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EFFECT OF MONETARY POLICY INSTRUMENTS ON DOMESTIC PRIVATE INVESTMENT IN NIGERIA

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Abstract

In recent time, monetary policies directives of successive Nigeria Governments in the last four decades have been called to question with the instability in the economy resulting from policies summersault aimed at addressing issues of exchange volatility, interest rate instability and excessive money supply not backed with productivity. In light of this revelations, this study set out to examine the effect of monetary policy instruments on domestic private investment in Nigeria from 1986-2022. This study used domestic private investment as the dependent variable with gross and explanatory variables of selected monetary policy instrument: money supply, exchange rate and interest rate. The ARDL-ECM technique was used for statistical analyses and findings indicate that money supply and exchange rates have a significant relationship with domestic private investment while interest rates has an insignificant relationship with domestic private investment. The study concludes that the interplay of money supply and exchange rates do determine the level of domestic private investment in Nigeria. The study recommends that government should be intentional in ensuring that the broad money supply do not overwhelm the economy by ensuring that excess liquidity is mopped-up through open market operations to provide funds through banks for investment. Also, the exchange rate should be made stable to reduce its volatility as moderate stability in exchange rate has a positive effect on the growth of domestic private investment in Nigeria.

Keywords: *Money Supply, Exchange Rates, Interest Rates, ARDL-ECM*

INTRODUCTION

Domestic private investment and foreign direct investment in economic literature has been described as a major driver in the economic growth and development of most countries. The role of domestic private investment as a vehicle used to drive economic growth in the absence or minimal foreign direct investment is key in creating employment and reducing multi-dimensional poverty in any country. The manner in which domestic investment fosters economic growth has been discussed in the study of De Long and Summers (1991). Specifically, investment could, directly or indirectly, raise capital for the economy through promoting technology development. Besides, they also stressed the importance of investment climate in the capital movement process, especially regarding private investment.

As noted by Agrawal and Khan (2011), in the context of fierce competition in the attraction of investment, the majority of countries would focus their best efforts on improving environment and institutions for investment. This implies that favorable investment climate may create opportunities and incentives for investors to conduct large-scale operation, create employment

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and increase output, thus sustaining private investment and economic growth.

This implies that, when monetary policy is in force, it will affect the level of money supply by either expanding or through contraction. The level and the structure of interest rate are also influenced by the monetary policy. To support this, Khan (2011), argues that monetary policy objectives are concerned with the management of numerous monetary targets which include; boosting growth, attaining full employment, stabilizing price, averting economic crisis, stabilizing real exchange rate and interest rates. It is clear that these objectives are all not consistent with each other, it depends upon the one assigned by monetary authorities or country priorities. It is observed that more attention is given to lowering inflation and price stability.

Through the control of monetary policy targets, such as the price of money (interest rate both short term and long term), the quantity of money and reserve money amongst others; monetary authorities directly and indirectly control the demand for money, money supply, or the availability of money and hence affect output and private sector investment (Tobias & Manbo, 2012). Thus, monetary policy that facilitates credit to private sector investment encourages the growth of private investment, whilst tight monetary policy that restricts credit to businesses discourages private sector growth.

Various studies have investigated the macroeconomic fundamental factors affecting investment performance among developing countries (Ejedegba, 2022; Foday & Jallow, 2020). Most studies opined that fundamental macroeconomic instability affects firms' decisions on investment in several developing economies. For example, interest rate instability, a macroeconomic instability proxy can constrain investment decisions. Interest rate instability manifests through frequent changes in monetary policy rates, reflecting an unstable macroeconomic environment. Comprehending the impact of interest rates on domestic private investment is essential for formulating policies that foster economic growth. Its significance is in its balancing effect on supply and demand within the financial industry. Banks serve as mediators that transfer funds from surplus units to deficit units within the economy by receiving deposits and directing them into productive endeavour. The execution of this duty is contingent upon interest rates, the development level of the financial sector, and the savings and investing behaviours of the populace. Also, sporadic exchange rate fluctuation expansionary monetary and fiscal policies through depreciation and taxation have serious effects on the exchange rate stability and money supply that impinge on investment decisions

Foday and Jallow (2020) have argued that exchange rate variability is one of the major obstacles confronting developing economies in macroeconomic management. Inadequate financial sector development could restrain the readiness of a country to reap the benefits accruing from Foreign Direct Investment (FDI) spillovers. Monetary policy is one of the principal economic management tools that governments use to shape economic performance. Measured against fiscal policy, monetary policy is said to be quicker at resolving economic shocks. Discussing the impact of monetary policy on private sector investment Kahn (2010), observed that monetary policy objectives are concerned with the management of multiple monetary targets among them price stability, promotion of growth, achieving full employment, smoothing the business cycle, preventing financial crises, stabilizing long-term interest rates and the real exchange rate. That these objectives are all not consistent with each other is obvious, as the preference of monetary policy objectives is anchored upon the weights assigned by monetary authorities or country priorities. Experience shows that emphasis is usually placed on maintaining price stability or ensuring low inflation rates.

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Different studies have adopted various statistical tools of analysis depending on the nature of data set used for analysis to examine the effect of selected monetary policies variables on domestic private investment. In spite of this researches, findings from different studies presents a mix grill as there is no general consensus as to the monetary policies variables that has the most effect on domestic private investment. For example, Leshoro and Wabiga (2023) used Non-linear Autoregressive Distributed Lag (NARDL); Ntie and Badjie (2021) used Vector Error Correction Model (VECM); Ayeni (2020) used ARD; Nwankwo and Allison (2021) used Ordinary Least Square (OLS); and Abass et al. (2022) Generalized Autoregressive Conditional Heteroscedasticity (EGARCH) and the findings are mixed and varied using different methodologies but none of these studies to the best of literature review has adopted the Generalized Methods of Moments as a statistical technique of analysis and this methodology gap is the void in previous study that this present study addressed. This study presents a Nigerian empirical evidence as to the monetary policies factors that have implication on domestic private investment.

The objective of this study is to examine the effect of selected monetary policy instruments (money supply, exchange rates and interest rates) on domestic private investment in Nigeria. The motivation for this study lies in the fact that over the past six decades of Nigeria independence, policies summersault in monetary policies by successive Nigeria governments have led to abysmal build-up of gross fixed capital formation which is an essential ingredient for domestic private investment. This state of affairs has made it difficult for rapid industrialization of Nigeria as a result of low domestic private investment with its attendant consequences on economic growth and development.

The rest of the paper is structured as follows, literature review; methodology, result and discussion of findings, conclusions and recommendations.

LITERATURE REVIEW

Conceptual Definitions

Monetary Policy Instruments

Money policy instrument are used by the government to direct macroeconomic policies aimed at ensuring stability in the economy. The Central bank of Nigeria is saddled with this onerous responsibility to ensure that the monetary policy objective as enshrined using annual budgets are achieved for overall economic growth and development of key sectors of the economy. For the purpose of this study, monetary policy instrument of money supply, exchange rate and interest rate was conceptualized in line with the objectives of this study.

Money supply refers to the total amount of money circulating in an economy at a given time. It includes various forms of money, ranging from physical currency to highly liquid assets. Different measures of money supply, such as M1, M2, M3, and M4, provide insights into the liquidity and overall monetary conditions of an economy. According to Congdon (2021) broad money supply (M2) is the total amount of cash that everyone has on hand or in short-term bank deposits. It is the most thorough way to calculate the money supply of a given country, the totality of assets that can be used by households and businesses to make payments or keep as short-term investments, such as currency, funds in bank accounts, and anything of money like value. Broad money includes notes and coins but also savings accounts and deposits in a savings account. Greenwood and Hanke (2022) viewed M1 as the money supply that encompasses

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physical currency and coin, demand deposits, traveler's checks, and other checkable deposits. The narrow money supply only contains the most liquid financial assets. These funds must be accessible on demand, which limits the category to physical notes and coins and funds held in the most accessible deposit accounts. Narrow money is seen as the basic number of notes and coins and operational deposits at the Central Bank. Gao et al (2020) observe that one way to gauge the quantity of money in circulation in an economy is to look at broad money. This study adopted the definition of Greenwood and Hanke (2022) which views broad money supply (M2) to include narrow money (M1), which is made up of assets that can be easily converted into cash to buy goods and services, as well as the more illiquid forms of money like bank deposits, treasury bills, and gilts.

Exchange rate which is one of the monetary policy instruments is the price of a country's currency in terms of another country's currency (Ahuja, 2013). However, Moffatt (2015) viewed exchange rate as the current market price for which one currency can be exchanged for another. The exchange rate determines how much a country's currency is worth in terms of another country's currency. Exchange rate connotes the rate at which a currency is exchanged for another currency. It is referred to as the ratio at which a unit of currency of one country is expressed in terms of another currency. A general expectation therefore is that, the higher the exchange rate, the higher the prices of foreign goods in the home currency. Consequently, a high exchange rate against a nation's currency would naturally lead to decrease in economic activities. Chen et al. (2019) stated that exchange rate represent the national currency exchange rate which marks the standard of fair distribution of economic transactions among countries. The exchange rate adjustment can change a country's foreign trade ability and affect the country's economic development level.

Interest rate is another monetary policy variable used in macroeconomic stability. According to Keynes (1960), the interest rate is the reward for not hoarding, but for parting with liquidity for a specific period of time. Keynes' definition of interest rate focuses more on the lending rate. Adebiyi (2002) defined interest rate as the return or yield on equity or the opportunity cost of deferring current consumption in the future. Jhingan (2003) defines interest as the price which equates the supply of 'Credit' or savings plus the net increase in the amount of money in the period, to the demand for credit or investment plus net 'hoarding' in the period. This definition implied that an interest rate is the price of credit, which like other price is determined by the forces of demand and supply; in this case, the demand and supply of loanable funds (Jelilov et al., 2015).

Anyanwu (1988) defined interest rate as the price of money, the amount of interest paid per unit of time expressed as a percentage of the amount borrowed. Interest rates differ mainly in term/maturity, that is, the length of time for repayment and liquidity that is quick conversion of assets to funds. Interest rates play a crucial role in the efficient allocation of resources aimed at facilitating the growth and development of an economy and as a demand management technique for achieving both internal and external balance with specific attention for deposit mobilization and credit creation for enhanced economic development (Bora, et al., 2020). Even though many expansionary monetary policies have been implemented, the inflationary pressure increased and forced the CBN to raise interest rate (CBN, 2013).

Conceptually, domestic private investment is a macroeconomic variable that is difficult to measure. Studies (Awode, 2019; Ambya & Saimul, 2020) that have adopted domestic private investment as a variable for investigation has used gross fixed capital formation as a proxy for domestic private investment. Gross fixed capital formation (GFCF) is a component of the

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expenditure on gross domestic product (GDP) that indicates to what extent value has been added to economy is invested rather than consumed. It measures the value of acquisitions of new or existing fixed assets by the business sector, governments, and "pure" households excluding informal enterprises minus disposals of fixed assets.

The study by Ainabor et al., (2014) found that the problem of development in emerging economies is as a result of low capital formation. GFCF is called 'gross fixed capital formation' because the measure does not make any adjustments to deduct the consumption of fixed capital (depreciation of fixed assets) from investment figures. Capital formation is analogous to an increase in physical capital stock of a nation with investment in social and economic infrastructures. Gross fixed capital formation can be classified into gross private domestic investment and gross public domestic investment. The gross investment includes investment by government and/or public enterprises. Gross domestic investment is equivalent to gross fixed capital formation plus net changes in the level of inventories (Jhingan, 2003) and this is the definition adopted for the purpose of this study.

Review of Empirical Literatures

Empirically, Kabir (2022) investigated the monetary policy impact on private sector performance in Nigeria. The study applies Autoregressive Distributive Lag (ARDL) method. The ARDL Bounds test shows that a long-run relationship exists among the variables. The study used annual time-series data from 1981-2021. The result shows that the broad money supply has a significant positive impact on the private sector performance both in the short run and long run. The real interest rate and real exchange rate have a significant negative impact on private sector performance both in the short run and long run. Methodology gap was addressed by this study by using ARDL-ECM technique unlike the study by Kabir (2022) that used ARDL. Likewise, Oyakegha and Arepo (2022) examined the impact of monetary policy on private sector performance in Nigeria; for the period 1995-2019.

The study used private sector output as proxy for private sector performance and employed as the dependent variable; whereas, broad money supply, liquidity rate and credit ratio respectively were used as the explanatory variables to measure monetary policy. Findings from regression revealed a significant effect of credit ratio on private sector output in Nigeria. Liquidity ratio had a significant effect on private sector output in Nigeria. Broad money supply had a significant effect on private sector output in Nigeria. The present study used gross fixed capital formation to measure domestic private investment while Oyakegha and Arepo (2022) used private sector output. This present study filled a variable gap in the manner that the dependent variables was proxy. Equally, Abdullahi (2022) investigated how monetary policy affected Nigeria's private sector's performance. This study uses the ARDL approach. The ARDL Bounds test shows a long-term correlation between the variables. Using time series data collected every year from 1981 to 2021, the study examined four variables: real interest rates, real exchange rates, broad money supply, and private sector credit as a percentage of economic growth. According to the findings, the private sector performs far better over the long run when the money supply is broad. The currency rate and interest rate have a major and detrimental impact on the performance of the private sector over the long run. This present study differs by using ARDL-ECM technique for analysis of data which filled a methodology gap that the work of Abdullahi (2022) adopted ARDL.

Also, Ebisine and Oki (2021) examined the effect of monetary policy on domestic private investment in Nigeria from 1981 to 2018. The dependent variable are domestic private

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investment (DPI) and independent variables are money supply (MS), government domestic debt (GDD), government domestic savings (GDS), interest rate (INT) and consumer price index (CPI). Findings from ECM indicated that money supply (MS), government domestic savings (GDS).interest rate (INT) and consumer price index (CPI) have a negative and insignificant effect on domestic private investment in the long run but interest rate is significant at 5%, while government domestic debt (GDD), has a positive and insignificant effect on domestic private investment (DPI) in the long run in Nigeria within the period. This present study used percentage ARDL-ECM technique unlike Ebisine and Oki (2021) that used ECM

On the nexus between exchange rate and domestic private investment, Etim (2023) examined the effect of exchange rate depreciation on gross domestic investment from the period of 1981 to 2021. In order to achieve the objective, the study employed the econometric technique of short-run and long-run autoregressive distributive lab model (ARDL). The result of our finding reveals that exchange rate has a positive and significant relationship with gross domestic investment in Nigeria both at short-run and long-run during the period under study. Whereas, per capita income, trade openness, and credit to private sector have a positive relationship with gross domestic investment in Nigeria. Interest rate and government expenditure have an inverse relationship with gross domestic investment in Nigeria. This study ignored money supply as part of the variable used to estimate the model and this presents a variable gap addressed by this present study that Etim (2023) did not used in estimating the model of the previous study.

Likewise, Abbas et al. (2022) examined the relationship between exchange rate volatility and domestic investment in Nigeria. Quarterly time series data on gross fixed capital formation a proxy for investment and exchange rate are used over the period 1981Q1 to 2017Q4. Exchange rate volatility was generated using exponential generalized autoregressive conditional heteroscedasticity (EGARCH). The study found that the core variable (exchange rate volatility) of the study was inversely related to domestic investment during the investigated period. It also revealed that income and exchange rate were strong drivers of domestic investment. The present study used three monetary policies independent variables of money supply, exchange rates and interest rates to estimate the model but the study by Abass et al. (2022) use only one variable of exchange rate as the only independent variable. Ogbonna (2020) investigated the effect of exchange rate volatility on gross fixed capital formation. The study covered the period of 1980 to 2016 and Ordinary Least Square (OLS) techniques was used in estimating the relationship between the variables included in the specified regression model. The major finding of this study shows that the Exchange rates (EXCHR) has a positive and significant linear relationship with gross fixed capital formation. The result of Inflation rate (INFL) has negative and significant relationship with gross fixed capital formation. This present study extend period of study to 2022 which include the period of global economic crisis occasioned by covid 19. Furthermore, Akinlo and Onatunji (2020) analyzed the relationship between exchange rate volatility and domestic investment in selected ECOWAS countries from 1986 to 2017. The ARDL bound testing approach was utilized, and the results confirmed a long-run relationship among the variables. Contrary to the numerous theoretical predictions and hypotheses, exchange rate volatility in Ghana, Benin, and Burkina Faso is observed to be positive yet insignificant relationship with domestic private investment. This present study filled a methodology gap by using ARDL-ECM technique instead of ARDL used by Akinlo and Onatunji (2020). Also, Charles and Okoro (2019) examined the influence of macroeconomic variables on private investment in Nigeria from 1990 to 2016. The study employed the ordinary least squares method (OLS) for data analysis to evaluate the modelled private equity and private real investment. The study indicates that real gross domestic product has a positive and

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significant effect on investment, while economic openness has a positive but insignificant effect. Interest rates demonstrate a positive and significant effect, whereas financial deepening shows a positive but insignificant effect. Additionally, interest rates, inflation rates, and exchange rates exert negative effects on private real investment. The study by Charles and Okoro (2019) adopted OLS as a method of statistical analysis but this present study used ARDL-ECM technique which filled a methodology gap.

Likewise on the relationship between interest rate and domestic private investment, Leshoro and Wabiga (2023) examined the differential impacts of positive and negative interest rate shocks on private investment, focusing on the asymmetric nature of the relationship between these variables in South Africa. The study employed contemporary non-linear autoregressive distributed lag (NARDL) techniques. According to research, research shows asymmetric correlations in both the short and long term, private investment responds differentially to positive and negative interest rate shocks. The results of the study indicate that there is insufficient empirical support for accurate macroeconomic forecasting from a linear examination of the link between interest rates and private investment. This present study adopted ARDL-ECM technique unlike the previous study by Leshoro and Wabiga (2023) that used NARDL and this represents a methodology gap filled and addressed by this study. Awad et al. (2021) examined how political unrest and interest rates affected private investment in Palestine. The findings support the neoclassical theory, which holds that interest rates have a negative significant relationship with private investment in the country. The findings showed that there is no causality or long-term link between the factors. This present study differed by examining not just interest rates as an explanatory variable but include money supply and exchange rates which filled a variables void in research which the previous study by Awad et al. (2021) did not address. Furthermore, Ntie and Badjie (2021) analyzed the impact of interest rates on economic growth in The Gambia over the period 1993 to 2017. They employed the Vector Error Correction Model (VECM) to examine the relationship between the dependent variable, the real effective exchange rate and the real interest rate in both short-run and long-run contexts. Empirical evidence suggests a long-run relationship between the growth of the Gambian economy and interest rates. Ntie and Badjie (2021) focused on just one monetary policy instrument, exchange rate, this present study used three monetary policy instrument as independent variables and this void in variables used to estimate the model was the gap addressed by the present study.

Likewise, Nwankwo and Allison (2021) assessed how macroeconomic variables affected Nigeria's private sector's growth. The study's objectives were examining interest rates, assessing the impact of the Money Supply (MS) on the private sector, analyzing the impact of exchange rates on private investments, and examining the connection between inflation rates and private sector investments in Nigeria. Information from Nigeria's Central Bank (CBN) Statistical Bulletin and Debt Management Office (DMO) covering the years 1986–2020. The research utilized the OLS econometric method to analyze macroeconomic factors' impact on Nigeria's private investment. The research indicates that interest rates positively affect private-sector investment in Nigeria during the period from 1986 to 2020. Using ARDL-ECM instead of OLS filled a void in methodology by this present study.

Also, Ayeni (2020) examined the factors influencing domestic private investment in The Gambia. The study used the ARDL model to investigate the long-run equilibrium of private investment using exogenous variables such as the exchange rate, loans to the business sector, foreign debts, the actual interest rate, real exchange rate, and price increases. The study indicates

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that the high exchange rate elevates the real cost of imports, particularly for capital goods, resulting in increased investment expenses. Aggregate demand conditions, real interest rates, real exchange rates, and inflation are all underperforming relative to expectations. Credit to the private sector has not effectively enhanced private investment in The Gambia due to inadequate credit availability. This present study filled a variable gap by introducing money supply to the narrative which the study by Ayeni (2020) ignored.

Theoretical Framework

Theoretical Review

Accelerator Theory of Investment

This theory, the accelerator theory of investment was pioneered by Harrod, (1948) and Hicks (1950). The theory assumes that the demand for machinery and factories is derived from the demand for goods. The level of investment depends on changes in the level of output which implies that the rate of investment depends on growth rate of output. Hicks (1950) opined that when output approaches full employment level, output growth will decline and hence, individual investment in inventories and fixed plants and equipment will fall. The current net investment is a function of change in income, net investment being a function of growth in aggregate demand and that society's needed stock of capital, whether inventory or equipment depends primarily on the level of income and production. Addition to the stock of capital, net investment, will take place only when income is growing.

When consumption increases as a result of increase in income, business firms tend to become more optimistic and may review their investments upward, while a drop in sales will lead to accelerated drop in net investment (Ganchev & Todorov, 2021). Hence, changes in fiscal and monetary policies have direct implications on the level of public investment in an economy (Omorokunwa & Ajao, 2019).

For country like Nigeria that government business is the biggest industry, government revenue and expenditure have implications in driving the domestic private investment as the capital component of government spending helps in gross fixed capital formation of businesses in the country. On the flip side, government through the Central bank of Nigeria try to target monetary policies objectives that will ensure that the economy remains stable and insulated from financial shocks that may affect businesses and the growth of investment. The government achieves this goal of monetary economic stability by ensuring an intentional and best approach in addressing negative fallout from macroeconomic turndown.

METHODOLOGY

This study adopted the ex-post facto research design because the study relied on archival time series data. The ex-post facto research design was adopted for this study since it provided answer to research questions using the outcome of the analysis to predict future events (Nwamuo, 2020).

The data used for this analysis are secondary data from CBN Statistical Bulletin 2022 and World Development Indicators 2022. The study was on monetary policy instruments on domestic private investment in Nigeria. The independent are variables are money supply, exchange rate and interest rate but domestic private investment represented the dependent variable for the

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study.

Table 1: Variables. Measurements and Sources.

Variables	Definitions	Nature of Data	Empirical Support
Domestic Private Investment	Gross fixed capital formation was used as a proxy for private investment as employed by	Dependent Variable	Awode,(2019); Ambya & Saimul, (2020); Ainabor et al., (2014)
Interest rate	The annual cost of debt for the borrower and the rate of return for the lender.	Independent Variable	Awad et al. (2021); Leshoro & Wabiga (2023); Ntie & Badjie (2021)
Money supply	Represents M2 and it means all the currency and other liquid instruments in a Nigeria economy for the period of one year	Independent Variable	Kabir (2022); Oyakegha and Arepo (2022); Abdullahi (2022)
Exchange rate	Annual/closing Rate at which naira will be exchanged for USD another currency and affects trade and the movement of money between countries.	Independent Variable	Ogbonna (2020); Akinlo & Onatunji (2020); Abbas et al. (2022)

Source: Author's Compilation, 2025.

The study employed ARDL-ECM econometric model to specify the effect among the variables. The study used the econometrics model adopted by Ayunku & Otele, 2023 that studied the effect of fiscal policy instruments on gross capital formation in Nigeria. The model for this study captured this relationship as specified below:

$$\text{logDPIN}_t = \alpha_0 + \sum_{g=1}^{k-1} \beta_g \, \text{logDPI}_{t-i} + \sum_{h=1}^{k-1} \phi_h \, \Delta\text{logMS}_{t-i} + \sum_{i=1}^{k-1} \partial_i \, \text{EXR}_{t-i} + \sum_{i=1}^{k-1} \partial_i \, \text{INTR}_{t-i} \lambda_1 \text{ECT}_{t-1} + \varepsilon_t$$

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Where:

logDPI = Log of Domestic Private Investment; MS = Log of Money Suppy; EXR = Exchange rate; INTR=Interest rate; log = The natural logarithm of a number; t = Periods covered by the study; ECT_{t-1}= the error correction which is the lagged value of the residuals obtained from the co-integrating regression of the dependent variable on the regressors; Δ= denotes the first difference operator;σ is the drift component;α = Intercept of the regression; ε_t= Residuals; λ = Speed of adjustment parameter with a negative sign; K-1 = the lag length ;γ_i= Short run dynamic coefficients of the model's adjustment to long run equilibrium; α = The constant; β_g, $\emptyset_h$, ϑ_i= short-run dynamic coefficients of the model's adjustment of long-run equilibrium.

RESULTS AND DISCUSSION OF FINDINGS

Table 2: Descriptive Statistics

	(DPI)	(MS)	EXR	INTR
Mean	24.06444	28.23853	135.1203	18.19324
Maximum	24.72969	31.51180	424.0000	29.80000
Minimum	23.37439	23.89322	2.020000	10.50000
Std. Dev.	0.444994	2.437245	125.4893	3.965432
Jarque-Bera	2.763710	2.954462	5.610715	6.032752
Probability	0.251112	0.228269	0.060485	0.048978
Observations	37	37	37	37

Source: E-View 13 Output, 2025

Table 2 shows the mean of Domestic private investment (DPI) is valued at N24.06 billion. It further shows the average of N28.23 billion for money supply (MS) and a mean of N135 exchange rate (EXR) while interest rate (INTR) has a mean of 18.19%. The positive mean values means the variables of interest have continued to increase in value over the period of investigation.

The maximum values of Domestic private investment, money supply, exchange rate and interest rate showed a figure of N24.72 billion, N31.51 billion, N6.04 and 3.39% respectively. This represents the peak of these variables for the period under review. The standard deviation value of Domestic private investment, money supply, exchange rate and interest rate are all less than their respective mean, it means that the data are not widely dispersed from the mean value as the mean value of the variable is greater than the standard deviation. Table 2 show that all the variables are normally distributed from the Jarque-Bera probability test at 5% level of significant as DPI, MS, EXR and INTR are all greater than 0.05. The Jarque-Bera probability for the Domestic private investment, money supply and exchange rates are normally distributed since their Jarque-Bera probability are 0.251112,0.228269 and 0.060485 respectively which were greater than 0.05, but interest rates Jarque-Bera probability is less than 0.05 meaning that the data was not normally distributed. This means the result of this study as regards the target variables cannot be taken jointly and used for policy recommendations.

The relationship between the independent variables is expect to be less than or equal 0,8(80%) to show the absence of auto correlation for pre-diagnostic test, however with time series data the level of correlation beyond 80% can be ignored if the variance inflation facto indicates otherwise. The relationship between money supply and exchange rate was 76.1%; money

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supply and interest rate -43.7%; interest rate and exchange rate was -45.7%. The absence of autocorrelation was further tested using post-diagnostic serial correlation test and hetroscedascity test.

Table 3: Correlation

Probability	LOG(DPI)	LOG(MS)	EXR	INTR
LOG(DPI)	1.000000 -----			
LOG(MS)	-0.801431 0.0000	1.000000 -----		
EXR	-0.667859 0.0000	0.767167 0.0000	1.000000 -----	
INTR	0.343542 0.0374	-0.437779 0.0067	-0.459319 0.0042	1.000000 -----

Source: E-View 13 Output, 2025

Table 4: Unit Root Test Summary

Method	Statistic	Prob.**	Level	Inference
Levin, Lin & Chu t*	-2.03392	0.0210	I(1)	Stationary
Im, Pesaran and Shin W-stat	-4.35323	0.0000	I(1)	Stationary
ADF - Fisher Chi-square	55.0787	0.0000	I(1)	Stationary
PP - Fisher Chi-square	72.2817	0.0000	I(1)	Stationary

Source: E-View 13 Output, 2025

Unit root test using Levin, Lin & Chu, ADF - Fisher Chi-square and PP - Fisher Chi-square unit root test summary in Table 4 indicated all the variables were integrated of order I (1). The above results in Table 4 imply that all the variables are stationary at first difference.

Table 5: Cointegration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.538674	56.66031	47.85613	0.0060
At most 1	0.498314	29.58255	29.79707	0.0500
At most 2	0.138019	5.440224	15.49471	0.7604
At most 3	0.006889	0.241933	3.841466	0.6228

Source: E-View 13 Output, 2025

The result indicate that at least one of the variables of interest has a long term relationship with other variables which means that an error correction model analysis is not suitable for statistical analysis rather a vector error correction model analysis (ARDL-ECM) is necessary to avoid spurious result.

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Table 6: ARDL-ECM Cointegrating and Long Run Form Analysis

Short-Run Effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DLOG(MS)	-0.109024	0.025392	-4.293610	0.0002
D(EXR)	0.001131	0.000277	4.077168	0.0003
D(INTR)	-0.008551	0.005551	-1.540398	0.1339
CointEq(-1)	-0.312441	0.093786	-3.331415	0.0023

Long-Run Effects

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(MS)	-0.348943	0.059536	-5.861055	0.0000
EXR	0.003619	0.001181	3.063490	0.0046
INTR	-0.023640	0.021080	-1.121445	0.2710
C	33.845386	1.710328	19.788825	0.0000

Test of Hypotheses

The cointegrating equation is given thus:

Cointeq = LOG (DPI) - (-0.3489*LOG (MS) + 0.0036*EXR -0.0236*INTR + 33.8454

There is no significant relationship between monetary policies variables (money supply, exchange rate and interest rate) on domestic private investment in Nigeria.

Table 6 shows that the probability value of money supply is 0.0002 and 0.0000 for both the short-run and long-run effect which is less than the critical value of 0.05 which means that the null hypothesis is accepted that money supply has a negative significant effect domestic private investment in Nigeria is accepted and the null hypothesis that money supply has no significant effect on domestic private investment is rejected. This means a percentage increase in money supply result in 34.89% decrease in domestic private investment in Nigeria.

However, the probability value of exchange rate shows that the critical-value of 0.05 is lower than the calculated value of 0.0003 and 0.0046 both in short-run and long-run meaning that the null hypothesis is accepted that exchange rate ratio has a significant effect on domestic private investment in Nigeria and the alternative rejected that that exchange rate has no significant effect on domestic private investment in Nigeria. This means a percentage increase in exchange rate results to 0.36% increase in private domestic investment in Nigeria.

Conversely, interest rate has probability value of 0.1339 and 0.2710 both at the short-run and long-run effect which is more than the critical value of 0.05 at 5% level of significance which invariably means that the alternative hypothesis that interest rate has no insignificant effect on domestic private investment in Nigeria is accepted while the alternative is rejected. This that a percentage decrease in interest rate results in 2.36% in private domestic investment.

Table 6 also indicates that the cointegrating equation is negative and significant which is the expected outcome which means that when the equilibrium is disturbed it takes 31.22% annually

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for the domestic private investment to restore to normalcy or adjust.

Post-Diagnostic Results

Table 7: Residual Diagnostics

Statistical test	Probability
Heteroskedasticity Test	0.7577
Serial Correlation LM Test	0.0688
Normality Test	0.564932

Source: Author's E-view Output, 2024

The residual diagnostics indicated the absence of heteroskedasticity (value=0.7577) and serial correlation (value= 0.0688) as their probability values in Table 7 is greater than 0.05 which infers there is no heteroskedasticity and autocorrelation. The normality test probability figure of 0.564932 is greater than 0.05 critical value meaning that the data distribution used for analysis is normal meaning the post-diagnostic normality test indicate that variables can be used jointly for policy recommendation which contrasts sharply from the descriptive statistics results. This post-diagnostic test result indicate that the ARDL-ECM result used for policy recommendations will not give a spurious result based on this post-diagnostic test results of hetreoskedasticity, serial correlation and normality test.

Discussion of Findings

The ARDL-ECM result in Table 6 shows the relationship of money supply on domestic private investment shows that the effect is significant but negative both in the short-run and long-run. This means that increase in money supply negatively affects the build-up of gross fixed capital formation and by extension the domestic private investment therefore the government should be circumspect in not increasing the money supply through excessive budget deficit as its impact on domestic private investment is counter-productive This narrative is in consonance with the works of (Kabir, 2022; Abdullahi, 2022) whose studies found that money supply (M2) has a significant effect on domestic private performance but disagrees with Oyakegha and Arepo (2022) whose study found an insignificant effect of money supply on domestic private investment.

Conversely, the relationship between exchange rate and domestic private investment is significant and positive as shown by results from the ARDL-ECM output in Table 6. This means that exchange rate depreciation affects the cost of investment in an economy which invariably has a little positive impact on domestic private investment as more money are now in hands of investors to create investment The findings of this study in consonance with the conclusions reached by (Etim, 2023; Charles & Okoro, 2019; Ogbonna, 2020; Akinlo & Onatunji, 2020) which found exchange rate to have a positive significant relationship on domestic private investment.

The findings from ARDL-ECM analysis in Table 6 also indicate that interest rate has a negative insignificant effect on domestic private investment in Nigeria. This means that increase in interest rate reduces the level of domestic private investment as interest rate increases the build-up of domestic gross fixed capital formation. This disagrees with the studies of (Awad et al., 2021; Ntie & Badjie, 2021; Ayeni, 2020; Nwankwo & Allison, 2021) whose study found a significant relationship between interest rate and domestic private investment.

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CONCLUSION AND RECOMMENDATIONS

The study concludes that monetary policy instruments of money supply and exchange rate have significant implications on domestic private investment in Nigeria. The study concludes as follows:

First, the negative significant effect of money supply indicates the inefficiency of the Central Bank of Nigeria as the apex monetary policy regulator in using open market operations to mop-up excess liquidity of broad money (M2) in circulation using commercial banks in the Nigeria. The level of money in circulation which are not channeled through banks affects investment as the intermediate roles of commercial in creating money for investment is adversely affected and hence inadequate funds to grow domestic private investment.

Second, the positive significant effect of exchange rate indicates that exchange rate depreciation has a lot to do with the build-up gross fixed capital which affects domestic private investment. It is important that that the government understands that the level of industrialization is dependent on the stability of the 'Naira' our local currency and its stability (not eroded by inflationary trends) has positive implications on the growth of domestic private investment.

Based on the conclusions arrived in this study, the following recommendations will suffice:

i. Government should reduce the level of money supply in circulation and channel it to investment through intentional policies (inflation targeting) and open market operations aimed at mopping-up liquidity in the economy and direct it to investment aimed at growing fixed capital formation for increased domestic private investment.
ii. Exchange rate should not be allowed by the government to depreciate rapidly such that it effects the level of domestic private investment by eroding purchasing and investment powers of the citizens. The present floating exchange rate regime should include robust government exchange rate interventions that are effective where the forces of demand and supply becomes inadequate to determine exchange rate that supports growth of fixed capital formation which is a key variable that affects domestic private investments activities in the Nigerian economy. The loss in value of the 'Naira' will discourage investment and capital formation build-up for investment hence need for exchange rate stability.

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