

Domestic Private Investment and Selected Macroeconomic Indicators in Nigeria: An Econometric Analysis

Dr Israel E. Kwode

Department of Accounting, Business Administration and Economics Admiralty University of Nigeria

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Abstract: *Domestic private investment (DPI) plays significant role in economic growth of any economy. It helps in mobilizing domestic resources for socio-economic advancement. Domestic Investment and its determining factors remains one recalling issues in the field of economics and international finance. This is based on the fact that aggregate investment plays a dominant role in stimulating economic growth and development of every nation. However, most of the developing and underdeveloped economies have witnessed low domestic investment and consequently slow economic growth. Therefore, this study investigates the relationship, trends, and impact of domestic private investment and selected macroeconomic indicators in Nigeria, a developing economy. The study analyzed data gotten from the CBN Statistical Bulletin for the duration of 1991-2020. The statistical package used for the study is Econometric Views (E-Views 9.0). Multiple regression techniques via OLS, Augmented Dickey Fuller (ADF) test and Granger causality procedure was applied to determine causalities while Johansen Co-integration test was administered to verify sustainability of the long-run relationships. The result revealed that there exist short and long-run relationships between domestic private investment and key macroeconomic variables- Inflation, Lending rates, gross domestic savings, real gross domestic product, money supply in Nigeria. Vector error correction model was also adopted to determine the speed of adjustment between the independent variables and the dependent variables. The OLS result revealed that there exist a positive and significant relationship among GDSA, BMOS, RGDP and PDIV, negative and significant relationship among PLER, INFR, and PDIV. Therefore, the study recommends among others that Nigerian government must be resolute in their resolve to drive private domestic investment in the country by implementing appropriate monetary and fiscal policies that address inflation, interest rate, domestic savings and money supply. This will no doubt fast track inclusive growth.*

Keywords: private domestic investment, interest rate, economy

INTRODUCTION

Investment plays a pivotal role in the development of every modern economy. This is because the achievement of a country's macro-economic objectives of full employment, balance of payment equilibrium and sustainable economic growth hinges on the level of investment inherent in a country. In fact, some economists (Neo-classical and Marxist) emphasized investment (capital accumulation) as the engine of growth and development of every modern economic system. Hence, the availability of investible funds is therefore regarded as a necessary starting point for all investment in the economy which will eventually translate to economic growth and development. In recent time, scholars use investment as one of the barometers to differentiate a developed economy from under-developed or developing economy. In developed economies, investment in human, material and financial resources is high whereas it is low in developing economies particularly in sub-Saharan Africa. The implication of low investment is that the productive capacity of the economy fails to increase over time. This in turn leads to low growth rate unemployment and fewer opportunities for the poor to improve their livelihoods. On the other hand, high investment leads to high standards of living, structural diversification, and enhancement in literacy, improvement in technology, and sustainable economic growth (Muhdin, 2016).

According to DFID, high DPI levels must be maintained in developing economies in order to achieve the growth rates needed to lift poor people's incomes above the poverty line. Developing economies must also increase sufficient levels of DPI in order to feed and provide sustainable employment to their rising populations. Indeed, domestic private investors may play a key role in poverty reduction by providing funds for investment and ensuring their productive use, as well as by guiding investment to achieve desired social and economic outcomes.

Nigeria, a developing economy has not recorded an increase in domestic private investment for the years as private investment has continued to decline from 2020 till date, a decline driven by insecurity, poor leadership, economic recession, and inflation. The decrease in private investment might lead to monopoly, lack of competitiveness, lower living standards due to lower remittances of households, and a less productive economy in the long run. Nigeria has been categorized as an economy with low savings and even lower investment (Marcus and Vale, 2022). The government has implemented a number of policies and reform initiatives, including the National Economic Empowerment and Development Strategy (NEEDS), privatization, and commercialization of federal and state-owned enterprises, to escape this low savings and low investment trap. Access to credit instruments offered by financial institutions has been made easier, thanks to Nigeria's foreign investment regime being liberalized by the Nigerian Investment Promotion Commission Decree of 1995. The lack of investable funds or their low availability, particularly in the productive sectors of the economy, has in turn been blamed for the unfavourable investment environment. Evidently, promoting balanced investment in physical and financial assets as well as human,

natural, and environmental capital is necessary for the promotion of sustained economic growth (Babu et al., 2020).

Kalu and James (2014) submitted that, being mindful of the perceived benefits of investments to different segments of the Nigerian economy coupled with its determining factors, Nigeria embarked on formulation and definition of suitable economic frame works with a view to boost investment opportunities, high productivity, innovation, employment level, and standard of living, reduce poverty with the intent of achieving sustainable economic growth and development. Apparently, the Nigerian government has consistently pursued policies and strategies aimed at diversifying her economy, promoting agriculture and industrialization. These policies and strategies ranged from the import substitute approach, to the indigenization program as aptly articulated in the Second National Development Plan.

From development perspective, Nigeria is still considered as a developing country due to her poor saving and investment culture. Based on this reasoning, it is no exaggeration to assert vehemently that the major reason for the present degrading state of the Nigerian economy is attributed to corruption and low level of domestic investment. It has however been found that a major problem is that the government is so much concerned about policies to boost private investment without much knowledge or investigations into the main determinants of investment in Nigeria (Agwu, 2015).

It is imperative to state despite the various investment policies and programs in most third world countries; the level of investment particularly domestic private is still very low compared to most of the developed countries. In Nigeria; domestic private investment is relatively very low, this has accounted for slow growth rate and consequently leading to under development, unemployment and extreme poverty,. Therefore, this study sought to investigate the relationship, trends and impact of domestic private investment and key macroeconomic indicators in Nigeria with the view to boost productivity and pull the economy from extreme poverty and underdevelopment.

Statement of the Problem

Domestic private investment is at the lowest levels in Nigeria since 2020, the observed reduction in investment in Nigeria can be attributed to several factors other than the global financial repression of 2008. Various macroeconomic policies instability, security issues, lack of infrastructure, over reliance on oil, unnecessary spending, etc. have also affected the level of domestic investment in Nigeria. This has also made the country to become a victim of the Dutch disease. Obviously, irrespective of the fact that the Nigerian government at different levels and at different times have adopted various policies which are channeled towards improving the level of domestic investment in the country, one cannot but ask why the level of investment in the country is still low. Beside, instead of investing domestically the greater percentage of Nigerians prefer investing abroad where their money would be managed effectively. Arising from this, the study

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seeks to examine the relationship, trends and impact of key macroeconomic indicators on domestic private investment in Nigeria.

The main objective of the study is to examine the relationship between selected macroeconomic indicators and domestic private investment Nigeria.

The specific objective of this study is to:

1. Examine the effect of gross domestic savings on gross private domestic investment in Nigeria
2. Investigate the effect of broad money supply on gross private domestic investment in Nigeria
3. Evaluate the effect of real gross domestic product on gross private domestic investment in Nigeria.
4. Determine the effect of prime lending rate (interest rate) on gross private domestic investment in Nigeria.

In pursuant of both the objective of the study and the research questions, the following research hypotheses were postulated in null form:

HO₁: Gross domestic savings have no significant effect on gross private domestic investment in Nigeria.

HO₂: Broad money supply has no significant effect on gross private domestic investment in Nigeria.

HO₃: Real Gross domestic product has no significant effect on gross private domestic investment in Nigeria.

HO₄: Prime lending rate (interest rate) has no significant effect on gross private domestic investment in Nigeria.

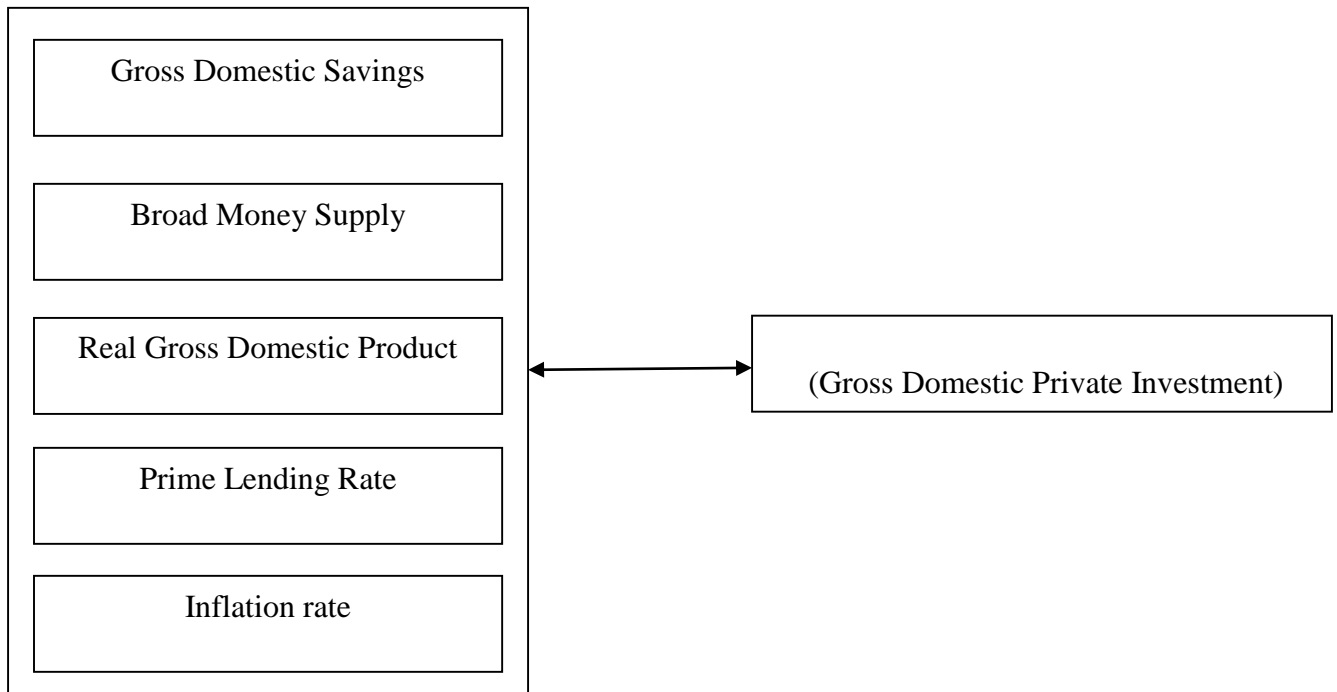
HO₅: Inflation rate has no significant effect on gross private domestic investment in Nigeria.

REVIEW OF RELATED LITERATURE

Conceptual Model

The conceptual model brings together all the independent variables in understanding their interaction with the dependent variable. The conceptual model excludes the external sector and specifies domestic aspects of the variables. Following extant empirical studies, different factors are expected to affect the performance of investment, especially in the long run. However, for the purpose of this study, gross domestic savings, broad money supply, real gross domestic product and prime lending rate were used to proxy the determinants of investment in Nigeria. The conceptual model is presented in figure 2.1 below:

Figure 2.1.: Key determinants of DPI

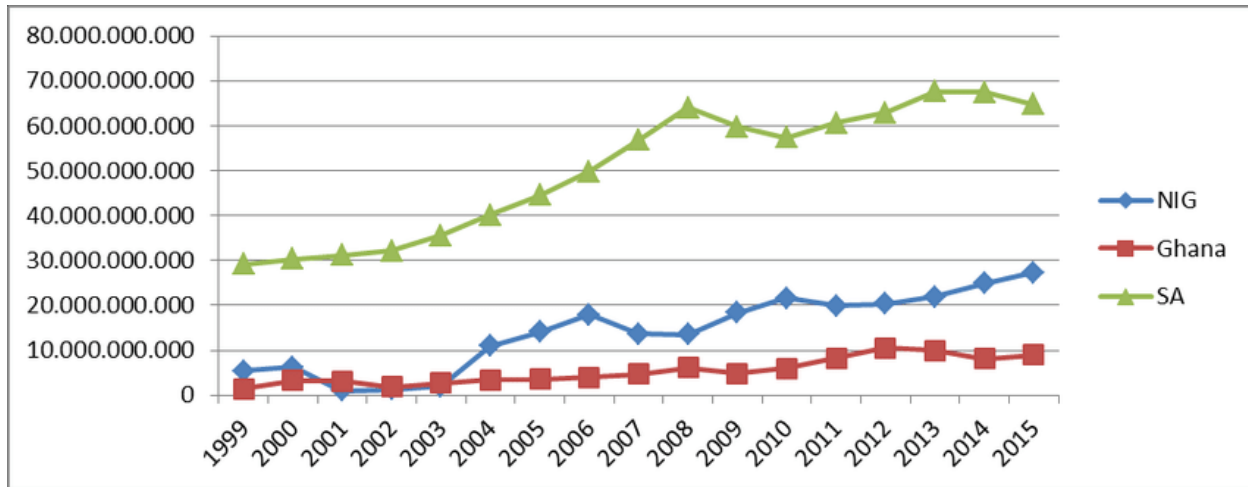


Source: Researcher's Model, 2024

TRENDS IN DOMSTIC PRIVATE INVESTMENT IN NGERIA

Nigeria's average private investment as a share of GDP fell below 15% between 1999 and 2019 . This percentage falls short of what is required for attaining greater growth rates and what is available in the majority of Sub-Saharan African economies (World Bank, 2021). The simplified fact in Nigeria shows that private investment growth has been surprisingly poor and continues to decrease despite an increased drive for economic liberalization from the government to private sector-led growth strategies in recent years (Chinasa et al., 2022).

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Source : statista

Theoretical Framework

Over the years Economists and Investment experts have developed various investment theories as follows :

The Principle of Acceleration, Neoclassical Theory of Investment Marginal Adjustment Cost Theory: Keynes Internal Rate of Return Theory Of Investment, Income Theory of Investment and Austrian Theory of Investment. However, this study adopted Income theory of Investment

The income theory of investment holds the view that aggregate business investment is determined by gross national income and the size of the capital stock. It predicts that investment outlays will increase as income increases. This approach is represented by the works of Hansen (1951) and James Dusenberry (1958). The empirical studies by Klein and Goldberg (1952), confirmed the validity of the theory. It found that investment is a function of income and the rate of change of income.

One of the major pitfalls of the relative income hypothesis by James Dusenberry is the assumption that aggregate consumption would rise at a diminishing rate. This was based on the evidence found in expenditure studies. As income size rose, all categories of consumption eventually began to fall as a proportion of income. Only savings increased as did income size. What was troublesome was the fact that in studies of aggregate income over time, savings did not so increase. Duesenberry supplied a theory to account for the discrepancy. During the upswing of the business cycle, consumer substitution of “superior” goods for “inferior” goods allegedly takes place. In this instance the terms “superior” and “inferior” had largely a status connotation and thus renders a big question mark on James Dusenberry theory.

From the above theories postulated It shows the importance of investment in the global economy. Thus, this study adopts the Austrian theory of investment because it describes the Nigeria investment space.

Empirical Studies

Oyedokun and Ajose (2018) examined the relationship between domestic investment, and economic growth in Nigeria for the period of 1980-2016. The results also showed long run significant relationship exists between the variable examined and domestic investment. Granger cause economic growth in Nigeria within the period under study. The study also found that domestic investment positively influences real gross domestic product. The study recommends that government should create enabling an environment for domestic investment to rise through the adoption of macroeconomic policies that will boost investment opportunities in Nigeria

Ajayi and Kolapo (2018) examined the sensitivity of domestic private investment to macroeconomic indicators in Nigeria from 1986 to 2015 using domestic private investment as the dependent variable and gross domestic product, money supply, exchange rate, interest rate and inflation rate as independent variables. The Ordinary Least Square technique, ARDL Modeling technique and the Engle Granger causality technique for analysis revealed that domestic private investment is most sensitive to money supply, gross domestic product as a proxy for economic growth and exchange rate in Nigeria while it is less sensitive to inflation and interest rate in the short run. Gross domestic product as a proxy for economic growth and exchange rate affect domestic private investment positively while money supply has a negative effect in the short run. Domestic private investment is most sensitive to money supply and gross domestic product as a proxy for economic growth in the long run and both exert a negative and positive effect on domestic private investment respectively in the long run while inflation and interest rates also exert significant effect on the same. Meanwhile the causality test revealed that domestic private investment drives money supply in Nigeria. Hence, it is recommended that monetary policies which relate mostly to the control of the cost, supply/availability and direction of money should be reviewed periodically and ensures that such policies are implemented with little or no lag. Furthermore, the devaluation of the exchange rate which will spur private domestic investment should be cautiously implemented.

George-Anakwuru (2017) examined the impact of interest rate on private domestic investment in Nigeria between 1980 and 2015. Using ordinary least square technique, he found real and prime lending rates to be negatively and significantly related to domestic private investment.

Muhdin (2016) did a systematic review of the determinants of Private Investment. The researcher's focused on nine African countries. Eight variables were considered for analysis. The result shows that output/national income, public investment and exchange rate are the critical variables affecting the performance of private investment. The other variables: interest rate, credit, inflation rate,

international trade, and money supply are also slightly important in explaining the performance of private investment. The study finally recommends that countries should seriously work in creating enabling environment for private investment.

Rabnawaz and Jafar (2016) examined the relationship between Gross domestic product and public investment. Time series data for empirical investigation covers the period 1980-2009. The data has collected from Pakistan bureau of Statistics, State bank of Pakistan (SBP) and Stockholm International Peace Research Institute (SIPRI). Empirical results show, there is a positive relationship between GDP and public investment in short run. The increase in GDP causes a rapid increase in public investment. Granger causality test apply to check the causality. Results of test show that bi-causal relationship exists between GDP and public investment. Causality runs from GDP to public investment and similarly, from public investment to GDP.

Mgberna, Nwogwugwu and Kah (2015) assessed the determinants of private investment in Nigeria's manufacturing sub-sector. The study which covered the 1975 to 2013 period used the Error Correction Mechanism. The findings show that the major determinants of manufacturing sub sector performance in Nigeria are interest rate, exchange rate and public sector investment. Diabate (2016) investigated the determinants of domestic private investment between 1970 and 2012 in Cote de Ivoire with the use of the Auto Regressive Distributed Lag Modeling (ARDL) technique, and found that public investment, foreign direct investment and trade are major determinants of domestic private investment in the short and long runs while gross domestic product and interest rate are insignificant.

Ekpo (2016) examined the determinants of private investment in Nigeria and observed that inflation rate, fiscal deficit, public investment rate, poor infrastructure, institutional factors, political and economic instability has significant influence on domestic private investment. Combey (2016) examined the determinants of private investment in the West African Monetary Zone (WAMZ) between 1995 and 2014 considering private investment as the dependent variable and also using GDP, output gap, interest rate, inflation rate, and credit to private sector, government consumption, and term of trade, trade openness and political stability as independent variables using the panel data regression technique. It was observed that economic growth and political stability have significant effect on private investment while terms of trade, inflation rate has negative impact on private investment in the long run.

Bosco and Ernerence (2016) examined the effect of GDP, Interest rate and inflation on private investment in Rwanda between 1995 and 2009 employing the Error Correction Modelling technique. It was revealed that economic growth significantly affects private investment. Kalu and Onyinye (2015) investigated the empirical link between domestic private investment and economic growth in Nigeria between 1970 and 2012 using Cobb-Douglas model and observed a significant relationship between real gross domestic product and domestic private investment.

Esbalew (2014) examined the determinants of domestic private investment between 2000 and 2012 in six East African nations adopting the pooled OLS regression technique also used domestic private investment as the dependent variable and public investment, inflation, GDP, credit to private sector, financial deepening, interest rate and exchange rate as independent variables. Economic growth and credit to private sector were found to have positive effect on domestic private investment.

Osmond (2015) studied the determinants of private investment in Nigeria between the 1970 and 2012 period. The study adopted the Error Correction Modeling. The result revealed that the rate of investment is positively correlated with both the growth rate of disposable income and real interest rate on banks.

Agwu (2015) examined the determinants of domestic investments using Autoregressive Distributed lag model (ARDL) in estimating the long-run and short-run coefficients of variables. The study covered the period 1981 to 2013. On the long-run, it shows that past income level, capital investment, government size and interest rate are the major determinants of domestic investment in Nigeria and these variables have a positive effective on private investment in Nigeria. Exchange rate and inflation have an insignificant affects private investment in Nigeria. Based on the findings, the researcher recommends the need to ensure policy consistence and reduce the level of interest rate o as to attract and improve the level of investment in the country.

Ayeni (2014) examined the determinants of private sector investment in Nigeria between 1979 and 2012. The study used private investment as the dependent variable and also used real gross domestic product, interest rate, exchange rate, inflation rate and credit to private sector as independent variables adopting ARDL bound test approach to cointegration and Error Correction Modeling techniques. It was observed that all the macroeconomic variables have no significant effect on private sector investment.

Okorie (2014) examined the determinants of investment demand in Nigeria covering spanning from 1980 to 2012. Gross Domestic Product, Prime Lending and Borrowing rate, Gross National Savings were found to be determinants of investment in Nigeria Analyzing an investment demand model using the error correction mechanism and the Engel granger causality tests, the first null hypothesis of the study which states that gross domestic product do not significantly affect investment in Nigeria was rej ected. The study therefore, recommends that Nigeria should, henceforth, take practical steps to reconcile the long-run and short-run effect of prime borrowing and lending rate to gross capital formation through curbing capital flight, curtailing high cyber-crime, reduce government reckless borrowing and spending and provision of A-line NEPA Supply to our financial institutions.

Tchouassi (2014) examined the effect of Private capital on investment climate for economic growth in some African countries. The Autoregressive Distributed Lag and Error Correction Model were adopted in the study. The result revealed that foreign direct investment and private capital, investment climate have positive impact on economic growth in some African countries. Similarly, Okorie (2014) examined the effect of Finance, Investment, on the Nigerian economy using the Error Correction Modeling, Classical Least Square. The study covered the period of 1980 to 2012. The result revealed that increase in private sector credit leads to increase in economic growth. In Nigeria 10 percent increase in private sector credit (PSC) leads to 30 percent increase in total domestic investment.

Ayeni (2014) investigated the determinants of private investment in Nigeria for past decades. The ARDL (Autoregressive Distributed Lag) Co- integration approach is employed to check the existence of a long run relationship as well as a short run dynamics of private investment in Nigeria. The result suggests that the determinants of private investment used in this study i.e. Aggregate Demand Condition in the economy (GDP), Real Interest Rate, Real Exchange Rate, Inflation Rate, and Credit to Private Sector has not been able to contribute effectively or boost private investment in Nigeria. However the study therefore suggests that the government, while improving the macroeconomic conditions conducive to boost investment, should also create conducive political environment to boost private sector investment.

Udonsah (2013) examined the determinants of investment in Nigeria covering the period of twenty-seven (27) years spanning from 1985-2011. Using the multiple regression technique, the result revealed that investment in Nigeria is dependent on money supply, the more, money is pumped into the economy the greater the investments position in Nigeria and also inflation has a negative influence on investment.

Adegbite, and Adetiloye (2013) investigated the effect of financial globalization on domestic investment in Nigeria. Using the Kaopen (Capital opening index) and average exchange rates measures of financial globalization the result revealed that, capital outflows have depleted available domestic resources and impacted domestic investment negatively. The researchers recommend the greater need for autonomous investment to crowd in other investments by implementing policies that encourage investment in the economy. This situation may not improve until there is a proactive and deliberate action from the government to improve investment, especially of infrastructure, in the economy Kalu and James (2012) investigated the effect of private investments in Nigeria on the manufacturing sector in Nigeria from 1970 to 2010. The study adopted the Vector Error Correction model approach, estimated using the Ordinary Least Square estimator. The result revealed that manufacturing output significantly responded to the contemporaneous perturbation in the values of nominal exchange rate, lending rate and corporate income tax. These series also showed a high tendency of recovery from deviation from their equilibrium values in subsequent periods. Based on these findings, the researchers recommend that

selective and protectionist policies should be encouraged to boost domestic investment in Nigeria so as to shield ailing and near moribund local firms from vulnerable external competition.

Hazeam, Gras san and Samer (2013) analyzed the economic determinants of domestic investment in Nigeria. The study which covered 1980 to 2010 period adopted the co integration technique. The result shows that the growth rate of GDP stimulated domestic investment in Jordan. The result also revealed that increased lending rate has slowed the pace of investment in Nigeria. Kazeem (2013) examined the role of governance on private investment in Nigeria. The study adopted the Autoregressive Distributed Lag (ARDL) bound testing framework with data spanning the period between 1970 and 2010. The result revealed that degree of openness, previous value of inflation rates and governance indicators are important determinants of private investment.

Olweny and Chiluwe (2012) explored the relationship between monetary policy and private sector investment in Kenya by tracing the effects of monetary policy through the transmission mechanism to explain how investment responded to changes in monetary. ;The study utilizes quarterly macroeconomic data from 1996 to 2009 and the methodology draws upon unit roots and co integration testing using a vector error correction model to explore the dynamic relationship of short run and long run effects of the variables due to an exogenous shock. The result revealed that, government domestic debt and Treasury bill rate are inversely related to private sector investment, while money supply and domestic savings have positive relationship with private sector investment.

Summary of Empirical Review/Literature Gap

From the literature, it is crystal clear, there are avanchle of empirical studies on the subject matter revealed above provide input to conceptual and methodological aspects to be used in this study, therefore emphasizing their relevance in this study. Hence, these were the gap that was noticed of which this research sought to fill:

1. Despite much empirical studies in relation to the subject matter, most of this research was domiciled in developed countries while some in other countries other than Nigeria. Only few studies were done in Nigeria. Owing to the dearth in existing body of knowledge, this study was conducted.
2. Thorough investigation on extant empirical studies revealed that though much empirical studies exist on the subject matter but none of the studies were able to link the two construct in a dynamic framework.
3. Again, most of these studies are also posed with various methodological issues which resulted to mixed findings. Hence, this study was conducted.
4. Various studies conducted did not extend their scope up to 2020. This study extends to 2020. Hence, this study is more recent, up-to date and robust than extant empirical studies.

5. Previous studies were not consistent with variables to measure determinants of investment. However, this study focused on five (5) variables to measure determinants which include gross domestic savings, broad. money supply, real gross domestic product, prime lending rate and inflation rate. This was geared towards giving a more refined and robust finding than previous studies.

RESEARCH METHODOLOGY

Based on the historical nature of this study, the study adopts the ex-post facto design. The ex-post facto design is adopted because the variables used in this study are readily available and obtained without being manipulated or controlled and the variable cannot be studied experimentally but the effect of relationship between the independent variables and the dependent variable can be established. Similarly, the availability of these data underlines the choice of time period to the study.

Method of Data Collection

Secondary data were extracted from the Central Bank of Nigeria (CBN) Statistical Bulletins, Annual Reports of banks and World Bank Global Financial Development Data for the range of years under study. All the data used are country aggregate level annual data. Gross domestic savings, broad money supply, real gross domestic product, prime lending rate and inflation rate on investment indicator which is gross private domestic investment were used proxy for determinants. On the other hand, private domestic investment for the same period is used as investment. This translates to 30 observations. The data cover a period of thirty years 1990- to 2020. The choice of the period is informed by the availability of data in a form detailed enough to allow for robust analyses.

Techniques of Data Analysis

The statistical package used in this study is Econometric Views (E-views) version 9.0. The choice of this package is based on the fact that it provides a more convenient user- friendly interface and is useful for conducting time-series data set (Ajandali & Tatahi, 2018). Pre-test (unit root test using Augmented Dickey Fuller (ADF) test, co-integration, vector error model, and granger causality test along-side descriptive statistics, correlation matrix, multi collinearity and hetoskedasticity test were also employed •to evaluate the significance of the estimated parameters of the regression model. From the literature review, it was observed that, there is a causal link between Domstic private investment and its determinants. The general form of the multiple regression analysis is given thus,

$$Y = b + b_1X_1 + b_2X_2 + \dots + b_nX_n + e \dots\dots\dots \text{eqn 1}$$

Where:

Y = dependent variable

bo = constant of the equation

b1 - bn coefficient of independent variables

X1-Xn = independent variables

e = error term

The model can be restated as:

$$PDIV = f(GDSA + BMOS + RGDP + PLER + INFR) \dots\dots\dots eqn 2$$

Econometrically, it can be restated as:

$$PDIV_{it} = \beta_0 + GDSA + BMOS + RGDP + PLER + INFR + U_t \dots\dots\dots eqn3$$

More explicitly, it can be restated thus:

$$PDIV_{it} = \beta_0 + \beta_1 GDSA_{it} + \beta_2 BMOS_{it} + \beta_3 RGDP_{it} + \beta_4 PLER_{it} + \beta_5 INFR_{it} + U_t \dots\dots\dots eqn 2$$

Where:

PDIV = Private Domestic Investment

GDSA = Gross Domestic Savings

BMOS = Broad Money Supply

RGDP Real Gross Domestic Product

PLER = Prime Lending Rate

INFR = Inflation Rate

x1 - x5 = Independent Variables (Five Independent variables)

$\beta_1 - \beta_5$ = Intercept

μ_t = Error Term or noisy variable

The parameter ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$) which are coefficient of the variables represents the degree of change of the dependent variables (PDIV) because of a unit change of other independent variables (GDSA, BMOS, RGDP, PLER, and INFR). The error term (U_t) is used to capture the effect of other variables that are not included in the model.

A priori Expectation

Following extant empirical studies and the various theories which underpin this study, the model has the following a priori assumptions

$X_1 > 0, X_2 > 0, X_3 > 0, X_4 < 0$ and $X_5 < 0$

Discussion of various parameters;

DPIV: Domestic private investment, which is composed of all domestic investment in Nigeria. It excludes foreign direct investment.

GDSA: The growth of gross domestic savings is assumed to be responsible for capital accumulation and indirectly the productivity of labour the real savings interest rate is further considered to be positively related to changes in gross domestic savings.

BMOS: The study envisages a positive relationship between the growth of money supply and private domestic investment as the excess liquidity ensures that the supply of loanable funds is replenished through money supply growth.

RGDP: is the real gross domestic product and it is the total goods and services produce within the country and the relationship between RGDP and domestic investment is positive related.

PLER: Interest rate, this is the commercial bank lending rate to private investors. The relationship between interest rate and investment is negative and this is because higher interest rate will reduce the level of investment.

INFR: High rate of inflation are expected to reduce the level of private investment

DATA PRESENTATION AND ANALYSIS

This section dealt with the presentation, interpretation, and analysis of data gotten from the CBN Statistical Bulletin for the duration of 1990-2020. The statistical package used for the study is Econometric Views (E-Views 9.0). Multiple regression techniques via OLS result reported that, on the whole using the F-statistics all variables were significant at 5% significant level which is less than 95% confidence level. The Augmented Dickey Fuller (ADF), tests were conducted on the data series to test for the Stationarity of variables. All the data series attained Stationarity at their level and first difference. Granger causality procedure was applied to determine causalities while Johansen Cointegration test was administered to verify sustainability of the long-run relationships. The trace test result affirms the sustainability of these outcomes. The result revealed that there exist short and long-run relationship between investment and its determinants in Nigeria's ecosystem. Vector error correction model was also adopted to determine the speed of adjustment between the independent variables and the dependent variables. The OLS result revealed that there exist a positive and significant among GDSA, BMOS, RGDP and PDIV, negative and significant relationship among PLER, INFR, and PDIV.

Interpretation of Results

The Ordinary least square result is presented explicitly presented below:

Table 4.1: Ordinary least square result output

Dependent variable: LOG(PDIV)

Method: Least Squares

Date: 01/02/24Time: 19:37

Sample: 1990 - 2020

Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.63177	0.941810	12.35043	0.0000
LOG(GBSA)	0.000244	4.85E-05	5.029614	0.0000
LOG(BMOS)	0.552656	0.153416	3.602328	0.0014
LOG(RGDP)	4.843186	0.334174	14.49299	0.0000
LOG(PLER)	-4.855989	2.258346	-2.150242	0.0403
LOG(INFR)	-0.061696	0.022776	-2.708760	0.0114
R-squared	0.960415	Mean dependent var		13.95621
Adjusted R-squared	0.952169	S.D. dependent var		2.502475
S.E. of regression	0.547301	Akaike info criterion		1.809220
Sum squared resid	7.188919	Schwarz criterion		2.089460
Log likelihood	-21.13831	Hannan-Quinn criter		1.898871
F-statistic	116.4593	Durbin-Watson stat		1.512226
Prob (F-statistic)	0.000000			

$PDIV = 11.63177 + 0.000244GDSA + 0.552656BMOS + 4.843186RGDP - 4.855989PLER - 0.0616961NFR + \mu it$

Source: Adapted from E-views 9.0

Statistical Criteria

Coefficient of Determination

The coefficient of determination otherwise known as R^2 determines the magnitude of the relationship between the explanatory variable and the explained variable. If the R^2 is positive, it is said to be positively related and that all the explanatory variables put together have direct relationship with the dependent variable. The result of the overall relationship in OLS estimation in table 4.7 above is estimated at 0.960415. This revealed that there is high positive relationship between the explanatory variables (GDSA, BMOS, RGDP, PLER, and INFR) and the dependent variable (PDIV) in Nigeria.

2. Adjusted Coefficient of Determination ($AdjR^2$)

The adjusted coefficient of determination ($AdjR^2$) suggests that 95% of variations in PDIV can be explained by changes in GDSA, BMOS, RGDP, PLER, and INFR. This shows the degree of spread of the allocation in using the fund. In other words, 5% could not be accounted for due other changes are attributed to stochastic variables/other variables not included in the model.

3. F-statistics

The result for the test of significance uses P-value of F-statistics. The test for overall or joint significant effect of the explanatory variables on the dependent variable revealed that the F-stat is 116.4593 and Prob. (F-stat value is 0.0000). This shows that the overall significance of the independent variable (GDSA, BMOS, RGDP, PLER, and INFR) is high.

4. Durbin Watson (DW) test statistic

The Durbin Watson (DW) test statistic was used to test for the existence of autocorrelation among disturbances. The DW test statistic is expected to lie between 2 and 4. Hence, the D-Watson is approximated to 2, indicating the absence of multicollinearity problem and thus the model is fit for prediction.

Stationarity Tests using Augmented Dickey-Fuller

The variables in the model being macroeconomic aggregates may be non-stationary so regression models using these aggregates most likely will generate spurious result and the outcome will be biased towards finding significant relationships among variables. Khramov and Lee (2013) established that when non stationary series (data) are used in regression analysis, there exists a danger of obtaining regression results that are spurious. To avoid this problem, the study must confirm and ascertain the stationarity or non-stationarity of the variables of the time series. In this regard, pre-test of model estimation begins with the analysis of the order of integration of each variable using Augmented Dickey-Fuller (ADF) test or Engle Granger Test (EGT) 19.87 for the hypotheses. But for this test, Augmented Dickey-Fuller ADF (1981). The results are summarized in the table below:

Unit Root Test Results

The table above (43) reveals the summary of the unit root carried out. The decision here is that the critical value should be greater than the test statistics value for unit root to exist. The ADF test executed shows that all the three variables which are stationary at level 1(0) and stationary at first difference 1(1) as their ADF test statistics value for PDIV is estimated at -4.689312 > -2.971853 at 5% critical value, BMOS is estimated at 3.324666 > -2.967767 at 5% critical value, BCMS is estimated at 4.625690 > -3.040391 at 5% critical value, GDSA is estimated at -4.646751 > -1.952910 at 5% critical value, RGDP is estimated at -2.239468 > -1.953381 at 5% critical value, PLER is estimated at -6.608927 > -2.976263 at 5% critical value, and INFR is estimated at -5.869435 > -2.971853 at 5% critical value. This shows that the variables under study are very fit model for the empirical study because the variable data series have equal variance and equal mean overtime 1989-2018. This is indicative that this study rejects the null of non-stationarity since the statistics evidenced that all the variables used for Model integrated of the same order 1(0) and 1(1). This study then retained OLS test and proceeds to test for co-integration and granger causality. As stated by Iheanacho (2016); that if a linear combination of 1(1) or 1(0) exist in Stationarity tests, we proceed to cointegration.

Cointegration Tests

The cointegration tests for our model are based on the assumption of a linear deterministic trend in the data; also the assumption which allows for intercept but no trend in cointegration equation is used.

The results of our cointegration test are shown in the table below.

Johansen Cointegration test.

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE (s)	Eigenvalue	Trace Statistic	0.05 Critical value	Prob **
None*	0.978965	228.5858	83.93712	0.0000
At most 1*	0.877032	120.4624	60.06141	0.0000
At most 2*	0.696117	61.77918	40.17493	0.0001
At most 3*	0.502261	28.42799	24.27596	0.0141
At most 4*	0.268891	8.892976	12.32090	0.1754
At most 5*	0.004404	0.123576	4.129906	0.7721

Trace test indicates 4 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: Extracted from E-view 9.0

The result of the co-integration test based on Johansen co-integration approach is used to : test for long-run relationship between the variables. Thus, the Johansen co-integration test tested on the long run relationship between the dependent variable (PDIV) and the independent variables (GDSA, BMOS, RGDP, PLER, and INFR). The results of Johansen co-integration presented in

the table above shows that the test fails to accept null hypothesis of No co-integration at 5% level of significance. Both the trace and maximum Eigen value suggest the presence of 4 co-integrating vector. The Johansen cointegration test shows this by comparing the statistic values with the critical value, a result is chosen at the value where the trace or max-Eigen statistic is greater than the corresponding critical value. This is based on the rule of log likelihood ratio of trace and Eigen and the trace statistics of Mckinnon, Haug-Muchelis (1999) critical P-value comparison test.

In this study, it is very clear that there is existence of 4 co-integrating equation in the model with both trace statistics and maximum Eigen values at 5% significance level. This implies that a long run equilibrium relationship exists among the co-integrating variables GDSA, BMOS, RGDP, PLER, and INFR in Nigeria. It also validates the conformity of our analysis to the theoretical postulation of long-run relationship among economic variables. However, this study is inconsistent with the findings stated in Okorie (2014), which says that the result of trace statistics shows only two (2) cointegration equation, there is existence of long run relationship in the series.

Granger Causality Test

Granger causality test is used to examine the causal direction; that is, which of the variables (dependent and independent variables) influences the relationship between them. The null hypothesis is: Independent variable does not granger cause the dependent variable. The Granger causality test is therefore explicitly presented below:

Pairwise Granger Causality Test

From the above results of Pairwisegranger causality test our interest will be on the causal relationship between the dependent and the independent variables. It is evident from the above that both Gross Domestic savings and private direct investment in Nigeria granger cause each other. Also, Broad money supply granger causes private direct investment in Nigeria but Private direct investment does not cause Broad money supply. Again, real gross domestic product granger causes private direct investment in Nigeria but Private direct investment does not cause Broad money supply. In addition, both prime lending rate and private direct investment in Nigeria does not granger causes each other. Finally, the test also revealed that inflation rate does not granger causes private direct investment each other.

A run through the results of the pair wise granger causality test indicates that there are almost all the variable do not have both unidirectional and dual directional pairs. In other words, on the whole we reject all the alternate hypotheses that variable A granger cause variable B, or variable A granger cause variable B and variable B granger cause variable A in this study.

Vector Error Correction Mechanism

Vector Error Correction Mechanism (VECM) was conducted to determine the speed of adjustment between investment and its determinants in Nigeria. Hence, this is to find out whether short-run disequilibrium can be returned to long-run equilibrium trend.

Vector Correction Mechanism

From the result, the vector error correction mechanism is positive and statistically insignificant. The positive value shows that there exists an adjustment speed from short-run disequilibrium towards the long-run equilibrium. In this situation, the error correction term coefficient is equal to (0.380142), which implies that a deviation from the equilibrium level in the current year will be corrected by 38% in years following. By this, there is an indication that it takes about 3 years to restore the long-run equilibrium state of the economy should there be any shock from the explanatory variables. The study therefore concludes that bank credit has no significant short-run relationship with the growth of the Nigerian economy.

DISCUSSION

From the result, when all the independent variables are equal to zero, the intercept of investment is 11.63177. Hence, the results are discussed below:

Gross Domestic Savings and Investment

The parameter estimates of GDSA conformed to the a priori expectation since it has a positive beta coefficient value, positive t-statistics value. This connotes that an increase in GDSA results to a corresponding increase in PDIV. This indicates a direct relationship among GDSA, and PDIV. The coefficient shows that a percentage rise in GDS will result in 0.000244 increases in PDIV in Nigeria. The implication is that the increase in the savings could well help to encourage increased investment in the economy. Encouraging savings will also help curb inflation in Nigeria and it tends to mop out too much money in circulation. The t-test reveals that impact of savings on domestic private investment in Nigeria is significant. Thus, we reject our null hypothesis and accept our alternative hypothesis that there is a significant relationship between savings and DPI in Nigeria. This goes to say that in order to maintain an increase in the level of investment the government needs to increase savings through the monetary policy tools at its disposal.

Broad Money Supply and Investment

The result also revealed that, a unit increase in broad money supply, holding other variables constant increases investment by 0.552656 units. This conformed to the a priori expectation since it has a positive beta coefficient value and t-statistics value. This implies that the excess liquidity ensures that the supply of loanable funds is replenished through money supply growth. It also revealed that, domestic private investment in Nigeria is dependent on broad money supply, the more, money is pumped into the economy the greater the domestic investments position.

Real Gross Domestic Product and Domestic Private Investment

The results reveal that RGDP impacts positively on domestic private investment in Nigeria and this conforms to the a priori expectation. This implies an increase in our RGDP will lead to an increase

in PDIV hence increase domestic investment in Nigeria. This is to say that a percentage increase in RGDP will command approximately 4.843186 rises in economic growth in Nigeria.

Prime Lending Rate and Domestic Private Investment

The result revealed that, a unit increase in PLER, other variables constant, decrease in investment by 4.855989 units. This conforms to the a priori expectation of the study. The reason for the negative relationship is not farfetched. This is because higher interest rate will reduce the level of investment. Again, the t-test reveals that impact of PLER on PDIV in Nigeria is significant. Thus, we reject our null hypothesis and accept our alternative hypothesis that there is a significant relationship between savings and investment in Nigeria. However, Agwu (2015) & Okorie (2014) found that real rate of return on bank deposits has a statistically significant positive effect on investment behavior in Nigeria. Reasonable level of interest rise saving and hence investment.

Inflation Rate and Domestic Private Investment

The parameter estimates of INFR conformed to the a priori expectation since it has a negative beta coefficient value, positive t-statistics value. This connote that an increase in INFR and results to a corresponding decrease in PDIV. The implication is that high rate of inflation are expected to reduce the level of private investment. Therefore, adequate contraction policies and inflation targeting approach should be put in place to help raise capital for investment as well as help curb inflation in Nigeria.

The t-test reveals that impact of inflation rate on domestic private investment in Nigeria is significant. Thus, we reject our null hypothesis and accept our alternative hypothesis that there is a significant relationship between inflation rate and investment in Nigeria. This goes to say that in order to maintain an increase in the level of domestic investment the government needs to check the inflationary trends in Nigeria.

Key Findings

The findings are presented thus:

* The study found that that there seems to be a significant relationship between domestic private investment and selected macroeconomic variables . In short, Private domestic investment depends strongly on changes in GDSA, BMOS, RGDP, PLER, and INFR

* The unit root test results revealed that each of the variables of the variables under investigations are stationary at 5% level of significance. That is the variables have constant mean and variance between 1990 –2020 in Nigeria. The results provided an evidence of Stationarity of series in a linear combination of 1(0) and 1(1), thereby the researcher proceeds to co-integration . Also the OLS results estimates revealed that the coefficient of determination R^2 , coefficient of correlation Adjusted R^2 , the Dw stat, P-values of F-stat are found to be a good model fit estimation as their results proved significance in the analysis.

*Importantly, the variation in rate of change in macro-economic determinants did strongly explain the variation in domestic private investment in Nigeria. The result revealed that Gross domestic savings, Broad money supply, and Real gross domestic product have positive and significant effect on domestic private investment in Nigeria. However, Prime Lending rate and Inflation Rate have negative but significant effect on private domestic investment in Nigeria

CONCLUSION AND POLICY RECOMMENDATIONS

This study econometrically analyzed key determinants of domestic private investment in Nigeria over the period of 1990-2020. The empirical findings have some serious policy implementation, relevant in the growth and development of the investment in developing nations. For the Nigerian economy to break away from its current level of under- development and multi –dimensional poverty, policy makers must recognize the importance of these variables: gross domestic savings, broad money supply, real gross domestic product, prime lending rate, and inflation rate in influencing domestic private investment. This is because adequate management and mobilization of these variables can bring about productive investment needed for the nation’s current economic development.

Recommendation

1. Government should create enabling an environment for domestic investment to rise through the adoption of macroeconomic policies that will boost investment opportunities in Nigeria.
2. Government should adopt both expansionary and contractionary monetary, policies should to regulate money supply which will help control inflationary and deflationary pressure.
3. Government should increase on capital expenditure than recurrent expenditure because capital expenditure increases investment and they should be increase in line with trade openness theory allowing the borders to be open where foreign investors can come and invest which will have a great impact on Nigerian economy.
4. The Nigerian government must be resolute in their resolve to drive private domestic investment in the country by implementing appropriate monetary and fiscal policies that address inflation, interest rate, domestic savings and money supply. This will no doubt fast track inclusive growth.

Contribution to Knowledge

The study contributed to existing body of knowledge in the following areas:

1. The study was able to modify the model and expanded the existing literature and updated data that will enable researchers and scholars to use it for further studies. Hence, from the results this study has also contributed to knowledge by discovering those factors which affect investment in Nigeria.
2. The study evolved a predictive model that would be helpful for empirical investigation

$$PIMV = 11.63177 + 0.000244GDSA + 0.552656BM0S + 4.843186GDP - 4.855989PLER - 0.0616061NFR + \mu_{it}$$

Suggestion for Further Studies

1. Further studies should develop dynamic approach to the determinants of investment. This will take care of hiatus of time and .research should involve cross country analysis.
2. Finally, the study suggests that the period should be 1980-2018 to accommodate the 1986 financial liberalization era in Nigeria

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