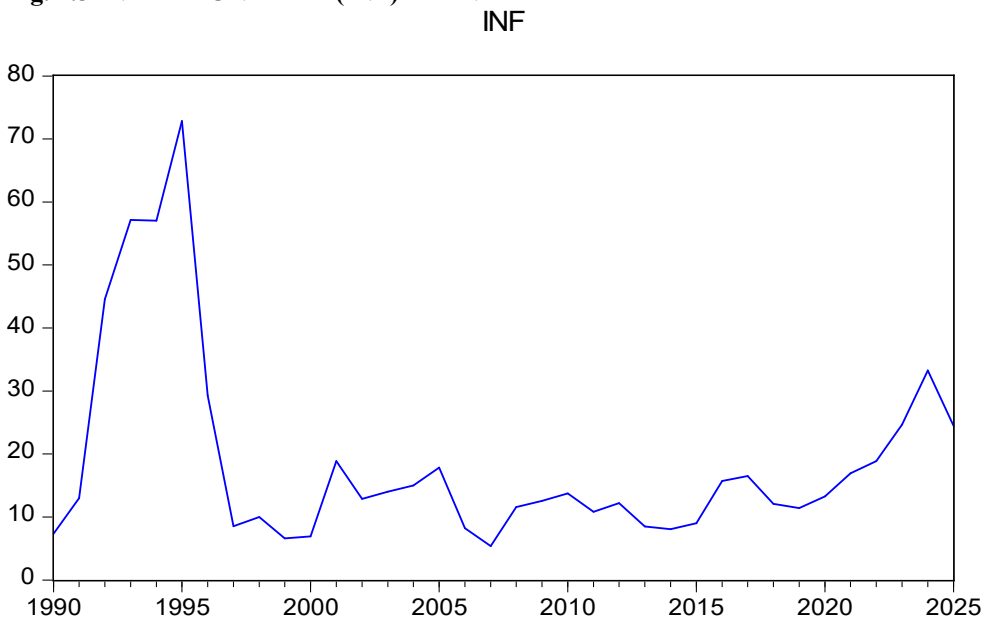
Fig. 4.4 PRIVATE SECTOR INVESTMENT (PSINV) TREND



Source: Author's Computation Using E-View 9.0, 2026.

Private Sector Investment has experienced tremendous growth over the years, as seen in Figure 4.4, with periods of growth and stagnation. The period after 2010 saw the greatest percentage growth in the private sector, with the financial sector undergoing a series of reforms and the credit sector being made more available. The PSINV in 1990 was 45.2 billion Naira and until 1999, the level of PSINV was relatively low. During this period, PSINV increased at moderate rate from 596 billion Naira in 2000 to 9,830.34 billion Naira in 2010. The most dramatic change was however made from 2011, when PSINV jumped to 14,183.59 billion Naira in 2011 and has been on the upward swing. The period 2020-2025 saw accelerated growth, with PSINV reaching 29,890.46 billion Naira in 2020, 35,194.60 billion Naira in 2021, 41,802.19 billion Naira in 2022, 62,538.68 billion Naira in 2023, 75,845.34 billion Naira in 2024, and an unprecedented 82,150.00 billion Naira in 2025. The trend reflects the growing level of interest in the Nigerian economy by private capital, but the high level of private capital in some sectors is a worry in terms of inclusive growth.

Fig. 4.5 INFLATION RATE (INF) TREND



Data from author's computation with E-View 9.0, 2026.

Inflation Rate experienced significant volatility over the years as revealed by the above Figure 4.5, having gone through hyper inflationary periods and relatively stable inflation periods. The highest inflation rate ever recorded was 72.84% for the structural adjustment program (SAP) period and in 1995 with the down valuation of the currency. Post 1996, the rate of inflation has also significantly declined, and was 5.39% in 2007. The inflation percentage level was in the moderate range between 8.05% and the highest recorded as 15.7% between the years 2008-2014 indicating moderate macroeconomic stability. This did not change, however, and after a few years of deflationary pressures, inflation returned and stood at 16.5% in 2017. The post-COVID period (2022-2025) has seen accelerated inflation, rising from 18.85% in 2022 to 24.66% in 2023, 33.24% in 2024, and moderating slightly to 24.45% in 2025. This trend is driven by the inflationary effects of currency devaluation, monetary policy loosening and disruption to supply chains causing a decline in the purchasing power of households and in the uncertainty of investment planning.

Discussion of Results

The VECM results show that the variables in the model are in a stable long run relationship for Nigeria for the period 1990-2025. This is indicated by the negative and statistically significant error correction term of −0.3759 (p = 0.0002) which suggests that approximately 37.6% of the disequilibrium is corrected towards the long run equilibrium in each period. The implication from the result is that the

variables might change their equilibrium relationship if the economy or the policy changes, but the variables would adjust to their equilibrium relationship gradually. The result is especially relevant for the study due to the fact that it shows that the interest rate, the investment behaviour, the inflation and the economic growth are not independent variables in the long term. If the short-run statistical effect of changes in financing conditions is small, and this adjustment mechanism is present, then the effects of changes in financing conditions can be felt for longer than just in the short term.

In the short run the interest rate coefficient was negative and not significantly different from zero (−0.0328 and p = 0.1153) suggesting that changes in interest rate had not a statistically significant short-run effect on the growth of the economy during the study period. Similarly, the coefficient of gross fixed capital formation was very small and negative, with a value of −0.0119 (p = 0.7434), suggesting that there was no immediate measurable impact on real output as a result of gross fixed capital formation. The negative coefficient (–0.0543) obtained with the private sector investment was not significant at the 10% level (p = 0.0558) meaning that an increase in private sector investment led to a decrease in the economic growth in the estimated model. This counter-intuitive negative correlation could be explained by the following: The investment returns are delayed, financing restrictions, adjustment costs and/or spending investment does not equal productive output. Also the sign on inflation was negative, but not very large in the short term in the estimated specification, as is indicated by the negative coefficient, which was not statistically significant (−0.0074; p = 0.4548). The results indicate that the impact of the transmission of interest rates and investment shocks on economic growth is quite small, and perhaps larger in the future through other channels of adjustment.

These other statistics are provided for explanatory and diagnostic purposes of the model performance estimated. The R^2 of 0.6479 indicates the short-run variation in the economic growth can be explained with 64.79% of the variance explained by the variables included in the model, and the adjusted R^2 of 0.5697 indicates that the short-run variation in the economic growth can be explained with 57.0% of the variance after taking into account the number of regressors. The F-statistic is 8.2812 indicating that the independent variables are significantly related to the change of economic growth together. Also, the Durbin-Watson statistic or value is 2.0884, which suggests there's nothing serious with first order autocorrelation in the estimated equation. The results as a whole, indicate that the relationship between interest rate, investment and growth in Nigeria is weak and immediate but strong in the long run. This is an important error correcting mechanism particularly because if there is a temporary shock to the relation between interest rates and investment/economic growth, the variables do not move off of their LRS path. The findings corroborate the hypothesis that the effects of monetary policy movements should be considered in terms of short and long-term (cumulative) effects on investment and economic growth.

5.0 Conclusions and Recommendations

Although changes in interest rates have a negative impact on gross fixed capital formation in the short run, the study concludes that such impacts are not significant on private investment and economic growth in Nigeria. The results of this study is in line with the theoretical prediction of the interest-rate transmission mechanism which implies that increase in or volatility of interest rates may negatively affect investment, but the lack of short-run statistical significance suggests that other structural factors such as limited access to credit, imperfection in financial markets, inflationary pressures, uncertainty etc. may have an impact on the investment and output responses in Nigeria. This provides only partial support for the traditional theory of the short-run transmission of interest rates. It is also different from the studies that find the interest rates to have a significantly greater effect on investment and economic activity, which could be a sign of a relatively low or delayed transmission from interest rates in Nigeria's economy to investment and economic activity in the real sector. The very high value of the error-correction coefficient, however, is negative at –0.3759 which means that there is a significant long-run

adjustment mechanism since 37.6% of the disequilibrium is corrected each period. The presence of this long run relationship is important because, even if the interest rate effect on investment and economic growth is weak in the short run, that is enough to render the short run irrelevant when studying the economy. Instead, the long-term trend of the cost and availability of finance can add up and affect the formation of capital and productive capacity. The results are thus broadly similar to the empirical literature documenting the importance of macroeconomic stability and the effectiveness of monetary policy predictability for investment and long run growth processes, and reveal that the magnitude and timing of such relationship is affected by Nigeria's varying conditions.

The research recommends that the central bank of Nigeria framed its monetary policy to guarantee greater certainty of interest rates, yet without giving up the required degree of monetary policy flexibility in the event of inflation and other macro economic shocks and turbulence. The coefficients are very small in the short term, but the recommendation is about the evidence of the long term equilibrium and slow adjustment, so that underlying monetary and financial conditions are crucial for capital accumulation and economic outcomes. Monetary authorities should therefore strive to improve the pass-through of the policy rates to the productive sectors by making financial markets more efficient, accessible and expand lending to investment projects with a viable return on investment for the private sector. Moreover, coordination of the policies between the monetary and fiscal authorities such that other policies (apart from the interest rate policy) that affect inflation, fiscal imbalances, infrastructure constraints, etc., which could constrict the impact of the interest rate policy on improving investment. Such an integrated approach is warranted because of the less convincing short-term relationship seen in the study, which means that interest-rate policy alone might not guarantee a significant increase in short-term investment and output growth, while the more robust long-term relationship implies that a more stable environment for private investment, capital formation and economic growth can be created in the longer term through sustainable and coordinated macro-economic policy.

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